Spring 4-23-2021

DNP FINAL REPORT: The Impact of Mindfulness Training on Stress, Burnout, and Mindfulness

Denise McNulty

Recommended Citation

McNulty, Denise, "DNP FINAL REPORT: The Impact of Mindfulness Training on Stress, Burnout, and Mindfulness" (2021). *DNP Final Reports.* Paper 19.

http://hdl.handle.net/10950/3667

DNP FINAL REPORT: THE IMPACT OF MINDFULNESS TRAINING ON STRESS,

BURNOUT, AND MINDFULNESS

by

DENISE STAGE MCNULTY, RN, MSN, MS-HSA, NPD-BC, NE-BC

A DNP Final Report submitted in partial fulfillment
of the requirements for the degree of
Doctor of Nursing Practice
School of Nursing

Colleen Marzilli, PhD, DNP, MBA, RN-BC, CCM, PHNA-BC, CNE, NEA-BC

Committee Chair

College of Nursing and Health Sciences

University of Texas at Tyler
May 2021

The University of Texas at Tyler
Tyler, Texas

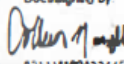This is to certify that the DNP Project Report of

DENISE STAGE MCNULTY

has been approved for the final project requirement on
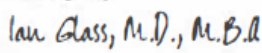
March 2, 2021

for the Doctor of Nursing Practice degree
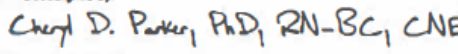
Approvals:
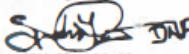
Faculty Mentor: Colleen Marzilli
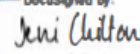
Industry Mentor: Ian Glass, M.D., M.B.A.

Committee Member: Cheryl D. Parker, PhD, RN-BC, CNE

DNP Program Director: Sandra Petersen, DNP, APRN

Executive Director of the School of Nursing: Jennifer Chilton, Ph.D., R.N.

Dean, College of Nursing and Health Sciences: Barbara Haas, Ph.D., R.N.

Acknowledgments

The successful completion of this scholarly project would not have been possible without the support and guidance from many people. First, I would like to acknowledge the graduate nursing faculty of The University of Texas at Tyler for their continued assistance and strengths-based leadership throughout the doctoral program, especially Colleen Marzilli, PhD, DNP, MBA, RN-BC, CCM, PHNA-BC, CNE. Dr. Marzilli's direction, encouragement, and belief in my success enabled me to overcome the challenges of pursuing a terminal nursing degree and my nursing career.

The sponsorship of Robert A. Phillips, MD, PhD, FACC, Professor of Cardiology, Executive VP, Chief Physician Executive and Dr. Ian Glass, MD, MBA, Chief Quality Officer, Adjunct Medical Faculty as my industry mentors provided the necessary resources to implement this project. Stephanie Jones-Wood, MPH, served an integral role in coordinating the contracts and training with the mindfulness trainers, Rebecca Eldridge and Margaret Fletcher, without whom the integration of mindfulness training into the nurse residency program would not have been as effective.

I also want to recognize the hard work and dedication of the nurse residency coordinators. Their commitment to the new nurses during the COVID-19 health emergency ensured that the implementation proceeded. Carol LaMonica-Way, MSN, RNC-OB, and Jo-Anne Senneff, MSN, CCRN-K, adjusted the training sessions and technical support for a virtual delivery platform. Jo-Anne provided the data from the Casey-Fink data bank, which will be used to monitor the perceived stress for new nurses as we advance.

Dedication

This scholarly project is dedicated to all the clinicians providing care to the communities. Providing health care on the frontlines is not easy under the best of circumstances, and the COVID-19 health emergency has only exacerbated the stress, anxiety, and moral distress faced daily. Health care providers need more than recognition as heroes; they need support dispelling the enculturation of caring for others at the expense of caring for themselves. Clinicians need a culture that encourages self-care and self-compassion, enabling them to care for others. Without oil in the lamp, it cannot burn brightly and lead the way.

Table of Contents

List of Tables

List of Figures and Forms

Abstract

DNP FINAL REPORT: THE IMPACT OF MINDFULNESS TRAINING ON STRESS,
BURNOUT, AND MINDFULNESS

DENISE STAGE MCNULTY, RN, MSN, MS-HSA, NPD-BC, NE-BC

DNP Project Team Chair: Colleen Marzilli, PhD, DNP, MBA, RN-BC, CCM, PHNA-BC, CNE,
NEA-BC

The University of Texas at Tyler

May 2021

Stress and burnout are endemic in the health care profession, and the transition to practice is

associated with even more stress and anxiety for new graduate nurses (Boehm & Tse, 2013).

Researchers have demonstrated that mindfulness-based interventions mitigate stress and burnout

and improve the workplace environment and patient outcomes (Perla et al., 2017; van den Riet et

al., 2018). This scholarly evidence-based practice project assessed the impact of integrating

mindfulness training into an existing nurse residency program. The team measured burnout,

stress, and mindfulness via an online survey at the beginning of the February 2020 residency

cohort with repeat measures at three and six months. The outcome measures were analyzed,

comparing the means and standard deviations from control and intervention cohorts using

unpaired *t*-tests assuming unequal variances. Pre-program, there was no statistically significant

difference between cohorts' stress, burnout, and mindfulness scores, and, as anticipated, the

stress and burnout scores increased for both cohorts at six months. However, the mindfulness scores decreased in both the intervention and comparison cohorts. The intervention cohort reported significantly less burnout and stress and increased mindfulness than the comparison cohort at six months. Given the COVID-19 pandemic, this was a timely intervention associated with reduced stress and burnout for this population while lessening the decrease in mindfulness compared to the non-intervention group. Therefore, mindfulness training was fully integrated into the nurse residency program for future cohorts and added to other curricula.

Chapter 1 Development of the Clinical Question and Problem Identification

The health care community has issued calls to action to decrease burnout and enhance the well-being of clinicians by providing training and addressing other organizational issues to mitigate the stress, compassion fatigue, and burnout that health care providers (HCPs) experience (Moss et al., 2016; National Academies of Science, Engineering, and Medicine [NASEM], 2019). Lyndon (2016) estimated that the prevalence of burnout is as high as 70% in nurses, and over 50% in physicians, advanced practice nurses, and physician assistants. According to the American Association of Critical-Care Nurses (AACN, 2016), unhealthy work environments are associated with stress, anxiety, and burnout, and these factors negatively impact interpersonal relationships, team effectiveness, retention, and patient outcomes.

The COVID-19 pandemic has heightened the burden of frontline health care providers who risk not only exposure to the virus but also a deleterious impact on their mental health and well-being as they face grief, uncertainty, and a lack of resources (Dzau et al., 2020; Simon et al., 2020). Unfortunately, excessive stress and burnout can result in major depressive disorders and, ultimately, suicide, which have increased during the COVID-19 pandemic (Czeisler et al., 2020; Dzau et al., 2020).

In a study conducted at the CDC, 26.3% of the participants surveyed ($n = 5412$) stated that they were experiencing stress- or trauma-related disorders related to the pandemic, and 10.7% indicated they had seriously considered suicide in the 30 days before the survey (Czeisler, 2020). The percentages were significantly higher for essential workers, such as HCPs. One well-publicized case was the death of a prominent emergency medicine physician in New York City who committed suicide after providing care to patients with SARS-CoV-2 while recovering from

the disease herself (Dzau et al., 2020). The nation needs a strategy to protect the health care workforce.

Background and Significance

This high incidence of stress, anxiety, and burnout can result in low engagement, decreased compassion, diminished patient safety, and increased health care provider injuries (Bridgeman et al., 2018; Lucien Leape Institute, 2013; Rushton et al., 2015). The rate of injuries in health care is 30% higher than in other industries. Almost a third of health care workers experience musculoskeletal injuries, and many more suffer accidental exposures to blood and body fluids (Lucien Leape Institute, 2013).

Burnout poses a potential safety threat to patients as well as health professionals. Clinicians with higher emotional exhaustion, a key indicator of burnout, have increased mortality rates, and clinicians with burnout have rated themselves lower in safety related to impaired attention, memory, and executive function (Welp et al., 2015). This current complex and competitive health care climate bears a work environment where professionals are unduly taxed, do not feel safe, and may not be capable of providing high-quality patient care.

In their seminal work, Maslach & Jackson conceptually defined burnout as "a syndrome of emotional exhaustion and cynicism that frequently occurs among individuals who do 'people work' of some kind" (1981, p. 99), involving emotional exhaustion, depersonalization, and a decreased sense of personal accomplishment. Burnout negatively impacts health care professionals, causing fatigue, disengagement, and ineffective therapeutic relationships. Defining attributes of burnout include perceived excessive workload or demand, stress, inter- or intrapersonal conflict, and lack of job and personal resources, which results in exhaustion,

disengagement from work, poor performance, and lack of compassion (Bakker & Costa, 2014; Bridgeman et al., 2018; Gandi et al., 2011).

Internal Evidence

In a 351-bed acute care hospital in the community employing over 800 nurses where the DNP student serves as a Professional Development Leader, stress and burnout are approaching epidemic status. Many conversations occur regarding the need to coach and mentor clinical nurses through their struggles, allowing them to decompress as tears are shed, which validates the level of burnout and stress among nurses. Frequently, nurses with varying levels of experience impartially confide their difficulty coping with and caring for patients in the fast-paced, acute care environment. For example, a nurse with one year of experience reported inconsistent support and excessive workload demands that frequently raise thoughts of leaving patient care. Additionally, during a research meeting, seasoned nurses with greater than five years of experience discussed their inability to process unfavorable outcomes as a "second victim" because of competing patient care demands. Whenever there is a serious safety event or adverse effect, there are two victims: the patient and the care provider (Lucian Leape Institute, 2013).

Additionally, 2019 satisfaction data indicated that the nurses and physicians might have been experiencing burnout and its negative consequences. Only 63% of nurses surveyed perceived that they had the resources needed to provide excellent patient care, and 70% of those surveyed felt that there was effective interprofessional communication within the organization (see Figures A1-A3). In a separate survey, the physician's survey scores for engagement and alignment dropped from the 85th to the 60th percentile and from the 90th to the 70th percentile,

respectively, contrary to the national trend that was increasing in both domains (see Figures A4 and A5).

Stress and emotional exhaustion may lead to increased errors and poor patient outcomes, which can only compound feelings of inadequacy and disengagement. The results of this disengagement and stress are demonstrated by increases in nursing attrition, absenteeism, and presenteeism (lack of productivity while on the job), which have a significant financial impact on the organization and the entire United States health care system. Substantial cost savings can also be achieved through improvement in productivity and engagement. Johnson et al. (2015) reported a 52% decrease in presenteeism by providing an 8-week mindfulness training program, which translated into a savings of $1,846 per employee.

Kovner et al. (2014) estimated a two-year turnover rate for new nurses of 33.5% nationally with a replacement cost for one clinical nurse at approximately $88,000. For a 350-bed hospital, a modest 2% decrease in nursing turnover equates to at least $1.5 million saved. The project's organizational setting experienced an increased nursing turnover rate from 13.25% in 2017 to the current annualized rate of 17.22% in 2019 (see Figure A6), which is above the national benchmark of 15.9% (Nursing Solutions, Inc., 2020). Moreover, the new nurse turnover rate (nurses who leave employment within the first year of hire) in 2019 also increase to 11.38%. The internal and external evidence support taking aggressive action to decrease stress and burnout at this institution.

External Evidence

Researchers demonstrated that increasing mindfulness and resilience could mitigate stress and burnout, limit the adverse sequelae, and improve the workplace environment and patient outcomes (Gilmartin et al., 2017; Perlo et al., 2017; van den Riet et al., 2018). Additionally,

resiliency training increased mindfulness, self-efficacy, and positivity (Reivich & Shatte', 2003). Van der Riet et al. (2018) reported that mindfulness meditation practices positively impacted stress, anxiety, burnout, well-being, and empathy in nursing students and clinical nurses. Resilience and mindfulness were positively associated with engagement, compassion, and patient satisfaction (Perlo et al., 2017). Gilmartin et al. (2018) associated brief mindfulness practices with favorable changes in stress, anxiety, burnout, and resilience in acute care providers.

Despite the efforts of the AACN, the Lucian Leape Institute, and the Institute for Healthcare Improvement to encourage healthy workplace environments, stress and burnout in health care still occur at an alarming rate. The negative association between burnout and resilience is strong (Rushton et al., 2015). To better care for their patients, clinicians require knowledge and skills to build mindfulness and resiliency. Providing a mindfulness training program must be an executive priority as part of a multifaceted plan to create a culture of safety that fosters engagement, productivity, and improved patient outcomes.

Implementation of evidence-based practice (EBP) to improve mindfulness and resilience can create a more engaged and joyful workplace environment. "The gifts of hope, confidence, and safety that health care should offer patients and families can only come from a workforce that feels hopeful, confident and safe" (Perla et al., 2017, p. 4). The current health care environment is complex, unsure, and ever-changing, and it can foster burnout that depletes professionals of hope and self-efficacy (AACN, 2016). By building their resiliency, positivity, and self-efficacy, nurses can transcend burnout, promote well-being, and create an environment of caring and safety for patients and families (Rushton et al., 2015; Reivich & Shatte', 2003). Mindfulness and resiliency are likely to lead to a more engaged nurse and, therefore, increasing retention, improving patient care, and decreasing costs.

Development of the Clinical Question and Problem

Based on the endemic presence of burnout in HCPs and the demonstrated positive impact of mindfulness and resilience, the question arises: For health care providers in the acute care setting (P), how does mindfulness and resiliency training (I) compare to no mindfulness and resiliency training (C) affect stress (O^1), anxiety(O^2), burnout(O^3), engagement(O^4), and patient outcomes (O^5) over 90 days (T)? Stating this question enables one to guide practice change through a structured, EBP process.

Chapter 2 Evidence Synthesis and Models

Systematic Search for Evidence Process and Results

Using terms guided by the PICOT question, a comprehensive search of the literature

identified studies involving interventions that predicted or correlated with decreased burnout in

HCPs as well as decreased adverse patient outcomes. The databases searched included the

Cumulative Index to Nursing and Allied Health Literature (CINAHL), Pubmed, and the

Cochrane Database of Systematic Reviews (see Figures B1-3). The keywords searched consisted

of *burnout*, *anxiety*, *stress*, *errors, mindfulness*, *resilience*, and *health care providers*.

Synonyms, subject heading indexes, MeSH terms, and Boolean connectors were

employed as appropriate to increase the rigor and probability of capturing all relevant evidence.

The same word combinations and search strategies were applied across the databases. Manually

searching the references of appraised articles was also incorporated to find the best available

evidence. Limiters included English and peer-reviewed articles and excluded studies involving

only students and practice settings other than acute care. Inclusion criteria encompassed

mindfulness interventions involving HCPs in the acute care setting and studies published after

January 1, 2014. See Figure B4 for the search study selection process.

The search of the three databases and manual review of references resulted in 287

articles, of which 68 were excluded applying the limiters and inclusion criteria of English

language, peer review, and publication after 2014. Upon further reviewing the abstracts, only 39

articles met the inclusion and exclusion criteria. The author eliminated 27 additional documents

based on the PICOT question's applicability, population, intervention, and outcomes. The search

and appraisal yielded several studies that did not meet the inclusion criteria. Still, they provided

evidence highlighting the clinical question's background and significance, leaving only 12

articles for full critical appraisal.

Critical Appraisal

The literature's critical appraisal is an essential means of stratifying the value of the

available evidence in answering the clinical question. This rigorous process involves assessing

the study design's hierarchal level and its validity and reliability (Melnyk & Fineout-Overholt,

2019). To best inform clinical decision-making, the author performed a rapid critical appraisal

(RCA) using a general appraisal overview tool and a design-specific RCA tool outlined by

O'Mathuna and Fineout-Overholt (2019). The detailed results of this study selection process are

summarized in Figure B4. After the critical appraisal, 12 articles met the search criteria for

inclusion in the evaluation table (see Table C1). Of these 12 "keeper" studies, six were higher-

level evidence (a systematic review and controlled trials), and six were considered lower-level

support (descriptive and qualitative studies) for the implementation of EBP that involves an

intervention (see Tables C2 and C3).

Evaluation

The author retained the 12 studies that best addressed the PICOT question for further

evaluation. Pertinent information was extracted into the evaluation table to guide the synthesis of

study methods, populations, settings, interventions, outcomes, statistics, findings, bias,

limitations, and value to practice (see Table C1). The population and setting, as directed by the

clinical question, are HCPs in the acute-care setting. The 12 studies had samples of active HCPs.

Three of the higher-level studies included only physicians, six studies included only nurses (two

of which included only new graduate nurses), and two studies included students in their samples.

Similarly, all 12 studies contained subjects from the acute care setting, but two of those studies

also included various inpatient and outpatient settings. The sample size among studies varied greatly ($n = 10$ to $n = 524$). For a detailed summary of the population and setting, refer to Table C3. Overall, the population and settings were reflective of the population stated in the clinical question.

Synthesis

The literature interventions were very heterogeneous (see Table C4), limiting the ability to determine which interventions are most effective. All 12 studies included mindfulness-based interventions (MIs) such as meditation, small groups, body scan, yoga, controlled breathing, reflection, and mindfulness-based stress reduction (MBSR) as the independent variable. The most common intervention was MBSR ($n = 5$), mixed MIs ($n = 9$), and meditation ($n = 3$). Stress management ($n = 2$), yoga ($n = 3$), resiliency training ($n = 2$), and self-care ($n = 3$) were evaluated less frequently as the independent variables, with resiliency training and self-care the only two non-MIs included in the studies. Although some consider resiliency training and self-care to be MIs, others consider both independent attributes to thwart stress and burnout (Brown et al., 2018; van der Riet et al., 2018). There was consensus across studies that the MIs and resiliency training interventions were feasible and cost-effective to implement in the acute care setting (Amutio et al., 2014; Johnson et al., 2015; West et al., 2016).

The effectiveness of these interventions in decreasing stress, anxiety, and burnout was evident in the synthesized literature (see Table C5). In eight out of nine studies that evaluated the impact of the interventions on stress, there was a statistically significant decrease in stress. The most effective interventions for reducing stress were MIs, MBSR, stress management, resiliency training. Burnout or two of its components, including emotional exhaustion and depersonalization, were significantly decreased in nine out of ten studies, and anxiety decreased

9

in all five of five analyses. The most effective interventions for burnout, its components, and anxiety were MIs, MBSR, and stress management.

West et al. (2016) and Amutio et al. (2014) demonstrated that MIs, MBSR, and stress management were also effective means of enhancing mindfulness, engagement, and relaxation. These study outcomes were sustained or improved for up to a year. Maintaining the results of mindfulness, attention, relaxation, and decreased perceived stress and burnout, is vital in creating a healthy environment for meaningful work and patient safety.

The duration of the interventions varied across studies (see Table C3). Intervention and follow-up duration spanned from a one-time intervention to a year. Amutio et al. (2014) implemented an 8-week MBSR program that effectively enhanced mindfulness, relaxation, and lower heart rate over a year with continued mindfulness practice. Johnson et al. (2015) demonstrated a significant ($P \leq .01$) decrease in depression, trait anxiety, stress, and presenteeism with an 8-week resiliency training program. Furthermore, a one-time MI reduced stress and was perceived as beneficial to participants (Farina et al., 2018). Most studies had a 56- to 90-day time frame to follow participants after MI. Thus far, the evidence does not strongly correlate with patient safety, yet clinicians who are more attentive and "in the moment" suffer from less emotional exhaustion and depersonalization, and therefore are expected to provide better care. By building mindfulness, resiliency, positivity, and self-efficacy, clinicians can promote well-being and create an environment of caring and safety for patients and families (Amutio et al., 2015; Gilmartin et al., 2017; Reivich & Shatte', 2003; Rushton et al., 2018).

Recommendation

Based on the evidence presented in the synthesis above, leaders in acute care environments should offer a multidimensional mindfulness-based training program that includes

elements of MBSR. Therefore, the author implemented an evidence-based project to decrease stress and burnout and increase mindfulness, employing theoretical and conceptual models to ensure successful results. The theory of self-transcendence provided the conceptual framework for this project (see Appendix D), and the Iowa model of EBP (see Figure E1) and ADKAR (see Figure E2) models guided the implementation of mindfulness training in the nurse residency program before further spreading the practice.

Theoretical Framework

When implementing an evidence-based project, a theoretical framework guides the translation of evidence into practice (Reed & Shearer, 2018). The theoretical framework chosen for implementing mindfulness-based interventions to mitigate burnout in health care providers was Reed's theory of self-transcendence. This theory operates under the assumption that individuals co-exist with the environment. Although vulnerable, they are capable of transcending their awareness using internal and external resources for their well-being.

Originally developed to increase the understanding of well-being in older adults, this theory and its central concepts can be applied in other challenging life situations such as burnout (Reed, 2008). Reed (2008) identified three major concepts:

1) Self-transcendence – The developmental ability to "expand beyond self-boundaries" intrapersonally, interpersonally, temporally, and transpersonally resulting in an appreciation of self, the environment, and spirituality (p. 108).

2) Well-being – "the sense of feeling whole and healthy, in accord with one's own criteria for wholeness and health" (p. 108).

3) Vulnerability – an "awareness of personal mortality and the likelihood of experiencing difficult life events" (p. 108).

These concepts' relationship is nonlinear, mediated by many personal and contextual variables, and impacted by interventions that promote self-transcendence and, ultimately, well-being. Reed's early research, which involved seniors facing end-of-life issues and depression, demonstrated significant correlations between self-transcendence and positive mental health outcomes (Reed, 2008). Runquist and Reed (2007) studied variables related to well-being in homeless adults and found support for self-transcendence in promoting well-being in this vulnerable population through their analysis using multiple regression. Similarly, studies have shown positive correlations between self-transcendence and well-being in people with HIV/AIDS and people with breast cancer (Coward, 1995; Matthews & Cook, 2009).

Moreover, Coward (1996) found a positive relationship between self-transcendence and indicators of well-being in healthy adults aged 19 – 85, extending the theory's usefulness to a more general population. Self-transcendence has also been researched in nurses. Palmer et al. (2010) found a significant positive correlation between self-transcendence and work engagement, resulting in finding meaning by caring for others. Other researchers have found positive relationships between self-transcendence and coping strategies, compassion, resilience, and negative relationships between self-transcendence, burnout, and compassion fatigue (Johnson, 2015; Romeo-Ratcliff, 2014; Teixeira, 2008). There is clear support for using the theory of self-transcendence as a framework for implementing EBP in practice for various populations and care providers.

The theory of self-transcendence propositions that self-transcendence is a probabilistic indicator of well-being resulting from vulnerability related to expanding personal boundaries by connecting with self, others, meaning, and the environment (Runquist & Reed, 2007). This theory's concepts served as the framework for guiding the implementation of a multifaceted

training program that includes four one-hour training sessions based on the MBSR program's concepts to mitigate burnout in the acute care environment. See Appendix D for an explanatory depiction of the relationships between burnout and self-transcendence.

According to the American Association of Critical-Care Nurses (AACN, 2016), the current complex, unsure, and ever-changing health care environment leaves health care providers vulnerable to burnout that depletes providers of hope and self-efficacy. Burnout creates a persistent threat to the well-being of health care providers. The vulnerability to burnout is related to the individual and environmental factors of excess demand caused by perceived stress, conflict, and lack of intrapersonal, interpersonal, and organizational resources (Bakker & Costa, 2014; Gandi, Wai, Karick, & Dagona, 2011; Shaufeli, Leiter, & Maslach, 2008).

MIs can help HCPs mitigate burnout and enhance well-being (Gilmartin et al., 2017; van der Reit, Levett-Jones, & Aquino-Russel, 2018; West et al., 2014). Health care providers can implement these interventions at times of vulnerability to achieve self-transcendence and well-being by developing an awareness of self, others, the environment, and spirituality (Reed, 2008; White, 2014).

Mindfulness is an essential concept for health care providers that can promote well-being (White, 2014). It is defined as "the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment" (Kabat-Zinn, 2003, p. 145). Researchers have demonstrated MIs mitigate stress and burnout and improve the workplace environment (Gilmartin et al., 2017; van den Riet et al., 2018). Introducing mindfulness practices at the point of vulnerability will promote self-transcendence and well-being.

Evidence-Based Practice Model

Implementing and sustaining a change in practice can be daunting even when there is an ample body of evidence that supports the new approach. In selecting appropriate models for implementing evidence-based practice (EBP), one must consider the clinical significance of the practice change, the practice environment and resources available, the breadth of the evidence, the availability of clinical experts, and the preferences of those impacted by the modification (Buckwalter et al., 2017; Melnyk & Fineout-Overholt, 2019). The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care (Buckwalter et al., 2017) provides the guidance needed to address these concerns and is supported in the organization's professional practice model.

The Iowa Model of EBP (see Figure E1) is a practical tool that provides a stepwise algorithm for bedside nurses who demonstrate a spirit of inquiry and need a helpful and efficient method for improving nursing practice based on the available, best evidence (Buckwalter et al., 2017). The process starts with identifying an issue or opportunity, stating the question or purpose of the change, and asking the question, "Is this a priority?" If the answer is "yes," one must form a team with the appropriate stakeholders and then systematically search and appraise the body of evidence for interventions shown to address the problem. If there is sufficient evidence, the team designs a plan and pilots the proposed change, and if the evidence is inadequate, research may be needed. Upon completing the pilot, the team may adopt the practice, if successful, or re-evaluate alternative solutions. Once the practice change is adopted, there must be a systematic plan to sustain the intervention with the appropriate resources and monitoring to reinfuse the intervention when needed following change management theory.

Change Management Model

The DNP scholar should anticipate resistance and barriers to the proposed change and plan to mitigate resistance by gaining the stakeholders' buy-in and engagement (Dieckmann, 2016). Sirkin et al. (2005) reasoned that the project team must address the "hard" factors affecting change, including the time required, availability of human resources, and finances, before the softer aspects such as culture, leadership, and motivation. While the implementation plan can address the hard factors, change management theory helps address the more delicate elements that could influence the project implementation.

The use of the ADKAR Change Management Model (Hiatt, 2006) increases the likelihood of successfully implementing change. See Figure E2 for details of factors influencing each element of the ADKAR model. According to Hiatt (2006), change management involves developing *awareness* and building the *desire* to change, providing *knowledge* that creates the *ability* to change, and reinforcing elements required to maintain and sustain the change over time. Sustaining new practices requires both internal and external *reinforcement*, including association with progress or accomplishment, the absence of negative consequences, and an ongoing accountability system to support the change (Hiatt, 2006).

Additionally, change management involves five foundational tenets that build upon each other: 1) We change for a reason; 2) Organizational change requires individual change; 3) Organizational outcomes are the collective result of organizational change; 4) Change management involves managing the people side of change; 5) We apply change management to realize the benefits and desired outcomes (Hyatt & Creasy, 2012). Consequently, a change agent must meet the people side of change with information, rewards, and recognition while also taking corrective actions to fill gaps in performance throughout the process. A further search of

the literature helped define the needed change to practice and guide the implementation and change process.

Leadership Model

As a DNP scholar, leading in the dynamic and complex health care environment requires building relationships with interprofessional teams and integrating EBP processes with innovative thinking (Davidson, Weberg, Porter-O'Grady, & Malloch, 2017). An effective leader employs systems thinking and thought patterns that create meaning from various information sources and disparate points of view to make distinctions, organize things into systems, recognize relationships, and employ multiple perspectives (Cabrera, 2011). This creation of meaning, in turn, enables a leader to drive improvements by closing the research to practice gap with EBP implementations incorporating leadership skills, change management strategies, the EBP process, and logistics. Figure E3 depicts the integration of the Iowa model revised: evidence-based practice to promote excellence in health care, the ADKAR model for change, and a logic model with a leadership model that incorporates transformational and servant leadership styles.

The leader uses strategies dependent upon the leader's strengths, context criticality, and environment (Malloch & Porter-O'Grady, 2017). These factors determine the amount of control versus autonomy that is exerted or encouraged. Therefore, a flexible, strengths-based leadership model built on the servant and transformational leadership elements guided this project, incorporating change management strategies, the EBP process, and logistics. Leadership that promotes innovation is a cornerstone of the successful implementation of an EBP change. Positive, interdependent relationships are antecedents to creating an atmosphere of change and stability and, therefore, innovation success (Lalley & Clouthier, 2017).

16

Combining the elements of transformational (an inspirational vision, professional development, relationship building, and influence) and servant leadership (team-focus, empathy, support, and trust) allows for the needed flexibility related to the environment and criticality of the concepts at play (Malloch & Porter-O'Grady, 2017; Sfantou et al., 2017; Transtek, Hamilton, & Niles, 2014). Using this model, a leader can facilitate and manage change in an organization through influencing individuals using the ADKAR model (Hiatt, 2006). Furthermore, this flexible leadership model using metacognitive patterns supports using the Iowa model and the ADKAR model in conjunction with a logic model while allowing iterative feedback loops to manage the implementation (see Figure E3).

These models create a system of interrelated parts that, although they distinctly can stand alone, functioned to drive innovation and successful project implementation. That is, the leadership, EBP, change, and logic models could operate independently, but together, they formed unique relationships to potentiate innovation and success.

Chapter 3 Project Design and Methodology

The purpose of this evidence-based implementation was to determine if MIs, including

components of MBSR, mitigate burnout, stress, anxiety, and attrition in this health care setting,

as shown in the literature. The project team developed a logic model to ensure that all

stakeholders could understand the project steps and responsibilities (see Appendix F). Using the

aforementioned models, the implementation team developed a detailed implementation plan and

preset timeline (see Tables G 1 and G2) to guide the successful practice change. The involved

using a pre-/post quantitative design to compare a cohort receiving the standard nurse residency

curriculum to one receiving a curriculum that integrated mindfulness training.

Logic Model

A logic model, an essential part of the project planning process, was used to outline the

input, outputs, goals, measures, assumptions, and threats for success. Appendix F provides the

logic model's details and measurable goals for implementing mindfulness training in the nurse

residency program. In outlining the resources needed, such as paid employee time, audio-visual

aids, office supplies, space for training, and the details about stakeholders' activity, the team

created a tool that flowed naturally, benefited the implementation team, and encouraged

accountability.

Implementation Timeline

The project planning started in June of 2018 with entry into the DNP program at the

University of Texas at Tyler School of Nursing. See Tables G1 and G2 and Figure G3 for the

detailed project plan with milestones following the Iowa Model, timeline overview, and Gantt

chart. The first step was identifying a pressing issue in health care supported by both internal and

external data. In the case of burnout in health care, the triggering problem identified had a

national and organizational scope and impact as addressed in the background and significance. Burnout of both nurses and physicians is a national concern. The internal evidence was reflective of this trend: 1) Perceived ineffective interprofessional relationships; 2) Perceived lack of resources; 3) Decreased engagement and alignment; 4) increased nursing turnover. Upon synthesizing the significance and background evidence regarding burnout and the impact of mindfulness and resiliency training on this issue, the PICOT question was finalized.

Reducing clinician burnout was an organizational priority, so the next step was securing entity and system mentor support. The chief nursing officer and the chief executive officer agreed to support the project in December of 2018. In January of 2019, Ian Glass, MD, Chief Quality Officer, and Robert A. Phillips, MD, Ph.D., FACC, Executive VP, and the system Chief Physician Executive agreed to be the entity and system mentors, respectively, for the clinical lead. The strength of the internal and external evidence made securing support straightforward. The stakeholders formed the implementation team in January 2019, including the clinical lead, two lead residency coordinators, and the Program Director for Provider Engagement and Resiliency.

The initial comprehensive review and appraisal of the literature began in February of 2019 and continued until January 2020 as new information became available. The literature supports offering HCPs mindfulness training to decrease burnout and its deleterious sequelae. Prework for the implementation began in March 2019 by introducing mindfulness training throughout the system to create awareness and desire for MIs. The clinical project lead completed the education in MIs before the implementation start date in March of 2020 (see Figure 9 for the specific timeline for training implementation). The evaluation of the project began in July 2020 and continued until January of 2021. The team leads have presented the data

obtained from creating awareness and desire for mindfulness at a regional conference in October and November of 2019 and disseminated data from the project implementation in February of 2021.

Progress Markers

Planning is vital in the implantation of any project. Part of this planning includes touchpoints along the way to evaluate the progress, identify, anticipate, and adjust for new barriers to implementation, and to adjust the plan accordingly. The DNP curriculum includes checkpoints for the implementation project, and progress markers were followed throughout the project (see Table G1). Checkpoints occurred each month with the CFM and Program Director to ensure that training was completed and that coaches would be ready to assist with sustainability. Concurrently, monthly meetings took place with the residency program coordinators to explore the implementation plan to ensure adequate time and appropriate facilitation of MIs. During monthly checkpoints progress, the team identified and addressed any barriers. The team also ensured stakeholders were abreast of the project and that interest remained high.

The team participated in two critical checkpoints held one month before starting the fall cohort (September 2019) and one month before pilot implementation (January 2020). These checkpoints served to finalize the survey process to collect baseline data and evaluate any anticipated challenges or new evidence. The stakeholders addressed concerns related to the COVID-19 health emergency as they arose. The clinical lead sent the links for the preprogram surveys to the residency coordinator to disseminate to the New Graduate Nurse (NGN) pre-program and at three and six months.

Mindfulness training was initially scheduled for March, April, May, and June of 2020. However, the COVID-19 pandemic hit the area at the start of the winter residency cohort,

leading to the delayed implementation. The clinical lead facilitated two courses in April and one

each in May and June. The residency coordinators tracked attendance (68-99%), and the

participants and residency coordinators provided feedback during and after the courses. The

clinical lead continued to meet with key stakeholders and keep them informed of the project's

status.

