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Effects of a Mindfulness Intervention on Nurse Burnout

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ABSTRACT

EFFECTS OF A MINDFULNESS INTERVENTION ON NURSE BURNOUT

by

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ABSTRACT OF GRADUATE STUDENT PROJECT

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TITLE: EFFECTS OF A MINDFULNESS INTERVENTION ON NURSE BURNOUT

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Background

Before the COVID-19 pandemic, nurse retention was a known issue; current nurse retention has worsened. This project examined the burnout of nurses and offered some potential interventions to assist in retaining nurses in the field of nursing.

Purpose

To determine whether a six-week online mindfulness intervention improved the Oldenburg Burnout Inventory (OLBI) scores of nurse participants.

Methods

This project used a convenience snowball sample of participants recruited through social media platforms including Reddit, Twitter, Facebook, TikTok, AllNurses, and word of mouth. This quantitative quasi-experimental design utilized pre- and post-testing

to measure baseline burnout and evaluate the intervention's efficacy. The Theory of Planned Behavior informed the conceptual framework and Dorothea Orem's Self-Care Deficit Theory served as the theoretical framework.

Results

The project recruited 65 nurses, with 44 nurses completing the project. Results from pre- and post-testing OLBI demonstrated the mindfulness intervention was successful at reducing OLBI scores by 2.52 points on average. Initial ACEs/PCEs scores were assessed to determine whether those with increased ACEs scores reported a reduction in OLBI scores, however, no correlation could be determined.

Keywords: burnout, COVID-19, pandemic, nursing, turnover, Oldenburg Burnout Inventory (OLBI), Adverse Childhood Experiences/Positive Childhood Experiences (ACEs/PCEs)

Andrews University

College of Health & Human Services

EFFECTS OF A MINDFULNESS INTERVENTION ON NURSE BURNOUT

A Scholarly Project

Presented in Partial Fulfillment

of the Requirements for the Degree

Doctor of Nursing Practice

by

Sandra Elanges

February 2023

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APPROVAL BY THE COMMITTEE

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Chair: Dean, College of Health and Human Sciences

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Member: Date approved:

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ACEs – Adverse Childhood Experiences

AHRQ – Agency for Healthcare Research and Quality

CDC – Centers for Disease Control and Prevention

COVID-19 – Coronavirus Disease 2019

HCAHPS – Hospital Consumer Assessment of Healthcare Providers and Systems

LPN – Licensed Practical Nurse

LVN – Licensed Vocational Nurse

MBI – Maslach Burnout Inventory

MBSR – Mindful-Based Stress Reduction Techniques

NCBSN – National Council of State Boards of Nursing

OLBI – Oldenburg Burnout Inventory

PCEs – Positive Childhood Experiences

PPE – Personal Protective Equipment

PTSD – Post-Traumatic Stress Disorder

RCT – Randomized Controlled Trials

RPN- Registered Practical Nurse

RN – Registered Nurse

SCDT – Self-Care Deficit Theory

STS – Secondary Traumatic Stress

TPB – Theory of Planned Behavior

CHAPTER ONE

INTRODUCTION

As of 2021, the National Council of State Boards of Nursing (NCSBN) reports over 4.2 million registered nurses (RNs) in the United States. According to the American Association of Colleges of Nursing, an estimated 200,000 registered nurses graduate every year, however, only 84.5 percent of registered nurses work in the nursing field. Nurse retention is a concern, with 17.2 percent of RNs leaving the field entirely within the first one or two years of practice. Factors contributing to nurses leaving their careers include low pay, poor staffing, a lack of nursing leadership support and transparency, and the perception of not meeting a patient's needs (Dols et al., 2019). Many factors can contribute to a nurse perceiving their inability to care for patients properly. Among contributing factors, the following will focus on the concept of burnout.

Burnout is described as work-related emotional, physical, and mental exhaustion, with increased cynicism and a low sense of accomplishment resulting in reduced professional efficacy (Kurosaka & Payton, 2020). There is no specific cause for burnout; however, many contributing factors exist. Some contributing factors include time pressure, role conflicts between disciplines and leadership, chronic understaffing, workplace violence, and moral distress (Fitzpatrick et al., 2019). Emotional exhaustion and compassion fatigue are a precursor to burnout (Moreno-Jiménez et al., 2021). The

issue of nurse burnout is not new; however, it has gained more mainstream attention in the last few years.

Nurses and other healthcare workers have spent the last year dealing with the novel coronavirus disease (COVID-19) pandemic. COVID-19 is a beta coronavirus that can cause severe acute respiratory distress, coagulopathy, sepsis-like inflammation, cardiovascular implications, and is arguably a disease of inflammation rather than a respiratory illness. The argument is reinforced by the fact that up to 80 percent of those infected are either asymptomatic or mildly sick at the time of illness (Manjili et al., 2020). The uncertainty about a novel virus has caused fear and anger in the public and increased emergency hospital admissions. This stressor on an already strained healthcare system left many healthcare workers feeling burnt out, anxious, depressed, and in some cases, suicidal (McCluncie-Trust, 2020; Melnyk, 2020). Although a rough estimate, over 3,607 healthcare workers have died due to complications of COVID-19 in the last year. This figure is an under-reported number because the Centers for Disease Control and Prevention (CDC) does not track this information. Of the 3,607 who died, over 32 percent were nursing students, nurses, and nurse practitioners; many reported concerns over lack of support, adequate staff, and adequate personal protective equipment (PPE). The nurses who passed were as young as their 20s or as old as their 70s (Spencer & Jewett, 2021). Those who wanted to become nurses to help people felt helpless to stop the invisible enemy threatening their lives, co-workers, and possibly their loved ones if brought home from work. The healthcare system is traumatizing and, in some cases, re-traumatizing a generation of nurses, potentially causing long-lasting consequences for patients and their families (Chen et al., 2020; Nelson & Lee-Winn, 2020). Moral distress

is ubiquitous in healthcare, stemming from a person's inability to align with their moral values (Rushton et al., 2016). Many of the difficult patient care decisions and loss of colleagues has given many nurses pause in their career decision.

Those at a higher risk of being re-traumatized have a history of adverse childhood experiences (ACEs). ACEs are common occurrences that include psychological, physical, and sexual abuse, witnessing violence against a child's mother, and living with those who abuse substances, are mentally ill, suicidal, or incarcerated. They are directly linked with the leading causes of morbidity and mortality in the United States. The more ACEs a child experiences, the more likely the child develops unhealthy coping techniques to deal with the anger, anxiety, and depression resulting from ACE exposure (Felitti et al., 2019). Exposure to ACEs has a lasting impact on a person's neurological, physiological, cognitive, and psychological health (Fowler & Wholeben, 2020). ACEs also have implications for a nurse's resilience. Nurses with more resilience were more resistant to burnout, whereas nurses with less resilience were more susceptible to the effects of burnout (Rushton, et al., 2021).

Background

The American Nurses Association assembled a Code of Ethics that serves as a social contract between nurses and their public. This code has nine provisions, and Provision Five is often neglected. Provision Five states that nurses have the same duties to themselves that they do to their patients, the same responsibility of health promotion and safety. Nurses preserve wholeness of character and act with integrity and competence while striving for personal and professional growth (American Nurses Association, 2015). Nursing involves actively engaging with patients and their trauma.

Nurses are required to employ emotional labor or effort needed to present in a happy or unimposing manner despite any feelings they may have to provide patient care (Cole, 2017). Secondary traumatic stress (STS) and vicarious trauma are terms used interchangeably to describe the result of helping others who are in crisis. Repeated unmitigated exposure to STS can lead to compassion fatigue, which is a precursor to burnout (Foli et al., 2020). Prioritizing oneself and providing self-care can be difficult for those suffering from the sequela of STS and compassion fatigue.

Moral distress and loss of agency can cause feelings of powerlessness and disengagement (Rushton, et al., 2021). Moral distress can erode a nurse's personal and moral integrity (Rushton et al., 2016). Nurses have been put in difficult situations during the pandemic and pulled from their regular duties. Some nurses were furloughed or laid off, while others worked face-to-face with infected patients. Visitors were restricted, and patients were sequestered from their families. When visitors are allowed, they are subjected to health screenings and temperature checks to control potential infection (Centers for Disease Control and Prevention [CDC], 2021b). Some visitors become agitated at the prospect of interference with their coming and going to visit a family member, placing more strain on healthcare workers. Nurses are often sent to unfamiliar units without necessary PPE, denied testing when they develop COVID-19 symptoms, and some are even forced to work while sick with confirmed COVID-19 (Clark, 2020). Working under those conditions, it was predictable that 67 percent of nurses polled reported intentions to leave their health organization in 2020 (Rushton, et al., 2021). Many contributing factors are leading nurses to feel burnt out at an increased rate.

Burnout results from a nurse experiencing prolonged response to chronic occupational, psychological, and interpersonal stressors. Nurses working with patients actively experiencing trauma are at a much higher risk of burnout. The problem is not merely experiencing compassion fatigue and having less engagement at work; it can also involve physiological, psychological, behavioral, and spiritual symptoms (Rushton, 2018; Adimando, 2017). Psychological symptoms can include anxiety, depression, mood swings, difficulties concentrating, inappropriate outbursts, anger, resentment and blame, the onset of poor judgment, and a loss of objectivity on the job. Physiological symptoms include one of the first signs of compassion fatigue: sleep disturbances, headaches, increased somatic complaints, muscle tension, and fatigue (Adimando, 2017). Some may also experience gastrointestinal disturbances, heart palpitations, and weight loss or gain (Rushton, 2018). These symptoms are likely to stem from activating the nervous system in a state of hyperarousal which further stimulates a cascade of stress hormones within the body (Rushton & Thompson, 2020). Behavioral symptoms include avoidance, adopting addictive behaviors, increased rigid behaviors, depersonalization, and increased potential for lateral violence with co-workers. Spiritually, repeated moral distress can cause a crisis of one's faith related to a perception of degraded moral integrity and agency, loss of self-worth, and potential for disconnection from one's work, family, or community (Rushton, 2018). This can cause a person to feel persistently on edge or anxious, their body to feel depleted, and it can erode their ability to empathize with others, limiting collaboration (Rushton & Thompson, 2020). Burnout, compassion fatigue, and moral distress profoundly impact the healthcare system and the individual experiencing these symptoms.

From a healthcare system perspective, burnout costs come from decreased productivity, decreased engagement with patients and their families, increased errors, increased employee turnover, and increased use of sick days (Adimando, 2017). When nurses are disengaged from patients and their families, the patient will perceive poor quality of care, reflected by falling scores in the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS). HCAHPS scores are tied to reimbursement from the Centers for Medicare and Medicaid. If a widespread issue, falling scores can result in a decrease in the hospital's star rating and, ultimately, the financial efficacy of the institution (Elanges et al., 2018). Disengaged and burnt-out employees can cost the United States economy $350 billion annually (Adimando, 2017). There are interventions that a healthcare institution can make at the system level; however, this project will focus on interventions at the individual level (Rushton, et al., 2021).

Stress Can Affect Some Differently Than Others

Exposure to stressors does not affect individuals in the same way. ACEs impact an individual's neurobiological structure. Those who grew up with a higher number of ACEs may have a less neuroplastic brain, which may cause the development of maladaptive circuitry or plasticity. As a result, the individual can be more rigid in their responses. Those with limited exposure to ACEs develop neural circuitry that allows the individual to adapt to a situation better (McEwen, 2017). A person with a lower number of ACEs has a more resilient and adaptive brain, whereas a person exposed to higher ACEs may have more rigid responses to stress. ACEs are unfortunately common. Increased ACEs correlate to increased chronic health conditions and mental illness

(Felitti et al., 2019). Nurses and other healthcare workers are thought to have at least the same number of ACEs as the general population, if not more (Girouard & Bailey, 2017). ACEs are also associated with increased depression and chronic disease (Felitti et al., 2019). Nurses have depression at a rate of two to four times that of the general population (McKee-Lopez et al., 2019; Owens et al., 2020). Depression is associated with increased chronic diseases, impaired functioning, and increased healthcare utilization (McKee-Lopez et al., 2019). People who become nurses have some degree of resilience, demonstrating their ability to overcome ACEs' impacts through academic achievement (Fowler & Wholeben, 2020). ACEs are not a death sentence nor an indication of impending failure.

Positive childhood experiences (PCEs) are also common and offer protective factors to offset ACEs' damages. PCEs are specific developmental milestones. These include forming a secure attachment to primary caregivers in the first few years of life, spoken language exposure, and having positive, stable, and nurturing relationships with friends, family, and non-family adults such as teachers. Even with ACEs, the more PCEs a person reports, the fewer ACEs will impact an individual (Bethell et al., 2019). Other protective factors include the temperament of the child, ability to accept help, higher cognitive abilities, creative outlets and hobbies, and quality of schools and neighborhoods (Hornor, 2017). Nurses who have had high and repeated exposure to ACEs and minimal PCEs are more likely to suffer ill health effects and will be less likely to perform effectively under pressure as a result. Nurses can gain awareness of their ACEs and how they affect growth and development and disease risk through initiatives in nursing programs (Girouard & Bailey, 2017). This has not yet been implemented into nursing

education, so there has yet to be any actualized benefit—however, the interaction of ACEs and PCEs and their varied occurrence highlight the diverse nursing workforce.

Mindfulness

Mindfulness began as an East Asian spiritual practice over 2,500 years ago but has gained recent attention in the Western world touted as a promising treatment for anxiety, attention-deficit hyperactivity disorder, depressive disorders, obesity, increasing empathy, and the overall improvement of one's sense of well-being (Owens et al., 2020; Lo et al., 2017). In practice, it involves paying attention to the present moment nonjudgmentally and purposely not allowing the mind to wander by directing attention. Three components of mindfulness are purpose, presence, and acceptance. With repeated practice, the individual will gain self-awareness and react to the experience by slowing down to observe the processes of the mind and making intentional decisions rather than subsisting on autopilot. This is especially helpful in times of stress or anger (Naik et al., 2019). Mindfulness has the potential for a profound impact and does not take a herculean effort to learn and practice.

Problem Statement

Nurses work in high-stress environments causing many to leave the profession within the first few years of practice (Kelly et al., 2021). The COVID-19 pandemic has inflicted an unprecedented level of stress on nurses and other healthcare workers for various reasons resulting in increased anxiety, depression, compassion fatigue, and burnout, giving up to two-thirds of nurses thoughts of leaving nursing altogether (Nelson & Lee-Winn, 2020; Rushton, et al., 2021). The pandemic served as an accelerant to emotional exhaustion, compassion fatigue, and burnout.

Nurses who have experienced many ACEs are at a higher risk of having an adverse reaction to the stressors of being a nurse during the pandemic. The neurobiological changes that occur through past ACE exposure include impaired prefrontal cortex and amygdala development, resulting in stress responses to minimally stressful stimuli in adulthood (McEwen, 2017). This exaggerated reaction to stress increases the stress level and is also experienced on top of the pandemic tension. Nurses are suffering unprecedented amounts of stress and may benefit from an intervention.

Purpose Statement

The purpose of the proposal was to assess whether mindfulness interventions have a positive impact on burnt-out nurses who have worked during the COVID-19 pandemic based on pre-and post-intervention based on Oldenburg Burnout Inventory (OLBI) scores. The project asked participants to submit subjective ACEs during pre-intervention testing to determine whether those with higher ACE and lower PCE scores were more resistant to mindfulness interventions than those with lower ACE and higher PCEs scores.

Project Questions

In the context of the PICOT, the behavior of interest is a decrease of burnout symptoms, so would be mindfulness practice (action) to decrease symptoms of burnout (target) at least five days a week for 10 minutes each day (context) over six weeks (time). Formed into a PICOT question, does regular mindfulness practice reduce symptoms of burnout in nurses over six weeks? Other questions would include the following:

- Do nurses with more ACEs have a higher degree of burnout symptoms?

- Do nurses with high ACEs and PCEs have less burnout than those with fewer PCEs reported?
- Do nurses with lower ACEs and higher PCEs report a lower degree of burnout symptoms?
- Do nurses with lower ACEs and lowers PCEs report a similar degree of burnout to nurses with lower ACEs/higher PCEs or higher ACEs/higher PCEs?

CHAPTER 2

CONCEPTUAL AND OPERATIONAL DEFINITIONS

Research-informed and evidence-based study designs offer conceptual definitions, process descriptions, antecedents, and consequences and establish the context for how the concepts will be used in a proposed study (Peavey & Vander Wyst, 2017). The following terms are concepts utilized in this project, along with their definitions.