Upon completing the implementation, the clinical lead evaluated the intervention data for

trends and achievement of objectives. Additionally, the NGNs submitted a program evaluation to

assess their subjective perception of the curriculum. The clinical lead and lead residency

coordinators collaborated on the MIs' effectiveness and decided to sustain the practice change.

Additionally, select questions from the CFGNES and turnover were assessed six months into the

project and used to evaluate the intervention over time. Once completed, the outcomes were

presented to internal stakeholders, including the industry mentors, residency coordinators, and

Chief Nursing Officers, to identify the steps to spread practice change and celebrate successes.

The clinical lead disseminated the results at the local and regional level related to building the

awareness and desire for mindfulness and has shared the findings from the full implementation

throughout 2021. Abstracts for dissemination were accepted at regional, national, global

conferences and submitted to peer-reviewed nursing journals for publication.

Description of Setting

This implementation took place in the acute care setting with participants from a non-

profit, multi-entity health care system in Houston, Texas, and the surrounding areas, both

metropolitan and suburban. This multi-entity health care system consists of seven acute-care

hospitals, one long-term acute care hospital, eight emergency care centers, and numerous other

specialty centers and physician organizations. In addition to the 350-bed hospital, the hospitals

directly involved in the implementation included one complex medical center and four other community-based hospitals ranging in size from 178 beds to just under 1,000 beds. The services offered at these comprehensive facilities include medical, surgical, obstetrical, critically ill, oncology, and emergency care.

Discussion of Current Process

The implementation studied offered a wellness program that included programs such as health screenings, fitness classes and facilities, weight-management, nutrition, disease-specific classes, massage therapy, smoking cessation, and limited stress management and mindfulness classes for all employed health care professionals in the organization. The stress management class consisted of a one-hour instruction to guided imagery and a 6-week program focused on positive psychology. The 4-week mindfulness class involved lying down on a provided yoga mat and listening to a recording of transcendental meditation with mantras in a dimly lit classroom. These courses varied per facility and were offered sporadically approximately three times a year with limited enrollment on a first-come, first-served basis. Despite having courses available for six years, turnover has increased, and engagement has decreased over the past year.

Population

The project hospitals' metropolitan area is large and growing. According to the US Census data (2018), the area population has grown to 2,325,502, with a population increase of 91,689 (3.9%) from 2017 to 2018. High school graduates comprise 80.5% of the population over 25 years of age, and 30.5% have a bachelor's degree or higher. Uninsured persons make up 22.1% of the population under 65 years of age, and the poverty rate is 15.9%. The health care industry employs the highest percentage of its residents (11%). The HCPs in this health care

system are mainly reflective of the general population. However, the rates of Hispanics, uninsured persons, and those living in poverty are lower in the HCP population.

Discussion of Culture

Census data reflects a more ethnically and culturally diverse population than in the rest of the state (US Census Bureau, 2018). Statistical Atlas (2018) reported that this geographic area is 41.4% Hispanic, 31.2% white, 18.9% black, 6.7% Asian, 1.3% mixed, and 0.4% other. Foreign-born persons and those that speak a language other than English at home make up 26% and 43.7% of the population, respectively (US Census Bureau, 2018). This population diversity is also reflected in the health care professionals employed in the project setting.

As stated in the project plan, cultural and language differences may present barriers in implementing MIs for acute care HCPs. The implementation required relationship building, collaboration, and consideration of the cultural implications of mindfulness practices themselves. Acute care HCPs are multicultural and benefit from a culturally-sensitive approach to delivering these interventions, especially if they are not acculturated or bicultural (Hall et al., 2011). Proulx et al. (2018) suggest that the foundations of trust, gratitude, and a beginner's mind as essential considerations to internalize specific characteristics as a means of increasing acceptance when introducing MI to American minority communities.

Fuchs et al. (2013) reported in their meta-analysis findings that while the literature supports the use and acceptance of MIs in underserved populations, more rigorous research is needed in this area. Indeed, mindfulness has different meanings in various contexts. The Westernized versions of MIs have minimized the practices' cultural and religious origins, making them more amenable to diverse cultures and populations while remaining suitable for Asian cultures (Hall et al., 2011; Kirmayer, 2015).

Stakeholders

Collaboration addressing the challenges in population health and sustainable change required relationship building and communication skills (Benjamin, 2016). To be a successful change agent, a DNP-prepared nurse leader leverages the relationships built to collaboratively identify the population's needs and choose the appropriate evidence-based alternatives to drive the desired change in health practices (Benjamin, 2016). Part of building those relationships is identifying the key stakeholder groups and forming an implementation team. Figure H1 depicts a stakeholder power/interest matrix representing the potential influence these stakeholders had on this project's outcomes.

The implementation team's active stakeholders included a nursing professional development specialist as the clinical lead, a program director as the liaison with the mindfulness subject matter experts, two residency program coordinators, and quality and patient safety executives to provide oversight and support. The organization's chief quality officer and chief nursing executive also backed the project (See Figures I1 and I2 for approval and support letters). Additionally, the organization maintained a contract with subject matter experts trained by the University of Massachusetts Center for Mindfulness in Medicine, Healthcare, and Society (CFM) to teach MIs. Other supportive stakeholders such as the chief executive officer, chief nursing officers, faculty, a member of the Institutional Review Board, and wellness program representatives were also identified to provide input for the implementation team activities as needed. By keeping all stakeholders informed, one augments an organizational climate that is "characterized by learning, open communication, supportive working relationships, and participative decision-making" (Gartner, 2013, p. 61), providing the antecedents for change readiness.

Barriers and Facilitators

When implementing an evidence-based practice program, one must consider the clinical significance of the practice change, the practice environment, resources available, the breadth of the evidence, the availability of clinical experts, and the preferences of those impacted (Buckwalter et al., 2017; Melnyk & Fineout-Overholt, 2019). Change can be difficult, but a change agent mitigates these challenges by gaining all stakeholders' trust and engagement and anticipating any barriers to the proposed innovation (Dieckmann, 2016).

A savvy health care leader uses change management theory to ease the transition and increase the chances of success. According to Dieckmann (2016), a significant challenge for programs' sustainability is failing to address the actual or potential barriers early in the implementation process. The obstacles for implementing MIs included both creating the ability to learn mindfulness-based skills and providing appropriate reinforcement to sustain the intervention in daily practice (Hiatt, 2016).

To create an ability for acute care practitioners to learn and practice mindfulness-based skills, the team provided participants the psychological and physical safety to facilitate the practice of purposeful attention with an awareness of the current moment without judgment (Kabat-Zinn, 2003) and the time to attend the courses. The training's physical space was accessible and comfortable, and the classes were offered at convenient times within the existing curriculum. Also, the course duration of one hour was feasible for the curriculum and supported by the literature. Although initially planned as in-person, presenter-led training, the COVID-19 pandemic coincided with the project implementation, necessitating a virtual delivery platform.

Additionally, barriers arise when creating sustainability of the practice of mindfulness. West et al. (2016) and Amutio et al. (2014) demonstrated that MIs effectively enhanced

mindfulness, engagement, and relaxation, which should give internal reinforcement to the participants. External support consisted of regular e-mail reminders sent to participants along with links to virtual formal mindfulness practices. The potential for the success of the implementation improved by addressing these anticipated barriers/concerns.

Participant Inclusion

To study the impact of MIs on the acute care health professionals, the stakeholders agreed that narrowing the focus for the initial implementation would eliminate some confounding variables (e.g., current wellness offerings) and help evaluate the intervention's effectiveness. The team decided to implement the MIs in the existing accredited nurse residency program. Research indicated that NGNs experience high degrees of personal stress and anxiety upon transitioning from academia to the work environment (Boehm & Tse, 2013; Casey et al., 2008). As a result, NGNs' attrition within their first two years of practice is reportedly as high as 35% (Kovner et al., 2014). Moreover, the NASEM (2019) recommended that health care systems address burnout in training or early in the clinician's career.

Dubois and Gonzalez (2018) and Kulka et al. (2018) reported that integrating mindfulness training into a transition-to-practice program helped NGNs cope with a new profession's stressors in the complex health care environment. Additionally, this subset of acute care HCPs was required to attend the residency program courses, which resulted in better attendance at the training. These NGNs transitioned to medical, critical care, emergency services, women's services, and surgical patient care areas.

Operational Models

Employing the Iowa Model for this scholarly project, the internal and external evidence stated above demonstrated an opportunity to decrease stress, burnout, and attrition while

enhancing HCP engagement, which is a priority in the complex health care environment. Improving the health care experience, public health, and efficiency required HCPs that were mindful and engaged. Using the PICOT question, the author was able to gather and synthesize research findings that support the implementation of MIs in decreasing stress, anxiety, and burnout, as well as enhancing engagement, productivity, and patient safety. Both the IRB nurse reviewer and academic faculty agreed that there was an ample evidence base for this scholarly project. Institutional review board approval was not required (see Figures J1 and 2).

The team developed an evidence-informed implementation plan for training the sample population of NGNs beginning in March of 2020. To create awareness and desire for implementing mindfulness-based practice, the clinical lead sent an informational email to the NGNs with their pre-implementation assessment survey. This email described the importance and benefits of MIs in creating resilience and improving nursing practice. During the first mindfulness class, the NGNs were reminded of these benefits and given additional information regarding stress and mitigating burnout.

The four, one-hour classes built on each other to provide the knowledge needed to engage in mindfulness practices and enhance their ability to apply mindful awareness and interventions in everyday practice. The weekly email reminders for home practice provided further coaching to improve their ability to integrate mindfulness practice into daily activities. Successful implementation was evaluated based on improvements in the stated outcome measures post-intervention, which guided adjustments to further sustainment and spread of the practice change. The team developed a sustainment and reinforcement plan based on these findings guided by change management theory. Lastly, all results have been compiled and analyzed for dissemination.

Data Management

Pre- and post-program outcome measures determined the success of this evidence-based project implementation. Sources for the data came from both existing data and subjective data from published and validated assessment tools. The specific outcomes for this project were nursing turnover rates, burnout, perceived stress, and mindfulness. Nursing turnover data were measured through human resources software, which reported monthly as an annualized rate. The team also utilized pre-existing data on select questions from the validated Casey-Fink Graduate Nurse Experience Survey (CFGNES) administered to the NGNs at the start of their residency and six months and 12 months into the program (Fink et al., 2008).

The implementation team used validated assessment tools reported in the literature to measure burnout, stress, and mindfulness. The Oldenburg Burnout Inventory (OLBI) (Demerouti, 2008) and Physician Work-Life Study's Single Item (Dolan et al., 2014) were used to measure burnout. The OLBI has reported reliability of 0.74 – 0.87 and a reliability correlation to the Maslach Burnout Inventory of greater than 0.70 (Halebesleben & Demerouti, 2005), and the Single Item has a correlation of 0.79, sensitivity of 83.2%, and specificity of 87.4% (Dolan et al., 2014). The 15-question Mindfulness Attention Awareness Scale (MAAS) developed by Brown and Ryan (2003) and the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983) were used to measure mindfulness and perceived stress, respectively. The MAAS has reported reliability of 0.81 (Brown & Ryan, 2003), and the PSS has a reliability coefficient alpha of .84 to .86 and validity of .85 (Cohen et al., 1983).

Additionally, data collected were compared to national benchmarks and standards, if available. These benchmarks and criteria are as follows:

- RN turnover national percentile rankings as reported by Nursing Solution Inc. (2020)

28

- RN national percentile rankings as reported by the CFGNES national database (Fink et al., 2008)

- Perceived Stress Scale published means and standard deviations (Cohen et al., 1983)

Final Budget

When implementing the evidence-based practice project, the implementation costs must be considered, including personnel and non-personnel expenses (Melnyk & Fineout-Overholt, 2019). The team estimated the implementation cost of integrating mindfulness training into the NRP at $47,412, consisting primarily of salary expenses for the implementation team and class time for the NGNs (see Appendix K for a detailed outline of the implementation costs for this project). Although the implementation team members were salaried and participated as part of their job without incurring additional salary costs, there was the opportunity cost of $21,982 for their time. The expense for newly licensed nurses' salaries of $24,921 also represented an opportunity cost since the mindfulness training was built into the residency program and replaced the required stress management courses. Additionally, the non-personnel costs included office supplies ($200), a portion of the mindfulness training contract ($309), and the use of classroom space that was already allocated for the existing residency program.

Budget Justification

The clinical lead followed the evidence-based practice model, performed the literature search, appraised the literature, and communicated effectively with all stakeholders and participants. The DNP candidate was optimally positioned to lead the project as it required systems thinking, leadership, and knowledge of evidence-based practice implementation. The program director optimized the relationship with the system executive sponsor, maintained the contract with the mindfulness trainers, and coordinated training. The clinical lead attended these

courses to gain the needed expertise in MIs. The program director and mindfulness trainers collaborated with the clinical lead to provide professional development contact hours and a platform for the subject matter experts' training. The residency coordinators organized the residency schedule for the MI to be added to the curriculum and ensure the physical space and virtual learning environment were conducive to mindfulness. The executive sponsor maintained oversight and secured the funding and support necessary to implement and sustain change in practice.

The contracted services from the mindfulness trainers, trained at the CFM, needed for this implementation were a small portion of the contract cost, which supported the entire system's training. Jon Kabat-Zinn is the Mindfulness-Based Stress Reduction Program (MBSR) creator and founder of the CFM, an industry leader for MIs. Researchers demonstrated that MBSR or its component negatively correlate with stress, anxiety, burnout, its elements of emotional exhaustion and depersonalization, and these are positively associated with mindfulness, relaxation, well-being, and engagement (Amutio et al., 2014; Gilmartin et al., 2017; van der Riet et al., 2018; West et al., 2016). Having experts train system staff and the clinical project lead assisted in the sustainability of the program.

The budget also included the NGNs' hourly cost of attending the training and providing handouts to reinforce the content. In the years following the implementation, the expense will decrease as the CFM contract will expire, and the program director will not have to coordinate training for the program trainers. Additionally, the time needed to oversee the program by the clinical lead and the coordination time for the residency coordinators will decrease to one percent of their work time. To justify incurring these costs, the team demonstrated improved outcomes and the effectiveness of the practice change.

Return on Investment

Burnout is positively associated with attrition, poor performance, and disengagement. The project setting reported an annualized turnover rate of 17.22% for all nurses and 11.38% for new nurses in 2019, representing an increase of 23% and 19% over two years, respectively. Nursing Solution Inc. (2020) estimated that hospitals could save an average of $306,400 annually with a one percent decrease in turnover. Additionally, disengagement correlates with lower productivity and patient satisfaction and increased workplace injuries (Perla et al., 2017). Therefore, improving the engagement and alignment scores would result in higher customer satisfaction scores with corresponding higher reimbursement for care and a decrease in costly injuries. In the private sector, Bostelmann (2016) demonstrated a 200% return on investment through increased engagement and leader trust index scores and decreased absenteeism after implementing an organization-wide mindfulness training program.

In the evidence, increased mindfulness resulted in enhanced patient safety and better-quality care. By building mindfulness, resiliency, positivity, and self-efficacy, clinicians promote well-being and create an environment of caring and safety for patients and families (Amutio et al., 2015; Gilmartin et al., 2017; Rushton et al., 2018). With the move to a pay-for-performance model by the Center for Medicare and Medicaid Services, decreasing errors and healthcare-acquired conditions leads to higher reimbursement for the organization and less litigation. By measuring the MIs' effectiveness in improving patient safety and reducing burnout and attrition, the team justified the project implementation costs.

Chapter 4 Project Implementation, Outcomes, Impact, and Results

The project lead collected baseline data from the fall cohort of the nurse residency program (NRP) from October 7, 2019, to November 19, 2019, and six-month data on May 12, 2020. The three-month survey was initiated in January and February 2020; however, amidst the confusion during the first wave of COVID-19 admissions, the team missed this data collection milestone. The implementation team set the project start date for March 4, 2020, with the nurse residency program's winter cohort. Unfortunately, this coincided with the COVID-19 pandemic reaching the United States, and the ensuing health emergency took precedence.

However, the team quickly realized that the uncertainty and ever-changing recommendations surrounding the pandemic magnified the NGNs' stress, anxiety, and fear. As a result, the implementation team decided to integrate mindfulness training into the nurse residency program via a virtual platform on April 14, 2020. Pre-data were collected from February 10, 2019, up to the first mindfulness training session. The first class introduced mindfulness training to the NGNs to create an awareness of the practice, and the clinical lead and NGNs discussed the mechanisms and benefits of practicing mindfulness. The NGNs participated in two brief anchoring MIs, which included awareness of breathing and visual focus. The participants were then instructed to practice mindful awareness with one daily activity and sent additional attention-to-breathing mindfulness videos for daily practice to create a desire for the change.

The clinical lead facilitated the second, third, and fourth mindfulness-based training on April 20, 2020, May 26, 2020, and June 23, 2020. These classes were designed to enhance the NGN's knowledge about and ability to practice MIs. During these courses, participants began the lessons as they reflected on and shared their experiences with MIs, listened to and discussed

didactic content, and participated in MIs. Table L1 outlines the specific content for each class. At the end of each class, the participants were asked to reflect on mindfulness, practice, or habitual thinking between courses. Throughout the six-month implementation, the clinical lead sent weekly email reminders to the NGNs to complete their assigned reflections and engage in MIs. The training dates and content developed before the undertaking were modified as the team remained flexible throughout the COVID-19 health emergency. The team modified the focus of the third and fourth courses to include more information on mindful self-compassion (Neff, 2003) and changing mental habits (Tran, 2012) based on the NGNs sharing feelings of inadequacy and self-doubt.

Lessons Learned and Solutions

With any project implementation, problems and missed opportunities arise. However, adhering to the EBP and change models and planning using logic models and a project plan with milestones increases the chances of success. The team did anticipate that the health care climate may change, but they could not have predicted a pandemic hitting the United States as the implementation was planned to begin. The breadth and complexity of this health emergency tested the team's plan but did not curtail it. The team had designed enough time and flexibility to meet the cohorts' stress management needs even when exacerbated by the fear and uncertainty surrounding COVID-19. Planning for possible barriers cannot be overlooked when planning a project. Although we did miss the three-month data collection milestones, the project was successfully implemented.

Preparing for sustainment and spread of practice change also drives successful change. The team's plan for sustainment could have involved more stakeholders throughout the project. Upon reflection, the team would have benefited from having wellness staff, spiritual care, and

social workers more integrally involved in the planning for spread. During implementation, the

Program Director scheduled mindfulness training at the same time the Wellness Program and

Spiritual Care staff began to offer additional mindfulness training. The COVID-19 pandemic

created a need for self-care and emotional support for the team to enhance resilience. These

departments had attended mindfulness training and jumped in to address the stress and moral

distress staff experienced. Combining efforts would have streamlined the planning and created a

more intentional curriculum for staff.

Although incredibly involved in the system plan for mindfulness training, the program

director was not integrally involved in the design to sustain the NGN training. The clinical lead

worked closely with the residency coordinators throughout that project. It was only after the

project was completed and the data was analyzed that the program director contacted the primary

residency coordinator to plan for training. Ensuring that all key stakeholders are kept abreast of

ongoing projects involves intentional sharing rather than making assumptions.

Data Collection

The clinical lead created an online questionnaire containing the Perceived Stress Scale

(PSS), Oldenburg Burnout Inventory (OBI), Physician Work-Life Study's Single Item

(PWLSSI), and Mindfulness Attention Awareness Scale (MAAS) through the Survey Monkey

platform. No identifying information was collected in the surveys, so the data was de-identified.

The questionnaire links were sent to the residency coordinators by the clinical lead for

distribution to the NGNs pre-program and at three and six months for the Fall 2019 comparison

cohort and the Winter 2020 intervention cohort. Due to the confusion and need to uptrain staff in

preparation for the COVID-19 pandemic, there was some miscommunication between the

clinical lead and the nurse residency coordinators, which created a missed opportunity to collect

three-month data from the Fall 2019 cohort. The pandemic activity also led to an extended collection timeframe for the Winter 2020 cohort pre-program data collection.

The Casey-Fink Graduate Nurse Experience Survey was completed by both cohorts preprogram and at six months. The residency coordinators administered the survey, with the results going directly to the Casey-Fink national database. Demographic data were collected through the Casey-Fink survey, as were the results of two selected questions related to stress ("I am experiencing stress in my personal life.") and overwhelm ("I feel overwhelmed by my patient care responsibilities and workload."). The lead residency coordinator extracted the demographic data and question results and shared them with the clinical lead for analysis.

Following the last class, the NGN were asked to scan a QR code and complete an anonymous program evaluation. The evaluation assessed their subjective perspective of obtaining the learning outcomes and objectives using a 4-point Likert scale (1 = *not at all* to 4 = *completely*). The NGN were also asked whether or not they intended to practice, and what barriers they believed would prevent practicing mindfulness.

Turnover data was available online and via monthly reports provided by the director of human resources as an annualized rate from the previous year for comparison. Additionally, nurse and new nurse turnover rates are separated from the overall turnover rates, which provided the data needed to evaluate an intervention's impact. Many factors impact nursing turnover but decreasing the turnover rate by even one percentage point reduces costs dramatically.

Data Analysis

This scholarly, evidence-based project examined whether MIs mitigate burnout, stress, anxiety, and attrition in this acute care setting. The team analyzed the project's effectiveness using the Statistical Package for the Social Sciences (SPSS) and Excel data analysis software to

evaluate the cohorts' demographic information and the impact of each outcome. That is, stress, burnout, and mindfulness were assessed independently and systematically. Means and standard deviations for each scale are reported at two (Fall 2019 cohort) or three (Winter 2020) time points (pre-test, mid-test, and post-test). For questions using previously established scales, Cronbach's alpha was calculated as a measure of internal consistency. A Cronbach's alpha of 0.8 indicates desirable internal reliability (Alexandrov et al., 2019).

Finally, the Fall 2019 control cohort was compared to the Winter 2020 intervention cohort at two different time points. The average pre- and post-program scores on the stress, burnout, and mindfulness scales for the Fall and Winter cohorts were compared using independent samples *t*-test. Mean pre-, and post-program scores on the two select CFNGES questions were also compared for the Fall and Winter cohorts using *t*-tests.

Demographic Characteristics

In the fall 2019 cohort, 61of 69 participants reported demographic information. The average age was 26.2 (*SD* = 6.55), and most NGNs were females (87%). Of the NGNs that reported their ethnicity (*n* = 58), the majority were Caucasian/white (51.7%), followed by Asian (19%), African American (15.5%), and Hispanic/Latino (13.8%). Consistent with hiring processes at most of the system's hospitals, all the NGNs had at least a baccalaureate degree.

In the Winter 2020 cohort, 131 (100%) participants provided demographic information. The average age was 27.16 (*SD* = 6.79). There were more females (82%) than males (18%). Of the NGNs that reported their ethnicity (*n* = 113), the majority were Caucasian/white (51.7%), followed by Hispanic/Latino (19.6%), Asian (18. 6%), and African American (12.4%). This cohort did have a small percentage of Associate Degree Nurses (12.2%), but 87.8% of the NGNs had Baccalaureate degrees. See Appendix M for a complete description and comparison of

participants' demographic information. Compared to the area's racial makeup, whites and Asians are over-represented, and Hispanic/Latinos were underrepresented in the NGN cohorts.

Outcomes

The evidence synthesis and resulting recommendation to provide MIs to acute care HCPs guided the following sections to determine if integrating mindfulness-based training into the nurse residency program mitigated burnout, stress, anxiety, and attrition in this health care setting. In the Fall 2019 cohort, 69 participants completed the initial survey, and 39 completed the post-program (six-month) survey. In the Winter 2020 cohort, 79 participated in pre-program data collection and completed the post-program (six-month) survey.

Perceived Stress

Participants' perceived stress was measured using the perceived stress scale (PSS). Participants responses on 10 items were coded as: 0 = never, 1 = almost never, 2 = sometimes, 3 = fairly often, 4 = very often. Additionally, items 4, 5, 7, and 8 were reverse coded. The sum of each item's responses was calculated for each participant for a total Perceived Stress Scale (PSS) Score. According to previously published data, scores ranging from 0 – 13 indicate low stress, scores ranging from 14-26 indicate moderate stress, and scores ranging from 27-40 indicate high perceived stress (Cohen et al., 1983). Internal reliability was assessed for each cohort at pre- and post-test using Cronbach's Alpha. It was determined that responses to pre- and post-test items had good to adequate internal reliability for both cohorts (see Table N1).

Additionally, NGNs in both cohorts were also surveyed using the CFGNES at the beginning of the NRP and six months. The two select questions relating to perceived stress and overwhelm were evaluated related to the NGNs' perceived stress and overwhelm. These

questions were compared for the Fall 2019 and Winter 2020 cohorts using means and standard deviations and national benchmarks (see Table N2).

Fall 2019 Cohort. Pre-program, the average PSS was calculated at 12.41 ($SD = 6.32$), indicating a low level of perceived stress among nurses in the nurse residency program. The average PSS score at post-program rose to 18.1 ($SD = 5.49$), indicating a moderate stress level. According to previously established norms, PSS scores generally increased from pre- to post-program, and participants' stress levels went from considerably low to moderate. Figure N1 displays pre- and post-program PSS scores for the Fall 2019 Cohort.

The average pre-program scores for the CFNGES were calculated at 2.15 ($SD = 0.48$) and 2.13 ($SD = 0.74$) for overwhelm and stress. Both scores fell below the national benchmark. At six months, the overwhelmed score increased to 2.24 ($SD = 0.79$), and the stress score increased to 2.52 ($SD = 0.83$), falling above the national benchmark's overwhelm score and equal to the benchmark's stress score. Table N2 represents a summary of these scores.

Winter 2020 Cohort. The average PSS score at pre-program was 10.85 ($SD = 6.11$). This score indicated a low level of perceived stress among nurses in the nurse residency program compared to previously published data. The average PSS score at post-program rose to 15.17 ($SD = 5.49$), indicating a moderate stress level. According to established norms, PSS scores increased from pre- to post-test, and participants' levels of stress went from considerably low to moderate. Figure 10 displays pre- and post-test PSS scores for the Winter 2020 Cohort.

The average pre-program scores for the CFNGES were calculated at 2.35 ($SD = 0.78$) and 2.12 ($SD = 0.97$) for overwhelm and stress. The Winter cohort's initial average score for overwhelm was well above the national benchmark, but the stress score was slightly below the benchmark. At six months, the overwhelmed score decreased to 2.23 ($SD = 0.78$), which was still

slightly over the national average. The stress score increased to 2.3 (*SD* = 0.86) at six months and

now fell well below the benchmark for six months and slightly below the initial national

benchmark.

Fall 2019 and Winter 2020 Comparison. Two separate independent samples t-tests

were conducted on Fall 2019 and Winter 2020 cohorts' pre- and post-program PSS scores.

There was no significant difference in the average PSS score between the Fall 2019 and Winter

2020 cohorts at pre-test, $t(146) = 1.523$, $p = .130$. There was a significant difference in PSS

scores between the Fall 2019 and Winter 2020 cohorts at post-test, $t(108) = 2.465$, $p = .015$. On

average, PSS scores were higher at post-test for the Fall 2019 cohort ($m = 18.10$, $SD = 5.49$)

compared to the Winter 2020 cohort ($m = 15.17$, $SD = 6.22$) (See Figure N1).

When the CFNGES overwhelm scores were compared between the Fall and Winter

cohorts, the Winter (intervention) cohort has a much higher overwhelm score pre-interventions

but had a slightly lower score than the Fall (comparison) cohort at six months (see Figure N2).

Additionally, there was essentially no difference between the two cohorts' stress scores at the

beginning of the residency, but the Winter cohort reported lower perceived stress at six months

(see Figure N3). The Winter cohort also reported less perceived stress than the national

benchmark.

Burnout

Participants' burnout was measured using the 16-question Oldenburg Burnout Inventory

(OBI). Responses were coded as: 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly

agree. Additionally, items 1, 5, 7, 10, 11, 12, 13, 14 were reverse coded. The OBI score was

calculated as the average of each item's responses (after reverse coding). According to

previously established norms, scores less than 1.62 indicate "low burnout." Scores ranging from

1.63 to 2.67 indicate "medium burnout." Scores greater than 2.68 imply "high burnout" (Delgadillo et al., 2018). Internal reliability was assessed for each cohort at pre-and post-test using Cronbach's Alpha. It was determined that responses to pre- and post-test items had good to adequate internal reliability for both cohorts (see Table N1).

The Physician Work-Life Study Single Item (PWLSSI) was also surveyed regarding burnout (Dolan et al., 2015). Participants were asked to rate their overall level of burnout, according to their definition. Responses are scored on a scale where:

1. "I enjoy my work. I have no symptoms of burnout."

2. "Occasionally I am under stress, and I don't always have as much energy as I used to, but I don't feel burned out."

3. "I am definitely burning out and have one or more symptoms of burnout."

4. "The symptoms of burnout that I am experiencing won't go away. I think about frustration at work a lot."

5. "I feel completely burned out and often wonder if I can go on. I am at the point where I may need some changes or ma need to seek some sort of help."

Fall 2019 Cohort. Pre-program, the average OBI score was 1.89 (*SD* = 0.37). This score indicated a moderate level of burnout nurses in the nurse residency program than previously published data. The average OBI score post-program was 2.43 (*SD* = 0.34), indicating a moderate burnout level. Figure N4 displays pre- and post-test OBI scores for the Fall 2019 Cohort.

Most respondents reported that they enjoyed their work and had no burnout symptoms (*n* = 44, 40.7%) or occasionally were under stress and lacked energy but did not feel burned out (*n* = 48, 44.4%). Fewer participants reported having definitive burnout (*n* = 14, 13.0%) or burnout

symptoms that would not go away ($n = 2$, 1.9%). Figure N5 displays the pre- and post-program results for the PWLSSI.

Winter 2020 Cohort. The average OBI score pre-program was 1.73 ($SD = 0.45$). This score indicated a moderate level of burnout nurses in the nurse residency program than previously published data. The average OBI score at post-program was 2.14 ($SD = 0.44$), indicating a moderate burnout level. Figure N4 displays pre- and post-program OBI scores for the Winter 2020 Cohort.

When surveyed using the PWLSSI, most respondents reported that they enjoyed their work and had no burnout symptoms ($n = 77$, 42.1%) or occasionally were under stress and lacked energy but did not feel burned out ($n = 89$, 48.6%). Fewer participants reported having definitive burnout ($n = 17$, 9.3%). See Figure N3 for the graphic representation.

Fall 2019 and Winter 2020 Comparison. Two separate independent samples t-tests were conducted on Fall 2019 and Winter 2020 cohorts' pre- and post-test OBI scores. There was a significant difference in the average OBI score at pre-test between the Fall 2019 and Winter 2020 cohorts, $t(146) = 2.367$, $p = .019$. On average, OBI scores were higher for the Fall 2019 cohort ($m = 1.89$, $SD = 0.37$) compared to the Winter 2020 cohort ($m = 1.73$, $SD = 0.43$). There was a significant difference in OBI scores between the Fall 2019 and Winter 2020 cohorts at post-program, $t(108) = 3.524$, $p = .001$. On average, OBI scores were higher at post-test for the Fall 2019 cohort ($m = 2.43$, $SD = 0.34$) compared to the Winter 2020 cohort ($m = 2.14$, $SD = 0.44$).

Furthermore, on the single-item burnout question, there was no significant difference at pre-test between the Fall 2019 and Winter 2020 cohorts, $t(142) = -0.069$, $p = .428$. However, there was a significant difference between the cohorts at post-test, $t(108) = 1.666$, $p = .0004$.

The Fall 2019 cohort experienced more burnout from work ($m = 2.31$, $SD = 1.34$) compared to the Winter 2020 cohort ($m = 1.94$, $SD = 1.20$).

Mindfulness

Participants' mindfulness was measured using the Mindful Attention Awareness Scale (MAAS). The MAAS scale included 15 items, coded as: 1 = Almost always, 2 = very frequently, 3 = somewhat frequently, 4 = somewhat infrequently, 5 = very infrequently, 6 = almost never. MAAS score was calculated by computing the mean of the 15 items. Higher scores reflect higher levels of dispositional mindfulness. Internal reliability was assessed for each cohort at pre- and post-test using Cronbach's Alpha. It was determined that responses to pre- and post-test items had adequate internal reliability for both cohorts (see Table N1).

Fall 2019 Cohort. The average MAAS score pre-program was 4.73 (sd = 0.76). The average MAAS score at post-test was 3.93 (sd = 0.88). Figure N6 displays pre- and post-test MAAS scores for the Fall 2019 Cohort. One additional question was used to assess mindfulness. Participants were asked how often they currently participate in formal mindfulness practices at post-test (see Table N3). Most participants either did not currently practice any ($n = 18$, 46.2%), or practiced once or twice per week ($n = 15$, 38.5%). Fewer participants practiced three or four times per week ($n = 4$, 10.3%), five or six times ($n = 1$, 2.6%), or seven times per week ($n = 1$, 2.6%).

Winter 2020 Cohort. The average MAAS score pre-program was 4.87 ($SD = 0.77$). The average MAAS score at post-test was 4.29 ($SD = 0.89$). Figure N6 displays pre- and post-test MAAS scores for the Winter 2020 Cohort. When asked how frequently they practiced mindfulness, most participants either did not currently practice ($n = 22$, 31.0%), or practiced once or twice per week ($n = 32$, 45.1%). Fewer participants practiced three or four times per

week ($n = 10$, 14.1%), five or six times ($n = 3$, 4.2%), or seven times per week ($n = 1$, 1.4%). This information is included in Table N3.