Burnout: the emotional, physical, and mental exhaustion related to one's work, with increased cynicism and a low sense of accomplishment resulting in reduced professional efficacy (Kurosaka & Payton, 2020). Contributing factors include high nurse-to-patient ratios, time pressure, role conflicts between disciplines and leadership, chronic understaffing, workplace violence, and moral distress from bearing witness to pain, suffering, and death (Fitzpatrick et al., 2019; Dutton & Kozachik, 2020).

Compassion fatigue: Results from repeated exposure to secondary-traumatic stress (Foli et al., 2020). This is a precursor to burnout (Moreno-Jiménez et al., 2021).

Emotional exhaustion: The result of feeling extremely exhausted from extended exposure to physical, cognitive, and emotional stressors due to one's working conditions. It is a predictor of burnout in the short term if left unresolved. It is a precursor to burnout (Moreno-Jiménez et al., 2021).

Moral distress: An ethical challenge that occurs when one recognizes his or her moral responsibility in a situation but cannot follow through on moral actions due to external forces (Rushton et al., 2021a).

Moral injury: May be the consequence of undischarged moral distress and emerges as the sequelae from harm or a person's perceived inability to prevent harm (Rushton et al., 2021b).

Resilience: One's ability to flexibly adapt or grow in response to stressors and adversity. It is thought to be a protective factor against burnout (Rushton et al., 2021a).

Mindfulness: describes a process of bringing focused attention to decrease cognitive vulnerability (Hilcove et al., 2020). It is also described as the practice of awareness in the present moment, not only mentally but emotionally, physically, and spiritually as well (Cain, 2021).

Stress: When referred to subjectively, demonstrates stimuli or situations in one which one perceives to cause stress. When referred to objectively, it may be measured through cortisol levels in the urine, blood, or saliva. If cortisol levels are elevated, this indicates chronic stress (Hilcove et al., 2020).

Secondary traumatic stress: A vicarious trauma experienced through exposure to those who have experienced suffering or crisis (Foli et al., 2020).

Self-care: activities a person performs on their behalf to maintain healthful functions and well-being and cultivate personal development (Allgood, 2018). Partaking in self-care is thought to be a protective factor against burnout (Dev et al., 2018).

Theoretical and Conceptual Framework

The intervention proposed was a suggested minimum of five days per week of mindfulness practice to determine positive effects on nurse burnout. By decreasing subjective feelings of burnout, nurses would provide better patient care and demonstrate improved tolerance of work stressors. Concepts of this project included healthcare worker

self-care and burnout. Nurses make up the most significant number of healthcare workers in the United States and report some of the highest rates of burnout. High turnover rates within the first three years of nursing practice contribute to decreased morale and frustration tolerance. Nurses must find a way to successfully destress and provide adequate self-care for themselves.

Theoretical and Conceptual Framework Defined

Although theoretical and conceptual frameworks can be used synonymously and interchangeably, or one and not the other, the terms have distinct meanings and purposes. The conceptual framework guides and maps out the project in a diagrammatic form, with its own clearly defined concepts and assertions. The theoretical framework acts as a guide to imbue the project, helping progress the project while following the conceptual framework's map (Moran et al., 2017). For this project, both conceptual and theoretical frameworks are provided.

Conceptual Framework

The Theory of Planned Behavior (TPB) concepts served as the conceptual framework for the model in delivering mindfulness practice. TPB focuses on a person's relationship between their behavior and beliefs by addressing attitudes, subjective norms, which can also be called peer or social pressure, and a person's perceived control over a situation (Butts & Rich, 2015). It can be applied to many different behavioral domains, is informed by Bandura's theory on self-efficacy, and builds upon the Theory of Reasoned Action. TPB starts with defining the behavior of interest or intention, then follows with four constructs: action, target, context, and time. In short, the more perceived control a person has, in conjunction with a strong intention to achieve the behavior of interest

following subjective norms, the more likely a person can accomplish that intention (Ajzen, 2020).

This theory has been validated as statistically sound but, once applied to experiments, is equivocal at best. TPB can also be problematic in cross-sectional studies (Sussman & Gifford, 2018). Cross-sectional studies are prospective studies in which data are collected only at one point in time versus a longitudinal study that collects data at multiple points in time, such as a pre and post-test (Rebar & Gersch, 2015). Under the theoretical framework of TPB, cross-sectional studies may be subject to consistency bias which inflates relations, and TPB is better suited to predict past rather than future behavior (Sussman & Gifford, 2018).

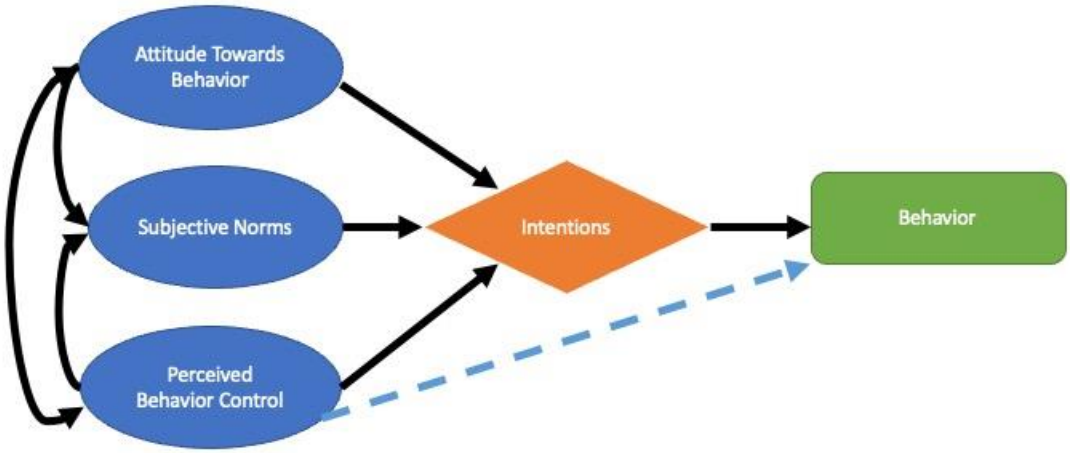


Figure 1. Theory of Planned Behavior (TPB). Adapted from Ajzen, 2020; Sussman & Gifford, 2018.

Theoretical Framework

Dorothea Orem's Self-Care Deficit Theory (SCDT) served as the theoretical framework to inform this proposal carried out into practice. Orem's SCDT encompasses three theories: the theory of self-care, the theory of a self-care deficit, and a theory of the nursing system itself. In this theory, the nursing system is compensatory and supportive, aiming to enhance patients' well-being and health promotion (Malekzadeh et al., 2018). Self-care consists of a set of activities a mature or maturing person initiates or performs on their behalf to maintain healthful functions, personal development, and well-being. These activities are initiated or performed because of the individual's known obligations or requisites for continued function and developmental regulation. Universal requisites for self-care include air, food, water, elimination, but sometimes lesser considered needs to balance activity and rest, solitude, and social interaction, reducing hazards that threaten health and well-being, the development and maintenance of nurturing friend groups, and the desire to present as normal (Allgood, 2018). SCDT can also be expanded to include spirituality and spiritual self-care concepts to promote an individual's faith, feelings, and emotions (O'Brien, 2018). Performing these activities requires an individual to possess self-care agency, which is an acquired skill by which the individual can know and maintain their continued maintenance of self-care activities independently to regulate and maintain their functional status (Allgood, 2018). If self-care agency is a learned skill, it can be neglected and deprioritized. Individuals can ignore health activities that enhance their personal development and well-being when this happens.

Containing and reducing burnout requires a strong emphasis on self-care and stress management (Adimando, 2017). This implies that an individual experiencing burnout and compassion fatigue has a self-care deficit. Within the SCDT, self-care is considered an action system. A self-care deficit describes the relationship between a person's capabilities and the individual's need for self-care (Allgood, 2018). Using SCDT as the theoretical framework for this project implies that nurses experiencing compassion fatigue and burnout symptoms are experiencing a deficit of self-care. The intervention seeks to remediate this deficit through the enhancement of self-care agency.

Review of Literature

Burnout and High Turnover

High nursing turnover rates leave the remaining staff with an increased workload and decreased productivity, leading to poor patient outcomes, decreased staff morale, and increased job dissatisfaction. This creates a vicious cycle of turnover and attrition. The remaining staff is at risk for developing compassion fatigue and burnout, increasing a patient's risk for medication errors and poor patient care experiences (Belton, 2018). The healthcare industry is a stressful work environment without the added pressure of inadequate staffing. The Agency for Healthcare Research and Quality (AHRQ) reports that in 2017, up to 70 percent of nurses and up to 50 percent of physicians, physician assistants, and nurse practitioners were affected by burnout presenting in three domains, which include emotional exhaustion, depersonalization and cynicism, and ineffectiveness. Risk factors identified for burnout include workload, control, reward, community, fairness, values, and job-person incongruity (Bridgeman et al., 2018). Nurses suffering from burnout are also more likely to have decreased physical and mental health,

decreased immune function, decreased social supports, and increased risk for substance abuse (Dev et al., 2018). This means that nurses who consistently experience burnout have poorer mental and physical health, are at increased risk for medication errors, and deliver decreased quality patient care. In jobs with an increased turnover rate, nurses are more at risk for feeling burnout.

Early Childhood Experiences, Personality, and Burnout

Burnout is associated with the perception of barriers to self-care, although self-care is considered a protective factor against burnout (Dev et al., 2018). PCEs can also protect a person against burnout by preventing neurobiological changes to the developing prefrontal cortex and amygdala (Foli et al., 2020). Nurses who have experienced ACEs are more likely to interpret neutral events as threatening, causing a stress response (McKee-Lopez et al., 2019). Those who report an inability to fulfill professional roles as a nurse also report a higher degree of anxiety (Foli et al., 2020). It could be implied that nurses who have experienced ACEs are more likely to get burnout with less provocation. Furthermore, it is also implied that nurses who feel ineffective may have an increased ACEs score.

A history of childhood trauma can have physical and mental symptoms in adulthood, although not all symptoms are negative. Some who experienced childhood trauma have increased vigilance for staying safe, learning from past mistakes, increased emphasis on faith and spirituality, and acceptance of adversity (Foli et al., 2020). Stress that occurs at toxic levels that results in the prolonged activation of the stress response system can impair normal brain development and allow for epigenetic alterations of chromatin structure. These modifications are persistent genetic expressions that do not

change the deoxyribonucleic acid (DNA) sequence (Osório et al., 2016). Epigenetic expressions develop in a body's effort to optimize the individual's environment, regardless of whether the changes are protective or less threatening (McEwen, 2017). Certain factors can predict whether epigenetic changes make an individual more vulnerable or resilient. Both known factors are related to the amount of control an individual perceived over the stressor and how much power the individual had in changing the stressful situation. This is essential in individuals with learned helplessness (Osório et al., 2016). Genetics and epigenetics play a role in how a child's brain and body adapt to stressful situations, as does the child's perception of control.

COVID-19, Burnout and Moral Injury

Before the SARS-CoV-2, the novel coronavirus pandemic of 2020 through the present time, nurse burnout was a known issue (Adimando, 2017; McKee-Lopez et al., 2019; Rushton et al., 2016). Hines et al. (2021) postulate that burnout manifests due to moral injury, previously primarily ascribed to military service. Moral injury reflects the psychosocial, behavioral, and spiritual impacts resulting from witnessing or failing to prevent acts that contradict one's deeply held moral beliefs. Moral distress results in increased nurse resignations (Hines et al., 2021). The public hero nurse worship campaign has added anxiety to many nurses by placing further expectations on nurses to remain professional and brave no matter what. During the pandemic, tasks added to nurses include providing family members the opportunity to FaceTime a dying family member at the end of life, keeping patients company in their last moments alive, and prohibiting family from visiting (Owens, 2020). Rather than providing patient care with the expectation and hope of recovery, nurses are tasked with providing futile and often

what feels like ineffective care to swaths of patients they feel inadequately prepared to provide care.

The pandemic has inflicted moral injury on nurses and other healthcare professionals to be implicated in several suicides. Factors contributing to this moral injury and level of burnout include the finite resources of hospitals and healthcare institutions, occupational exposure to a novel virus, extended shifts, disrupted sleep, work-life imbalance, dilemma of caring for patients versus potentially exposing family members, neglecting personal and family needs to manage the increased work demands, and poor communication from healthcare institution management (Raudenská et al., 2020). Moral injury can be a consequence of repeated undischarged moral distress (Rushton, et al., 2021). Previous pandemics and biological disasters have been sources of anxiety and stress for nurses, in some cases resulting in post-traumatic stress disorder (PTSD). Further predictors also include high workloads and unsupportive management (Kurosaka & Payton, 2020).

Calls for institutional change and employee support have been made; however, meaningful transformations have yet to happen (Nelson & Lee-Winn, 2020; Owens, 2020). These calls to action include guidance on family visitation when adequate PPE is secured, education for staff members treating COVID patients on palliative and end-of-life care, establishing a clear line of separation between clinical staff and family-patient liaison, establishing policies and procedures within organizations to prevent secondary traumatic stress, and education on mental hygiene to promote the health of nursing and clinical staff (Owens, 2020). Some of these changes will take planning and system-wide

policy changes. However, providing clinical and nursing staff with mental health hygiene could work systematically and individually.

Mindfulness in Healthcare

The CDC recommends that those experiencing pandemic-related stress limit listening to news stories and social media, practice self-care by eating well, exercising regularly, getting enough sleep, staying connected to existing social supports either virtually or once vaccinated, and avoiding alcohol, tobacco products, and illicit substances (Centers for Disease Control and Prevention [CDC], 2021a). Mindfulness is another self-care strategy identified as a potential treatment for many health conditions, including opioid use disorder, chronic pain syndrome, attention deficit hyperactivity disorder, work-related stress, and burnout (Avino, 2020; Ceravolo & Raines, 2018; Lo et al., 2017). As Cain (2021) views it as a vital tool for self-protection, mindfulness is a practice of mental, emotional, and physical awareness in the present moment. Through regular practice, mindfulness helps to develop regions of the brain associated with problem-solving and increases cognizance during stressful events. This can, in turn, reduce the deleterious effects of stress exposure (Cain, 2021). This potentially powerful intervention could be a valuable tool in decreasing burnout in nurses.

Previous studies on mindfulness in nurses have demonstrated a positive relationship between mindfulness and job satisfaction, which appears to have a buffering effect on co-workers by decreasing turnover rates in general (Lee et al., 2019). Mindful interventions have demonstrated reduced psychological stress, decreased premature ventricular contractions, and increased resilience and recovery (Ede et al., 2020). Nurse managers who practiced mindfulness found that participating for 60 minutes a week had

increased fulfillment at work, improved quality of life, and decreased symptoms of burnout. This change was poorly sustained three months after the weekly mindfulness activity ended (Ceravolo & Raines, 2018). This may indicate a need for regular mindfulness practice and further studies into sustained mindfulness practice. Many RCT studies have demonstrated increased attention span, self-care and compassion, coherence, decreased STS, emotional exhaustion, depersonalization, and low personal accomplishment (Halm, 2017). Many of these symptoms overlap with burnout and their physical manifestations. Mindfulness takes a minimal time commitment to practice and offers profound potential benefits.

There are different ways to practice mindfulness or mindful-based stress reduction techniques (MBSR), including meditation, guided imagery, movement, prayer, yoga, and self-care (Adimando, 2017; Albatnuni & Koszycki, 2020; Cain, 2021; Hilcove et al., 2020). With meditation, one can begin by allotting 10 minutes for practice to be fully in the moment in awareness of thoughts and feelings with a nonjudgmental intention while paying close attention to deep breathing. Stretching can augment and alleviate tension during these 10 minutes (Cain, 2021). Guided imagery using words, stories, or music elicits imagery in one's mind. Hearing repeated words, phrases, or numbers while being still and calm helps to increase clarity and compassion (Farina et al., 2018). Prayer is a way to practice guided meditation in which the practitioner becomes aware of their thoughts and emotions and is cognizant of sounds and sensations, but releases as breathing becomes the focus (Avino, 2020). The frequency of prayer is correlated with mindfulness and well-being. Taking part in social religious activities did not increase one's well-being; however, increased prayer frequency did, encouraging daily prayer

practice for optimal well-being (Albatnuni & Koszycki, 2020). Yoga is an activity that unites a person's mind, body, and spirit through movement and breathwork. Physically, it enhances balance, strength, and energy. Mentally, yoga practice improves memory and concentration, enhances mental clarity, and regulates emotions resulting in a deeper self-awareness (Farina et al., 2018). In an RCT with nurses and other healthcare workers practicing yoga, significant improvements were observed in symptoms of burnout, perceived stress, sleep quality and quantity, serenity, mindfulness, and increased energy (Hilcove et al., 2020).