Fall 2019 and Winter 2020 Comparison. Two separate independent samples *t*-tests were conducted on Fall 2019 and Winter 2020 cohorts' pre- and post-test MAAS scores. Pre-program, there was no significant difference on the average MAAS score between the Fall 2019 and Winter 2020 cohorts, $t(146) = -1.072$, $p = .286$. At post-test, there was a significant difference on MAAS scores between the Fall 2019 and Winter 2020 cohorts, $t(107) = -2.078$, $p = .040$. On average, MAAS scores were lower at post-test for the Fall 2019 cohort ($m = 3.93$, $SD = 0.88$) compared to the Winter 2020 cohort ($m = 4.29$, $SD = 0.89$) (See Figure N6).

Course Evaluation

The NGNs completed a course evaluation after attending the fourth course in the mindfulness training. Of the NGNs that submitted the online survey ($n = 93$, 71%), 94% stated they met the learning outcome, and 88% said they intended to change their practice. The planned changes listed were engaging in mindfulness practices, using the centering exercises, practicing self-compassion, and decreasing negative self-talk. Stated barriers to change included being too busy, not having the time, not putting themselves first, and remembering to engage in mindfulness exercises. Comments and suggestions stated indicated that the courses provided excellent, timely information. Still, they noted that more mindfulness practices would have been beneficial, especially mindfulness in motion, and they would appreciate more time for interactions and examples. A detailed summary of the course evaluation is outlined in Table N4.

Turnover

Although many factors impact turnover in health care, the team also tracked the nurse and new nurse turnover rates before and during the implementation. Both rates for the

implementation setting had been increasing annually for the three years before the project began, but they decreased following the implementation period (see Figure N7).

Final Impact

Fall 2019 and Winter 2020 scores on the stress, burnout, and mindfulness scales were compared at pre-program and post-program (six months). Pre-program, there was no statistically significant difference between cohorts for the PSS, MAAS, or PWLSSI, while there was a statistically significant difference in the OBI scores. As predicted, stress and burnout did increase for both cohorts during the first six months of practice. However, there was a statistically significant difference between the Fall 2019 and Winter 2020 cohort in all three areas post-program. Perceived stress and burnout were higher for the Fall 2019 cohort compared to the Winter 2020 cohort. Finally, although mindfulness decreased in both cohorts, it was lower for the Fall 2019 cohort compared to the Winter 2020 cohort.

Additionally, the Winter cohort's initial CFGNES overwhelm score was much higher than both the Fall cohort and national benchmark scores. The post-program score dropped below the fall cohort and fell in line with the national benchmark at six months. The CFGNES stress scores increased for the Fall cohort, Winter cohort, and national comparison. Still, the Winter (intervention) cohort's average score only increased by 0.09 points while the Fall cohort and national comparison scores increased by 0.39 and 0.22 points, respectively. The results indicate that integrating mindfulness training into the NRP was associated with less stress and burnout for NGNs six months into their transition to practice. Moreover, the majority of the NGNs achieved the learning outcome and intended to practice mindfulness. There was a decrease in turnover rates during the implementation timeframe, which may be associated with the implementation.

Chapter 5 Project Sustainability, Conclusions, and Recommendations

Implications of Project Results

In the complex health care environment with epidemic HCP depression, burnout, and suicide, leaders must support their clinicians' well-being (Melnyk, 2020; NASEM, 2019).The integration of mindfulness training into the existing nurse residency produced outcomes in line with literature findings of decreased burnout and stress and enhanced mindfulness. The implementation setting's leadership has already committed to creating a more positive work environment and investing in mindfulness-based interventions for its HCPs. In comparing the intervention cohort and the comparison group, the outcomes data showed a statistical difference for all three outcomes measures. The intervention group reported less stress and burnout and more mindfulness. Based on this project's results, the team recommended the sustainment and spread of mindfulness training.

As a result, the system-wide policy for caregiver stress is being revised to reflect the need for mindfulness training and self-care. The policy will provide resources and guidance for HCPs to improve their resilience and mindfulness to decrease stress and burnout and, hopefully, reduce the stigma associate with behavioral and mental health. If the policy reflects that the need for self-care and stress management is expected, it can reflect an acceptance of and more positive appeal for such interventions. However, the organizational culture needs to engage in more methods to reduce and streamline administrative tasks involved in the HCP's workflow, allowing them to focus on the more meaningful work of caring for patients.

Sustainability Plan

Given that this implementation produced positive results despite the initial COVID-19 surge, the organization is interested in sustaining this education and teaching mindfulness-based

interventions throughout the system. Maintaining the benefits of integrating mindfulness training into the existing nurse residency program and making training available for all HCPs requires engagement and resources. The Chief Nursing Officers Council and the System Quality and Patient Safety executive approved investing in mindfulness and resiliency training upon hearing the evidence-based practice project results.

The internal and external evidence continues to indicate a need to decrease clinician burnout. Turnover rates across the organization and system are improving but remain above-stated goals. Nurse satisfaction with resources and communication/teamwork continues to trail other measures. The COVID-19 health emergency has exacerbated the amount of stress that clinicians are enduring, which has increased adverse mental and behavioral effects. As a result, the system is committed to supporting HCP mental and behavioral health through the Quality and patient safety Department.

The System Chief Quality and Patient Safety Executive and Program Director oversee and fund the initiatives supporting physicians and other HCPs' mental health, protecting them and the patient from the harmful effects of stress and burnout. The Program Director for Resiliency and Mindfulness coordinates mindfulness initiatives by maintaining training contracts, scheduling mindfulness coach training, and collaborating with the Wellness Program to ensure clinicians' well-being needs are intentionally met.

Organizational strategic goals aligned with the sustainment and spread of MBIs. They include achieving the 99th percentile in employee satisfaction, tier 1 employee engagement, decreasing employee turnover, fostering a healthy workplace environment, ranking first in the Vizient quality metrics, a 5-star CMS rating, and a LeapFrog A rating. All of these goals are

dependent on a resilient and engaged workforce. The leadership understands the impact of stress and burnout on engagement, quality, and safety and supports maintaining mindfulness training.

Additionally, the nurse residency coordinators are committed to offering all NGNs integrated mindfulness training. Two of the coordinators enrolled for mindfulness coach training for September 2021. Course evaluations are obtained for all nurse residency classes and will direct changes to the curriculum offers. The Program Director is committed to working with the coordinators and mindfulness trainers to ensure the program's sustainability.

The clinical lead works closely with the Program Director to recruit coaches and administer continuing education credit for courses. By providing both nursing contact hours and continuing medical education credits, the team hopes to stimulate attendance at offerings. The organization also invests in technology to offer Zoom and Teams Meetings supporting communication and education when social distancing or logistics prevent in-person meetings. The clinical lead sends weekly emails to nurse residents to provide tips and reminders for mindfulness practices and self-compassion.

The Program Director is the conduit between the residency coordinators, wellness program, and leadership. She oversees a repository for the training materials that easily accessible for the coaches and wellness staff and supports having engaged facilitators available to present courses virtually and in-person when possible.

The implementation team will continue to track outcome measures that consist of the selected CFNGES questions, course evaluations, annual HCP satisfaction and engagement surveys, and annualized turnover rates. The residency coordinators will monitor the CFNGES data and course evaluations to guide improvements in the training. This data is shared with the Chief Nursing Officer Council and the NRP accrediting body. The quality and patient safety

leadership and human resources administer and monitor the results of the satisfaction surveys. Annualized turnover data is collected and reported by human resources and is overseen by executive leadership. The results are shared with leaders who develop action plans based on those results.

Process measures such as course offerings, attendance, and evaluations will guide the curriculum's intentional spread. The program director and wellness program leadership collect and analyze the data, with the program director providing oversight and reporting to quality and patient safety executive leadership. In this way, mindfulness training will be intentionally spread and modified as needed.

Implications for HCPs

The COVID-19 pandemic has only heightened the burden placed on HCPs. Frellick (2020) found that RNs and advanced practice registered nurses (APRNs) reported that their burnout ratings increased up to four-fold six months into the pandemic. The survey results revealed that nurses felt COVID led to decreased satisfaction with their careers related to fear infecting their loved ones or themselves, discomfort with and lack of personal protective equipment, loss of income, and higher patient loads. Increased burnout and job dissatisfaction necessitate implementing the goals outlined in *Taking Action Against Clinician Burnout: A System Approach to Professional Well-Being* (NASEM, 2019). These goals recommend creating positive work environments, addressing burnout early in HCP careers and training, reducing non-patient-care tasks, optimizing technology, reducing the stigma surrounding burnout and recovery, and investing in research to enhance HCP well-being. Maintaining the integration of mindfulness training in the NRP and spreading mindfulness training to all HCPs will help meet the first two stated goals.

Key Lessons Learned

Lessons learned during this EBP implementation include the need for influence, flexibility, and innovation. The COVID-19 pandemic created challenges in implementing the scholarly project and has compelled the team to be more adaptive in education delivery to meet the social distancing restrictions. It has also forced HCPs to work as a team to overcome and support each other, which took advantage of mindfulness training to enhance self- and relation-management skills (Bradberry & Greaves, 2009; Tan, 2012). Creating an improved ability to respond purposefully helped to *influence* stakeholders and effectively problem solve. Addressing these challenges required EI and the ability to use all the information available to make the best decisions for the new graduates. Their stressors drove the need to move forward with implementing MIs into the curriculum, even in this unprecedented time. Mindfulness and resiliency became a priority in health care.

What started as a challenge became an opportunity. The data analysis revealed a significant difference between the intervention and comparison cohorts in the three outcome measures: perceived stress, burnout, and mindfulness. Given the voiced difficulties the NGNs were voicing, these improvements are impressive and essential. Some areas, however, needed improvement. The project moved to a virtual delivery and virtual platform to address social-distancing needs. The learning curve for both was challenging, and *flexibility* was key. Actively engaging teaching strategies changed as the program flexed from individual student log-on to group learning at several different locations. The second venue presented more difficulty with learner engagement, which will have to be addressed as we move forward. The use of the Zoom platform itself also offered opportunities to optimize its potential in learning.

49

The team did have to delay the start date and switch to a virtual delivery platform. After gaining a comfort level with the virtual platform, the project implementation went well. The pandemic created struggles for sustaining the mindfulness training. Health care workers need emotional support and resilience tools more than ever, but they are so overwhelmed that it is hard to add one more task to their already overflowing plates. The nurse residency coordinators had to cancel some classes to ensure enough nurses to care for the dramatic increase in critically ill patients. The residency coordinators and faculty have been pulled into staffing and have had to develop and provide courses to upskill the existing staff quickly. These factors combined to delay the full integration of mindfulness into the NRP curriculum. The team will have to find *innovative* ways to deliver the MIs in ways that do not further burden the HCPs.

Project Recommendations

As the implementation team moves forward with the spread of mindfulness training, they continue to use the iterative EBP process to build upon the successful implementation. The outcome and process measure will guide improvements to the courses and teaching strategies used. The core implementation team, which consisted of professional development practitioners, a program director, and mindfulness trainers with support from physician quality executives, will need to become more interprofessional. Wellness professionals, spiritual care staff, and social workers have the desire and ability to become mindfulness coaches and have provided mindfulness and stress management training for the organization. Bringing the interprofessional team together broadens the scope of spread and capitalize on subject matter experts to be more unified and intentional.

<h1 style="text-align:center">Chapter 6 DNP Practice-Scholar Role Actualization</h1>

<h2 style="text-align:center">Role Impact</h2>

The DNP journey provided opportunities for growth and increasing awareness of the integral role that graduates play in transforming health care and population health. The focus and continual reflection on strengths and emotional intelligence enhanced growth as a strengths-based leader by creating self-awareness. In turn, self-awareness has helped develop the personal and social skills needed to navigate the implementation of EBP and lead to the development of a spirit of inquiry (Bradberry & Greaves, 2009). Although there is interest in honing the overall emotional intelligence and strengths, it is thought that cultivating self-management and relationship management skills and the talents of maximizer and relator yielded great dividends as a practice leader.

The influencing strength of maximizer with its inherent need to nurture positive attributes identified in others has been beneficial as a change agent by exerting ethical influence and capitalizing on others' strengths. Similarly, cultivating the relationship-building strength of relator has helped as a leader, coach, and mentor. Deriving pleasure from working with people to achieve a common goal cements a collaborative team that can improve nursing practice and patient outcomes (Rath, 2007). Moreover, building trust, compassion, stability, and hope by using and sharing the DNP student's insights about strengths have impacted the implementation team's success. Relating to others in a safe environment has helped promote risk-taking and enact real change.

Developing emotional intelligence is essential for academic success, career, and the ability to lead change initiatives. Mastering personal competence and social competence has helped put others' emotions and emotions into perspective, serving as a guide for growth and

building relationships. The ability to diagnose and manage feelings and those of others results in realistic self-confidence, decreased stress, more effective communication, empathy, and effective conflict management (Bradberry & Greaves, 2009)

A practitioner that can master real-time stress management techniques such as purposeful breathing can bounce back quickly from multiple demands (Bradberry & Greaves, 2009). The practice of mindfulness has been a valuable tool in cultivating emotional intelligence and resiliency through changing neural activity and pathways (Tran, 2012). These skills are also essential for any health care leader. Empathetic and supportive health care leaders drive projects and change. Emotions and conflict are inevitable in the workplaces and on implementation teams; empathy and a strengths-based focus allow for successful management and an effective leader.

Key Takeaways

The past three years have presented many opportunities for me to reflect on innate talents and emotional intelligence (EI). The COVID-19 pandemic coincided with stepping down from a director role into a professional development leader position. This change provided much opportunity to hone learner, maximizer, intellection, and input talents into more effective strengths. As a learner and maximizer, the DNP student learned to temper continuous striving for improvement to realize that things are good enough (Rath, 2009). Accepting that the return on investment diminishes when perfection is the goal allows for efficient delivery of excellence.

Additionally, honing intellection, self-awareness, and relationship-awareness into strengths with meta-cognition has had great dividends. Mindfulness practices have expanded the DNP student's ability to accept all thoughts and emotions as information that guides purposeful responses (Tran, 2012). Learning to acknowledge thoughts and emotions has led to an enhanced

feeling of inner peace and the desire for happiness, including colleagues' happiness. Mindfulness practices and their study have improved EI and interactions with others. Additionally, the course work on politics and diplomacy provided excellent opportunities to ponder the application of EI principles.

The trajectory as a leader in health care has changed over this semester. Instead of looking for the next "title," there is a focus on opportunities for influence. Professional organization presence is a priority and indicated by attending more local meetings, engaging in letter-writing campaigns, and applying for national organization positions. Opportunities for entry into academia as an adjunct or full-time faculty are on the horizon. What better way to lead in nursing than to ensure nursing graduates' readiness for practice?

Literature Reviews

Before beginning the DNP journey, searching the literature using online library resources was a chore that did not produce the desired results. Even after attending a librarian-led course, googling to find abstracts provided a more effective literature search. Although this process proved more fruitful, it was not systematic nor comprehensive. The evidence-based practice focus of the DNP program opened a new door; searching the available evidence and retrieving relevant studies using the advanced search functions and search history is now a much more efficient process.

Although this may not seem profound at first glance, it has been a life-changer. The DNP student can now teach others this simplified approach to clinical nurses who have struggled with searching the literature. Even seasoned nursing professional development practitioners have an "ah-ha" moment when provided with instruction on performing a comprehensive literature search. For this reason, a recorded presentation of performing a quick literature search is now a

helpful tool on the nursing webpage for staff to review. This presentation is only five minutes in length, but the nurses have benefited from having it available. The DNP student now leads a subcommittee of the Research and Evidence-Based Practice (EBP) Council in developing a series of short, engaging presentations that describe the steps in the EBP. Quick response (QR) codes will be posted in all break rooms for easy access if staff have a few minutes to view them on their phones.

Concept Analysis

The ability to perform a concept analysis is crucial to solidifying definitions of key concepts when conducting research, implementing EBP, and developing models for practice (Walker & Avant, 2019). For the DNP Scholarly Project, this meant clearly defining burnout, mindfulness, and MBIs. Having a clear understanding of these concepts helped develop the implementation plan and the training to integrate into the nurse residency program. Concept analysis also requires identifying empirical referents, which translated into the outcome measures for the project.

Concept analysis does require the ability to perform a systematic review of the literature as well. Using the first two profound learnings helps the DNP student translate the evidence into practice and build a strong culture for EBP. Doctoral studies allow for developing tools to drive practice improvement, professional development, and the dissemination of both concept analyses and EBP results.

Project Management

Project management is a leadership skill that is not necessarily intuitive. The EBP process and the tools of metacognition, logic models, and sustainment plans are too often overlooked in project execution. A common phrase heard in health care is that the idea was great, but the

implementation was flawed. Upon reflection, the implementation was usually flawed because there was no plan for sustaining the practice improvement.

The DNP student interviewed for a couple of leadership positions in health care recently, and the questions centered on project planning and successful project implementation. During doctoral studies, the project management tools learned prepare a DNP student to lead successful projects and impact health care, increasing marketability.

Accomplishments Since Beginning the DNP Journey

- Manuscript peer-reviewed publication – Creating a Model for Mindfulness in Nursing Professional Development to the Journal for Nurses in Nursing Professional Development – March 2021

- Poster presentation at the Back to Science regional conference and oral presentation at the World Nursing Conference disseminating findings from the DNP scholarly project: The Impact of Mindfulness Training on Stress, Burnout, and Mindfulness During the First Six Months of Practice – February and October 2021

- Live, virtual presentation at Health Service Performance Improvement national conference. Presented findings from research: Evaluating the Effectiveness of Virtual Mindfulness-Based Stress Reduction – February 2021

- Completion of a research study as a co-investigator

- Houston Methodist System Quality and Patient Safety Award: Mindfulness Ambassador – November 2020

- Abstracts Accepted for Region Research & EBP and Shared Governance and National IHI and AHA Conferences 2019 – "The Impact of Creating Awareness and Desire for Mindfulness"

- Selected to serve on the TNA Nursing Professional Development Committee – 2019-2020

Summary

The current health emergency has forced everyone to be more flexible in education delivery to maintain safety. It has also forced HCPs to work together to adapt and overcome. Similarly, this DNP curriculum has caused the student to grow, become more flexible, and provide tools to support clinical staff. Developing mindfulness strategies has helped achieve growth and reflection through the doctoral studies process. Improving mindfulness leads to an ability to be in the moment and more aware of emotions and the emotions of others. Throughout this curriculum, reflecting on strengths and emotional intelligence has improved situational awareness and relationship management, creating a safe space for learning and professional growth.

The DNP student appreciates the UT Tyler faculty's support in meeting this professional goal and gaining confidence in disseminating knowledge through professional publication. It is time to risk failure by getting off the shore and into the surf to help transform health care and help grow the future of nursing. Therefore, the DNP student has submitted applications for adjunct faculty roles and has been more active in professional organizations. The future DNP leader will find a way to make a difference.

References

Advisory Board. (2019). *Annual turnover, vacancy, and premium labor benchmarks: Assess your turnover, vacancy, and premium labor performance.* https://www.advisory.com/Research/HR-Advancement-Center/Tools/2010/Human-Resources-Benchmarking-Initiative

American Association of Critical-Care Nurses. (2016). *AACN Standards for establishing and sustaining healthy work environments: A journey to excellence* (2nd ed.). https://www.aacn.org/~/media/aacn-website/nursing-excellence/standards/hwestandards

Alexander, G. K., Rollins, K., Walker, D., Wong, L., & Pennings, J. (2015). Yoga for self-care and burnout prevention among nurses. *Workplace Health & Safety, 63*(10), 462-470. https://doi.org/10.1177/2165079915596102

Alexandrov, A. W., Brewer, T. L., & Brewer, B. B. (2019). The role of outcomes and evidence-based quality improvement in enhancing and evaluating practice changes. In B. M. Melnyk & E. Fineout-Overholt (Eds), *Evidence-based practice in nursing and healthcare: A guide to best practice* (4th ed., 293-312). Wolters Kluwer.

Amutio, A., Martinez-Taboada, C., Hermosilla, D. & Delgado, L. C. (2015). Enhancing relaxation states and positive emotions in physicians through a mindfulness training program: A one-year study. *Psychology, Health & Medicine, 20*(6), 729-731. https://doi.org/10.1080/13548506.2014.986143

Bakker, A. B., & Costa, P. L. (2014). Chronic job burnout and daily functioning: A theoretical analysis. *Burnout Research,* 1, 112-119. https://doi.org/10.1016/j.burn.2014.04.003

Benjamin, B. A. (2016). Building relationships and engaging communities through collaboration.

In A. L. C. Curley & P. A. Vitale, (Eds.), *Population-based nursing: Concepts and competencies for advanced practice* (2nd ed., pp. 51-77). Springer Publishing.

Bradberry, T., & Geaves, J. (2009). *Emotional Intelligence 2.0.* TalentSmart.

Bridgeman, P. J., Bridgeman, M. B., & Barone, J. (2018). Burnout syndrome among healthcare professionals. *American Journal of Health-System Pharmacy, 75*(3), 147-152. https://doi.org/10.2146/ajhp170460

Boehm, L. B., & Tse, A. M. (2013). Application of guided imagery to facilitate the transition of new graduate Registered Nurses. *The Journal of Continuing Education in Nursing, 44*(3), 113-119. https://doi.org/10.3928/00220124-20130115-16

Bostelmann, P. (2016, December 21). *Mindfulness – The unexpected organizational revolution* [Video]. https://www.youtube.com/watch?v=wdqbSAWI2xM&t=175s

Brown, S., Whichello, R., & Price, S. (2018). The impact of resiliency on nurse burnout: An integrative literature review. *Medsurg Nursing, 27*(6), 349-378.

Buckwalter, K. C., Cullen, C., Hanrahan, K., Kluber, C., McCarthy, A. M., Rakel, B., Steelman, V., Tripp-Reimer, T., & Tucker, S. (2017). Iowa Model of Evidence-Based Practice: Revisions and validation. *Worldviews on Evidence-Based Nursing, 14*(3), 175-182. https://doi.org/10.1111/wvn.12223

Cabrera, D. (2011, December 6). How thinking works [Video]. https://www.youtube.com/watch?v=dUqRTWCdXt4

Coward, D. D. (1995). Lived experience of self-transcendence in women with AIDS. *Journal of Obstetric, Gynecologic, and Neonatal Nursing, 24*(4), 314-318. https://doi.org/10.1111/j.1552-6909.1995.tb02482.x

Coward, D. D. (1996). Self-transcendence and correlates in a healthy population. *Nursing*
Research, 45(2), 116-121. https://doi.org/10.1097/00006199-199603000-00011

Czeisler, M. É., Lane, R. I., Petrosky, E., Wiley, J. F., Christensen, A., Njai, R., Weaver, M.D.,
Robbins, R., Facer-Childs, E. R., Barger, L. K., Czeisler, C. A., Howard, M. E., &
Rajaratnam, S. M. W. (2020, June). Mental health, substance use, and suicidal ideation
during the COVID-19 pandemic: United States, June 24-30, 2020. *Morbidity & Mortality*
Weekly Report, *69*(32):1049-1057. http://dx.doi.org/10.15585/mmwr.mm6932a1

Davidson, S., Weberg, D., Porter-O'Grady, T., & Malloch, K. (2017). *Leadership for evidence-*
based innovation in nursing and health professions. Burlington, MA: Jones & Bartlett.

Delgadillo, J., Saxan, D., & Barkham, M. (2017). Associations between therapists' occupational
burnout and their patients' depression and anxiety treatment. *Depression and Anxiety,* 35,
844-850. https://doi.org/10.1002/da.22766

Demerouti, E. (2008). The Oldenburg Burnout Inventory: A good alternative to measure burnout
and engagement. In J. R. B. Halbesleben (Ed.), *Handbook of stress and burnout in Health*
care (pp. 65-78)*.* Nova Science. https://doi.org/10.1037/a0019408

Dieckmann, J. L. (2016). Challenges in program implementation. In A. L. C., Curley & P. A.
Vitale (Eds.), *Population-based nursing: Concepts and competencies for advanced*
practice (2nd Ed., pp. 256-259). Springer Publishing.

Dolan, E. D., Mohr, D., Lempa, M., Joos, S., Fihn, S. D., Nelson, K. M., & Helfrich, C. D.
(2015). Using a single item to measure burnout in primary care staff: A psychometric
evaluation. *Journal of General Internal Medicine*, *30*(5), 582–587.
https://doi.org/10.1007/s11606-014-3112-6

DuBois, C. A., & Zedreck Gonzalez, J. F. (2018). Implementing a resilience-promoting

education for new nursing graduates. *Journal for Nurses in Professional Development,*

34(5), 263-269. https://doi.org/10.1097/NND.0000000000000484

Duchemin, A., Steinberg, B. A., Marks, D. R., Vanover, K., & Klatt, A. (2016). A small

randomized pilot study of a workplace mindfulness-based intervention for surgical

intensive care unit personnel: Effects on salivary ɑ-amylase levels. *Journal of*

Occupational and Environmental Medicine, 57(4), 393-399.

https://doi.org/10.1097/JOM.0000000000000371

Dzau, V. J., Kirch, D., & Nasca, T. (2020). Preventing a parallel pandemic—A national strategy

to protect clinicians' well-being. *The New England Journal of Medicine, 383*(6), 513-515.

https://doi.org/10.1056/NEJMp2011027

Farina, S. M., Minerva, E., Glunt, J., & Bernardo, L. M. (2018). Introducing mindfulness

practices for self-care. *Journal for Nurses in Professional Development, 34*(4), 194-198.

https://doi.org/10.1097/NND.0000000000000456

Fink, R., Krugman, M., Casey, K., & Goode, C. (2008) The graduate nurses experience:

Qualitative residency program outcomes. *The Journal of Nursing Administration, 38*(7-

8), 341-348. https://doi.org/10.1097/01.NNA.0000323943.82016.48

Frellick, M. (2020, December 24). Nurse burnout has soared during the pandemic, survey shows.

Medscape. https://www.medscape.com/viewarticle/943091

Fuchs, C., Lee, J. K., Roemer, L., & Orsillo, S. M. (2013). Using mindfulness- and acceptance-

based treatments with clients from nondominant cultural and/or marginalized

backgrounds: Clinical considerations, meta-analysis findings, and introductions to the

special series. *Cognitive Behavioral Practice, 20*(1), 1-12.

https://doi.org/10.1016/j.cbpra.2011.12.004

Gandi, J. C., Wai, P. S., Karick, H., & Dagona, Z. K. (2011). The role of stress and level of

burnout in job performance among nurses. *Mental Health in Family Medicine*, *8*(3), 181-

194. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3314275/

Gartner, C. (2013). Enhancing readiness for change by enhancing mindfulness. *Journal of*

Change Management, 13(1), 52-68. https://doi.org/10.1080/14697017.2013.768433

Ghawadra, S. F., Abdullah, K. L., Choo, W. Y., & Phang, C. K. (2019). Mindfulness-based

stress reduction for psychological distress among nurses: A systematic review. *Journal of*

Clinical Nursing, 28, 3747-3758. https://doi.org/10.1111/jocn.14987

Gilmartin, H., Goyal, A., Hamati, M. C., Mann, J., Saint, S., & Chopra, V. (2017). Brief

mindfulness practices for healthcare providers: A systematic literature review. *American*

Journal of Medicine, 130(10), 219.e1-1219.e17.

https://doi.org/10.1016/j.amjmed.2017.05.041

Hall, G. C. N., Hong, J. J., Zane, N. W. S, & Meyer, O. L. (2011). Culturally-competent

treatments for Asian Americans: The relevance of mindfulness and acceptance-based

psychotherapies. *Clinical Psychology, 18*(3), 215-231. https://doi.org/10.1111/j.1468-

2850.2011.01253.x

Hall, L. H., Johnson, J., Watt, I., Tsipa, A., & O'Connor, D. B. (2016). Healthcare staff well-

being, burnout, and patient safety: A systematic review. *PLoS ONE, 11*(7), e0159015.

https://doi.org/10.1371/journal.pone.0159015

Haugan, G., Rannestad, T., Garåsen, H., Hammervold, R., & Espnes, G. A. (2012). The self-

Transcendence Scale: An investigation of the factor structure among nursing home

patients. *Journal of Holistic Nursing, 30*(3), 147–159.

https://doi.org/10.1177/0898010111429849

Hiatt, J. M. (2006). *ADKAR: A model for change in business, government and our community.*
Prosci Research.

Hiatt, J. M., & Crasey, T. J. (2012). *Change management: The people side of change.* Prosci
Research.

Hunnibell, L. S., Reed, P. G., Quinn-Griffin, M., & Fitzpatrick, J. J. (2008). Self-transcendence
and burnout in hospice and oncology nurses. *Journal of Hospice and Palliative
Nursing*, *10*(3), 172179. https://doi.org/10.1097/01.NJH.0000306742.95388.80

Johnson, D. M. (2015, January). The relationship between compassion fatigue and self-
transcendence among inpatient hospice nurses (Doctoral dissertation, Walden
University). https://scholarworks.waldenu.edu/dissertations/297/

Johnson, J. R., Emmons, H. C., Rivard, R. L., Griffin, K. H., & Dusek, J. A. (2015). Resilience
training: A pilot study of a mindfulness-based program with depressed healthcare
professionals. *Explore, 11*(8), 433-444. https://doi.org/10.1016/j.explore.2015.08.002

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future.
Clinical Psychology: Science and Practice, 10(2), 144-156.
https://doi.org/10.1093/clipsy/bpg016

Kirmayer, L. J. (2015). Mindfulness in cultural context. *Transcultural Psychiatry, 52*(4), 447-
469. https://doi.org/10.1177/1363461515598949

Kulka, J. M., De Gagne, J. C., Mullen, C. K., & Robeano, K. (2018). Mindfulness-based stress
reduction for newly graduated Registered Nurses. *Creative Nursing, 24*(4), 243–250.
https://doi.org/10.1891/1078-4535.24.4.243

Kovner, C.T., Brewer, C.S., Fatechi, F., & Jun, J. (2014). What does nurse turnover rate mean and what is the rate? *Policy, Politics & Nursing Practice, 15*(3-4), 64-71. https://doi.org/10.1177/1527154414547953

Lalley, C., & Clouthier, K. (2017). Emergence and disruption: Working on the edge of evidence. In S. Davidson, D. Weberg, T. Porter-O'Grady, & K. Malloch (Eds.), *Leadership for evidence-based innovation in nursing and health professions* (pp. 303-333). Burlington, MA: Jones & Bartlett.

Lucian Leape Institute. (2013). *Through the eyes of the workforce: Creating joy, meaning and safer health care*. National Patient Safety Foundation. http://www.ihi.org/resources/Pages/Publications/Through-the-Eyes-of-the-Workforce-Creating-Joy-Meaning-and-Safer-Health-Care.aspx

Lyndon, A. (2016). *Burnout among health professionals and its effect on patient safety*. https://psnet.ahrq.gov/perspective/burnout-among-health-professionals-and-its-effect-patient-safety

Malloch, K., & Porter-O'Grady, T. (2017). Assessing your innovation and evidence capacity: Essentials for organizational infrastructures. In S. Davidson, D. Weberg, T. Porter-O'Grady, & K. Malloch (Eds.), *Leadership for evidence-based innovation in nursing and health professions* (pp. 303-333). Burlington, MA: Jones & Bartlett.

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Occupational Behaviour, 2*(2), 99-133. https://doi.org/10.1002/job.4030020205

Matthews, E. E., & Cook, P. F. (2009). Relationship among optimism, well-being, self-transcendence, coping and social support in women during treatment for breast cancer. *Psychology, 18*(7), 716-726. https://doi.org/10.1002/pon.1461

Melnyk, B. M. (2020). Burnout, depression and suicide in nurses/clinicians and learners: An

urgent call for action to enhance well-being and healthcare safety. *Worldview on*

Evidence-Based Nursing, 17(1), 2-5.

Melnyk, B, M., & Fineout-Overholt, E. (2019). *Evidence-based practice in nursing and*

healthcare: A guide to best practice (4th ed.). Wolters Kluwer.

Moss, M., Good, V., 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. *American Journal of Critical Care, 16*(4). pp 368-376.

https://doi.org/10.4037/ajcc2016133

National Academies of Sciences, Engineering, and Medicine. (2019). *Taking action against*

clinician burnout: A system approach to professional well-being. The National

Academies Press. https://doi.org.10.17226/25521

Neff, K. D. (2003). Self-compassion: An alternative conceptualization of a healthy attitude

toward oneself. *Self and Identity*, 2,85–101. https://doi.org/10.1080/15298860390129863

Nursing Solutions Inc. (2020). *2020 National Health Care Retention and RN Staffing Report.*

https://www.nsinursingsolutions.com/Documents/Library/NSI_National_Health_Care_R

etention_Report.pdf

Palmer, B., Quinn Griffin, M. T., Reed, P., & Fitzpatrick, J. J. (2010). Self-transcendence and

work engagement in acute care staff registered nurses. *Critical Care Nursing Quarterly,*

33(2), 138-147. https://doi.org/10.1097/CNQ.0b013e3181d912d8

Perlo, J., Balik, B., Swensen, S; Kabcenell, A., Landsmand, J., & Feeley, D. (2017). *IHI*

framework for improving joy in work. Institute for Healthcare Improvement.

http://www.ihi.org/resources/Pages/IHIWhitePapers/Framework-Improving-Joy-in-Work.aspx

Proulx, J., Croff, C., Oken, B., Aldwin, C. M., Fleming, C., Bergen-Cico, D., Le, T., & Noorani, M. (2018). Considerations for research and development of culturally relevant mindfulness interventions in American minority communities. *Mindfulness*, *9*, 361-370. https://doi.org/10.1007/s12671-017-0785-z

Rath, T. (2007). *Strengths finder 2.0.* Gallup Press

Rath, T., & Conchie, B. (2009). *Strengths based leadership: Great leaders, teams, and why people follow.* Gallup Press.