Several smart device apps are available to help guide those interested in mindfulness activities, such as Headspace, Calm, Lumosity, and Aura (Cain, 2021; Clarke & Draper, 2020). With many available methods of MBSR available, it could be a viable option to help swaths of nurses decrease their burnout while improving their health without leaving their homes. In exploring smart device apps, there are over 700 available mindfulness apps in the Apple App Store; however, less than 30 of the available apps are supported by empirical evidence for efficacy. As of 2015, Headspace was rated as the highest-quality MBSR app, although the Calm app soon became more popular shortly thereafter (Clarke & Draper, 2020). The UCLA Mindful app is a free service that guides users in mindfulness meditations that vary from four to 14 minutes, depending on the user's selection. There are a variety of meditations in the UCLA Mindful app that offer relaxation, breathwork, wellness, and mindful movements. In a study by Iwamoto et al., the use of the UCLA Mindful app was associated with decreased anxiety, depression and stress, and an increase in emotional regulation as well as altruism. The study reviewed the charitable donations of those who practiced mindfulness with the UCLA Mindful app

compared to those who did not and found that the app users donated on average 2.61 times more than the control group (Iwamoto et al., 2020). In studies on students, those who practiced mindfulness via the UCLA Mindful app were shown to have increased memory capacity and performance on tests in preschoolers, high schoolers, and college students (Fleischmann & Posner, 2020).

Mindfulness may not help every nurse decrease the symptoms causing burnout. A study on mindfulness in a group of oncology nurses showed that nurses with a lower degree of extraversion and a higher degree of neuroticism were more resistant to mindfulness practice's positive effects, representing a vulnerability to psychological stressors (Fang et al., 2018). Personality traits alone should not discourage one from practicing mindfulness. Those with post-traumatic stress disorder (PTSD) have demonstrated significant improvements in their symptoms (Adimando, 2017). Mindfulness has shown significant improvements in individuals who tend to catastrophize events, which could help nurses who perceive their stress to be worse than others around them (Rozworska et al., 2019). Although mindfulness may not help those who are not open to its potential benefits, continued practice can decrease the suffering associated with burnout.

Conclusions

Burnout has been a common occupational hazard in nursing for a long time, causing those who suffer from it to experience job dissatisfaction, stress, increased illness, and increased risk for on-the-job errors. Those who work with burnt-out nurses are more likely to have an increased workload and decreased productivity. Morale overall is decreased. Feeling this way chronically can impede one's motivation to perform self-

care activities. Decreased self-care activities further exacerbate the negative feelings of burnout.

Burnout can occur because of moral injury, which has been ubiquitous throughout the COVID-19 pandemic. These repeated moral injuries have been implicated in recent suicides of healthcare workers and post-traumatic stress disorder diagnoses. Healthcare institutions have been encouraging self-care. One self-care method is mindfulness, which has been associated with increased job satisfaction in nurses with regular mindfulness practice. Other benefits include increased productivity and compassion. There are many ways to practice mindfulness, including through the use of a subscription service such as Calm or Headspace or free apps such as UCLA Mindful, all of which have demonstrated improved sleep and decreased anxiety in participants after one month of regular practice.

Spiritual Component

The pandemic exacerbated the ongoing issue of burnout in nursing. Workloads increased along with patient suffering and deaths; time off became not respiting from work but a concern that nurses could infect family and household members. Nursing is not just a job or vocation but a sacred calling with which a desire to provide those who are suffering with love, care, and compassion while advocating for human dignity and preservation. In service of others in their hour of need, nurses can sense sickness, anxiety, and darkness vibrations. Nurses can also emanate their vibrations of peace and love (O'Brien, 2018). When a nurse is too exhausted and burnt out from providing care to patients suffering greatly, it can be challenging to emit positivity and hope. Let us not become weary in doing good, for at the proper time, we will reap a harvest if we do not give up (Galatians 6:9, New International Version). Through mindfulness, nurses have

the potential to decrease the weariness that has crept in this past year and continue to answer their sacred calling.

CHAPTER 3

PROJECT DESIGN

The project manager established a protocol for the project to find an answer to the PICOT question. The following chapter will discuss the population and sample involved in the research, the proposed method for the PICO question, interventions done with the sample, the instrumentation used, and data collection. The general purpose of the intervention was to determine whether mindfulness practices employed over six weeks reduce symptoms of burnout in nurses.

The project was a quasi-experimental quantitative design with pre-test/post-testing. Pre-test/post-testing measured the effectiveness of MBSR on symptoms of burnout using a screening tool. Quasi-experimental projects have an intervention but does not randomize participants to different groups. This project can be further classified as an interrupted time series, as the dependent variable is measured before and after the mindfulness intervention (Baker, 2017).

Population and Sample

The population involved in this project were licensed practical nurses/ licensed vocational nurses (LPNs/LVNs), RNs, APRN students, and established APRNs, including CRNA, Ph.D., and DNP.

Setting

A project's setting can influence how the project is carried out (Majid, 2018). This project's setting was virtual, with the nurse answering the preliminary questionnaire within the comfort of their choosing, with the use of the UCLA Mindful app would be done on the participant's own time.

Recruitment

Recruitment for this project was done via social media platforms, including Facebook, Twitter, Instagram, TikTok, AllNurses, and Reddit. The project manager asked those who saw the post to share it with their followers. Each post consisted of a portable document format flyer (pdf) with a quick response (QR) code and a truncated link (Appendix A). Both the QR code and truncated link directed potential participants to the initial screening survey (Appendix B).

Inclusion and Exclusion Criteria

Participants in this project had to be over the age of 18 years, must have a nursing license (RN, LVN, LPN, RPN), and must have worked either part-time, full-time, or contingent during the last two years of the COVID-19 pandemic.

Initial respondents who were not nurses, were under 18 years old, or were a nurse but had not worked in nursing during the pandemic were excluded from participation.

Sample Size

The project manager enrolled 65 nurses with the aim of having at least 34 nurses complete the intervention and subsequent surveys based on the University of California San Francisco Clinical & Translational Science Institute calculator. This calculator based

the number of 34 off a ≥95% confidence interval, a ≤5% margin of error, a medium effect size of 0.5, and a power of 0.8 (Kohn & Senyak, 2023). The original target of 65 participants accounted for high attrition rates of up to forty-three percent in app-based interventions (Meyerowitz-Katz et al., 2020). Sixty-five participants completed the pre-test and 44 completed the post-test.

Sampling Strategy

This sample started as a convenience sample, with those enrolling having convenient contact with the project manager (Sullivan, 2018). Through chain referrals via social media shares, the sample also becomes what is referred to as a snowball sample (Naderifar et al., 2017).

Ethics

Recruitment, enrollment, participation, and data collection were approved once the Andrews University Institutional Review Board and the UCLA Mindful App creators were approved. Consent was present within the initial screening survey that participants were required to read and agree to before the next step (Appendix B).

Incentives

Compensation for participation in scholarly projects is a persevering ethical controversy. Payments considered excessive might cause participants to be deceptive, compromising the data's integrity. Payments considered to be too low run the risk of participants to overlook the project altogether (Largent & Lynch, 2017). Those who participated in this project and submitted the post-test were compensated with a $5.00 Amazon gift card sent to the email address provided to the project manager.

Tools/Instruments

Variables

The independent variable was mindfulness practice via the UCLA mindful app. The dependent variable was nurse burnout measured with a screening tool. Baseline burnout scores were measured using the OLBI (Appendix C), and post-intervention burnout scores were measured using the same tool.

Tools

This project utilized surveys as the data collection instrument. Surveys are scientifically sound data collection instrument that has been increasingly used in healthcare. Advantages of using a survey include the degree of anonymity afforded to participants, which makes them more likely to divulge things they might not if in a group, and topics that may inspire participants to investigate the research topic on their own. Disadvantages include errors in sampling in which respondents are not honest about representing themselves, and questions asked may not be relevant to the topic of study (Kurtkoti, 2020).

Participant Demographics

The initial screening survey asked project participants to provide basic demographic information (Appendix B). Demographic data can be analyzed to demonstrate the composition of a project, but it is essential to determine whether the data collected from the sample is representative of the population (Sullivan, 2018). Categorical variables included gender, race, ethnicity, country of residence, and highest degree achieved in nursing. Continuous variables included decade of life.

OLBI

The Oldenburg Burnout Inventory (OLBI) was created as an alternative to another tool called the Maslach Burnout Inventory. The OLBI measures emotional exhaustion and disengagement (Hanafin et al., 2020; Hoseinabadi et al., 2020). When created, Demerouti et al. did not assign cut-off scores even though the survey results were scored; however, the tool creator was open to other researchers establishing a cutoff score for burnout.

The two dimensions measured, emotional exhaustion, and disengagement on the job, are measured with eight questions each. Both dimensions evaluate using four positively worded, and four negatively worded statements that are scored on a scale of one through four, or strongly agree to strongly disagree (Oana Tipa et al., 2019). According to Halbesleben & Demerouti (2005), the strengths of the OLBI lie in the combination of positively and negatively worded statements within both domains, which effectively requires the reader to read each statement carefully and consider their responses. Examples of such statement questions include: (a) I find new and interesting aspects in my work, (b) It happens more and more that I talk about my work in a negative way, and (c) After working, I have enough energy for my leisure activities.

Scoring and Interpretation

The Oldenburg Burnout Inventory (OLBI) is a 16-question tool (Appendix C) that is scored using a four-point Likert scale (Hoseinabadi et al., 2020). The Likert scale ranges from 1 to 4 (1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree). Questions pertaining to emotional exhaustion are questions 2, 4, 5, 8, 10, 12, 14, and 16. Questions about disengagement are 1, 3, 6, 7, 9, 11, 13, and 15. The values for questions

1, 5, 7, 10, 13, 14, 15, and 16 are added with the corresponding number. Questions 2, 3, 4, 6, 8, 9, 11, and 12 are scored with reverse values (4 = strongly agree, 3 = agree, 2 = disagree, 1 = strongly disagree). The sum of these values is added up to obtain a participant's total OLBI score. Higher OLBI scores are correlated with higher burnout symptoms (Janko & Smeds, 2019). OLBI scores over 35 suggest high levels of burnout (Summers et al., 2020). Permissions are pending for this tool, although it is available for free use.

Reliability and Validity

Specific survey instruments with high validity and reliability helped eliminate unnecessary questions. Reliability refers to relying on a measurement being consistent when measured under the same conditions. A reliable tool is one that will measure consistently with each use, and reliability is measured through a statistic called the Cronbach's alpha. When Cronbach's alpha is greater than 0.80, the tool should perform reliably each time it is used (Melnyk & Fineout-Overholt, 2019). The OLBI is considered a reliable tool, with a Cronbach's alpha calculated at 0.77 -0.864 (Hanafin et al., 2020; Hoseinabadi et al., 2020).

ACEs

The ACEs survey (Appendix D) is a 10-question survey used to determine whether the participant experienced maltreatment, neglect, abusive parenting, or household dysfunction with dichotomous responses of yes or no (McKee-Lopez et al., 2019). Each question refers to the participant's life before their 18th birthday.

Scoring and Interpretation

Each question is scored in binary form with a score of 1= Yes and 0 = No. A sum score is calculated upon completion, and higher scores indicate the higher presence of ACEs. The ACEs tool is free-use.

Reliability and Validity

The reliability of ACEs has been calculated with a Cronbach's alpha of 0.61-0.78 (McKee-Lopez et al., 2019). The reliability of this tool has a lower Cronbach's alpha due to limitations with the instrument itself, with answers reported on a binary scale (B. K. Johnson, personal communication, January 6, 2023).

PCEs

The PCEs is a survey usually done with the ACEs survey that determines whether the participant perceived an attachment to a caregiver early in life, exposure to spoken language, and had safe, stable relationships that were nurturing. It is a seven-question instrument with a dichotomous response of yes or no (Bethell et al., 2019).

Scoring and Interpretation

Each question is scored in binary form with a score of 1= Yes and 0 = No. A sum score is calculated upon completion, and higher scores indicate a higher presence of PCEs, and thusly a higher presence of protective factors. The PCEs tool is free-use, usually found with the ACEs tool. Because ACE/PCE scores refer to one's childhood, the scores did not need to be reassessed post-intervention.

Implementation

This project started with a two-week recruitment period through daily social media posts (Appendix A) inviting participants to join on Reddit, AllNurses, Twitter, Facebook, and Instagram. Printed social media flyers were posted in public areas such as local health departments and hospitals. The project manager through word of mouth invited people to join or share the flyer. The flyer (Appendix A) would direct interested persons to a Google Forms survey (Appendix B?). Google Forms allowed participants' responses to be visible only to the researcher during data collection as the platform is password-protected (Google, 2021). After two weeks, there were not enough participants, so recruitment continued for another four weeks. This resulted in 83 responses of interest. By entering the participant's email address, the participant provided their intention to participate and their implied consent. One of these responses was excluded due to not having worked during the pandemic. Eight of the 83 respondents answered "maybe" to the question "would you like to participate in a study on nurse burnout?"

Once enough interest was achieved, an email was sent to the remaining 82 eligible respondents (Appendix F) welcoming participants to the project and providing them with links to the UCLA Mindful app, pre-test OLBI, ACEs, and PCEs. Sixty-five participants completed the pre-test OLBI, ACEs, and PCEs. A form daily email reminder (Appendix G) was sent to participants. After six weeks, the project manager sent out an email (Appendix H) informing participants that the project had ended and a link to the post-test would be coming soon. Six weeks was selected as the length of the intervention, as online MBSR activities have been shown to be effective in as little as two weeks, with benefits observed from two to eight weeks (Valencia, 2020). The following day, an email

(Appendix I) with a link to the post-test OLBI was sent to participants. A second email with the same text was sent out five days later to participants who had not responded. A third email with the same text was sent out five days after the second to remaining participants who had not responded. A fourth email with the same text was sent out three days later to remaining participants who had not responded. A total of 44 participants completed the post-test OLBI.

Intervention

Mindfulness is an evidence-based practice self-care intervention to help alleviate stress, improve stress management, and dull stress responses (Stillwell et al., 2017). When a participant chose to practice mindfulness, they would access the UCLA Mindful app and select a meditation program to listen to. Participants can choose from various meditations, including eight basic and six health and wellness-focused meditations. Each meditation ranged from three to 19 minutes and was available in 14 languages. Upon selecting a meditation to listen to, the listener was instructed by the app narrator to find a comfortable position to be in while listening while the session began (University of California Los Angeles Mindful Awareness Research Center [UCLA MARC], 2022).

Participants were instructed to access and listen to a guided meditation of their selection with a goal of five times per week. This recommendation is comparable with other projects that have utilized UCLA Mindful as well, with benefits observed at three to four times a week practice at approximately 30 to 240 minutes per week (Black et al., 2015; Galla et al., 2015; Flook et al., 2010; Purdie et al., 2022). The app's guided meditations have a narrator who talks to the listener, prompting the listener to focus on a particular area of the body to relax or engage (UCLA MARC, 2022).

Evaluation

Google Forms was utilized as the initial screening questionnaire platform. Google Forms allowed the data collector to create multiple-choice questions and select all that apply and are required; however, this application did not allow for calculating scores of screening tools (Google, 2021). Email addresses collected via Google Forms were assigned an alphanumeric identifier to de-identify any potential participant. Forms.app is a survey platform that has the capacity to score multiple choice questions, providing the participant with their OLBI score upon submission, with feedback as to whether their score indicated burnout or not (Forms.app, 2023). This platform allowed the project manager to import survey questions, obtain raw data, and export data for later use. Due to the ease of use of the Forms.app platform, it was used for the duration of the project thereafter.

Before the intervention, participants were asked to complete a pre-test OLBI (Appendix C) and the ACEs and PCEs surveys (Appendices D and E). Upon completion of the intervention, the post-test OLBI, a 16-Likert-scale questionnaire, was sent to participants for evaluation.