Reed, P. G. (2008). Theory of self-transcendence. In M. J. Smith & P. R. Liehr (Eds.), *Middle range theory for nursing,* (pp.105-129). Springer Publishing

Reed, P. G., & Shearer, N. B. (Eds.). (2018). *Nursing knowledge and theory innovation: Advancing the science of practice.* 2nd ed. Springer Publishing.

Reivich, S., & Shatte', A. (2003). *The resilience factor: 7 keys to finding your inner strength and overcoming life's hurdles.* Three Rivers Press.

Romeo-Ratliff, A. (2014, January). An investigation into the prevalence of and relationships among compassion fatigue, burnout, compassion satisfaction, and self-transcendence in oncology nurses (Doctoral dissertation, Seton Hall University). https://scholarship.shu.edu/dissertations/1939/

Runquist, J. J., & Reed, P. G. (2007). Self-transcendence and well-being in homeless adults. *Journal of Holistic Nursing, 25*(1), 5-13. https://doi.org/10.1177/0898010106289856

Rushton, C. H., Batcheller, J., Schroeder, K., & Donohue, P. (2015). Burnout and resilience among nurses practicing in high-intensity settings. *American Journal of Critical Care, 24*(5), 412-421. https://doi.org/10.4037/ajcc2015291

Schaufeli, W. B., Leiter, M. P., & Maslach, C. (2008). Burnout: 35 years of research and practice. Career Development International, 14(3), 204-220. https://doi.org/10.1108/13620430910966406

Sfantou, D. E., Laliotis, A., Patelarou, A. E., Sifaki-Pistolla, D., Matalliotakis, M., Patelarou, E. (2017). Importance of leadership style toward quality of care measures in healthcare settings: A systematic review. *Healthcare, 73*(5), 1-17. https://doi.org/10.3390/healthcare5040073

Simon, N. M., Saxe, G. N., & Mamar, C. R. (2020). Mental health disorders related to COVID-19-related deaths. *Journal of the American Medical Association*, https://doi.org/10.1001/jama.2020.19632

Sirkin, H., Keenan, P., & Jackson, A. (2005). The hard side of change management. *Harvard Business Review.* https://hbr.org/2005/10/the-hard-side-of-change-management

Statistical Atlas. (2018). *Race and Ethnicity in Harris Country, Texas.* https://statisticalatlas.com/county/Texas/Harris-County/Race-and-Ethnicity

Tan, C. (2012). *Search inside yourself: The unexpected path to achieving success, happiness (and world peace).* HarperOne.

Teixeira, M. E. (2008). Self-transcendence: A concept analysis for nursing praxis. *Holistic Nursing Practice, 22*(1), 25-31. https://doi.org/10.1097/01.HNP.0000306325.49332.ed

Transtek, V. F., Hamilton, N.W., & Niles, E. E. (2014). Leadership models in health care—A

    case for servant leadership. *Mayo Clinic Proceedings, 38*(3), 374-381.

    https://doi.org/10.1016/j.mayocp.2013.10.012

US Census Bureau. (2018). *Quick facts: Houston city, Texas; Harris County, Texas: Texas.*

    https://www.census.gov/quickfacts/fact/table/houstoncitytexas,harriscountytexas,TX/PST

    045218

van der Riet, P., Levett-Jones, T., & Aquino-Russell, C. (2018). The effectiveness of

    mindfulness meditation for nurses and nursing students: An integrated literature review.

    Nurse Education Today, 57, 95-102. https://doi.org/10.1016/j.nedt.2018.03.018

Walker, L. O., & Avant, K. C. (2019). *Strategies for theory construction in nursing* (6th ed.).

    Pearson.

Welp, A., Meier, L. L., & Manser, T. (2016). Emotional exhaustion and workload predict

    clinician-rated and objective patient safety. *Frontiers in Psychology, 5*, 1-13.

    https://doi.org/10.3389/fpsyg.2014.01573

West, C. P., Dyrbye, L. N., Erwin, P. J., & Shanafelt, T. D. (2016). Interventions to prevent and

    reduce physician burnout: A systematic review and meta-analysis. *Lancet, 388*, 2272-

    2281. https://doi.org/10.1016/S0140-6736(16)31279-X

West, C. P., Dyrbye, L. N., Rabatin, J. T., Call, T. G., Davidson, J. H., Multari, A., Romaski,

    S.A., Hellyer, J. M. H., Sloan, J. A., & Shanafelt, T. D. (2014). Intervention to promote

    physician well-being, job satisfaction, and professionalism. *Journal of the American*

    Medical Association Internal Medicine, 174(4), 527-533.

    https://doi.org/10.1001/jamainternmed.2013.14387

White, L. (2013). Mindfulness in Nursing: An evolutionary concept analysis. *Journal of*

Advanced Nursing, 70(2), 282-294. https://doi.org/10.1111/jan.12182

Figure A1

Nursing Satisfaction Data
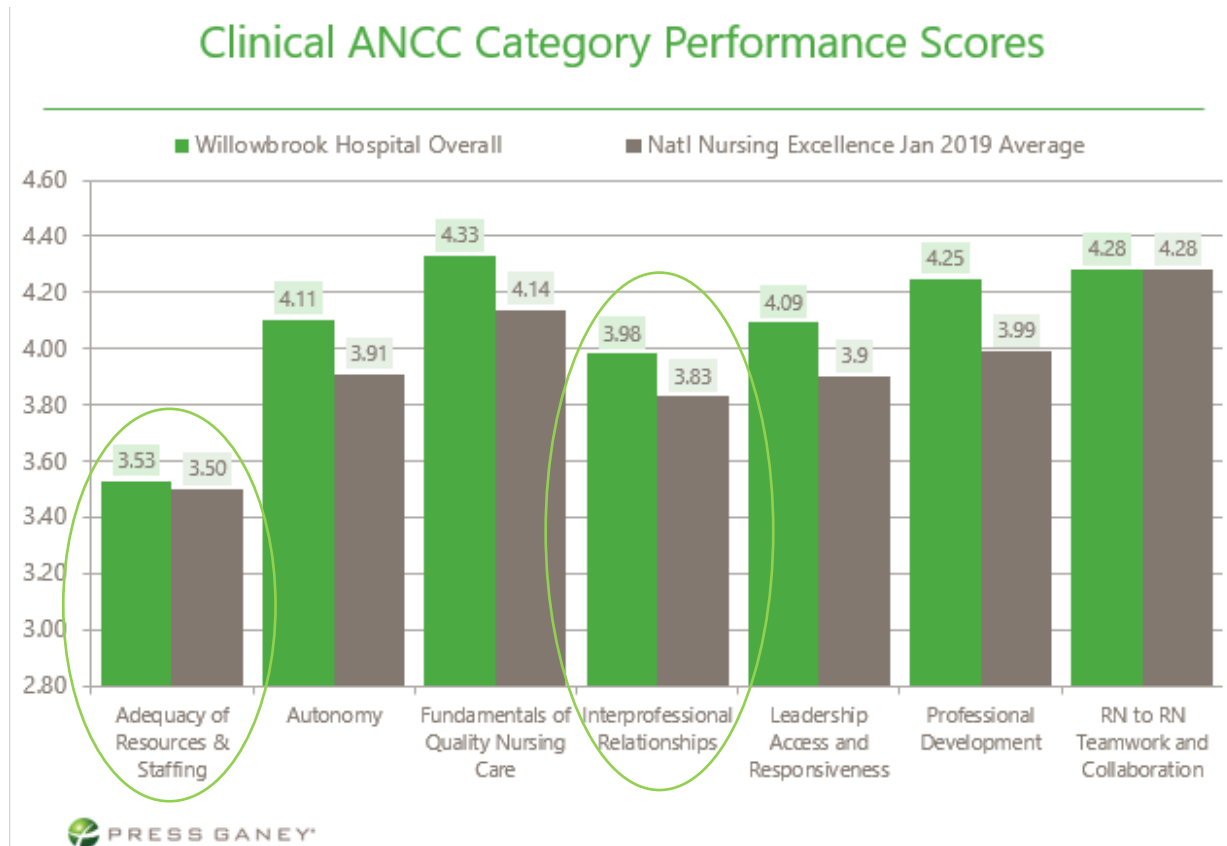
Note. Nursing satisfaction survey from 2019 indicating the perceived lack of resources and poor interprofessional relationships.

Figure A2

Nursing Satisfaction With the Adequacy of Resources and Staffing

Adequacy of Resources & Staffing Item	Number of Units that outperform January 2019 Natl Avgs	Percent of Units above the January 2019 Natl Avgs
I get the tools and resources I need to provide the best care/service for our clients/patients.	27 out 30	**90.00%**
I have sufficient time to provide the best care/service for our clients/patients.	19 out 30	63.33%
My work unit is adequately staffed.	21 out 30	70.00%
Adequacy of Resources & Staffing	21 out 30	70.00%

PRESS GANEY®

14

Note. These data indicated that the nurses had a perceived lack of resources, especially human, that created a sense that they could not adequately care for their patients, leading to dissatisfaction and decreased quality of care.

Figure A3

Nursing Satisfaction With Interprofessional Relationships.

Interprofessional Relationships

Interprofessional Relationships Item	Number of Units that outperform January 2019 Natl Avgs	Percent of Units above the January 2019 Natl Avgs
Different work units work well together in this organization.	25 out 30	83.33%
Communication between physicians, nurses, and other medical personnel is good in this organization.	21 out 30	70.00%
We effectively use cross functional (interprofessional) teams in this organization.	28 out 30	93.33%
There is good collaboration between nursing and the different ancillary services, i.e. pharmacy, lab, radiology, nutrition, behavioral health, etc.	25 out 30	83.33%
Interprofessional Relationships	26 out 30	86.67%

PRESS GANEY

17

Note. These data indicate the interprofessional relationships between physicians, nurses, and other medical personnel was leading to nursing dissatisfaction. The scores were below the national benchmark on 21 of 30 nursing units, which might have exacerbated stress.

Figure A4

Physician Engagement
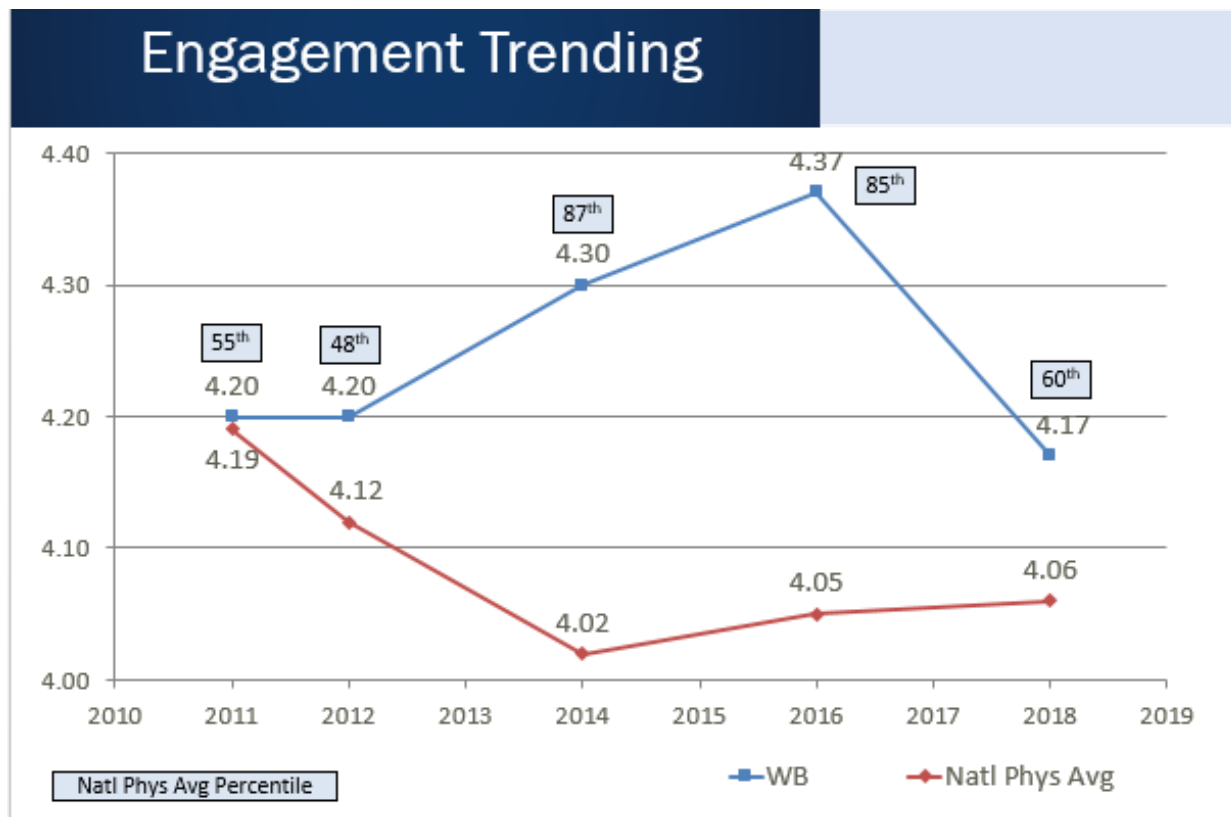
Note. The physician engagement and satisfaction survey data demonstrated a sharp drop in reported physician engagement compared to the prior year despite a national trend of improving engagement.

Figure A5

Physician Alignment
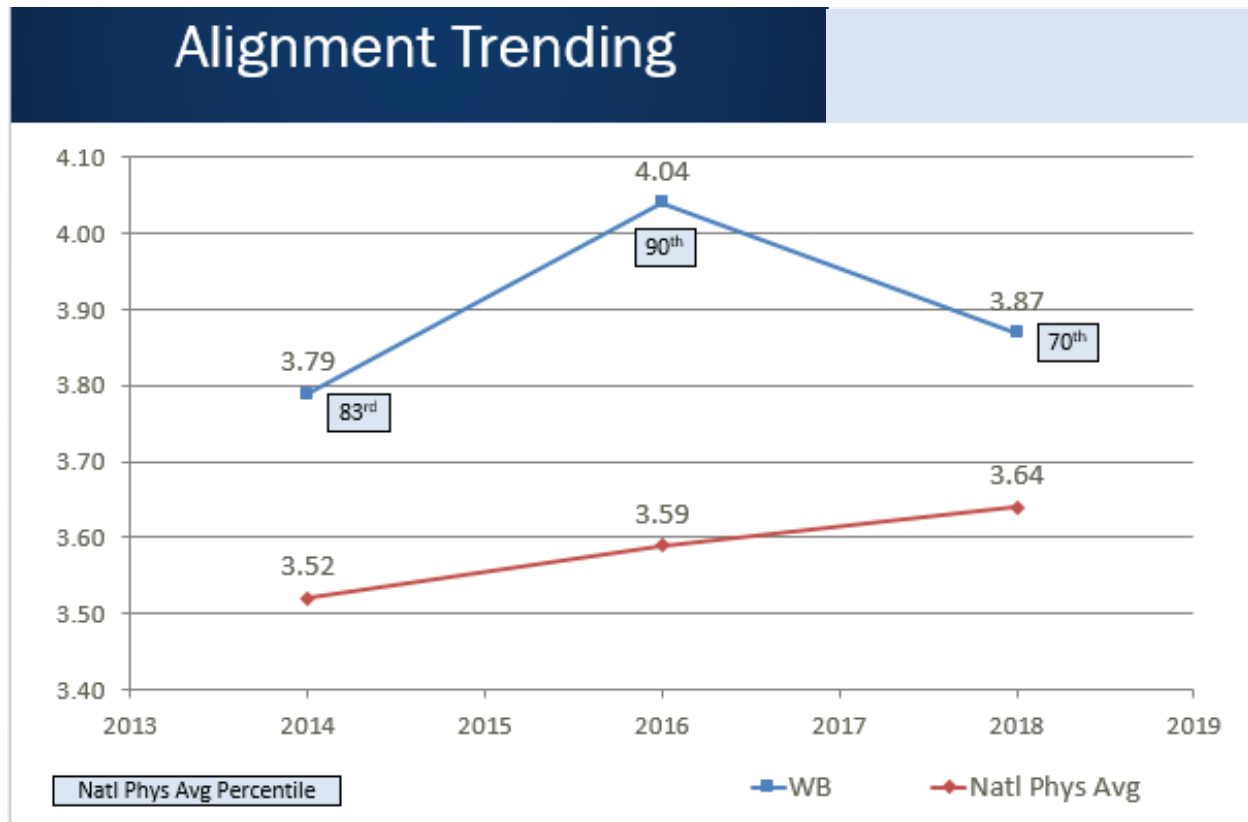
Note. The physician engagement and satisfaction survey data indicated a notable drop in physician alignment compared to the prior year despite a national trend of improving alignment.

Figure A6

Trend in the Annualized Turnover Rates

Nursing Turnover Rates

	2017	2018	2019*

Annualize Pecentage

■ Nursing Turnover ■ New Nures Turnover
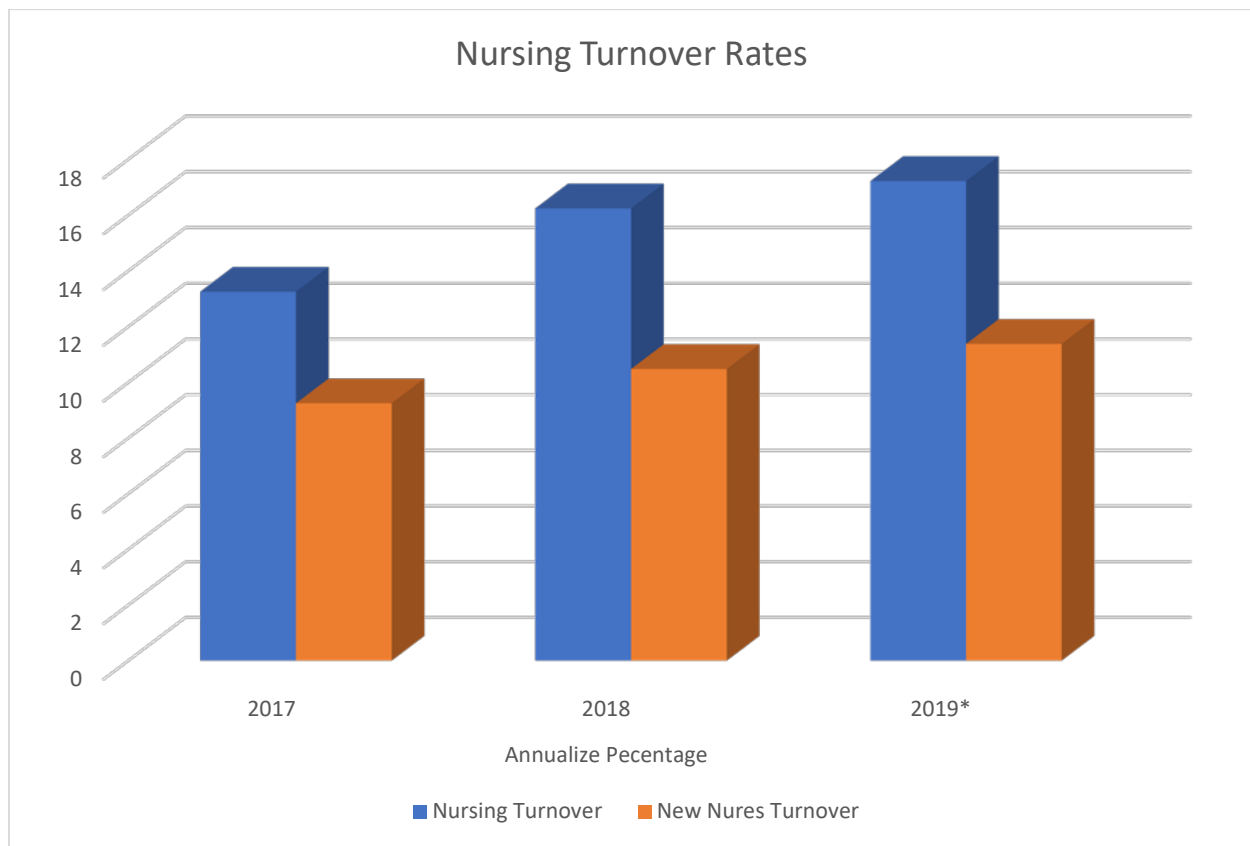
Note. Data from the past three years indicated a year over year annualized turnover rate increasing in nursing turnover and new nurse turnover, indicating dissatisfaction and possibly excess stress and burnout.

Appendix B. Systematic Search

Figure B1

Systematic Literature Search in CINHAL

Based on the endemic presence of burnout in health care providers and the demonstrated positive impact of mindfulness and resilience, the question arises: For health care providers in the acute care setting (P), how does mindfulness and resiliency training (I) compare to no mindfulness and resiliency training (C) affect stress (O^1), anxiety (O^2), burnout (O^3), engagement (O^4), and healthcare errors (O^5) over a 90-day period (T)?

	Search ID#	Search Terms	Search Options	Actions
☐	S15	(S2 AND S6) AND (S3 OR S4)	Search modes - Find all my search terms	View Results (0) View Details Edit
☐	S14	(S2) AND (S3 OR S4)	Search modes - Find all my search terms	View Results (5) View Details Edit
☐	S13	S11 AND stress	Search modes - Find all my search terms	View Results (385) View Details Edit
☐	S12	S2 AND S3 AND S6	Search modes - Find all my search terms	View Results (0) View Details Edit
☐	S11	S2 AND S3 OR S4 AND S6	Search modes - Find all my search terms	View Results (672) View Details Edit
☐	S10	S2 AND S3 OR S4	Search modes - Find all my search terms	View Results (5,529) View Details Edit
☐	S9	S2 AND S3 AND S4	Search modes - Find all my search terms	View Results (0) View Details Edit
☐	S8	S2 AND S6	Search modes - Find all my search terms	View Results (176) View Details Edit
☐	S7	S2 AND S3	Search modes - Find all my search terms	View Results (2) View Details Edit
☐	S6	anxiety OR burnout	Search modes - Find all my search terms	View Results (88,487) View Details Edit
☐	S5	anxiety AND burnout	Search modes - Find all my search terms	View Results (412) View Details Edit
☐	S4	(MM "Hardiness") OR "resiliency"	Search modes - Find all my search terms	View Results (5,527) View Details Edit
☐	S3	(MM "Mindfulness") OR (MM "Meditation")	Search modes - Find all my search terms	View Results (4,020) View Details Edit
☐	S2	(MM "Health Care Errors+") OR (MM "Treatment Errors+") OR (MM "Medication Errors+")	Search modes - Find all my search terms	View Results (23,380) View Details Edit
☐	S1	errors	Search modes - Find all my search terms	View Results (78,631) View Details Edit

Select / deselect all   Search with AND   Search with OR   Delete Searches   Refresh Search Results

Note. The systematic search without limiters in CINHAL resulted in 176 citations.

Figure B2

Systematic Literature Search in PubMed

History			Download history	Clear history
Search	Add to builder	Query	Items found	Time
#15	Add	Search ((("health care errors" OR "treatment errors" OR "medication errors") AND (anxiety or burnout))) AND ((Mindfulness OR Meditation) OR (hardiness or resiliency))	2	18:59:10
#14	Add	Search ((("health care errors" OR "treatment errors" OR "medication errors"))) AND ((Mindfulness OR Meditation) OR (hardiness OR resiliency))	8	18:56:08
#13	Add	Search ((((((("health care errors" OR "treatment errors" OR "medication errors"))) AND ((Mindfulness OR Meditation))) OR ((hardiness OR resiliency))) AND ((anxiety OR burnout)))) AND stress	250	18:52:34
#12	Add	Search (((("health care errors" OR "treatment errors" OR "medication errors"))) AND ((Mindfulness OR Meditation))) AND ((anxiety OR burnout))	2	18:52:15
#11	Add	Search (((("health care errors" OR "treatment errors" OR "medication errors"))) AND ((Mindfulness OR Meditation))) OR ((hardiness OR resiliency))) AND ((anxiety OR burnout))	420	18:51:55
#10	Add	Search (((("health care errors" OR "treatment errors" OR "medication errors"))) AND ((Mindfulness OR Meditation))) OR ((hardiness OR resiliency))	3786	18:50:38
#9	Add	Search (((("health care errors" OR "treatment errors" OR "medication errors"))) AND ((Mindfulness OR Meditation))) AND ((hardiness OR resiliency))	0	18:50:14
#8	Add	Search ((("health care errors" OR "treatment errors" OR "medication errors"))) AND ((anxiety OR burnout))	84	18:49:55
#7	Add	Search ((("health care errors" OR "treatment errors" OR "medication errors"))) AND ((Mindfulness OR Meditation))	7	18:49:38
#6	Add	Search (anxiety OR burnout)	229439	18:49:17
#5	Add	Search (anxiety AND burnout)	811	18:49:01
#4	Add	Search (hardiness OR resiliency)	3779	18:48:40
#3	Add	Search (Mindfulness OR Meditation)	9461	18:46:48
#2	Add	Search ("health care errors" OR "treatment errors" OR "medication errors")	14422	18:46:30
#1	Add	Search errors	206091	18:45:30

Note. The systematic search of the literature without limiters in PubMed resulted in 84 citations.

76

Table 3 B

Systematic Literature Search in Cochrane's Data Base of Systematic Reviews

Search	**Search manager**	Medical terms (MeSH)			

💾 Save this search ▾   👁 View saved searches   ? Search help

View fewer lines   Print

➖	➕	#1	errors	Limits	8837
➖	➕	#2	"health care errors" OR "treatment errors" OR "medication errors"	Limits	441
➖	➕	#3	mindfulness OR meditation	Limits	3891
➖	➕	#4	hardiness OR resiliency	Limits	233
➖	➕	#5	anxiety AND burnout	Limits	145
➖	➕	#6	anxiety OR burnout	Limits	36989
➖	➕	#7	("health care errors" OR "treatment errors" OR "medication errors") AND (mindfulness OR meditation)	Limits	1
➖	➕	#8	("health care errors" OR "treatment errors" OR "medication errors") AND (anxiety OR burnout)	Limits	18
➖	➕	#9	("health care errors" OR "treatment errors" OR "medication errors") AND (mindfulness OR meditation) AND (hardiness OR burnout)	Limits	1
➖	➕	#10	("health care errors" OR "treatment errors" OR "medication errors") AND (mindfulness OR meditation) OR (hardiness OR burnout)	Limits	633
➖	➕	#11	("health care errors" OR "treatment errors" OR "medication errors") AND (mindfulness OR meditation) OR (hardiness OR burnout) AND (anxiety or burnout)	Limits	633
➖	➕	#12	("health care errors" OR "treatment errors" OR "medication errors") AND (mindfulness OR meditation) AND (anxiety OR burnout)	Limits	1
➖	➕	#13	("health care errors" OR "treatment errors" OR "medication errors") AND (mindfulness OR meditation) OR (hardiness OR burnout) AND (anxiety or burnout) AND stress	Limits	408
➖	➕	#14	("health care errors" OR "treatment errors" OR "medication errors" AND "anxiety OR burnout") AND ("mindfulness OR meditation" OR "hardiness OR resiliency")	Limits	0
➖	➕	#15		S▾ MeSH▾ Limits	N/A

✖ Clear all   ☐ Highlight orphan lines

Note. The systematic search of the literature without limiters in The Cochrane's Data Base of Systematic reviews resulted in 18 citations.

Figure B4

Systematic Search Process Flowchart

Publications identified in the database search (*n* = 278)

Additional publications identified by reference review (*n* = 9)

Publications identified in the search (*n* = 287)

Sources excluded by limiters (*n = 68)*

Potential sources of evidence after limits English and peer-viewed (*n =* 213)

Articles excluded for not meeting inclusion criteria (*n* = 174)

Potential publications after title/ abstracts reviewed for population, setting, and date (*n* = 39)

Articles excluded after general appraisal (*n =* 27)

Studies included in the evaluation of evidence (*n = 12)*

Inclusion Criteria
- Mindfulness-based interventions
- Acute care setting
- HCPs

Exclusion Criteria
- Students
- Other settings
- Before 1/1/2014

Note. This flowchart reflects the systematic review yield, application of limiters, review for inclusion and exclusion criteria, and critical appraisal resulting in 12 studies retained for inclusions in the evaluation and synthesis.

Appendix C. Critical Appraisal & Synthesis

Table C1

Evaluation Table

CLINICAL QUESTION: For health care providers in the acute care setting (P), how does mindfulness and resiliency training (I) compare to no training on mindfulness and resiliency (C) affect stress (O^1), anxiety (O^2), burnout (O^3), engagement (O^4), and health care errors (O^5) over 90 days (T)?

Citation: author(s), date & title	Purpose of Study	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Definitions	Measure of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence RECOMMENDATIONS	Role of Ethics
West, C. P. et al. (2016). Interventions to prevent and reduce physician BO: A SR and meta-analysis.	To assess the effect of interventions on physician BO.	None	SR with Meta-Analysis (I). Searched Medline, EMBASE, PsycINFO, Scopus, Web of Science, and ERIC from inception to 1/15/16. Keywords: "stress" and "BO" and synonyms.	RCTs of physicians (residents & practicing) Excluded other HCP & students. $N = 52$ out of 2,617 identified studies 15 RCTs ($n = 716$).	IV: Interventions for BO •Structural interventions: ↓ work hours & improved processes ($n = 17 - 3$ RTC) - IV2: Individual-focused interventions: SG, SM, CST, MI ($n = 20 - 12$ RCT)	DV1-5: MBI	CI = 95% P value	DV1: ↓ (5 of 15 RCTs, 9 of 37 CS) CI = 5 - 14, p<.0001, ($n = 14$) DV2: ↓ (12 of 15 RCT, 28 or 37 CS CI = 1.67 – 3.64, p<.0001, ($n = 40$) DV3: ↓ (11 RCTs, 25 CS) CI = .15 -1.14, p = .01, ($n = 36$)	LOE: I Weaknesses: •Variations between study measures and outcomes •Adverse effects minimal •↓ effectiveness of assessing trainees, •↓ education, •↓ satisfaction with residency). •Only physicians and residents. •Did include CS, but separated data from RCT •Percent variation among studies for DV2, and D3 was high which may, therefore, not be reproducible	No consent or IRB approval needed The project was funded, funder had no role in the study

Legend: BMI= brief mindfulness interventions, BO = burnout, BOE = body of evidence, CESD-10 = Center for Epidemiologic Depression scale rev., CDRS = Connor-Davidson Resiliency Scale, CFGNES = Casey Fink Graduate Nurse Experience Survey CI = confidence interval, CRS = clinician-rated safety, CS = cohort study, CST = communication skills training, DASS = Depression, Anxiety, Stress Scale, DP = depersonalization, EE = emotional exhaustion, EWS = Empowerment at Work Scale, ,FFMQ = Five Facets of Mindfulness Questionnaire, FMI = Freilburg Mindfulness Inventory, HCP = health care providers, LOE = level of evidence, LOS = length of stay, HPLP = Health Promoting Lifestyle Profile II, HR = Heart rate, I^2 = percent variation, ICU = intensive care unit, IR = integrative review, IRB = Institutional Review Board, JS = job satisfaction, JSS = Job Satisfaction Scale, M = mean, MAAS = Mindfulness Attention Awareness Scale, MBI = Maslach Burnout Inventory, MBSR= mindfulness-based stress reduction, MD = moral distress, MIs = mindfulness-based interventions, ND = not defined, NRP = nurse residency program, OR = odds ratio, PA = Personal Accomplishment, PHQ9 = Personal Health Questionnaire, PI = Percent Improvement, PRISMA = Preferred Reporting Items for SR and Meta-Analysis, ProQOL = Professional Quality of Life Scale, PSS = Perceived Stress Scale, QATFQS = Quality Assessment Tool For Quantitative Studies, QE = quasi experimental, QOL = quality of life, RCT = randomized control trials, RR = relative risk, RT = resiliency training, SAS = Smith Anxiety Scale, SC = self-care, SCS = Self Compassion Scale, SD = standard deviation, SG = small groups, SM = stress management, SMART = Stress Management and Resiliency Training, SR = systematic review, SRI = stress reduction intervention, SRSI = Smith Relaxation States Inventory, STAI = State Trait Anxiety Inventory, WB = well-being, WPAI:GH = Workplace Productivity and Impairment: General Health, WPE = work place environment, ↑ = increase, ↓ = decrease, ↔ = no difference
Used with permission, © 2007 Fineout-Overholt

Citation: author(s), date & title	Purpose of Study	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Definitions	Measure of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence RECOMMENDATIONS	Role of Ethics
			Limited to full text, English. Independent reviewer using random-effects model and pooled M difference	37 CSs (n = 2914) reviewed separately	DV1: BO DV2: EE DV3: DP DV4: High EE DV5: High DP .			DV4: ↓ (8 RCT, 13 CS) CI = 11 - 18, p <.0001, (n = 21) DV5: ↓ (6 RCT, 13 CS) CI = 0 - 8, p =.04, (n = 14)	Strengths: •Search was systematic with a meta-analysis and pooled data •Forest plots presented on BO, EE, and DP in favor of intervention. •Agreement between reviewers = 0.83. •Heterogeneity across all studies was high except as noted above Conclusions: •Structural/organizational and individua-focused mindfulness-based interventions ↓ BO in physicians and residents •Most common effective interventions mindfulness, SM, SGs, and limiting hours of work. Recommendation: •Mindfulness, SM and SG interventions can be implemented to ↓ BO in HCPs •Benefits outweigh risks	

Legend: BMI= brief mindfulness interventions, BO = burnout, BOE = body of evidence, CESD-10 = Center for Epidemiologic Depression scale rev., CDRS = Connor-Davidson Resiliency Scale, CFGNES = Casey Fink Graduate Nurse Experience Survey CI = confidence interval, CRS = clinician-rated safety, CS = cohort study, CST = communication skills training, DASS = Depression, Anxiety, Stress Scale, DP = depersonalization, EE = emotional exhaustion, EWS = Empowerment at Work Scale, ,FFMQ = Five Facets of Mindfulness Questionnaire, FMI = Freilburg Mindfulness Inventory, HCP = health care providers, LOE = level of evidence, LOS = length of stay, HPLP = Health Promoting Lifestyle Profile II, HR = Heart rate, I^2 = percent variation, ICU = intensive care unit, IR = integrative review, IRB = Institutional Review Board, JS = job satisfaction, JSS = Job Satisfaction Scale, M = mean, MAAS = Mindfulness Attention Awareness Scale, MBI = Maslach Burnout Inventory, MBSR= mindfulness-based stress reduction, MD = moral distress, MIs = mindfulness-based interventions, ND = not defined, NRP = nurse residency program, OR = odds ratio, PA = Personal Accomplishment, PHQ9 = Personal Health Questionnaire, PI = Percent Improvement, PRISMA = Preferred Reporting Items for SR and Meta-Analysis, ProQOL = Professional Quality of Life Scale, PSS = Perceived Stress Scale, QATFQS = Quality Assessment Tool For Quantitative Studies, QE = quasi experimental, QOL = quality of life, RCT = randomized control trials, RR = relative risk, RT = resiliency training, SAS = Smith Anxiety Scale, SC = self-care, SCS = Self Compassion Scale, SD = standard deviation, SG = small groups, SM = stress management, SMART = Stress Management and Resiliency Training, SR = systematic review, SRI = stress reduction intervention, SRSI = Smith Relaxation States Inventory, STAI = State Trait Anxiety Inventory, WB = well-being, WPAI:GH = Workplace Productivity and Impairment: General Health, WPE = work place environment, ↑ = increase, ↓ = decrease, ↔ = no difference

Used with permission, © 2007 Fineout-Overholt

Table C1: Continued

Citation: author(s), date & title	Purpose of Study	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Definitions	Measure of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence RECOMMENDATIONS	Role of Ethics
Amutio, A. et al. (2015). Enhancing relaxation states and positive emotions in physicians through a mindfulness training program: A one-year study.	To assess the effect of an MBSR program on physician's well-being over one year.	None	RCT (II). Physicians randomly assigned to 8-week MBSR program. Pre-, post-, and 10-month assessments	Actively employed physicians ($n = 42$). Random assignment - intervention group or control by SSPS program. Exclusion criteria = psychiatric treatment. $X2$ not significant ($p > .05$) Spanish hospital	IV: MBSR Definition: 8-week instructor-led program: body-scan, yoga, MI. Daily practice with CD. 10-month maintenance - one class/mo. DV1: Mindfulness DV2: Basic relaxation DV3: Positive Energy DV4: Core Mindfulness DV5: Transcendence	DV1: FFMQ DV2-5: SRSI DV6: beats/min.	ANOVA (F- value) Correlational (r value) Percentage p-value	DV1: $F = 14.38$, $p < .05$, DV1:DV2 $r = .59$, DV2: $F = 16.17$ $p = .00$, ↑ 30%, DV2:DV6 $r = .62$ DV3: $F = 9.21$, $p = .00$, DV3:DV6 $r = .60$ DV4: $F = 2.55$, $p = .12$, DV4:DV6 $r = .57$ DV5: $F = 2.55$, $p = .12$, DV6: $F = 10.45$, $p < .01$,	LOE: II Weaknesses: •Small, convenience sample •HR was not measured in control group due to logistical constraints •Lack of active control group •Attrition not discussed Strengths: •Random assignment •Results improved increased over 10 mo. •Chi-square was not significant for the demographics/characteristics between groups. •ANOVA detected no baseline differences ($p > .05$) •Classes can be taught in groups to ↓ costs (n.d.) Conclusions: •MBSR = ↑ mindfulness and relaxation sustainable for 10 mo. •Significant reduction in HR at 8 weeks. •Direct relationship between relaxation and HR	Written consent obtained IRB not mentioned

Legend: BMI= brief mindfulness interventions, BO = burnout, BOE = body of evidence, CESD-10 = Center for Epidemiologic Depression scale rev., CDRS = Connor-Davidson Resiliency Scale, CFGNES = Casey Fink Graduate Nurse Experience Survey CI = confidence interval, CRS = clinician-rated safety, CS = cohort study, CST = communication skills training, DASS = Depression, Anxiety, Stress Scale, DP = depersonalization, EE = emotional exhaustion, EWS = Empowerment at Work Scale, ,FFMQ = Five Facets of Mindfulness Questionnaire, FMI = Freilburg Mindfulness Inventory, HCP = health care providers, LOE = level of evidence, LOS = length of stay, HPLP = Health Promoting Lifestyle Profile II, HR = Heart rate, I^2 = percent variation, ICU = intensive care unit, IR = integrative review, IRB = Institutional Review Board, JS = job satisfaction, JSS = Job Satisfaction Scale, M = mean, MAAS = Mindfulness Attention Awareness Scale, MBI = Maslach Burnout Inventory, MBSR= mindfulness-based stress reduction, MD = moral distress, MIs = mindfulness-based interventions, ND = not defined, NRP = nurse residency program, OR = odds ratio, PA = Personal Accomplishment, PHQ9 = Personal Health Questionnaire, PI = Percent Improvement, PRISMA = Preferred Reporting Items for SR and Meta-Analysis, ProQOL = Professional Quality of Life Scale, PSS = Perceived Stress Scale, QATFQS = Quality Assessment Tool For Quantitative Studies, QE = quasi experimental, QOL = quality of life, RCT = randomized control trials, RR = relative risk, RT = resiliency training, SAS = Smith Anxiety Scale, SC = self-care, SCS = Self Compassion Scale, SD = standard deviation, SG = small groups, SM = stress management, SMART = Stress Management and Resiliency Training, SR = systematic review, SRI = stress reduction intervention, SRSI = Smith Relaxation States Inventory, STAI = State Trait Anxiety Inventory, WB = well-being, WPAI:GH = Workplace Productivity and Impairment: General Health, WPE = work place environment, ↑ = increase, ↓ = decrease, ↔ = no difference
Used with permission, © 2007 Fineout-Overholt

81

Citation: author(s), date & title	Purpose of Study	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Definitions	Measure of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence RECOMMENDATIONS	Role of Ethics
					DV6: HR				•Significant reduction in HR at 8 weeks. •Direct relationship between relaxation and HR Recommendation: •Use MBSR to improve well-being, mindfulness, and relaxation Benefits outweigh risks	
West, C. P. et al. (2014). Intervention to promotes physician well-being, job satisfaction, and professionalism: A randomized control trail.	To test the hypothesis that physician involvement in a SG program will improve WB.	None	RCT (II). Randomized subjects into a 19-week, 1-hour, biweekly facilitated interventions (SGs using MI, reflection, shared experience, and learning.	Volunteer, convenience sample, Physicians from a large US hospital (*n* = 74) Randomization concealed via computer-generated list	IV1: SG, presenter-led interventions IV2: 1-hour unstructured paid, duty-free time (control) DV1: BO DV2: EE DV3: DP DV4: Stress	DV1-3: MBI DV4: PSS DV5: 2-question Likert scale DV6: EWS DV7: Linear analog scale	Univariate statistics: data adjusted for baseline variance in stress. Percent change *p*-value	DV1: 8 wk. -↓ 24.7% (*p* = .03) & 12 mo. − ↓ 21.7 % (*p* = .03), DV2: 8 wk. -↓ 15.5 % (*p* = .03) & 12 mo. − ↓ 9.6% (*p* = .02), DV3: 8 wk. ↓ 15.5% (*p* = .007) & 12 mo. − ↓19.4% (*p* = .69),	LOE: II Weaknesses: •Small sample size for RCT arms •Self-selected volunteers •Only physician sample, not generalizable to other HCPS •The comparison arm with paid, free time improved in some measures •Four different SG activities, cannot determine which produced benefit Strengths: •Random assignment •Adjustments made to measurement for group differences	IRB approval Written consent obtained

Legend: BMI= brief mindfulness interventions, BO = burnout, BOE = body of evidence, CESD-10 = Center for Epidemiologic Depression scale rev., CDRS = Connor-Davidson Resiliency Scale, CFGNES = Casey Fink Graduate Nurse Experience Survey CI = confidence interval, CRS = clinician-rated safety, CS = cohort study, CST = communication skills training, DASS = Depression, Anxiety, Stress Scale, DP = depersonalization, EE = emotional exhaustion, EWS = Empowerment at Work Scale, ,FFMQ = Five Facets of Mindfulness Questionnaire, FMI = Freilburg Mindfulness Inventory, HCP = health care providers, LOE = level of evidence, LOS = length of stay, HPLP = Health Promoting Lifestyle Profile II, HR = Heart rate, I^2 = percent variation, ICU = intensive care unit, IR = integrative review, IRB = Institutional Review Board, JS = job satisfaction, JSS = Job Satisfaction Scale, M = mean, MAAS = Mindfulness Attention Awareness Scale, MBI = Maslach Burnout Inventory, MBSR= mindfulness-based stress reduction, MD = moral distress, MIs = mindfulness-based interventions, ND = not defined, NRP = nurse residency program, OR = odds ratio, PA = Personal Accomplishment, PHQ9 = Personal Health Questionnaire, PI = Percent Improvement, PRISMA = Preferred Reporting Items for SR and Meta-Analysis, ProQOL = Professional Quality of Life Scale, PSS = Perceived Stress Scale, QATFQS = Quality Assessment Tool For Quantitative Studies, QE = quasi experimental, QOL = quality of life, RCT = randomized control trials, RR = relative risk, RT = resiliency training, SAS = Smith Anxiety Scale, SC = self-care, SCS = Self Compassion Scale, SD = standard deviation, SG = small groups, SM = stress management, SMART = Stress Management and Resiliency Training, SR = systematic review, SRI = stress reduction intervention, SRSI = Smith Relaxation States Inventory, STAI = State Trait Anxiety Inventory, WB = well-being, WPAI:GH = Workplace Productivity and Impairment: General Health, WPE = work place environment, ↑ = increase, ↓ = decrease, ↔ = no difference
Used with permission, © 2007 Fineout-Overholt

Citation: author(s), date & title	Purpose of Study	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Definitions	Measure of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence RECOMMENDATIONS	Role of Ethics
			Control arm with 1-hour biweekly paid free time Evaluated at 3, 6, 9 & 12 months. Intent-to-treat principles	Control group (n = 37) Interventio n group (n = 37). Non-participatin g physicians (n = 350) surveyed.	DV5: Depression DV6: Engagement DV7: QOL DV8: JS DV9: Meaningful work	DV8 & 9: JSS		DV6: 5.3% ↑ (p = .04) & 12 mo. − ↑ 5.5 % (p = .03), DV4, 5, 7, 8: ↔ DV9: ↑ 6.3% (p = .002)	• Low (n = 2) attrition and high attendance indicates feasibility Conclusions: • Interventions to prevent BO and enhance WB are feasible in the acute care setting • Improvements in WB are sustainable Recommendation: • SG intervention, including MI can be effective in ↓ BO and ↑ engagement and meaningful work in the acute care setting Benefits outweigh risks	
Alexander, G. K. et al. (2015). Yoga for self-care and BO prevention among nurses.	To examine the effectiven ess of yoga to improve physical and mental health among nurses.	None	RCT pilot study (II). IRB-approved study. 8-week yoga program (group versus a control group. Randomly assigned.	Convenien ce sample from one hospital system. Volunteers . Eligibility: employed nurse, without serious illness or	IV: Yoga program for 8 weeks (breathing exercises, meditation, and self-awareness homework). DV1: EE DV2: DP	DV1 –2: MBI DV3: FMI DV4: HPLP	p-value MANOV (effect size = η^2)	DV1: ↓ (p = .041, η^2 = .106) DV2 ↓ (p = .035, η^2 = .111) DV3: ↑ (p = .067, η^2 = .086) DV4: ↑ (p = .006, η^2 = .179)	LOE: II Weaknesses: • Measures based on self-report • Small convenience sample • Only looked at yoga • Subjects from one health care system therefore not generalizable • Lack of active control group • Attrition not discussed Strengths: • Randomized using computer assigned numbers • Met power analysis for sample size	IRB approva l obtaine d Consent obtaine d

Legend: BMI= brief mindfulness interventions, BO = burnout, BOE = body of evidence, CESD-10 = Center for Epidemiologic Depression scale rev., CDRS = Connor-Davidson Resiliency Scale, CFGNES = Casey Fink Graduate Nurse Experience Survey CI = confidence interval, CRS = clinician-rated safety, CS = cohort study, CST = communication skills training, DASS = Depression, Anxiety, Stress Scale, DP = depersonalization, EE = emotional exhaustion, EWS = Empowerment at Work Scale, ,FFMQ = Five Facets of Mindfulness Questionnaire, FMI = Freilburg Mindfulness Inventory, HCP = health care providers, LOE = level of evidence, LOS = length of stay, HPLP = Health Promoting Lifestyle Profile II, HR = Heart rate, I^2 = percent variation, ICU = intensive care unit, IR = integrative review, IRB = Institutional Review Board, JS = job satisfaction, JSS = Job Satisfaction Scale, M = mean, MAAS = Mindfulness Attention Awareness Scale, MBI = Maslach Burnout Inventory, MBSR= mindfulness-based stress reduction, MD = moral distress, MIs = mindfulness-based interventions, ND = not defined, NRP = nurse residency program, OR = odds ratio, PA = Personal Accomplishment, PHQ9 = Personal Health Questionnaire, PI = Percent Improvement, PRISMA = Preferred Reporting Items for SR and Meta-Analysis, ProQOL = Professional Quality of Life Scale, PSS = Perceived Stress Scale, QATFQS = Quality Assessment Tool For Quantitative Studies, QE = quasi experimental, QOL = quality of life, RCT = randomized control trials, RR = relative risk, RT = resiliency training, SAS = Smith Anxiety Scale, SC = self-care, SCS = Self Compassion Scale, SD = standard deviation, SG = small groups, SM = stress management, SMART = Stress Management and Resiliency Training, SR = systematic review, SRI = stress reduction intervention, SRSI = Smith Relaxation States Inventory, STAI = State Trait Anxiety Inventory, WB = well-being, WPAI:GH = Workplace Productivity and Impairment: General Health, WPE = work place environment, ↑ = increase, ↓ = decrease, ↔ = no difference
Used with permission, © 2007 Fineout-Overholt

Citation: author(s), date & title	Purpose of Study	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Definitions	Measure of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence RECOMMENDATIONS	Role of Ethics
					DV3: Mindfulness DV4: SC				•Significance demonstrated with effect size Conclusions: •Yoga is an effective intervention to decrease components of BO in acute care nurses while improving SC and mindfulness Recommendation: •Yoga as a mindfulness intervention for nurses can ↓ BO and ↑ SC and mindfulness in the acute care setting •Benefits outweigh risks	
Duchemin, A. M. et al. (2015). A small, randomized pilot study of a workplace mindfulness-based intervention for surgical intensive	To determine if a workplace SRI decreases reactivity to stress among personnel exposed to a highly stressful	None	RCT pilot study (II). Randomized (1:1 using GraphPad software). SRI arm or a wait-list arm. Salivary α-amylase and BO measures	SICU personnel ($n = 32$) from one hospital. Inclusion criteria: employee, > 18 yoa and working with ICU patients/	IV: MI Definition: 8-week, presenter-led program, self-practice 20 minutes a day DV1: BO DV2: Mindfulness	DV1: MBI & ProQOL DV2: FFMQ DV3: α-amylase levels, PSS & DASS	Mean & SD Pearson correlation. $P < 0.05$	DV1: •↔ MBI ($p = 0.685$, $t = 0.4909$ and $p = 0.3508$, $t = 0.9477$) DV2: •FFMQ & MBI-EE/ProQOL negative	LOE: II Weaknesses: •Small convenience sample •Mostly female (87% in both arms) •Subjects from one hospital therefore not generalizable Strengths: •Computerized randomization •No attrition •69% nurses •No significant age differences between arms ($p = 0.9496$, $t = 0.0638$)	Study adhered to the CONSORT guidelines for clinical trials

Legend: BMI= brief mindfulness interventions, BO = burnout, BOE = body of evidence, CESD-10 = Center for Epidemiologic Depression scale rev., CDRS = Connor-Davidson Resiliency Scale, CFGNES = Casey Fink Graduate Nurse Experience Survey CI = confidence interval, CRS = clinician-rated safety, CS = cohort study, CST = communication skills training, DASS = Depression, Anxiety, Stress Scale, DP = depersonalization, EE = emotional exhaustion, EWS = Empowerment at Work Scale, ,FFMQ = Five Facets of Mindfulness Questionnaire, FMI = Freilburg Mindfulness Inventory, HCP = health care providers, LOE = level of evidence, LOS = length of stay, HPLP = Health Promoting Lifestyle Profile II, HR = Heart rate, I^2 = percent variation, ICU = intensive care unit, IR = integrative review, IRB = Institutional Review Board, JS = job satisfaction, JSS = Job Satisfaction Scale, M = mean, MAAS = Mindfulness Attention Awareness Scale, MBI = Maslach Burnout Inventory, MBSR= mindfulness-based stress reduction, MD = moral distress, MIs = mindfulness-based interventions, ND = not defined, NRP = nurse residency program, OR = odds ratio, PA = Personal Accomplishment, PHQ9 = Personal Health Questionnaire, PI = Percent Improvement, PRISMA = Preferred Reporting Items for SR and Meta-Analysis, ProQOL = Professional Quality of Life Scale, PSS = Perceived Stress Scale, QATFQS = Quality Assessment Tool For Quantitative Studies, QE = quasi experimental, QOL = quality of life, RCT = randomized control trials, RR = relative risk, RT = resiliency training, SAS = Smith Anxiety Scale, SC = self-care, SCS = Self Compassion Scale, SD = standard deviation, SG = small groups, SM = stress management, SMART = Stress Management and Resiliency Training, SR = systematic review, SRI = stress reduction intervention, SRSI = Smith Relaxation States Inventory, STAI = State Trait Anxiety Inventory, WB = well-being, WPAI:GH = Workplace Productivity and Impairment: General Health, WPE = work place environment, ↑ = increase, ↓ = decrease, ↔ = no difference

Used with permission, © 2007 Fineout-Overholt

Citation: author(s), date & title	Purpose of Study	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Definitions	Measure of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence RECOMMENDATIONS	Role of Ethics
care unit personnel: Effects on α - amylase levels.	environment.		pre- and post- intervention. 1-hour/week (week 5 was 2 hours) Mindfulness, gentle yoga, and music. measures 1 wk pre- and 1 wk post- intervention	families. Exclusions: practicing mindfulness, yoga or exercising 30 min/ day, 3rd- trimester pregnancy, recent surgery t-test, chi-squared analysis.	DV3: Stress			correlation (r = -0.3105, p = 0.0125 and r = -0.4998, $p <$ 0.0001) DV3: • ↓ α-amylase • ↔ PSS (p = 0.1835, t = 1.394 and p = 0.2732, t = 1.137) • ↓ DASS 25% in intervention (p = 0.040, t = 2.245) and 14% in control (p = 0.6675, t = 0.4339)	Conclusions: • MI can ↓ stress in ICU providers as shown by salivary a-amylase levels • MI may ↓ BO Recommendation: • MI can combat stress and possibly burnout • Benefits outweigh risks	
Johnson, J. R. (2015). Resilience training: A pilot study of a	To evaluate the impact of resilience training on	None	Waitlist control comparison methodology (III).	Convenience sample - 40 HCPs randomized by the first 20 meeting criteria.	IV: RT Definition: 8-week, presenter-led program (2.5 hour) -	DV1: PSS DV2: CESD-10 & PHQ-9	Percent change p-value Mean change ±SD	Treatment group • DV1: ↓ 48% (p ≤.01); 4.61± 2.91 (p = .002), • DV2: ↓ 63-70% (p ≤.01);	LOE: III Weaknesses: • Small, convenience sample from one organization • Self-selected volunteers • Waitlisted by order of enrollment	IRB approval Written consent obtained

Legend: BMI= brief mindfulness interventions, BO = burnout, BOE = body of evidence, CESD-10 = Center for Epidemiologic Depression scale rev., CDRS = Connor-Davidson Resiliency Scale, CFGNES = Casey Fink Graduate Nurse Experience Survey CI = confidence interval, CRS = clinician-rated safety, CS = cohort study, CST = communication skills training, DASS = Depression, Anxiety, Stress Scale, DP = depersonalization, EE = emotional exhaustion, EWS = Empowerment at Work Scale, ,FFMQ = Five Facets of Mindfulness Questionnaire, FMI = Freilburg Mindfulness Inventory, HCP = health care providers, LOE = level of evidence, LOS = length of stay, HPLP = Health Promoting Lifestyle Profile II, HR = Heart rate, I^2 = percent variation, ICU = intensive care unit, IR = integrative review, IRB = Institutional Review Board, JS = job satisfaction, JSS = Job Satisfaction Scale, M = mean, MAAS = Mindfulness Attention Awareness Scale, MBI = Maslach Burnout Inventory, MBSR= mindfulness-based stress reduction, MD = moral distress, MIs = mindfulness-based interventions, ND = not defined, NRP = nurse residency program, OR = odds ratio, PA = Personal Accomplishment, PHQ9 = Personal Health Questionnaire, PI = Percent Improvement, PRISMA = Preferred Reporting Items for SR and Meta-Analysis, ProQOL = Professional Quality of Life Scale, PSS = Perceived Stress Scale, QATFQS = Quality Assessment Tool For Quantitative Studies, QE = quasi experimental, QOL = quality of life, RCT = randomized control trials, RR = relative risk, RT = resiliency training, SAS = Smith Anxiety Scale, SC = self-care, SCS = Self Compassion Scale, SD = standard deviation, SG = small groups, SM = stress management, SMART = Stress Management and Resiliency Training, SR = systematic review, SRI = stress reduction intervention, SRSI = Smith Relaxation States Inventory, STAI = State Trait Anxiety Inventory, WB = well-being, WPAI:GH = Workplace Productivity and Impairment: General Health, WPE = work place environment, ↑ = increase, ↓ = decrease, ↔ = no difference
Used with permission, © 2007 Fineout-Overholt

Table C1: Continued

Citation: author(s), date & title	Purpose of Study	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Definitions	Measure of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence RECOMMENDATIONS	Role of Ethics
mindfulness-based program with depressed healthcare professionals	depressed HCP.		Intervention: participated in an 8-week mindfulness training program Control: waitlisted Diaries were kept and reviewed	Between 18 and 65 yoa, actively employed at the facility, clinical diagnosis of depression. Volunteers.	mindful meditation, exercise, & nutrition. DV1: Stress DV2: Depression DV3: Anxiety DV4: Presenteeism	DV3: STAI DV4: WPAI-GH		CESD-10 - 9.9± 5.96 (p = .002), & PHQ9 -8.67± 4.63 (p = .001), •DV3: ↓ 23% (p ≤.01); -11.44/ -12.06± 9.7 /8.13 (p = .068/.008) •DV4: ↓ 52% (p ≤.01); 17.78±15.92 (p = .001), Waitlist group – not significant •DV1:14% (p ≤.002) •DV2: ↓ 18% (p ≤.002) •DV3: ↓ 5% (p ≤.002) ↓ in anxiety	•Since there were 3 different interventions, you can't tell which produced benefit Strengths: •Used valid scales for measurement •Demonstrated savings of $1846 per employees via ↓ presenteeism Conclusions: •MI were correlated with ↓ in depression, stress, anxiety and presenteeism •Improvements were significant versus the waitlist group •Resilience training may improve WB in acute care HCP. Recommendation: •Mindfulness and resilience training can ↓ depression, stress, and BO in HCP as well as decrease costs associated with •Benefits outweigh risks	

Legend: BMI= brief mindfulness interventions, BO = burnout, BOE = body of evidence, CESD-10 = Center for Epidemiologic Depression scale rev., CDRS = Connor-Davidson Resiliency Scale, CFGNES = Casey Fink Graduate Nurse Experience Survey CI = confidence interval, CRS = clinician-rated safety, CS = cohort study, CST = communication skills training, DASS = Depression, Anxiety, Stress Scale, DP = depersonalization, EE = emotional exhaustion, EWS = Empowerment at Work Scale, ,FFMQ = Five Facets of Mindfulness Questionnaire, FMI = Freilburg Mindfulness Inventory, HCP = health care providers, LOE = level of evidence, LOS = length of stay, HPLP = Health Promoting Lifestyle Profile II, HR = Heart rate, I^2 = percent variation, ICU = intensive care unit, IR = integrative review, IRB = Institutional Review Board, JS = job satisfaction, JSS = Job Satisfaction Scale, M = mean, MAAS = Mindfulness Attention Awareness Scale, MBI = Maslach Burnout Inventory, MBSR= mindfulness-based stress reduction, MD = moral distress, MIs = mindfulness-based interventions, ND = not defined, NRP = nurse residency program, OR = odds ratio, PA = Personal Accomplishment, PHQ9 = Personal Health Questionnaire, PI = Percent Improvement, PRISMA = Preferred Reporting Items for SR and Meta-Analysis, ProQOL = Professional Quality of Life Scale, PSS = Perceived Stress Scale, QATFQS = Quality Assessment Tool For Quantitative Studies, QE = quasi experimental, QOL = quality of life, RCT = randomized control trials, RR = relative risk, RT = resiliency training, SAS = Smith Anxiety Scale, SC = self-care, SCS = Self Compassion Scale, SD = standard deviation, SG = small groups, SM = stress management, SMART = Stress Management and Resiliency Training, SR = systematic review, SRI = stress reduction intervention, SRSI = Smith Relaxation States Inventory, STAI = State Trait Anxiety Inventory, WB = well-being, WPAI:GH = Workplace Productivity and Impairment: General Health, WPE = work place environment, ↑ = increase, ↓ = decrease, ↔ = no difference
Used with permission, © 2007 Fineout-Overholt

Table C1: Continued

Citation: author(s), date & title	Purpose of Study	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Definitions	Measure of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence RECOMMENDATIONS	Role of Ethics
Van der Riet, P. et al. (2018). The effectiveness of mindfulness meditation for nurses and nursing students: An integrated literature review.	To appraise the literature regarding the MM	Whittemore and Knafl's framework for IR	Databases: CINHAL, Medline, PsycINFO, EMBASE, EMCARE, ERIC, and SCOPUS. Hand search Terms: mindfulness, MBSR, Vipassana, nurses, nurse education. Limited to humans, English Qualitative and quantitative	16 articles Quantitative (n = 12), qualitative (n = 1), and mixed method (n = 3) Nurses (n = 9), students (n = 6), interprofessional (n = 2), nurse midwives (n = 5) Sample sizes: < 20 (n = 4), < 40 (n = 7), 40 – 100 (n = 3). Total n = 553	IV: MM • MBSR (n = 5) • Face to face (n = 14) • Duration 5 min./shift to 1 hour/week DV1: BO DV2: Mindfulness DV3: Stress DV4: Depression DV5: Anxiety DV6: WB	DV1: MBI DV2: MASS, FMI DV3: PSS, DSP, NSS DV4: DASS, BDI DV5: DASS DV6: GHQ	p values	DV1: ↓ (3 of 4 that assessed DV1); p < .05 DV2: ↑ (3 of 6 that assessed DV2); p =.03 to <.001 DV3: ↓ (10 of 11 that assessed DV3); p = 019 to < .001. DV4: ↓ (3 of 4 that assessed DV4); p < .05 - .001 DV5: ↓ (6 of 6 that assessed DV5); p < .05 - .001 DV6: ↑ (4 of 6 that assessed DV6); p < .5 - .001	LOE: V Weaknesses: • Generally small sample sizes • Many of the interventions included independent practice which was not monitored • Not homogeneous • Limited to English Strengths: • Results were consistent for measures when studied • Used valid scales for measurement • Systematic review of the articles with numeric rating scale Conclusions: • MI were correlated with ↓ in stress, anxiety, depression, and BO • MI were correlated with ↑ WB Recommendation: • Use mindfulness training with HCP to ↓ BO, stress, and anxiety • Benefits outweigh the risks	No IRB or consent needed.

Legend: BMI= brief mindfulness interventions, BO = burnout, BOE = body of evidence, CESD-10 = Center for Epidemiologic Depression scale rev., CDRS = Connor-Davidson Resiliency Scale, CFGNES = Casey Fink Graduate Nurse Experience Survey CI = confidence interval, CRS = clinician-rated safety, CS = cohort study, CST = communication skills training, DASS = Depression, Anxiety, Stress Scale, DP = depersonalization, EE = emotional exhaustion, EWS = Empowerment at Work Scale, ,FFMQ = Five Facets of Mindfulness Questionnaire, FMI = Freilburg Mindfulness Inventory, HCP = health care providers, LOE = level of evidence, LOS = length of stay, HPLP = Health Promoting Lifestyle Profile II, HR = Heart rate, I^2 = percent variation, ICU = intensive care unit, IR = integrative review, IRB = Institutional Review Board, JS = job satisfaction, JSS = Job Satisfaction Scale, M = mean, MAAS = Mindfulness Attention Awareness Scale, MBI = Maslach Burnout Inventory, MBSR= mindfulness-based stress reduction, MD = moral distress, MIs = mindfulness-based interventions, ND = not defined, NRP = nurse residency program, OR = odds ratio, PA = Personal Accomplishment, PHQ9 = Personal Health Questionnaire, PI = Percent Improvement, PRISMA = Preferred Reporting Items for SR and Meta-Analysis, ProQOL = Professional Quality of Life Scale, PSS = Perceived Stress Scale, QATFQS = Quality Assessment Tool For Quantitative Studies, QE = quasi experimental, QOL = quality of life, RCT = randomized control trials, RR = relative risk, RT = resiliency training, SAS = Smith Anxiety Scale, SC = self-care, SCS = Self Compassion Scale, SD = standard deviation, SG = small groups, SM = stress management, SMART = Stress Management and Resiliency Training, SR = systematic review, SRI = stress reduction intervention, SRSI = Smith Relaxation States Inventory, STAI = State Trait Anxiety Inventory, WB = well-being, WPAI:GH = Workplace Productivity and Impairment: General Health, WPE = work place environment, ↑ = increase, ↓ = decrease, ↔ = no difference

Used with permission, © 2007 Fineout-Overholt

Citation: author(s), date & title	Purpose of Study	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Definitions	Measure of Major Variables	Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence RECOMMENDATIONS	Role of Ethics
Gilmartin, H. et al. (2017). Brief Mindfulness practices for healthcare providers – A systematic literature review.	To determine the effect of BMI on WB	None	SR (V) Inclusion: MBI ≤ 4 duration, MDs and RNs Searched Medline, CINAHL, PsycINFO, Cochrane/ EBM Reviews, EMBASE, ISI Hand searching. Limited to English and peer-reviewed literature.	Practicing nurses, physicians, student nurses, or medical trainees in the acute care setting. Selected all study designs. Excluded mental health professional. 14 studies (7 RCT) – 833 HCP (n=10 – 245).	IV: MI (≤ 4) = paying attention on purpose (meditation, yoga, breathing, imagery, relaxation, MBSR) both virtual and in-person. DV1: BO DV2: mindfulness DV3: relaxation DV4: stress DV5: depression DV6: QOL	DV1: MBI DV2: MASS DV3: SRDI DV4: PSS DV5: DASS DV6: QOL score DV7: SAS DV8: various measures DV9: CDRS	Used p-value Internal validity measures (mean 4.1, range 3-6, SD 0.86)	DV1: ↓(1 of 4 that assessed) DV2: ↑ (5 of 6 that assessed) DV3: ↔ (0 of 1 that assessed) DV4: ↓ (2 of 2 that assessed) DV5: ↓ (4 of 5 that assessed) DV6: ↔ (↑ 3 of 6 that assessed) DV7: ↓ (2 of 2 that assessed) DV8: ↑ (9 of 14 that assessed) DV9: ↔ (↑ 2 of 4 that assessed)	LOE: V Weaknesses: •Risk for bias was moderate (score of 18 on D&B tool, 14 – 25, SD 3.38) •Poor internal validity measures, limited blinding •Adherence not reported •Heterogeneity across studies Strengths: •7 studies were RCTs •Studies reviewed by 3 independent reviewers and a 4th reviewer resolved abstract disagreements •Included a nurses and physicians (and trainees) •Acute care setting •Cohen's K = 0.89 indicates good reliability Conclusions: •MBI correlated with improved stress and anxiety. •8 of 14 studies indicated interest and feasibility Recommendations	No IRB or consent needed.