Procedure

Data Collection

Initial data were collected using the Google Forms platform during the six weeks of recruiting participants. Data collection surrounding the project intervention was done using the Forms.app platform. The project facilitator and statistician had access to participant data for ease of data analysis. Links to the questionnaires are listed below:

1. Initial screening survey — https://forms.gle/mkUUurkq9AMNim1P7

2. Pre-Test OLBI — https://my.forms.app/form/62e71af22b6a8726fe72235c
3. ACEs — https://my.forms.app/form/62e70b612b6a8726fe721178
4. PCEs — https://my.forms.app/form/62e718252b6a8726fe722087
5. Post-Test OLBI — https://my.forms.app/form/6321358eafe7f34ef89864de

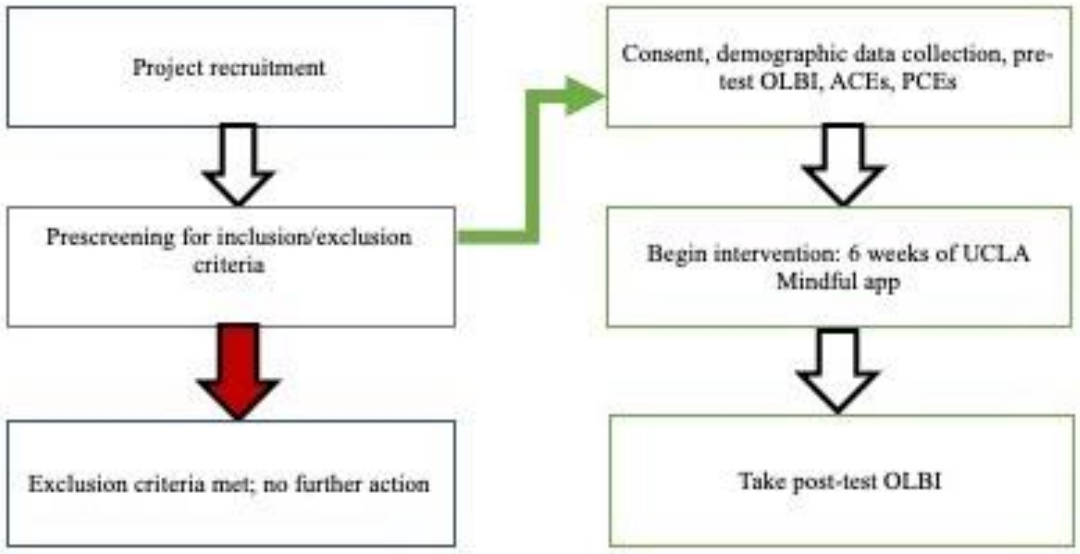


Figure 2. Project Protocol.

Statistical Analysis

A combination of Google Forms and Forms.app were used to collect data. The quantitative raw data collected during the survey was cleaned for consistency, accuracy, and completeness. The project manager coded the categorical variables with numeric values for ease of analysis and interpretation. Cleaning the data by removing inconsistencies and missing values validated the data to ensure it was relevant to produce reliable findings. The data was cleaned for analysis in Statistical Package for Social Sciences (SPSS) Version 27 and Microsoft Excel spreadsheets.

Demographics were analyzed with frequencies and percentages. Nominal and categorical data were first analyzed with frequencies and percentages. Continuous variables were examined with measures of central tendency. Then for inferential testing, a paired samples t-test was used to examine differences from the pre-test to the post-test. Bivariate correlations were also used to explore relationships between continuous variables.

Statistical inferences can be either an estimation or hypothesis testing. Because there is a specific statement about the population parameter, and sample statistics are used to assess the likelihood the hypothesis is true, hypothesis testing is indicated (Sullivan, 2018). Using the hypothesis for a paired sample t-test, the appropriate hypothesis is below:

H_0: $\mu_1 - \mu_2 = 0$ (there is no change in nurse burnout)

H_1: $\mu_1 - \mu_2 \neq 0$ (there is a change in nurse burnout),

$$\propto = 0.05$$

CHAPTER 4

RESULTS

The purpose of this project was to determine whether mindfulness reduced nurse burnout. This project also sought to determine whether a relationship between ACEs and treatment-resistant burnout existed and if PCEs offered any protection against the harm ACEs can inflict. The following chapter will discuss the results of this project, as well as demographic data with text, tables and (bar and/or pie) charts.

Participant Demographics

There were initially 65 participants that consented to participate in this project; however, only 44 completed all portions of the project, and therefore the final sample included in data analysis was N = 44. Participants were all in the nursing field. The sample was predominately female (n=43; 97.7%), White (n=43; 97.7%), and non-Hispanic (n=40; 90.9%), between ages 40 – 49 (n=20; 45.5%) or 30 – 39 (n=12; 27.3%), and all from the United States. The majority of this sample reported their highest degree as a bachelor's degree in nursing (BSN) (n=24; 54.5%), followed by an associate degree in nursing (ADN) (n=15; 34.1%). All the participants (n=44; 100%) reported living in the United States.

Table 1

Participant Age Range

Decade of Life	Number Reported	Percentage
20-29	2	4.5
30-39	12	27.3
40-49	20	45.5
50-59	5	11.4
60-69	3	6.8
70-79	2	4.5
Total	44	100

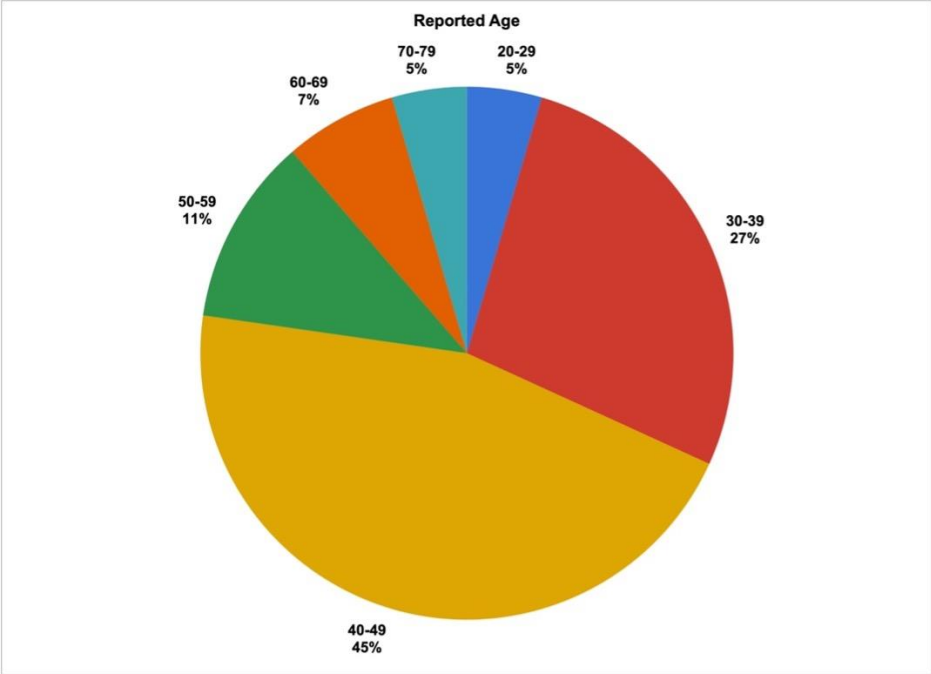


Figure 3. *Participant Age Range Make Up*

Table 2

Participant Highest Degree

	Number Reported	Percentage
Licensed Practical Nurse (LPN)	1	2.3
Associate Degree in Nursing (ADN)	15	34.1
Bachelor's Degree in Nursing (BSN)	24	54.5
Master's Degree in Nursing (MSN)	1	2.3
Ph.D/DNP in Nursing	2	4.5
APRN	1	2.3
Total	44	100