Legend: BMI= brief mindfulness interventions, BO = burnout, BOE = body of evidence, CESD-10 = Center for Epidemiologic Depression scale rev., CDRS = Connor-Davidson Resiliency Scale, CFGNES = Casey Fink Graduate Nurse Experience Survey CI = confidence interval, CRS = clinician-rated safety, CS = cohort study, CST = communication skills training, DASS = Depression, Anxiety, Stress Scale, DP = depersonalization, EE = emotional exhaustion, EWS = Empowerment at Work Scale, ,FFMQ = Five Facets of Mindfulness Questionnaire, FMI = Freilburg Mindfulness Inventory, HCP = health care providers, LOE = level of evidence, LOS = length of stay, HPLP = Health Promoting Lifestyle Profile II, HR = Heart rate, I^2 = percent variation, ICU = intensive care unit, IR = integrative review, IRB = Institutional Review Board, JS = job satisfaction, JSS = Job Satisfaction Scale, M = mean, MAAS = Mindfulness Attention Awareness Scale, MBI = Maslach Burnout Inventory, MBSR= mindfulness-based stress reduction, MD = moral distress, MIs = mindfulness-based interventions, ND = not defined, NRP = nurse residency program, OR = odds ratio, PA = Personal Accomplishment, PHQ9 = Personal Health Questionnaire, PI = Percent Improvement, PRISMA = Preferred Reporting Items for SR and Meta-Analysis, ProQOL = Professional Quality of Life Scale, PSS = Perceived Stress Scale, QATFQS = Quality Assessment Tool For Quantitative Studies, QE = quasi experimental, QOL = quality of life, RCT = randomized control trials, RR = relative risk, RT = resiliency training, SAS = Smith Anxiety Scale, SC = self-care, SCS = Self Compassion Scale, SD = standard deviation, SG = small groups, SM = stress management, SMART = Stress Management and Resiliency Training, SR = systematic review, SRI = stress reduction intervention, SRSI = Smith Relaxation States Inventory, STAI = State Trait Anxiety Inventory, WB = well-being, WPAI:GH = Workplace Productivity and Impairment: General Health, WPE = work place environment, ↑ = increase, ↓ = decrease, ↔ = no difference
Used with permission, © 2007 Fineout-Overholt

Table C1: Continued

Citation: author(s), date & title	Purpose of Study	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Definitions		Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence RECOMMENDATIONS	Role of Ethics
			Reviewed using PRISMA guidelines.		DV7: anxiety DV8: WB DV9: resilience DV10: attention			DV10: ↔ (↑ 1 of 2 that assessed)		
Ghawadra, S. F. et al (2019). Mindfulness-based stress reduction for psychological distress among nurses: A systematic review	Explore studies using MI based on MBSR for decreasing distress in nurses	None stated	SR of interventional studies, quantitative and mixed method of RNs using MI. Excluded unpublished papers, students and other HCP. MI not based on MBSR. Searched Science	Practicing RNs Of 1749 studies found, 9 fit the criteria. Sample size between 13 and 95. 2=RCT, 3=QE, 4= pre-post	IV: MI based on MBSR ranging from 2 weeks to 8 weeks duration. Presenter-led and virtual DV1: BO DV2: Mindfulness DV3: relaxation DV4: stress	DV1: MBI, CBI DV2: MASS, FFMQ DV3: SRDI DV4: PSS, DV5: DASS, BDI	There was no meta-analysis and the statistical analysis for each study was not reported.	DV1: ↓ (6 of 6 that assessed) DV2: ↑ (4 of 4 that assessed) DV3: ↑ (1 of 1 that assessed) DV4: ↓ (6 of 6 that assessed) DV5: ↓ (2 of 3 that assessed) DV6: ↑ (↑ 2 of 3 that assessed)	LOE: V Weaknesses: •Quality of the studies was rated as moderate to weak related to selection bias and confounders •Attrition rates were not reported in 4 studies and 2 reported high rates •Only 2 RCTs and 4 QE studies •Samples sizes were generally small, which limits generalizability •The benefits were not sustained after the interventions	No IRB or consent needed. Registered at PROSPERO database.

Legend: BMI= brief mindfulness interventions, BO = burnout, BOE = body of evidence, CESD-10 = Center for Epidemiologic Depression scale rev., CDRS = Connor-Davidson Resiliency Scale, CFGNES = Casey Fink Graduate Nurse Experience Survey CI = confidence interval, CRS = clinician-rated safety, CS = cohort study, CST = communication skills training, DASS = Depression, Anxiety, Stress Scale, DP = depersonalization, EE = emotional exhaustion, EWS = Empowerment at Work Scale, ,FFMQ = Five Facets of Mindfulness Questionnaire, FMI = Freilburg Mindfulness Inventory, HCP = health care providers, LOE = level of evidence, LOS = length of stay, HPLP = Health Promoting Lifestyle Profile II, HR = Heart rate, I^2 = percent variation, ICU = intensive care unit, IR = integrative review, IRB = Institutional Review Board, JS = job satisfaction, JSS = Job Satisfaction Scale, M = mean, MAAS = Mindfulness Attention Awareness Scale, MBI = Maslach Burnout Inventory, MBSR= mindfulness-based stress reduction, MD = moral distress, MIs = mindfulness-based interventions, ND = not defined, NRP = nurse residency program, OR = odds ratio, PA = Personal Accomplishment, PHQ9 = Personal Health Questionnaire, PI = Percent Improvement, PRISMA = Preferred Reporting Items for SR and Meta-Analysis, ProQOL = Professional Quality of Life Scale, PSS = Perceived Stress Scale, QATFQS = Quality Assessment Tool For Quantitative Studies, QE = quasi experimental, QOL = quality of life, RCT = randomized control trials, RR = relative risk, RT = resiliency training, SAS = Smith Anxiety Scale, SC = self-care, SCS = Self Compassion Scale, SD = standard deviation, SG = small groups, SM = stress management, SMART = Stress Management and Resiliency Training, SR = systematic review, SRI = stress reduction intervention, SRSI = Smith Relaxation States Inventory, STAI = State Trait Anxiety Inventory, WB = well-being, WPAI:GH = Workplace Productivity and Impairment: General Health, WPE = work place environment, ↑ = increase, ↓ = decrease, ↔ = no difference
Used with permission, © 2007 Fineout-Overholt

Table C1: Continued

Citation: author(s), date & title	Purpose of Study	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Definitions		Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence RECOMMENDATIONS	Role of Ethics

			Direct, PubMed, EBSCO, Springer link, Web of science. and hand searching.
			
			Reviewed using PRISMA guidelines and QAFTQS for quality.
					DV5: depression
					
					DV6: life satisfaction
					
					DV7: anxiety
					
					DV8: Self compassion
					
					DV9: Happiness
						DV6: various
						
						DV7: STAI, DASS
						
						DV8: SCS
						
						DV9: Subjective Happiness Scale
								DV7: ↓ (2 of 3 that assessed)
								
								DV8: ↑ (2 of 3 that assessed)
								
								DV9: ↑ (↑ 1 of 1 that assessed)
									•Heterogeneity of measures precluded performing a meta-analysis
									Strengths:
									  •Studies reviewed by 2 independent reviewers, 100% concordance
									  •Followed PRISMA guidelines
									  •Included brief MI
									  •Excluded students
									Conclusions:
									  •MBSR-based interventions were correlated with decreased BO, stress, anxiety, life satisfaction, self-compassion, and depression
									  •Brief versions of MBSR can be effective and feasible; less time and money required
									Recommendations
									  •Support the use MI to decrease stress and anxiety in acute care nurses
									  •Benefits outweigh risks	

Legend: BMI= brief mindfulness interventions, BO = burnout, BOE = body of evidence, CESD-10 = Center for Epidemiologic Depression scale rev., CDRS = Connor-Davidson Resiliency Scale, CFGNES = Casey Fink Graduate Nurse Experience Survey CI = confidence interval, CRS = clinician-rated safety, CS = cohort study, CST = communication skills training, DASS = Depression, Anxiety, Stress Scale, DP = depersonalization, EE = emotional exhaustion, EWS = Empowerment at Work Scale, ,FFMQ = Five Facets of Mindfulness Questionnaire, FMI = Freilburg Mindfulness Inventory, HCP = health care providers, LOE = level of evidence, LOS = length of stay, HPLP = Health Promoting Lifestyle Profile II, HR = Heart rate, I^2 = percent variation, ICU = intensive care unit, IR = integrative review, IRB = Institutional Review Board, JS = job satisfaction, JSS = Job Satisfaction Scale, M = mean, MAAS = Mindfulness Attention Awareness Scale, MBI = Maslach Burnout Inventory, MBSR= mindfulness-based stress reduction, MD = moral distress, MIs = mindfulness-based interventions, ND = not defined, NRP = nurse residency program, OR = odds ratio, PA = Personal Accomplishment, PHQ9 = Personal Health Questionnaire, PI = Percent Improvement, PRISMA = Preferred Reporting Items for SR and Meta-Analysis, ProQOL = Professional Quality of Life Scale, PSS = Perceived Stress Scale, QATFQS = Quality Assessment Tool For Quantitative Studies, QE = quasi experimental, QOL = quality of life, RCT = randomized control trials, RR = relative risk, RT = resiliency training, SAS = Smith Anxiety Scale, SC = self-care, SCS = Self Compassion Scale, SD = standard deviation, SG = small groups, SM = stress management, SMART = Stress Management and Resiliency Training, SR = systematic review, SRI = stress reduction intervention, SRSI = Smith Relaxation States Inventory, STAI = State Trait Anxiety Inventory, WB = well-being, WPAI:GH = Workplace Productivity and Impairment: General Health, WPE = work place environment, ↑ = increase, ↓ = decrease, ↔ = no difference
Used with permission, © 2007 Fineout-Overholt

Table C1: Continued

Citation: author(s), date & title	Purpose of Study	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Definitions		Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence RECOMMENDATIONS	Role of Ethics
DuBois, C. A. (2018). Implementing a resilience-training program for nursing graduated.	To assess the impact of RT on EE in newly graduated nurses.	None	Qualitative, descriptive study (VI). Interactive RT (diversity, mindfulness, positivity, self-care, and problem-solving) added to an existing NRP with pre- and post-measures.	Newly graduated nurses ($n = 61$)	IV: 10-hours, presenter-led RT DV1: Stress DV24: Asking for help DV25: Difficulty prioritizing DV26: Overwhelm DV27: Communication with MDs DV28: Comfort delegating DV29: Communication with patients	Subset of 7 CFGNES questions for DVs 4-point Likert scale satisfaction survey	Mean change in CFGNES questions Degree of satisfaction on scale	DV2, 5, 6, 7: ↑ mean in positively worded items DV1, 3, 4: ↓ mean in negatively worded items DV8: • 70% excellent rating of program • 62% met their objectives • 90% thought program should continue	LOE: VI Weaknesses: • Low response rate for surveys • Self-report on surveys • Single cohort at one facility without a control • Data did not indicate correlation or confidence. Strengths: • Use a validated survey for assessment Conclusions: • Resiliency training may be beneficial to prevent BO in newly graduated nurses Recommendation: • It may be feasible and beneficial to add resiliency and mindfulness training into NRPs • Benefits outweigh risks	Deemed not research, no IRB approval was needed

Legend: BMI= brief mindfulness interventions, BO = burnout, BOE = body of evidence, CESD-10 = Center for Epidemiologic Depression scale rev., CDRS = Connor-Davidson Resiliency Scale, CFGNES = Casey Fink Graduate Nurse Experience Survey CI = confidence interval, CRS = clinician-rated safety, CS = cohort study, CST = communication skills training, DASS = Depression, Anxiety, Stress Scale, DP = depersonalization, EE = emotional exhaustion, EWS = Empowerment at Work Scale, ,FFMQ = Five Facets of Mindfulness Questionnaire, FMI = Freilburg Mindfulness Inventory, HCP = health care providers, LOE = level of evidence, LOS = length of stay, HPLP = Health Promoting Lifestyle Profile II, HR = Heart rate, I^2 = percent variation, ICU = intensive care unit, IR = integrative review, IRB = Institutional Review Board, JS = job satisfaction, JSS = Job Satisfaction Scale, M = mean, MAAS = Mindfulness Attention Awareness Scale, MBI = Maslach Burnout Inventory, MBSR= mindfulness-based stress reduction, MD = moral distress, MIs = mindfulness-based interventions, ND = not defined, NRP = nurse residency program, OR = odds ratio, PA = Personal Accomplishment, PHQ9 = Personal Health Questionnaire, PI = Percent Improvement, PRISMA = Preferred Reporting Items for SR and Meta-Analysis, ProQOL = Professional Quality of Life Scale, PSS = Perceived Stress Scale, QATFQS = Quality Assessment Tool For Quantitative Studies, QE = quasi experimental, QOL = quality of life, RCT = randomized control trials, RR = relative risk, RT = resiliency training, SAS = Smith Anxiety Scale, SC = self-care, SCS = Self Compassion Scale, SD = standard deviation, SG = small groups, SM = stress management, SMART = Stress Management and Resiliency Training, SR = systematic review, SRI = stress reduction intervention, SRSI = Smith Relaxation States Inventory, STAI = State Trait Anxiety Inventory, WB = well-being, WPAI:GH = Workplace Productivity and Impairment: General Health, WPE = work place environment, ↑ = increase, ↓ = decrease, ↔ = no difference
Used with permission, © 2007 Fineout-Overholt

Citation: author(s), date & title	Purpose of Study	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Definitions		Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence RECOMMENDATIONS	Role of Ethics
					DV30: Satisfaction					
Kulka, J. et al. (2019). Mindfulness-based Stress Reduction for Newly Graduated Nurses.	QI to evaluate the effect of implementing enhanced MBSR training into a NRP on mindfulness awareness and perceived stress	None stated	Mixed method with a pre/post-test design and qualitative description of themes	Newly graduated nurses in a transition-to-practice program (*n* = 88)	IV: MBSR – presenter-led with virtual practice DV1: perceived stress DV2: Mindfulness awareness DV3: Satisfaction DV4: Qualitative themes	DV1: PSS DV2: MASS DV3: 6-point Likert scale DV4: targeted questions	Mean, SD, t-test, *p*-value	DV1: ↓ (t [66] = 2.16, *p* = .034) Pre (M = 19.47, SD = 7.16); post (M = 15.71, SD = 6.90) DV2: ↑ (t [67] = 1.93, *p* = .057) Pre (M = 3.66, SD = .81); post (M = 4.03, SD = .69) DV3 median = 6- 4.5; 4.5 was r/t use of MBSR. DV4: improved patient safety, communication, and teamwork	LOE: VI Weaknesses: •Convenience, volunteer sample may indicate bias •No control group for comparison •Low-level evidence Strengths: •Used quantitative and qualitative data •Used validated tools for measurement •Acute care setting, new RNs Conclusions: •MBSR has potential to increase mindfulness and decrease stress in new nurses. •This can encourage improved patient safety, communication, and teamwork Recommendations •Although low-level evidence, study adds to the BOE for providing MIs in the acute care setting. •MIs can be integrated in NRP Benefits outweigh risks	Deemed QI and not research. No IRB needed

Legend: BMI= brief mindfulness interventions, BO = burnout, BOE = body of evidence, CESD-10 = Center for Epidemiologic Depression scale rev., CDRS = Connor-Davidson Resiliency Scale, CFGNES = Casey Fink Graduate Nurse Experience Survey CI = confidence interval, CRS = clinician-rated safety, CS = cohort study, CST = communication skills training, DASS = Depression, Anxiety, Stress Scale, DP = depersonalization, EE = emotional exhaustion, EWS = Empowerment at Work Scale, ,FFMQ = Five Facets of Mindfulness Questionnaire, FMI = Freilburg Mindfulness Inventory, HCP = health care providers, LOE = level of evidence, LOS = length of stay, HPLP = Health Promoting Lifestyle Profile II, HR = Heart rate, I^2 = percent variation, ICU = intensive care unit, IR = integrative review, IRB = Institutional Review Board, JS = job satisfaction, JSS = Job Satisfaction Scale, M = mean, MAAS = Mindfulness Attention Awareness Scale, MBI = Maslach Burnout Inventory, MBSR= mindfulness-based stress reduction, MD = moral distress, MIs = mindfulness-based interventions, ND = not defined, NRP = nurse residency program, OR = odds ratio, PA = Personal Accomplishment, PHQ9 = Personal Health Questionnaire, PI = Percent Improvement, PRISMA = Preferred Reporting Items for SR and Meta-Analysis, ProQOL = Professional Quality of Life Scale, PSS = Perceived Stress Scale, QATFQS = Quality Assessment Tool For Quantitative Studies, QE = quasi experimental, QOL = quality of life, RCT = randomized control trials, RR = relative risk, RT = resiliency training, SAS = Smith Anxiety Scale, SC = self-care, SCS = Self Compassion Scale, SD = standard deviation, SG = small groups, SM = stress management, SMART = Stress Management and Resiliency Training, SR = systematic review, SRI = stress reduction intervention, SRSI = Smith Relaxation States Inventory, STAI = State Trait Anxiety Inventory, WB = well-being, WPAI:GH = Workplace Productivity and Impairment: General Health, WPE = work place environment, ↑ = increase, ↓ = decrease, ↔ = no difference

Used with permission, © 2007 Fineout-Overholt

Table C1: Continued

Citation: author(s), date & title	Purpose of Study	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Definitions		Data Analysis	Study Findings	Appraisal of Worth to Practice Strength of the Evidence RECOMMENDATIONS	Role of Ethics
Farina, S. M. et al. (2018). Introducing mindfulness practices for self-care.	To determine nurses' interest in and benefit from mindfulness practices to enhance self-care.	None	Qualitative and quantitative EBP study (VI). Nurses attending mandatory training were offered 10 – 12 minutes of MI. Data was collected pre- and post-intervention	545 of 1,300 nurses voluntarily attended training at one health care system.	IV: MI Definition - presenter- led, 12-minute imagery and meditation DV1: Relaxation DV2: Stress DV3: Anxiety DV4: Fatigue DV5: Interest in MI	DV1: Biofeedback cards (temperature sensitive) DV2,3, 4, & 5: Self-report on a 4-point Likert Scale	Percent improvement pre and post	DV1: ↑ DV2, 3, 4, 5: •71% reported benefit or great benefit 1-3 •Most nurses wanted to use and learn more about MI.	LOE: VI Weaknesses: •Convenience, volunteer sample may indicate bias •Self-report of most measures •Low level evidence •Only nurses from one health care system; not generalizable Strengths: •Large sample size •Biofeedback cards have been shown to be valid measures •Acute care setting •Statistics not reliable Conclusions: •Nurses are interested in MI •MIs correlated with relaxation •↓ in stress, fatigue, & anxiety •Lack of time, interest and religious beliefs deterrents Recommendations •Although low-level evidence, this study adds to the BOE for providing MIs in the acute care setting. •Feasible to incorporate MI into educational offerings •Benefits outweigh risks	Deemed not research. No IRB needed

Legend: BMI= brief mindfulness interventions, BO = burnout, BOE = body of evidence, CESD-10 = Center for Epidemiologic Depression scale rev., CDRS = Connor-Davidson Resiliency Scale, CFGNES = Casey Fink Graduate Nurse Experience Survey CI = confidence interval, CRS = clinician-rated safety, CS = cohort study, CST = communication skills training, DASS = Depression, Anxiety, Stress Scale, DP = depersonalization, EE = emotional exhaustion, EWS = Empowerment at Work Scale, ,FFMQ = Five Facets of Mindfulness Questionnaire, FMI = Freilburg Mindfulness Inventory, HCP = health care providers, LOE = level of evidence, LOS = length of stay, HPLP = Health Promoting Lifestyle Profile II, HR = Heart rate, I^2 = percent variation, ICU = intensive care unit, IR = integrative review, IRB = Institutional Review Board, JS = job satisfaction, JSS = Job Satisfaction Scale, M = mean, MAAS = Mindfulness Attention Awareness Scale, MBI = Maslach Burnout Inventory, MBSR= mindfulness-based stress reduction, MD = moral distress, MIs = mindfulness-based interventions, ND = not defined, NRP = nurse residency program, OR = odds ratio, PA = Personal Accomplishment, PHQ9 = Personal Health Questionnaire, PI = Percent Improvement, PRISMA = Preferred Reporting Items for SR and Meta-Analysis, ProQOL = Professional Quality of Life Scale, PSS = Perceived Stress Scale, QATFQS = Quality Assessment Tool For Quantitative Studies, QE = quasi experimental, QOL = quality of life, RCT = randomized control trials, RR = relative risk, RT = resiliency training, SAS = Smith Anxiety Scale, SC = self-care, SCS = Self Compassion Scale, SD = standard deviation, SG = small groups, SM = stress management, SMART = Stress Management and Resiliency Training, SR = systematic review, SRI = stress reduction intervention, SRSI = Smith Relaxation States Inventory, STAI = State Trait Anxiety Inventory, WB = well-being, WPAI:GH = Workplace Productivity and Impairment: General Health, WPE = work place environment, ↑ = increase, ↓ = decrease, ↔ = no difference
Used with permission, © 2007 Fineout-Overholt

93

Table C2

Level of Evidence Synthesis Table

Level of Evidence	1	2	3	4	5	6	7	8	9	10	11	12
Level 1: Systematic Review or Meta-Analysis	X											
Level II: Randomized Control Trials		X	X	X	X							
Level III: Control Trials without Randomization						X						
Level IV: Case-Control or Cohort Study												
Level V: Systematic Review of Qualitative Descriptive Studies							X	X	X			
Level VI: Qualitative or descriptive study										X	X	X
Level VII: Expert Opinion or Consensus												

Legend: 1 = West, C. P. et al. (2016), 2 = Amutio, A. et al. (2014), 3 = West, C. P. et al. (2014), 4= Alexander, G. K. et al. (2015), 4 = Duchemin, A. et al. (2015), 6 = Johnson, J. R. et al. (2015), 7 = van der Riet, P. et al. (201), 8 = Gilmartin, H. et al. (2017), 9 = Ghawadra, S. F. (2019), 10 = DuBois, C. A. et al. (2018), 11 = Kulka, J. et al. (2019), 12 = Farina, S. M. et al. (2018)

Table C3

Demographics and Design Synthesis Table

Study	1	2	3	4	5	6	7	8	9	10	11	12
LOE	I	II	II	II	II	III	V	V	V	VI	VI	VI
Year	2016	2015	2014	2015	2015	2015	2018	2017	2019	2018	2019	2018
Setting	Acute Care	Private, Public	Acute Care	Acute Care	Acute Care	Acute Care	Various	Acute Care	Not stated	Acute Care	Acute Care	Acute Care
HCPs	Physicians, Residents	Physicians	Physicians	Nurses	Various HCPs	Various HCPs	Nurses, students	Nurses, Physicians, Students	Nurses	NGN	NGN	Nurses
Sample Size	15 RCT 37 CS (*n* = 716/ 2,617)	42	74 trial, 350 non-trial	40	32	40	16 studies (*n* = 553)	14 studies (*n* = 833)	9 studies (*n* = 467)	61	88	454
Duration	Varied	8-week, 12-month f/u	9-month, 12-month f/u	8-week	8-week	8-week	1day with f/u – 24 weeks	1 – 36 weeks	Varied (2 -8 weeks)	1-year	8-week	1 time
Session length	Varied	8, 2.5 hours, 1, 8 hours	1 hour	N/A	1-2 hours	2.5 hours	.5 – 2 hours	2 min. – 3 hours	.5 – 2 hours	N/A (10 hours total)	N/A	15 min.
Sex	M & F	M & F	M & F	M & F	M & F	M & F	M & F	M & F	M & F	M & F	M & F	M & F

Legend: 1 = West, C. P. et al. (2016), 2 = Amutio, A. et al. (2014), 3 = West, C. P. et al. (2014), 4= Alexander, G. K. et al. (2015), 4 = Duchemin, A. et al. (2015), 6 = Johnson, J. R. et al. (2015), 7 = van der Riet, P. et al. (201), 8 = Gilmartin, H. et al. (2017), 9 = Ghawadra, S. F. (2019), 10 = DuBois, C. A. et al. (2018), 11 = Kulka, J. et al. (2019), 12 = Farina, S. M. et al. (2018)

CS = Cohort Study, F = female, f/u = follow up, HCPs = health care providers, M = male, N/A = not available, NGNs = newly licensed nurses, RCT = randomized control trials

Table C4

Intervention Synthesis Table

Study	1	2	3	4	5	6	7	8	9	10	11	12	Synthesis
LOE	I	II	II	II	II	III	V	V	V	VI	VI	VI	
MBSR	X	X					X	X	X	X			6 of 12
MI	X		X		X	X*	X	X	X*	X	X	X	10 of 12
SG	X		X										2 of 12
SM	X						X						2 of 12
Yoga				X			X	X					3 of 12
RT						X				X			2 of 12
Meditation							X	X				X	3 of 12
Self-care				X			X			X			3 of 12

Legend: 1 = West, C. P. et al. (2016), 2 = Amutio, A. et al. (2014), 3 = West, C. P. et al. (2014), 4= Alexander, G. K. et al. (2015), 4 = Duchemin, A. et al. (2015), 6 = Johnson, J. R. et al. (2015), 7 = van der Riet, P. et al. (201), 8 = Gilmartin, H. et al. (2017), 9 = Ghawadra, S. F. (2019), 10 = DuBois, C. A. et al. (2018), 11 = Kulka, J. et al. (2019), 12 = Farina, S. M. et al. (2018)

MBSR = Mindfulness-based stress reduction, MI = Mindfulness-based interventions, SM = Small groups, SM = Stress Management, RT = Resiliency Training   * Parallels MBSR

Table C5

Outcomes Synthesis Table

Study	1	2	3	4	5	6	7	8	9	10	11	12	Synthesis
Interventions	MBSR, MI, SM	MBSR	MI	Yoga SC	MI	MI, RT	MBSR, MI, SM, SC	MBSR, MI, Yoga	MBSR	MI, RT, SC	MBSR	MI	
Stress			↔		↓	↓	↓	↓	↓	↓	↓	↓	8 of 9 studies that evaluated showed a reduction
Anxiety						↓	↓	↓	↓			↓	5 of 5 studies that evaluated showed a reduction
Burnout	↓		↓		↓		↓	↔	↓	↓			6 of 7 studies that evaluated showed a reduction
EE	↓		↓	↓									3 of 3 studies that evaluated showed a reduction
DP	↓		↓	↓									3 of 3 studies that evaluated showed a reduction
Mindfulness		↑		↑			↑	↔	↑		↑		5 of 6 studies that evaluated showed an improvement
Well-being							↑	↑					2 of 2 studies that evaluated showed an improvement
Depression			↔			↓	↓	↔	↓				3 of 5 studies that evaluated showed a reduction

Legend: 1 = West, C. P. et al. (2016), 2 = Amutio, A. et al. (2014), 3 = West, C. P. et al. (2014), 4= Alexander, G. K. et al. (2015), 4 = Duchemin, A. et al. (2015), 6 = Johnson, J. R. et al. (2015), 7 = van der Riet, P. et al. (201), 8 = Gilmartin, H. et al. (2017), 9 = Ghawadra, S. F. (2019), 10 = DuBois, C. A. et al. (2018), 11 = Kulka, J. et al. (2019), 12 = Farina, S. M. et al. (2018)

EE = emotional exhaustion, DP = depersonalization, MBSR = mindfulness-based stress reduction, MI = mindfulness-based interventions (meditation, small groups, and yoga), QOL = quality of life, RT = resiliency training, SC = self-care, Yoga = yoga without other MI

| Study	1	2	3	4	5	6	7	8	9	10	11	12	Synthesis
Interventions	MBSR, MI, SM	MBSR	MI	Yoga SC	MI	MI, RT	MBSR, MI, SM, SC	MBSR, MI, Yoga	MBSR	MI, RT, SC	MBSR	MI	
Relaxation		↑						↑	↔				2 of 3 studies that evaluated showed an improvement
QOL			↔					↑	↑				2 or 3 studies that evaluated showed an improvement
Engagement			↑										1 of 1 study that evaluated showed an improvement
Resilience								↔					0 of 1 study that evaluated showed an improvement
Safety								↔					0 of 1 study that evaluated showed an improvement

Legend: 1 = West, C. P. et al. (2016), 2 = Amutio, A. et al. (2014), 3 = West, C. P. et al. (2014), 4= Alexander, G. K. et al. (2015), 4 = Duchemin, A. et al. (2015), 6 = Johnson, J. R. et al. (2015), 7 = van der Riet, P. et al. (201), 8 = Gilmartin, H. et al. (2017), 9 = Ghawadra, S. F. (2019), 10 = DuBois, C. A. et al. (2018), 11 = Kulka, J. et al. (2019), 12 = Farina, S. M. et al. (2018)

EE = emotional exhaustion, DP = depersonalization, MBSR = mindfulness-based stress reduction, MI = mindfulness-based interventions (meditation, small groups, and yoga), QOL = quality of life, RT = resiliency training, SC = self-care, Yoga = yoga without other MI

Appendix D. Theoretical Framework

Figure 1

*Model for the Theory of Self-Transcendence and Burnout.*
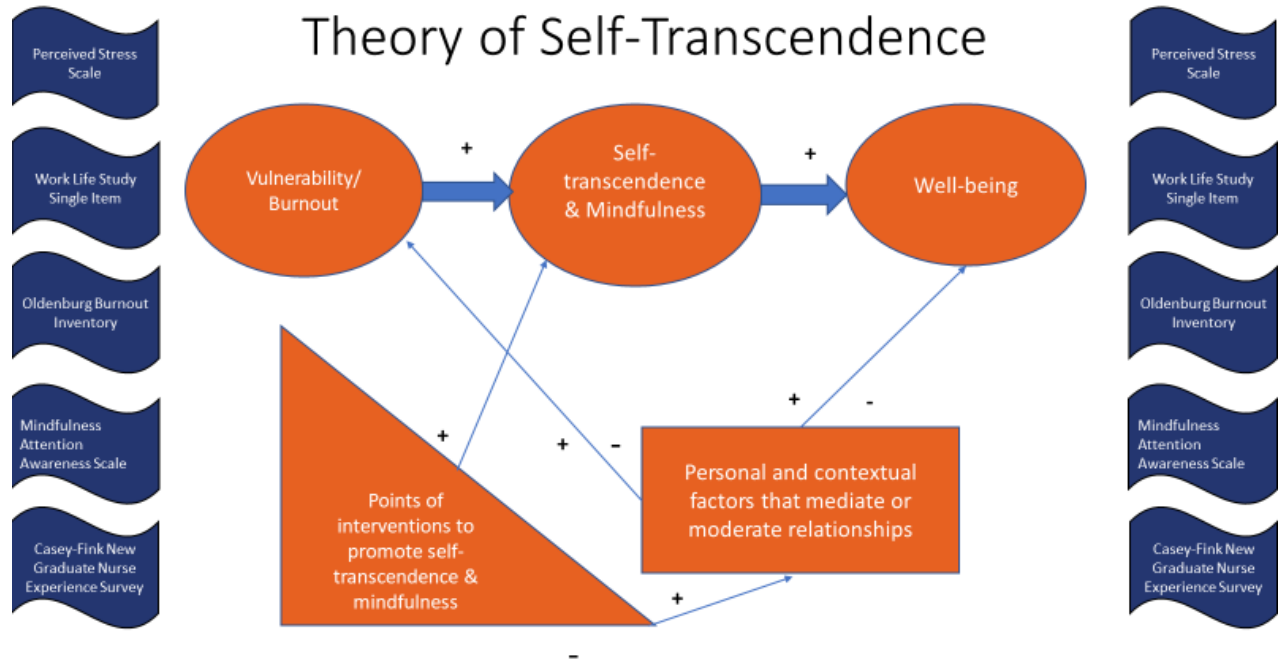
Note. The theory of self-transcendence related to the impact of mindfulness interventions in mitigating burnout in health care providers and personal and environmental factors of excess demand caused by perceived stress, conflict, and lack of intrapersonal, interpersonal, and organizational resources. Mindfulness-based interventions can be implemented to achieve self-transcendence and well-being by developing an awareness of self, others, the environment, and spirituality (Reed, 200).

Appendix E. Applied Models

Figure E1

Operationalized Iowa Model of Evidence-Based Practice
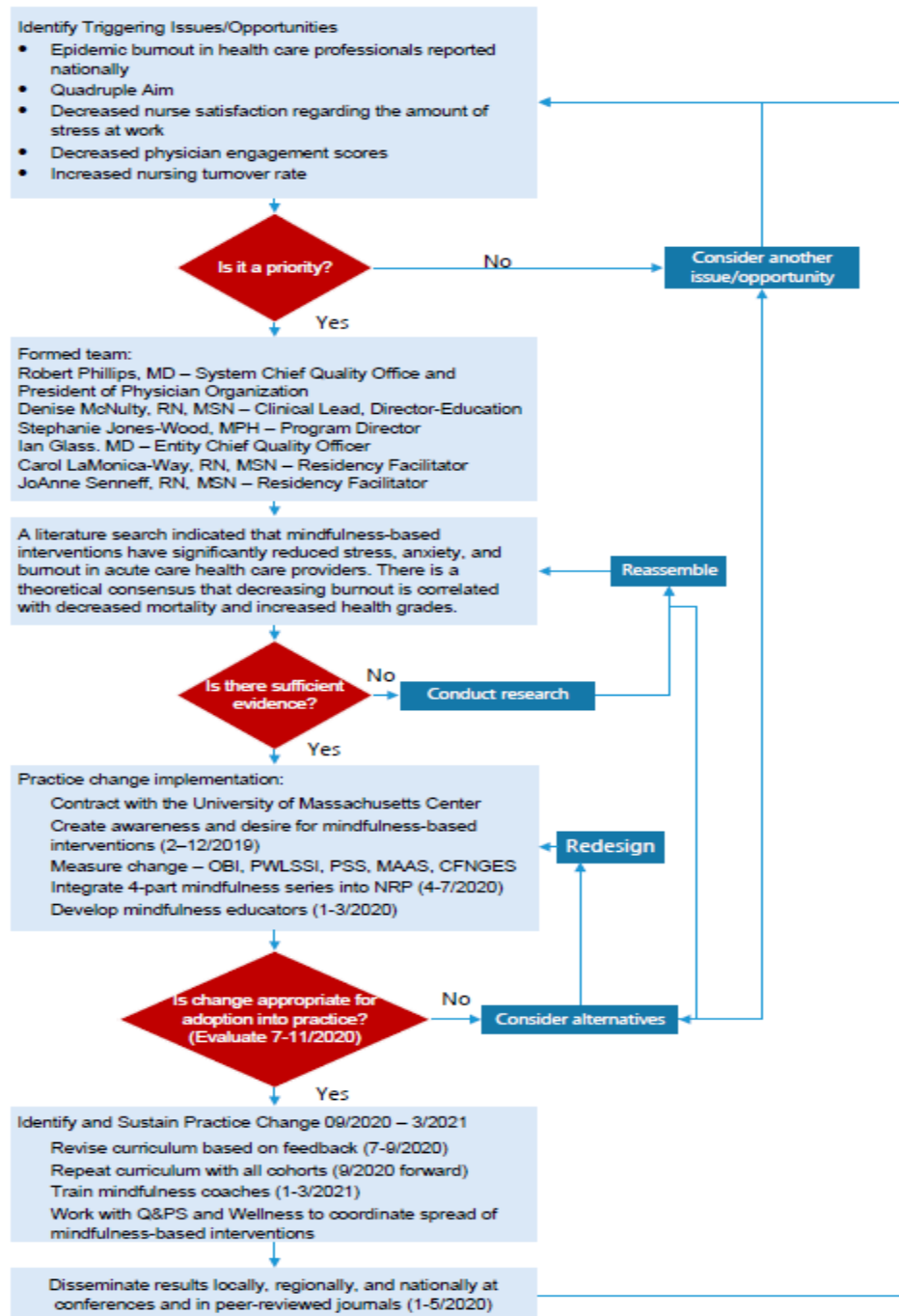
Note. The Iowa Model Evidence-Based Practice, as depicted, guided the integration of mindfulness training into the nurse residency program (Buckwalter et al., 2017)

Figure E2

Factors Influencing Each Element of the ADKAR Model

ADKAR Elements	Factors Influencing Success
Awareness of the need for change	- a person's view of the current state - how a person perceives problems - credibility of the sender of the awareness message - circulation of the misinformation and rumors - contestability of the reasons for change
Desire to support and participate in the change	- the nature of the change (what the change is and how it will impact each person) - the organizational or environmental context for the change (his or her perception of the organization or environment the is subject to change - each individual's personal situation - what motivates a person (those intrinsic motivators that are unique to an individual)
Knowledge of how to change	- the current knowledge base of an individual - the capability of the person to gain additional knowledge - resources available for education and training - access to or existence of the required knowledge
Ability to implement the required skills and behaviors	- psychological blocks - physical abilities - intellectual capability - the time available to develop the needed skills - the availability of resources to support the development of new abilities
Reinforcement to sustain the change	- the degree to which the reinforcement is meaningful and specific to the person impacted by the change - the association of the reinforcement with the actual demonstrated progress or accomplishment - the absence of negative consequences - an accountability system that creates an ongoing mechanism to reinforce the change

Note. This table was replicated with permission-www.prosci.com. © Prosci 2019. All rights reserved.

Table E2

Applied Leadership Model Map
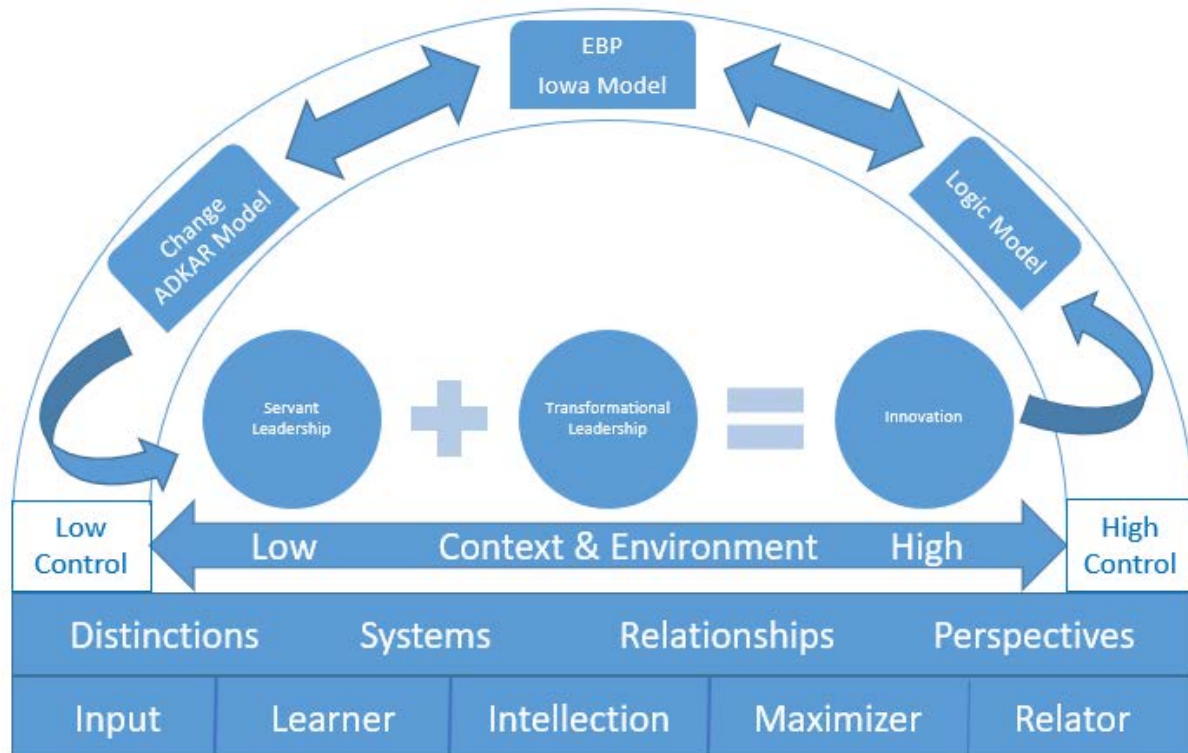
Note. Map depicting strengths-based leadership using metacognitive patterns of distinctions, systems, relationships, and perspectives integrated with flexible leadership, change, EBP, and logic models in the innovative implementation of EBP

Appendix F. Logic Model

Figure 1

Logic Model for Integrating Mindfulness Training Into the Nurse Residency Program

Program Name and Student Name: University of Texas – Tyler, Scholarly Performance Improvement Project
Denise Stage McNulty; Faculty Mentor – Colleen Marzilli, PhD, DNP, MBA, RN-BC, CCM, PHNA-BC, CNE, NEA-BC

Problem: Burnout is an epidemic in health care professionals.

Program Goal: To decrease perceived stress and burnout in new graduate nurses (NGNs) in the acute care environment during their first six months of practice

Resources/Inputs		
	Necessities List	**Wish List**
Human Resources	1. Program lead/Learning facilitator – 120 hours over 40 weeks 2. Residency facilitators – 2 facilitators 20 hours each over 40 weeks 3. NGNs – 100-131, 8 hours for 4, 2-hour presentations, and practice time	1. Mindfulness instructor – 8 hours for 4, 2-hour presentations (additional 24 hours for training if needed)
Office Supplies	1. Paper for handouts/logs – 2 reams 2. Computer access 3. Printer access	1. Spiral-bound mindfulness handbooks with logs included -100
Organization Resources	1. Auditorium for courses 2. AV Equipment 3. Outlook distribution lists for email reminders	1. Meditation rooms at each of eight facilities 2. Mindfulness webpage to store videos for practice

Appendix F: Continued

OUTPUTS		OUTCOMES		
Activities	Audience(s)	Short-Term	Mid-Term	Long-Term
• Develop/obtain AV materials for mindfulness training • Assess baseline outcome measures of burnout, stress, and mindfulness via an online survey • Mindfulness training from the Center for Mindfulness in Medicine • Conduct mindfulness training (1-hour x 4) with 15 minutes of practice encouraged 5 times/week • Send out reminders for mindfulness practice and log completion • Obtain mid-program outcome measures via an online survey • Obtain 6-month outcome measures via an online survey • Analyze outcomes and share with stakeholders • Disseminate outcomes internally, academically, and externally	• Program lead and residency facilitators • Program lead to send to NGNs in the transition to practice program (TTPP) • Program lead and possible one other • NGNs ($n = 131$) in the TTPP • Program lead and NGNs • Program lead and NGNs • Program lead and NGN in the TTPP • Program lead and NGN in the TTPP • Program lead, residency facilitators, and all stakeholders • Program lead and NRP Facilitators	• Resources obtained 1/2/2020 • 90% of NGNs will complete initial surveys 2-3/2020	• Training complete in Spring-Summer 2020 • 80% of NGN will attend training • 75% of NGN in TTPP will keep a log of mindfulness practice (2/20 – 5/20) • 80% of NGN in the TTPP will complete mid-program survey/assessments in May 2020	• >65% of NGN in the TTPP will complete final survey in August 2020 • Compared outcomes between the Winter and Fall cohorts 11/2020 • Shared with stakeholders, abstracts submitted Q1& Q2 '21

Appendix F: Continued

Stakeholders

Active
- Robert Phillips, MD, PhD, FACC – System Industry Sponsor, Chief Physician Executive
- Denise Stage McNulty, RN, MSN, MS, NE-BC – Program lead (clinical)
- Stephanie Jones-Wood, MPH, Program Director, Program Support
- Ian Glass, MD, Chief Quality Officer, Organization Industry Sponsor
- Nurse Residency Facilitators
- NGNs in the NRP

Supportive Stakeholders
- Executive leadership of Houston Methodist Willowbrook Hospital
- System Nursing IRB Oversight
- Champions

External Stakeholders
- Mindfulness Trainers
- CCNE – Certifying body for the residency program
- Colleen Marzilli, PhD, DNP, NEA-BC – Faculty Mentor
- UT Tyler Faculty

Process Indicators

- Percentage of NGNs in the TTPP completing survey/assessments for stress, mindfulness, and burnout at baseline, 3 months, and 6 months
- Percentage of NGNs in the TTPP attending the mindfulness training
- Mindfulness practice log completion and amount of practice

Assumptions

- The organization will continue to support mindfulness-based interventions
- The leadership of the organization will remain constant
- The organization will continue to hire NGN into the TTPP
- NGNs in the TTPP will have the desire and time to practice mindfulness
- The NGNs in the TTPP are not already practicing mindfulness
- NGNs experience stress, burnout, and reality shock in the first 6 months of transition to practice
- Key stakeholders will remain in their current positions and be involved in the project

Appendix F: Continued

External Influencing Factors	
Environment/Setting	• The fiscal environment of the organization, health care, or the US • The regulatory environment for health care • System Health and Wellness offerings • Health system strategic priorities
Time	• Acuity and volume of patients entering the health care system • The program lead workload
Audiences targeted	• Priorities of the Residency Facilitators and TTPP • Priorities of all stakeholders • Number of residents

Appendix G. Timelines / Gantt Chart

Figure G1

Project Timeline With Evidence-Based Interventions and Outcomes

PICOT Question: For health care providers in the acute care setting (P), how does mindfulness and resiliency training (I) compare to no training on mindfulness and resiliency (C) affect stress (O^1), anxiety (O^2), burnout (O^3), engagement (O^4), and health care errors (O^5) over 90 days (T)?		
Team Leader: Denise Stage McNulty		
Team Members: Robert Phillips, MD, PhD – System Chief Quality Officer and COO of the Physician Organization, Stephanie Jones Wood, MS – Program Director Quality and Patient Safety, Ian Glass, MD, MBA – Chief Quality Officer, Sandra Alverson, MSN, RN, - Director of Quality and Patient Safety; Vickie Brownewell, Chief Nursing Officer and Vice President; Jean Baril, Rebecca Eldridge, Margaret Fletcher - University of Massachusetts Center for Mindfulness in Medicine, Health Care, and Society (CFM)		
Agency Contact/Mentor Contact Info: Ian Glass, MD, MBA, Chief Quality Officer, Adjunct Faculty		
Preliminary Checkpoint A	o Describe the chosen Change model and how it will guide the implementation project	Notes: This project will follow the IOWA Model Revised: Evidence-Based Practice to Promote Excellence in Health Care (University of Iowa Hospitals and Clinics, 2015). This model is introduced in the organization's professional practice model and will guide the decisions made throughout the implementation using the indicated decision points and feedback loops. Aspects of the ADKAR Change Management Model (Hiatt, 2006) to drive the changes in practice by first creating awareness and desire, then providing the knowledge needed to create the ability change, and finally, the reinforcement needed to maintain and sustain the change over time. OUTCOMES (Process & Completion): outcomes include delivery of the developed content and stress, burnout, and mindfulness

Preliminary Checkpoint B	o Who are the stakeholders for your project: o Active (on the implementation team) & Supportive (not on the team, but essential to success) o Identify project team roles & leadership o Begin acquisition of any necessary approvals for project implementation and dissemination (e.g., system leadership, unit leadership, ethics board [IRB]) o ***Consult with Agency Contact/Mentor***	Stakeholders/Role Active • Robert Phillips/System Executive Sponsor • Denise Stage McNulty, Clinical Lead • Stephanie Jones Wood, Project Management Lead • Carol LaMonica-Way, MSN, RNC-OB Residency Coordinator • Jo-Anne Senneff, MSN, CCRN-K Residency Coordinator • System NGNs Supportive Stakeholders/Role • Ian Glass, MD, MBA, Chief Quality Officer and Organizational Mentor • Sandra Alverson, Quality and Outcomes Support • Vickie Brownewell, MSN CNO Champion • Keith Barber, MBA – President/Chief Executive Officer, • Barbara Quandt, MSN, RN, NE-BC – Chief Nursing Officer/Vice President • Shannan Hamlin, RN, Ph.D./Nursing IRB Oversight • Representatives from the system Wellness program Discussion held with active and supportive stakeholders since 10/2018. The remained involved and interested in the project. IRB review deemed IRB approval not needed based on an application submitted 11/2018. The Nursing IRB insured ensure all necessary ethical precautions had been taken to ensure that data collection met HIPAA regulation and IRB standards. Organizational mentors, Ian Glass, MD, MBA and Robert Phillips, MD, PhD, F has been available for consult and support since 9/2018

Checkpoint One	o Hone PICOT question & assure team is prepared o Build EBP knowledge & skills o *Consult with Agency Contact/Mentor*	PICOT Question For health care providers in the acute care setting (P), how does mindfulness and resiliency training (I) compare to no training on mindfulness and resiliency (C) affect stress (O^1), anxiety (O^2), burnout (O^3), engagement (O^4), and health care errors (O^5) over 90 days (T)? Stakeholders are aware of the PICOT question as well as the internal and external evidence regarding the importance of MIand resiliency in preventing/mitigating burnout and improving patient safety. A presentation was provided to the System Quality and Patient Safety Committee in January 2019. Active stakeholders reviewed the proposed presentation of the background and significance of the problem before its provision. Dr. Ian Glass, Dr. Robert Phillips, and Stephanie Jones-Wood provided guidance and input. After the above presentation, the information was also presented to the system resiliency task force (January 2019 and to Houston Methodist Physician Committees in February, March, and April of 2019. Dr. Ian glass has been available during the presentations and has provided valuable feedback
Checkpoint Two	o Conduct a systematic search for evidence & retain studies that meet criteria for inclusion o Connect with librarian o **Meet with implementation group - TEAM BUILD** o *Consult with Agency Mentor*	The search of the literature is an iterative process. The initial systematic search was conducted in January and February 2019 and will continue throughout the implementation. Articles of interest and a synopsis of the literature have been shared with the team. For search results synopsis – please see above

Checkpoint Three	o Critically appraise literature (including evaluation, synthesis & recommendation) o Meet with the group to discuss how completely evidence answers the question and drives the project plan; o If needed pose follow-up questions and re-review the literature as necessary o *Consult with Agency Mentor*	Recommendation**:** Based on the evidence presented above, one can discern that implementing a mindfulness-based training program is both feasible and beneficial. Health care professionals that practice mindfulness skills can decrease stress, anxiety, emotional exhaustion, and depersonalization. The evidence, thus far, does not strongly correlate with patient safety, but mindfulness interventions are beneficial for health care providers. See appraisals, evaluation table, and synthesis tables in the appendix. Met with the team as above, and they are aware of the evidence and the gaps in the evidence that will drive the implementation plan. Dr. Robert Phillips and Dr. Ian Glass are regularly appraised of new evidence uncovered.
Checkpoint Four	o Meet with group o Summarize evidence with a focus on implications for practice & conduct interviews with content experts as necessary to benchmark o Begin formulating a detailed plan for implementation of evidence o Include who must know about the project, when they will know, how they will know o *Consult with Agency Contact/Mentor*	PLAN FOR IMPLEMENTATION: Stephanie Jones-Wood, a CFM representative, and I meet weekly to ensure that the implementation plan is developed following the evidence and is on target. The evidence is discussed as needed, and subject matter experts are included in the meetings as needed. I have met in planning committee meetings with the presenters from CFM to provide the CNE contact hours for presentations on 1/14/2019 and 3/15/2019, respectively. •Contracted with the CFM to provide education on MI in 11/2018 Ensure that needed permissions are in place for outcome instruments (MBI, PSS) by June 1, 2019

| Checkpoint Five | o Define project purpose- connect the evidence & the project
o Define baseline data collection source(s) (e.g., existing dataset, electronic health record), methods, & measures
o Define post-project outcome indicators of a successful project (process & completion)
o Gather valid & reliable outcome measures
o Write data collection protocol
o Write the project protocol (data collection fits in this document)
o Finalize any necessary approvals for project implementation & dissemination (e.g. system leadership, unit leadership, IRB)
o ***Consult with Agency Contact/Mentor*** | LAUNCH PLAN FOR IMPLEMENTATION: The purpose of this evidence-based implementation is to determine if MIs including mindfulness-based stress reduction (MBSR) mitigate burnout, stress, anxiety, and patient errors in health care provers this hospital as has been shown in the literature.

Baseline/comparison outcomes data will include engagement and satisfaction scores, nursing turnover rates, and PSIs. The team will also measure burnout, perceived stress, and mindfulness at the start of the Fall, at three months, and at six months.

The education plan includes:
•Create awareness and desire – In addition to the presentations above to medical staff, nursing leaders, and quality leaders, the following have been presented
•Introductory education regarding MIs have been provided: Two presenter led CNE*/CME provided by the CFM on 2/21/2019.
•Held Introduction to Mindfulness CNE*/CME on 3/27/2019 which will be presented again on 4/18/19 and 5/7/2019
•*Served as the nurse planner for the presentations

Following creating awareness and desire for mindfulness-based interventions, we will offer continuing education to increase knowledge and the practice of mindfulness for coaches.
•Executive leadership session will be offered in August 2019
•A Mindfulness Immersion retreat, Mindfulness: A Resource for Resilience, and Mindfulness Champion Training will be offered in the in 2020 and 2021.
•The 8-week MBSR courses and a 6-week Mindfulness at Work for clinicians in the last quarter of 2019 - 2021. |

Figure G1: Continued

| Checkpoint Six (about mid-way) | o Meet with implementation group
o Discuss known barriers & facilitators of the project
o Discuss strategies for minimizing barriers & maximizing facilitators
o Finalize protocol for the implementation of evidence, including a timeline
o Identify resources (human, fiscal, & other) necessary to complete the project
o Supply Agency Mentor (& Faculty) with written IRB approval & managerial support
o Begin work method of dissemination of initiation of project & progress to date to educate stakeholders about the project - get help from support staff
o Include a specific plan for how the evaluation will take place: who, what, when, where & how and communication mechanisms to stakeholders
o ***Consult with Agency Contact/Mentor*** | In July of 2019, the team convened to discuss the state of the awareness and desire and readiness to implement the plan to provide knowledge regarding MIs including:
✓Identifying barriers such as provider and clinician resistance
✓Identify project facilitators such as the number of champions and people requesting to participate in gaining knowledge of mindfulness-based interventions
✓Review your timeline and fine-tune the dates for training and data collection
✓Communicate with key stakeholders about the plan to maintain awareness and desire with creative flyers and newsletters regarding the interventions and evidence
✓Ensure that we have outcomes instruments are ready for electronic dissemination and ensure that processes in place for data collection by Stephanie and Denise with assistance from partners in Quality and Patient Safety |

Checkpoint Seven	o Meet with implementation group to review proposed stakeholder dissemination o Make final adjustment to dissemination plan with support staff o Inform stakeholders of the start date of implementation o Address any concerns or questions of stakeholders (active & supportive) o ***Consult with Agency Mentor***	September 2019 to January 2020 met with the implementation team and residency coordinators to: • Ensure that the appropriate presenters and venues are confirmed • Evaluate cohort of NGNs to ensure an appropriate number of providers and clinicians will be present • Confirm dates and venues for training • Review the communication plan and tools for final dissemination • Address any concerns or barriers that have developed within all stakeholder groups Summarize attendance at all training events held to this point
Checkpoint Eight	o LAUNCH EBP implementation o Follow project protocol rigorously o Collect Baseline Data o Deliver Evidence-based Intervention o Record process outcomes & lessons learned o ***Consult with Agency Mentor***	Obtain instrument measure before knowledge-based training: •Integration of MI into NRP Maintain attendance records and inventory scores meticulously Maintain a repository for what went well, what could have been different, and all suggestions for improvement. Review the high points of the repository with Dr. Robert Phillips and Dr. Ian Glass.
Checkpoint Nine	o Mid-project: Schedule meeting with all key stakeholders to review progress outcomes and lessons learned (and associated adjustments to protocol) to date. o Issues, successes, aha's, & triumphs of the project to date. o ***Consult with Agency Mentor***	April 2020 meet with implementation to discuss the successes and opportunities identified. Reflect as a group on ways to improve the plan for the remainder of the year. Celebrate successes and share all lessons learned. Meet with Dr. Glass or Dr. Phillips as a follow-up to the meeting for feedback and further reflection Collect data on further progress outcomes to date and include in the report

| Checkpoint Ten	o Complete final data collection for project evaluation o Analyze baseline compared to final data; create graphics for distribution of results o Present project progress and completion results via poster presentation to stakeholders o *Consult with Agency Contact/Mentor & Agency Leadership*	May 2020 to June 2020 ensure that all necessary data has been collected. Repeat CFNGES in August 2020 and March 2020 June 2020 through February 2021- analyze the data using analytic software to look for correlations and significant improvements. Answer the question is this change appropriate for adoption into practice at this organization? If yes, then implement a plan for sustained implementation of mindfulness intervention into practice (August 2020 to April 2021). Continue measures of nursing turnover and NGNs stress will be tracked and reminders sent to residents to practice mindfulness. July 2020 compile data into a useful tool to create graphics that display any trends or areas for further evaluation and repeat for the CFGNES in August 2020 and March 2021. September 2020 meet with my mentor and leadership to discuss the outcomes and next steps. Completion outcomes (analyze pre/post) Process outcomes (did the project process go well/not)
Checkpoint Eleven	o Review project success, including progress & completion outcomes, lessons learned, and any new questions generated from the process o *Consult with Agency Contact/Mentor & consider new questions*	Q1 2021 present data to industry mentors and key stakeholders and nursing leadership. March 2021 present outcomes data to Faculty, including the sustainability plan and next steps in refinement. Share reflections and lessons learned as well what questions have arisen or are still unanswered. Q1 2021 submit abstracts for poster and podium presentations to regional and national conferences. Submit an abstract to nursing journals for publication. ✓Dissemination includes the implementation process successes, outcomes, and any caveats (lessons learned) along the way. ✓Internal and external dissemination are key.

Table G1

Project Implementation Timeline Overview

Activity	Start	End	Notes
Project Start	06/04/2018	06/18/2022	
Identify Triggering Issues	06/04/2018	12/02/2018	
Formulate PICOT Qustion	07/04/2018	01/19/2019	
Confirm Organizational Support and Executive Sponsor	09/04/2019	01/22/2019	
Form a Team	01/22/2019	06/18/2019	
Perform the Literature Search	01/20/2019	11/19/2019	
Appraise and Synthesis the Literature	02/02/2019	12/02/2019	
Make a Recommendation	02/14/2019	06/18/2019	
Design the Project Implemenation	02/31/2019	12/12/2019	
Pilot the Practice Change	02/25/2020	05/25/2020	
Evaluate the Practice Change	05/26/2020	03/01/2021	
Integrate and Sustain the Practice Change	05/26/2020	03/18/2021	
Dissminate the results	10/25/2019	06/18/2021	

Note. This table provides a general overview of the timelines for the milestone checkpoints for the scholarly project.

Figure G2

Gannt Chart
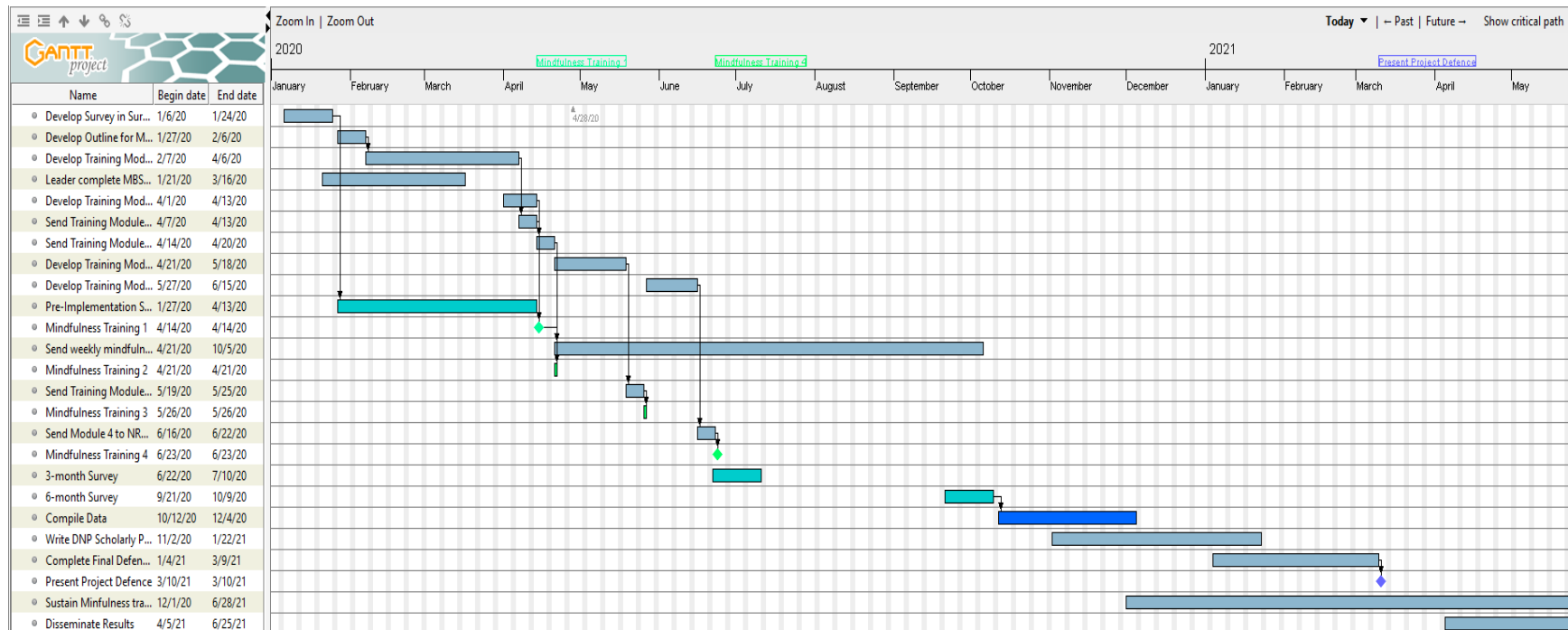
Note. This Gantt chart depicts the timeline for implementing mindfulness training for NGNs, data analysis, and dissemination.

Figure 1

Stakeholder Management Matrix

Note. This model depicts the stakeholder analysis and management based on their power over and interest in the project implementation

Appendix I: Organizational Letters of Approval

Figure I1

Organization Letter of Support

The University of Texas at **TYLER**
School of Nursing

October 10, 2018

On Behalf of:
Denise Stage McNulty, RN, MSN, MS, NE-BC
The University of Texas at Tyler - College of Nursing & Health Sciences
Doctor of Nursing Practice Program
3900 University Blvd.
Tyler, TX 75799
Ph: 903.566.7320
SONGrad@uttyler.edu

Houston Methodist Willowbrook

RE: Letter of Support for Educational Endeavors

This letter is to confirm our organization's support for Denise Stage McNulty's educational endeavors in the Doctor of Nursing Practice program at The University of Texas at Tyler over the next three years.

This support will include on-campus visits by the student as well as the implementation of an evidence-based practice project in our organization during Year 2 & 3.

Sincerely,

Barbara M. Quandt

Barbara Quandt, RN, MSN, NE-BC
Houston Methodist Willowbrook
Vice President, Chief Nursing Office
bmquandt@houstonmethodist.org
(281) 737-1781

Note: This figure represents the approval of the organization's Chief Nursing Office's support for implementing mindfulness training.

Figure I2

Industry Mentor Agreement

COLLEGE OF NURSING AND HEALTH SCIENCES

SCHOOL OF NURSING – DOCTOR OF NURSING PRACTICE PROGRAM

Industry Mentor Biographical Data

(**Please note** that an updated resume or curriculum vitae is also required in addition to this form)

Name: Ian Glass, MD, MBA

Current Agency Houston Methodist Willowbrook

Position or Title: Chief Quality & Patient Safety Officer

Office Address: 18220 Tomball Parkway _____ (street)

Houston, TX 77070
(city) (state) (zip)

Office phone with area code (281) 737-1017

Fax number_____

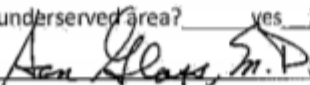Email (personal or office) iglass@houstonmethodist.org

Alternate email_____

Preferred Method of Contact:_____Phone_____X Email

Type of position you currently hold Administrator

Designated rural health site?_____yes_____Xno

Designated health professional shortage area? _____yes_X__no

Designated medically underserved area?_____yes_X__no

IM Signature: _Ian Glass, M.D._

Date submitted: __2/3/2020__

The UT Tyler School of Nursing complies with all federal and state laws related to the confidentiality of patient medical information including the Privacy Regulations issued pursuant to the Health Insurance Portability and Accountability Act of 1996. Students are required to comply with such laws and the medical record confidentiality policies and procedures of any health care facility where they are engaged in DNP Scholarly hour attainment. All DNP student mentors are tracked in a database for the purpose of ensuring and validating qualifications

*This document is designed to be used in conjunction with the UT Tyler Student Handbook.

Note: This figure represents organizational support form the industry mentor for the project.

Appendix J. Ethics Review

Figure J1

Organizational IRB Applicability Review

HOUSTON
Methodist
LEADING MEDICINE

Shannan K. Hamlin, PhD, RN, ACNP-BC, AGACNP-BC, CCRN
6565 Fannin Street, MGJ 11-016
Houston, TX 77030-2707
(713) 441-5979
SHamlin@HoustonMethodist.org

October 21, 2019

TO: Denise McNulty, MS, MS-HSA, RN-BC, NE-BC

SUBJECT: HMRI Determination of Not Human Subject Research: Impact of Mindfulness-Based Training on Stress, Anxiety, and Burnout in Acute Care Newly Licensed Nurses

Based on the information and protocol provided, the HMRI IRB has determined that the project referenced above does not meet the definition of Human Subject Research per 45 CFR 46 and does not require prior IRB review and approval at Houston Methodist.

Please understand that should your protocol change in any way, your new protocol will need to be resubmitted for review and a new IRB determination made before any data collection can begin.

If you have any questions, do not hesitate to contact me. Best of luck on a successful evidence-based practice project!

Sincerely,

Shannan Hamlin, PhD, RN, ACNP-BC, AGACNP-BC, CCRN, NE-BC
HMRI IRB Designated Member

Note. An organization letter indicating that the implementation of mindfulness training was deemed to be EBP and did not require IRB approval.

Figure J2

University of Texas at Tyler DNP Ethics Form

Please check/complete the following to demonstrate that your DNP Project meets the requirements of the UTT DNP ethical review:

Questions 1 – 5 Validity of DNP Project

To what extent does your:	Not much – Major gaps in BOE	Somewhat with some major gaps in BOE	Confidently but minor gaps in BOE	Without Question
1) Body of Evidence (BOE) supports your designated DNP Project intervention?	1	2	3	4
2) BOE validates ethical vetting in the Primary Studies of your DNP Project intervention (IRB approval was obtained)?	1	2	3	4
3) BOE supports the process for how to deliver the DNP project intervention (the process)?	1	2	3	4
4) BOE supports which are the reliable outcomes you should expect and evaluate in your DNP project?	1	2	3	4
5) BOE supports the measures that you will use to evaluate your designated DNP Project outcomes?	1	2	3	4
Total				18

Interpretation:

<5 NOT SUPPORTED FOR UTT DNP Project

6-14 Student must submit valid rationale for elements of BOE that do not meet criteria with a 3 or 4 to their faculty mentor (FM)

15-20 Valid for UTT DNP Project Implementation

Figure J2: Continued

Questions 6-10 Ethics for DNP Project Implementation

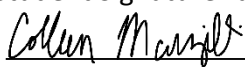| To what extent do you in your DNP Project:	Identify patient names or ID numbers, needing HIPAA Protection	Reflect individual identifiers that could make discovery of origin possible but no names or ID #; needing HIPAA Protection	Need protection as professional respect of organizational data, but all data are aggregate (no identified data)	Need no HIPAA Protection because no data are identified
6) Use case study or case studies that…	1	2	3	④
7) Use baseline data that…	1	2	3	④
8) Use process indicator data that…	1	2	3	④
9) Use completion outcome data that…	1	2	3	④
10) Use sustainability data that…	1	2	3	④
Total				20

Interpretation:

<5-10-NEED *DNP Ethics Board Review (initial FM review)* for HIPAA compliance 11-15-Industry Mentor (IM) and FM Review and sign-off
16-20 FM review and sign-off to validate no data protection plan needed

I attest that I have reviewed the **UTTYLER DNP Project ETHICS information above** that the DNP student has completed based on justification using the **UTTYLER DNP PROGRAM IRB DISCERNMENT FORM**. I agree with the below assessment of the need for an ethics review.

√**No** HIPAA ethics review required/ FM review and sign-off to validate no data protection plan needed

 HIPAA ethics review only/ Industry Mentor (IM) and FM Review and sign-off

 IRB review due to policies of the organization in which the DNP Project will be implemented/ NEED *DNP Ethics Board Review (initial FM review)* for HIPAA compliance

_____

Student SignatureDate

10/23/2019

_____

10/27/2019
Date

Note. This form is the academic review indicating IRB approval is not required.

Appendix K. Final Budget

Table 1

Budget for Implementing Mindfulness Training – Year One

Personnel Costs					
Member	Salary	% of Time	Salary Costs	Benefits (31%)	Total Cost
Clinical Program Lead	$ 110,000	0.1	$ 11,000	$ 3,410	$ 14,410
Program Director	$ 88,000	0.01	$ 880	$ 273	$ 1,153
Residency Coordinator	$ 110,000	0.02	$ 2,200	$ 682	$ 2,882
Residency Coordinator	$ 110,000	0.02	$ 2,200	$ 682	$ 2,882
Executive Sponsor	$ 500,000	0.001	$ 500	$ 155	$ 655
116 NGN	$ 41,000	0.004	$ 19,024	$ 5,897	$ 24,921
$					46,903
Non-personnel Costs					
Item	Cost	% of Contract			Total cost
Consultants	$ 61,700	0.5%			$ 309
Supplies	$ 200				$ 200
					$ 509
					$ 47,412

(adapted from Melnyk & Fineout-Overholt, 2019, p. 665)

Appendix L. Course Content Outline

Table 1

Mindfulness Training Curriculum Outline

Mindfulness Curriculum	
Class One April 14, 2020	Introduction to Mindfulness 　•Explain the concepts and benefits of mindfulness 　•Focus on breathing exercise 　•Discuss stimulus and response 　•Share new concepts on the impact of stress on health 　•Define and explain neuroplasticity 　•Anchoring on sight exercise 　•Homework – choose on daily task and practice being mindful awareness while doing it each day for two weeks
Class Two April 20, 2020	Resilience 　•Video – children and resilience 　•Debrief on homework 　•Awareness of sensations exercise 　•Discuss informal practices for use in the moment 　　•Centering 　　•STOP 　•Discuss the benefits of resilience related to mindfulness 　•Body scan exercise 　•Homework – reflect after two shifts in the next week related to what distracts you during patient care
Class Three May 23, 2020	Compassion and Self-Compassion 　•Debrief on homework and mindfulness practices 　•Love and Kindness meditation exercise 　•Discuss compassion and self-compassion 　•Explain the ethics of self-care 　•Self-compassion exercise and changing the way you think 　•Homework – put yourself first at least twice this week and discuss this concept with a friend or colleague
Class Four June 24,2020	Emotional Self-Regulation 　•Debrief on homework and self-compassion 　•Seated yoga exercise 　•Discuss emotional triggers 　•Mastering self-regulation and acceptance 　•Mountain meditation exercise 　•Wrap up and evaluation

Appendix M. Population Demographics

Table 1

Population Demographic Characteristics

	Fall 2019	**Winter 2020**
Gender		
Male	8 (13.1%)	23 (17.6%)
Female	53 (86.9%)	108 (82.4%)
Age		
Average	26.2 ($SD = 6.55$)	27.16 ($SD = 6.79$)
Ethnicity		
African American	9 (14.8%)	14 (10.7%)
Asian	11 (18.0%)	21 (16.0%)
Caucasian	30 (49.2%)	51 (38.9%)
Hispanic or Latino	8 (13.1%)	22 (16.8%)
Unknown	3 (4.9%)	4 (3.1%)
Two or more races	--	1 (0.8%)
Education		
BSN	35 (57.4%)	74 (56.5%)
Accelerated BSN	24 (39.3%)	40 (30.5%)
Masters	2 (3.3%)	--
ADN	--	16 (12.2%)
Other	--	1 (0.8%)

Note. The demographic percentages were compared between the Fall cohort and the Winter (intervention) cohort.

Appendix N. Project Results

Table N1

Internal Reliability for Each Scale

	Cronbach's Alpha					
	Fall 2019 Cohort			**Winter 2020 Cohort**		
	Pre	**Mid**	**Post**	**Pre**	**Mid**	**Post**
PSS	.899	--	.792	.896	.904	.903
OBI	.834	--	.744	.892	.917	.877
MAAS	.900	--	.922	.915	.941	.930

Note. Internal reliability for the PSS, OBI, and MAAS was assessed for each cohort at pre- and post-test using Cronbach's Alpha.

Table N2

Benchmarked Casey-Fink Graduation Nurse Experience Survey (CFGNES) Data

			My Org Data			Benchmark Data		
Fall		Period	N	Mean	StdDev.	N	Mean	StdDev
	#7. I feel overwhelmed by my patient care responsibilities and workload.	Initial	61	2.15	0.48	1145	2.39	0.69
	#7. I feel overwhelmed by my patient care responsibilities and workload.	6 Month	33	2.24	0.79	1070	2.21	0.65
	#22. I am experiencing stress in my personal life.	Initial	61	2.13	0.74	1145	2.49	0.77
	#22. I am experiencing stress in my personal life.	6 Month	33	2.52	0.83	1070	2.52	0.82
Winter		Period	N	Mean	StdDev.	N	Mean	StdDev.
	#7. I feel overwhelmed by my patient care responsibilities and workload.	Initial	81	2.35	0.78	903	2.26	0.64
	#7. I feel overwhelmed by my patient care responsibilities and workload.	6 Month	103	2.23	0.78	223	2.2	0.76
	#22. I am experiencing stress in my personal life.	Initial	81	2.12	0.97	903	2.38	0.77
	#22. I am experiencing stress in my personal life.	6 Month	103	2.3	0.86	223	2.6	0.8

Note. The CFGNES data is collected for each cohort and compared to national benchmarks. At six months, the intervention cohort was below the national benchmark for stress while the comparison group was at the national benchmark.
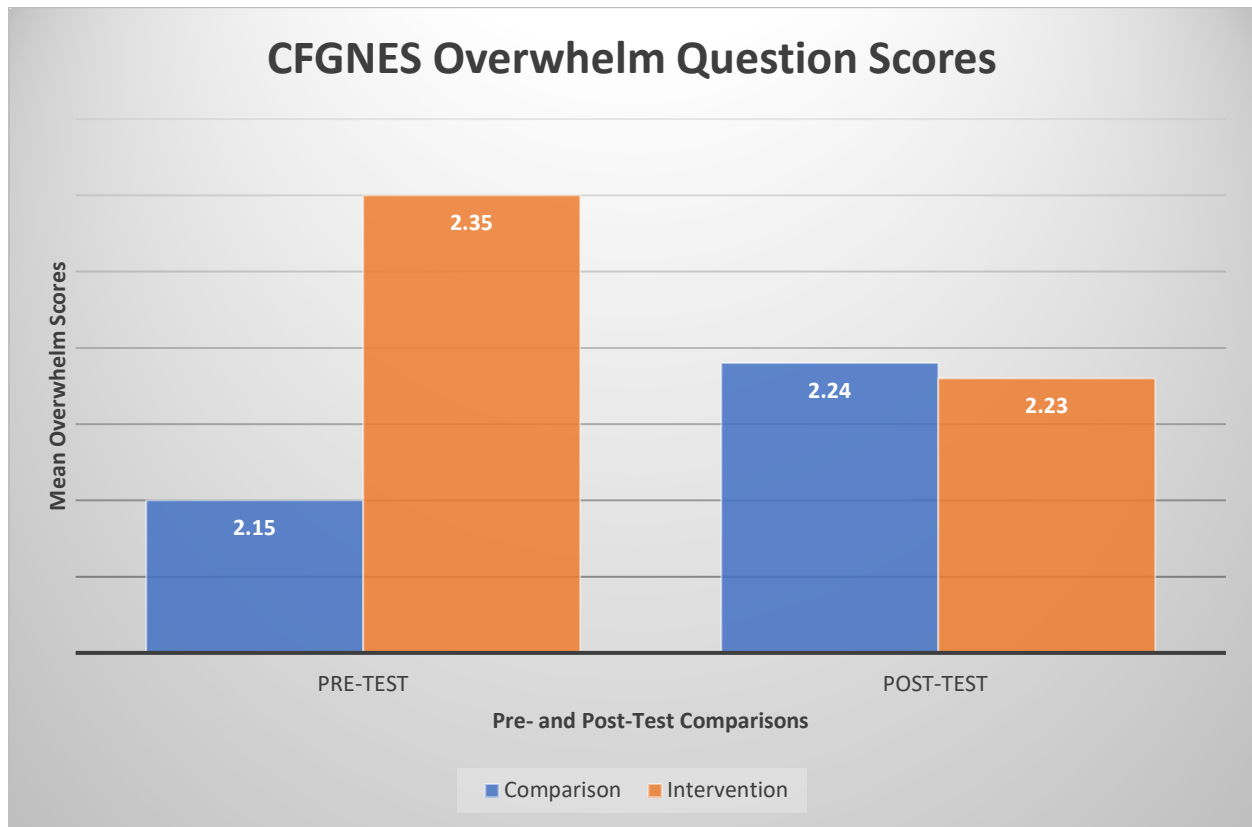
Figure N1

Perceived Stress Scale (PSS) Scores
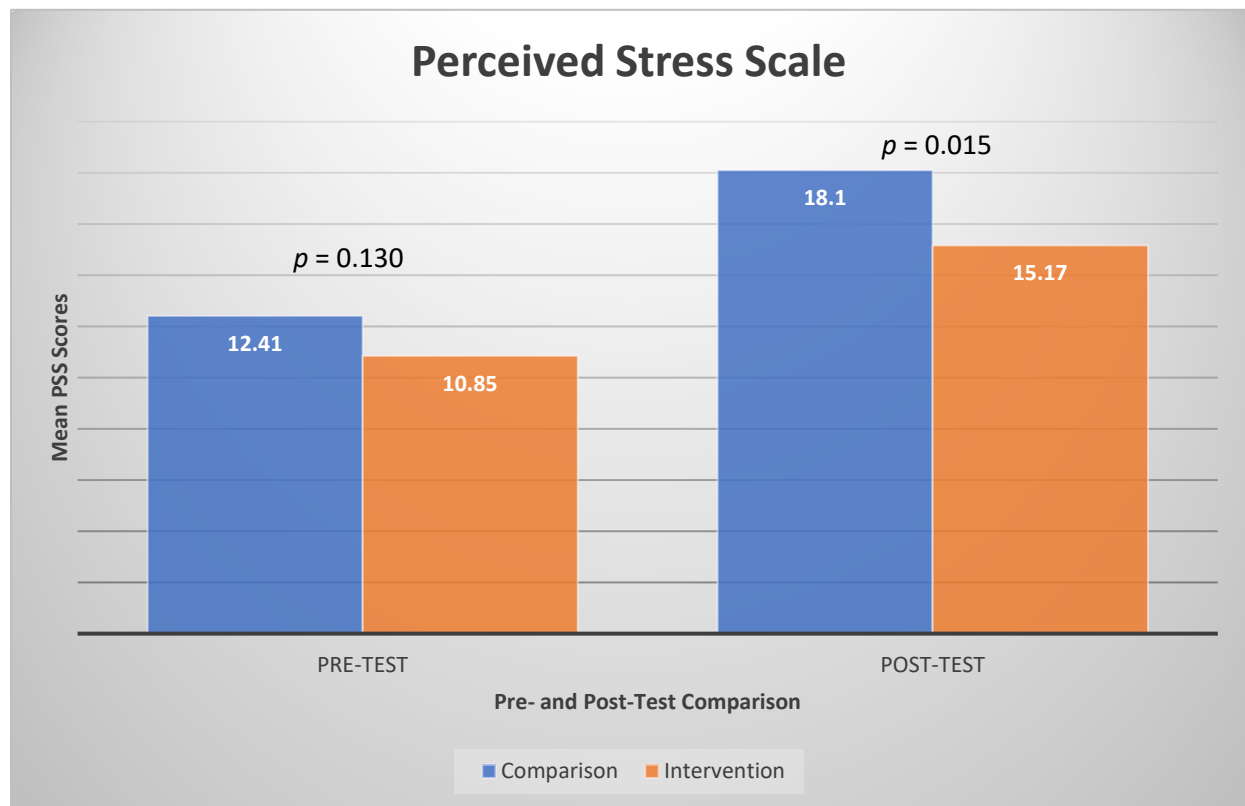
Note. The mean PSS scores were compared between the Fall 2019 (comparison) and Winter 2020 (intervention) cohorts pre-program and six-month.

Figure N2

Casey-Fink Graduate Nurse Experience Survey (CFGNES) Overwhelm Scores

Note. NGNs were asked to rate to what degree they felt overwhelmed by patient care responsibilities and workload. This chart is a graphic representation comparing the comparison cohort to the intervention cohort before the intervention and at six months. The intervention cohort began their nursing practice during the first surge of the COVID-19 pandemic.
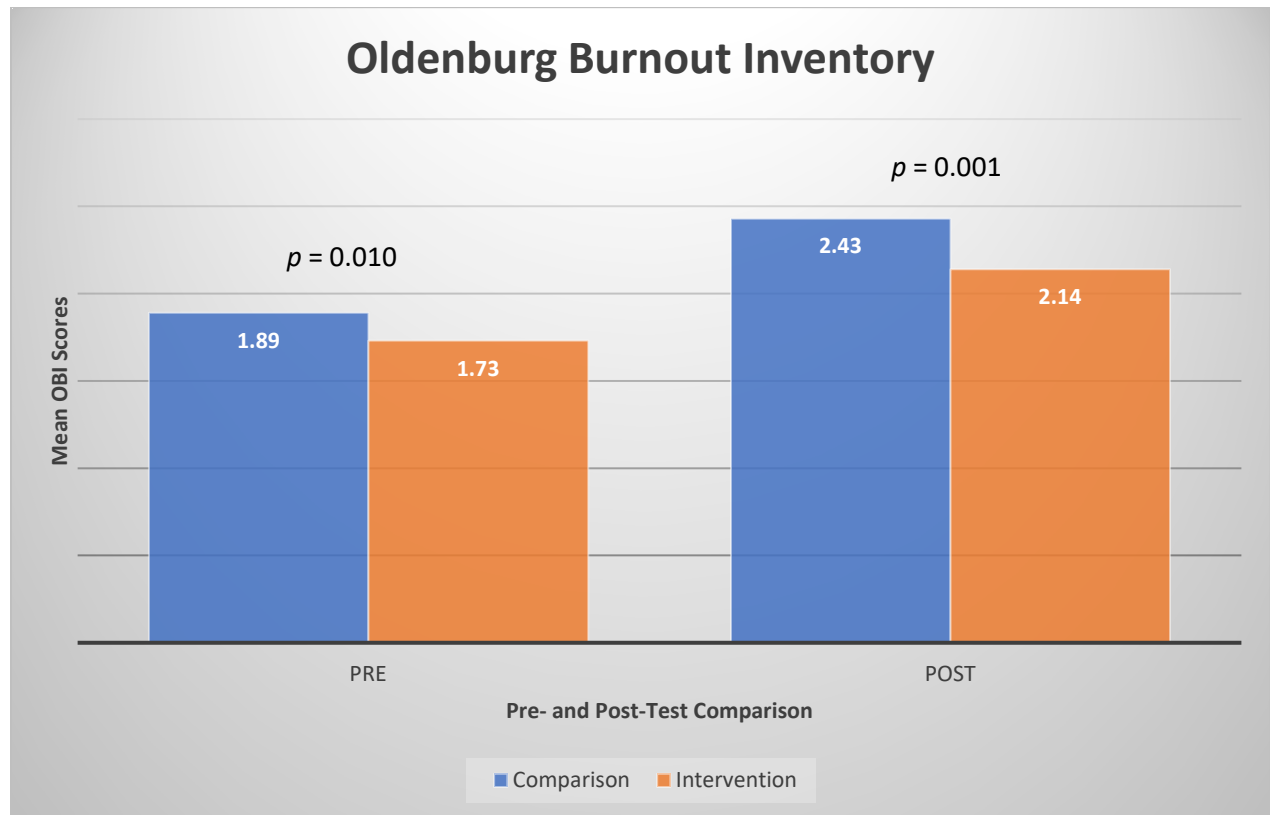
Figure N3

Casey-Fink Graduate Nurse Experience Survey (CFGNES) Stress Scores
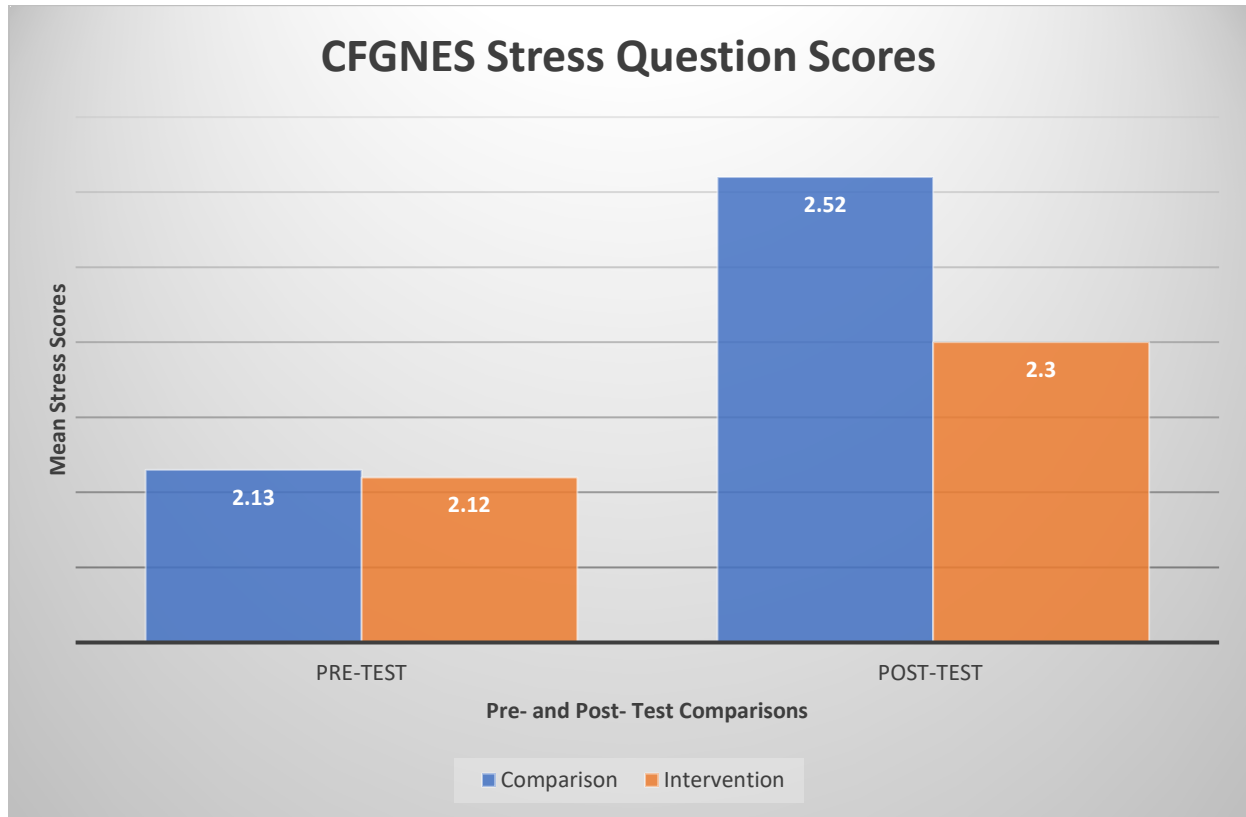
Note. NGNs were asked to rate to what degree they felt they were experiencing stress in their personal life. This chart is a graphic representation comparing the comparison cohort to the intervention cohort before the intervention and at six months.
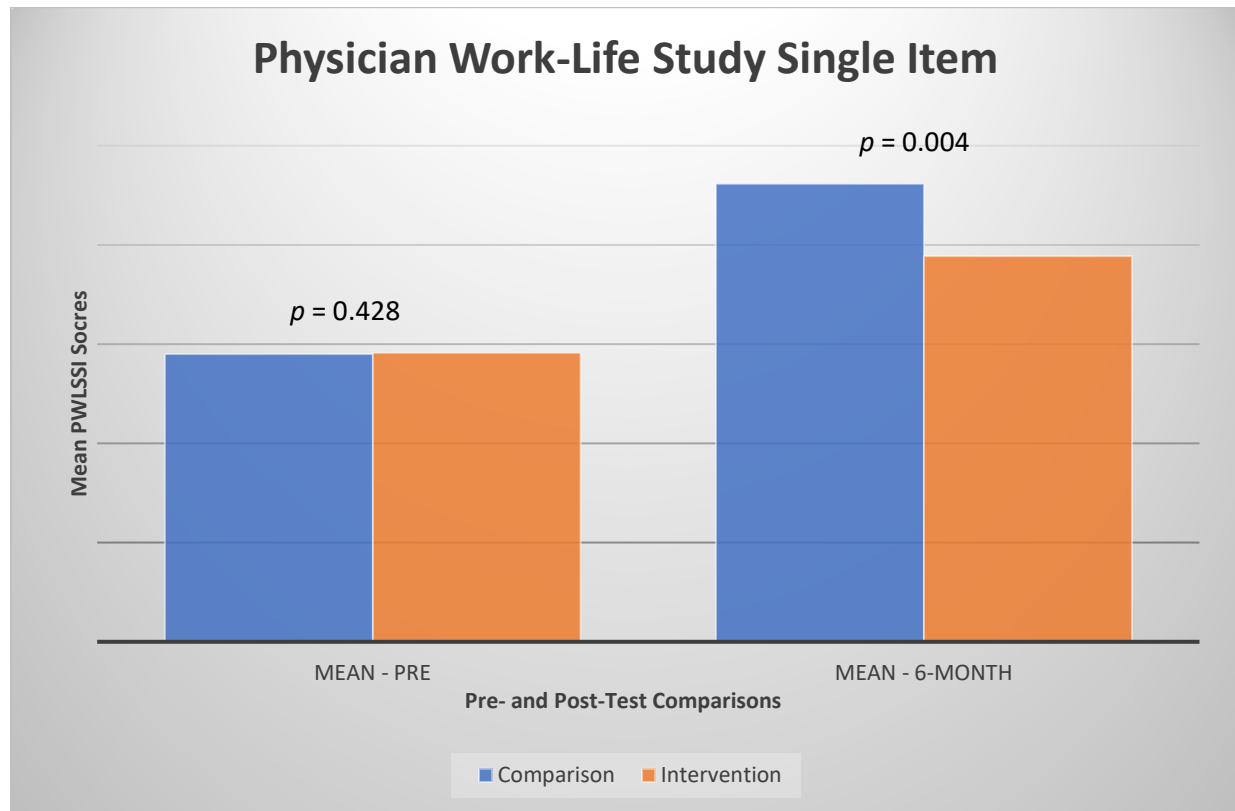
Figure N4

Oldenburg Burnout Inventory (OBI) Scores

Note. The mean OBI scores were compared between the Fall 2019 (comparison) and Winter 2020 (intervention) cohorts pre-program and six-month.
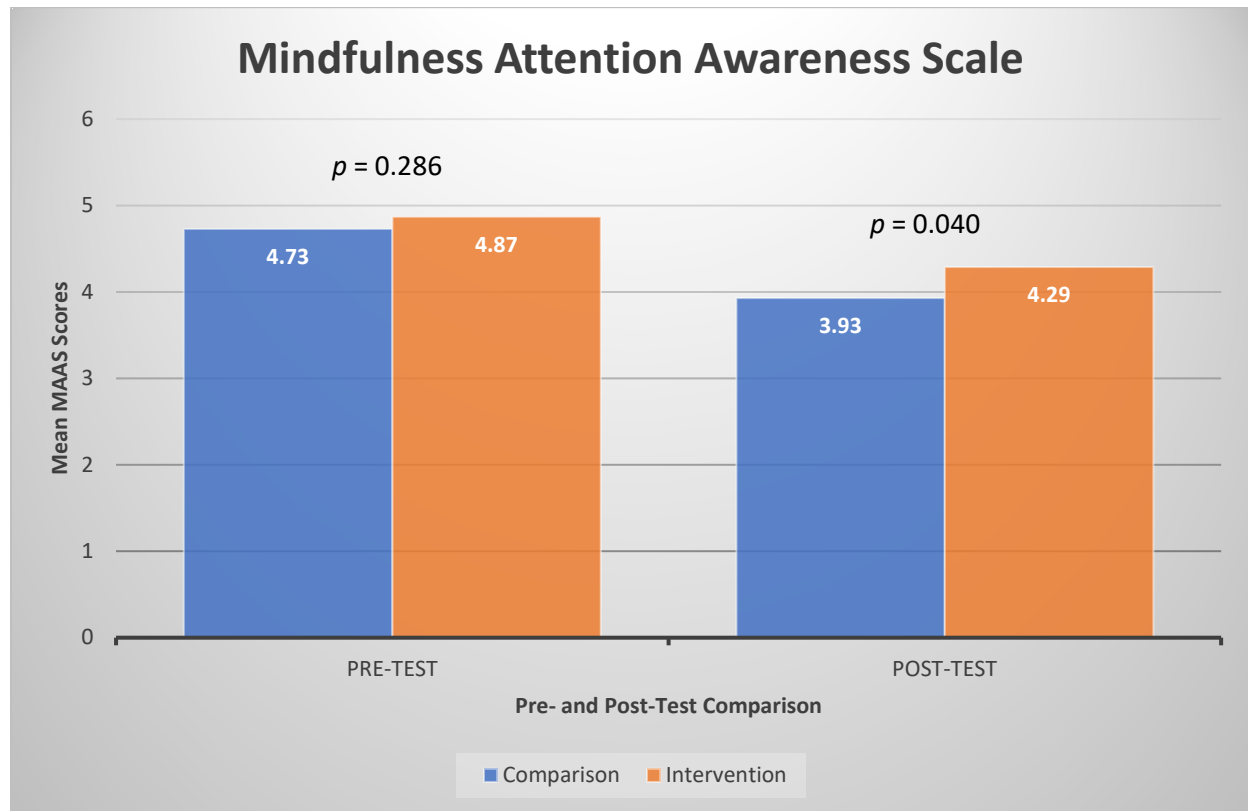
Figure N5

Physician Work-Life Study Single Item (PWLSSI) Scores

Note. The mean PWLSSI scores were compared between the Fall 2019 (comparison) and Winter 2020 (intervention) cohorts pre-program and six-month.

Figure N6

Mindfulness Attention Awareness (MAAS) Scores

Note. The mean MAAS scores were compared between the Fall 2019 (comparison) and Winter

2020 (intervention) cohorts pre-program and six-month.

Table N3

Frequency of Mindfulness Practices

		Time a Week	Pre-Test	Mid	Post-Test
How often do you currently participate in formal mindfulness practices?	Fall 2019	1 - 2	--	--	15
		3 - 4	--	--	0
		5 - 6	--	--	4
		7	--	--	1
		0	--	--	18
	Winter 2020	1 – 2	--	18	32
		3 – 4	--	8	10
		5 - 6	--	3	3
		7	--	1	1
		0	--	3	22

Note. Participants were asked how often they participated in formal mindfulness practices. At six months, 52.6% of the comparison cohort and 67.6% of the intervention cohort reported practicing mindfulness at least one time per week.

Figure T4

Mindfulness Training Evaluation Summary

Aspect	Question	Scale/Response	Rating/Theme
Training	Were the teaching methods/learner engagement strategies effective in meeting the learning outcome?	4-point Likert	3.3
Training	Was the content presented in a way that met your learning needs?	4-point Likert	3.4
Objective	Define mindfulness as it applies to health care	4-point Likert	3.6
Objective	Explain how mindfulness can improve your health and well-being in everyday living and in the workplace	4-point Likert	3.6
Objective	List mindfulness tools that you can apply in the workplace	4-point Likert	3.6
Outcome	Was the learning outcome met?	Yes/No	94%
Practice Change	As a result of the activity, do you intend to make any changes to your professional practice?	Yes/No	88%
Practice Change	If no, why not?	Comment	Already practice Time Too difficult Not engaged
Practice Change	If yes, identify the changes you intend to make:	Comment	Informal practices, centering Mindfulness-based interventions Self-compassion, self-care Positive thoughts, gratitude
Practice Change	What potential barriers do you see to applying the new strategies/knowledge gained from this activity?	Comment	Time Too busy, commitments Forget to practice None
Suggestions	Based on today's activity, please list any additional learning needs that you may have	Comment	More mindful activities More yoga, movement More examples More upbeat and engaging
Comments	Additional comments.	Comment	Very informative Timely

Note: The evaluation assessed their subjective perspective of obtaining the learning outcome and objectives using a 4-point Likert scale (1 = *not at all* to 4 = *completely*), the NGNs intent to change practices, barriers to changing practice.

Figure N7

Annualized Nursing Turnover Rates
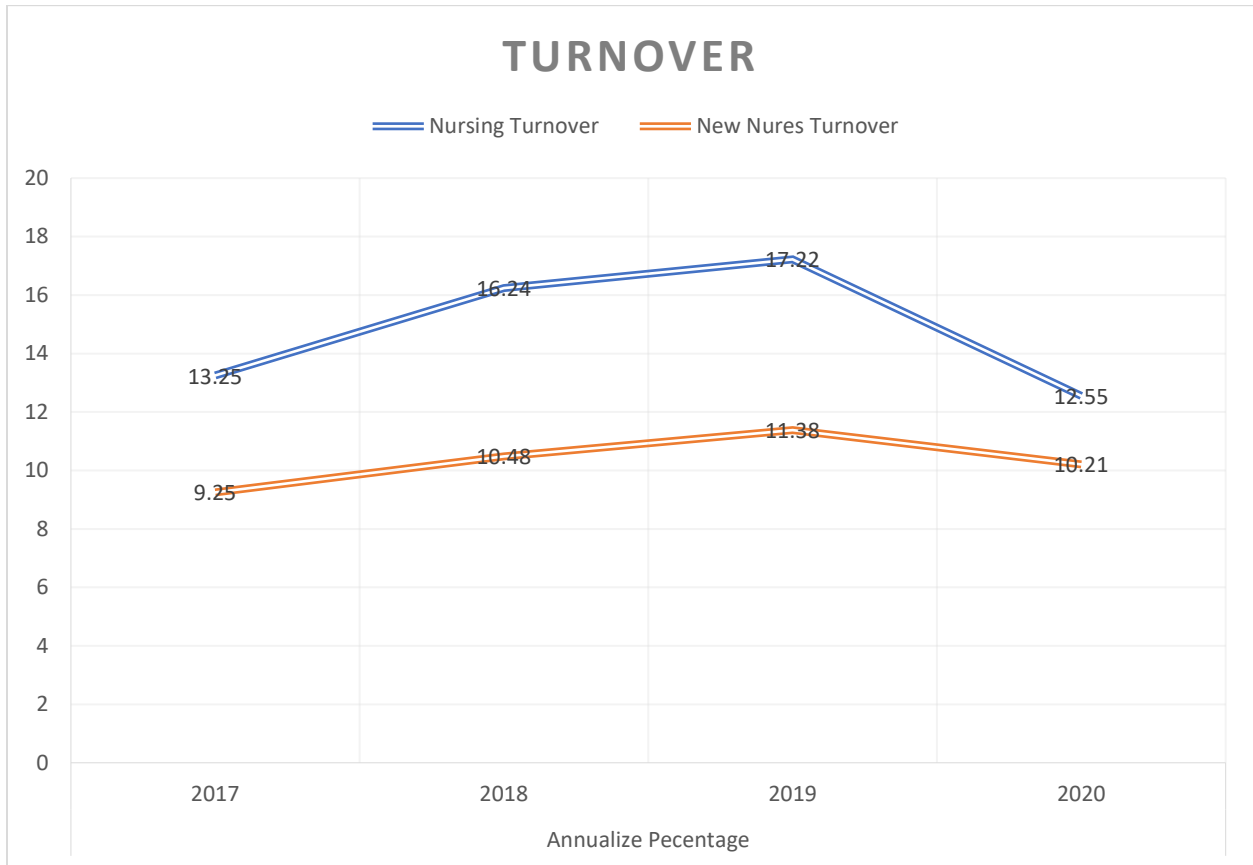
Note. The data for turnover rates for the implementation organization is reported as an annualized rate. The year 2020 data was for the first ten months of the calendar year.