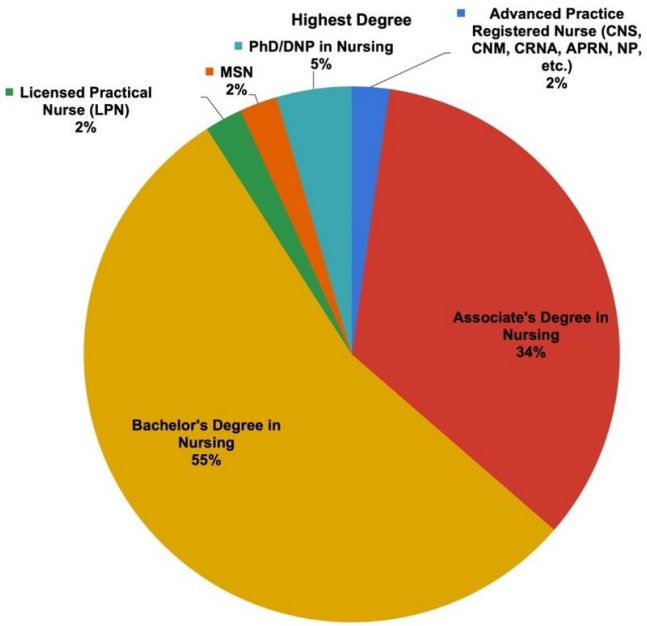


Figure 3**.** Participant Highest Degree

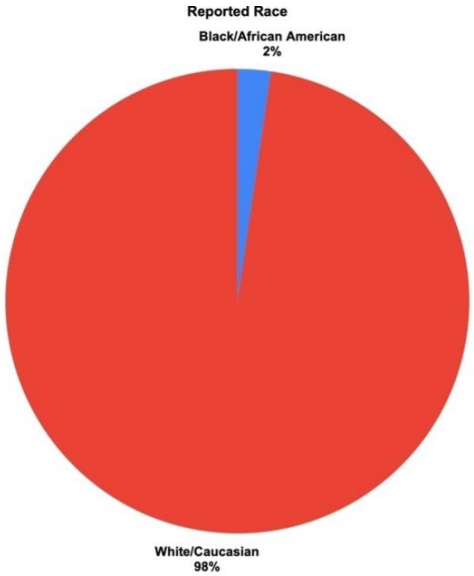


Figure 4. Participant Racial Background

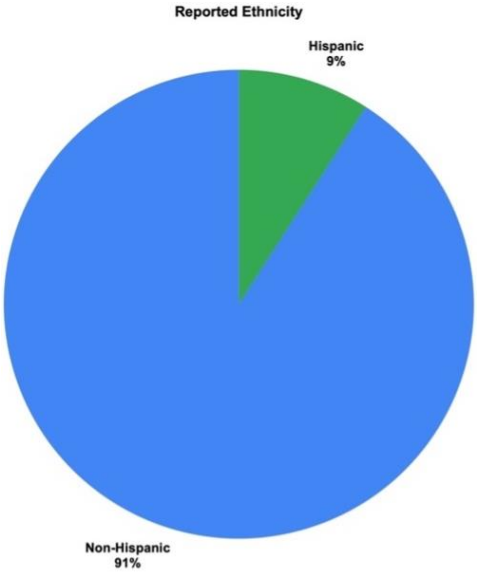


Figure 5. Participant Ethnicity Background

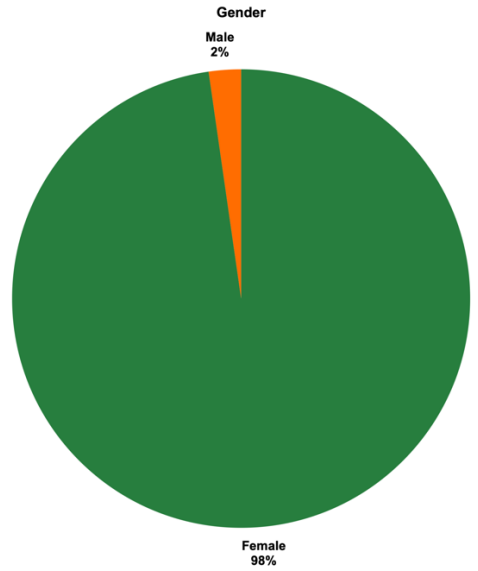


Figure 6. Participant Gender

Statistical Analysis

The question for this project was: does regular mindfulness practice reduce symptoms of burnout in nurses over six weeks? Table 3 displays the maximum, minimum, and mean pre- and post-test OLBI scores. The paired sample t-test was used to compare the pre-and post-test scores, which showed a mean decrease of -2.5227, which is statistically significant. This reflects that in this sample, mindfulness was effective at reducing nurse burnout. Seeing as how the post-test OLBI result mean was 41.98, and the cutoff score for burnout on the OLBI was 36, nurses were still burnt out but to a lesser degree (Summers et al., 2020).

Table 3

Pre- and Post-Test OLBI Scores

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-Test OLBI	44	25	61	44.50	8.946
Post-Test OLBI	44	25	58	41.98	6.960
Change in OLBI Score	44	-21	9	-2.5227	6.01351

Table 4

Approximate Number of Times Per Week Participant Practiced Mindfulness

Number of times per week	Number of Participants	Percentage
2	2	4.55
3	6	13.64
4	11	25.00
5	21	47.73
6	4	9.09
Total	44	100

Figure 7. Approximate Number of Times Per Week Participant Practiced Mindfulness.

Calculated Reliability

The ACE is a 10-question instrument used to examine the participants' experiences as a child in the domains of maltreatment, neglect, abusive parenting, or household dysfunction (McKee-Lopez et al., 2019). It is a binary tool using a score of 1 = Yes and 0 = No. A sum score is calculated upon completion, and higher scores indicate a higher presence of ACEs. This project's internal consistency reliability was fair (Cronbach's alpha = .678).

The PCE is a seven-question binary instrument used to examine positive childhood experiences such as an attachment to a caregiver early in life, exposure to spoken language, and had safe, stable relationships that were nurturing (Bethell et al., 2019). Each question is scored with either 1 = Yes or 0 = No. A sum score is calculated upon completion, and higher scores indicate the higher presence of PCEs. In this project, the internal consistency reliability was poor (Cronbach's alpha = .489); however, this is likely due to the binary nature of the instrument and the lower number of questions.

The OLBI is a 16-question instrument used to examine burnout, emotional exhaustion, and dissatisfaction on the job. The OLBI is a Likert-type survey with 1 = strongly agree and 4 = strongly disagree on questions 1, 5, 7, 10, 13, 14, 15, and 16. Questions 2, 3, 4, 6, 8, 9, 11, and 12 are reverse scored with 1 = strongly disagree and 4 = strongly agree. A sum score is calculated ranging from 16 – 64, with lower scores indicating lower levels of burnout and higher scores indicating higher levels of burnout. Cronbach's alpha is a test that measures internal consistency among different results, and if the results are over 0.7, the results are considered good (Rebar & Gersch, 2015). This project's internal consistency reliability was excellent (Cronbach's alpha = .952).

Table 5 provides descriptive statistics for the ACE, PCE, Pre-OLBI, and Post-OLBI scores, and the approximate number of times per week the participant reports practicing mindfulness. Assumptions were examined for parametric testing, and the data demonstrated normality as demonstrated by Shapiro-Wilk's test ($p > .05$). One outlier was noted and was retained in the analysis. A paired-samples t-test was run to examine the differences between pre and post-OLBI scores. There was a decrease from the pretest OLBI Score ($M = 44.5$) to post-test OLBI score ($M = 41.98$). This difference of 2.52 points was statistically significantly different $t\ (43) = 2.78$ [.69 – 4.35], $p = .008$.

Table 5

Descriptive Statistics for ACE Score, PCE Score, Pre-test OLBI, Post-test OLBI, and Approximate Number of Times per Week Practicing Mindfulness

	N	Minimum	Maximum	Scores *M* ± *SD*
ACE Scores	44	0	8	2.9 ± 2.17
PCE Scores	44	3	7	5 ± 1.48
Pre-Test OLBI	44	25	61	44.5 ± 8.95
Post-Test OLBI	44	25	58	41.98 ± 6.96
Approximate Number of Times Per Week Practicing Mindfulness	44	2	6	4.43 ± 0.997

Independent and Dependent Variables

The independent variable was the nurses' OLBI scores, and the dependent variables included mindfulness and ACEs/PCEs scores.

Answering Each Question

A paired-samples t-test was run to examine the differences between pre-and post-OLBI scores. There was a decrease from the pretest OLBI Score (M = 44.5) to post-test OLBI score (M = 41.98). This difference of 2.52 points was statistically significantly different t (43) = 2.78 [.69 – 4.35], p = .008.

Table 6

Paired-Sample t-Test

	N	Scores M ±SD	Test Statistics
Pre-Test OLBI	44	44.5 ± 8.946	t = -2.783
Post-Test OLBI	44	41.98 ± 6.96	df = 43 p = 0.008

Pre-Test OLBI scores on average were 44.5. OLBI scores above 35 indicate burnout, meaning the average project participant is burnt out. The PICOT question "does regular mindfulness practice reduce symptoms of burnout in nurses over six weeks?" was addressed with statistically significant results for the population involved in this project. Nurses who completed the six-week project, regardless of the number of times practicing mindfulness, reported an average OLBI reduction of -2.5 points.

Correlations were also explored in this study. There was no demonstrated correlation between the ACE score and PCE score (r = -.080; p = .607). There was also no demonstrated correlation between the OLBI score and ACE score (r = .080; p = .606) or between the OLBI score and PCE score (r = -.127, p = .413). Finally, there was no demonstrated correlation between the change in OLBI scores from pre- to post-test and the number of times individuals reported practicing mindfulness (r = .05; p = .728).

The data also did not correlate PCE scores with lower OLBI scores. The data did not show a correlation between ACE and PCE scores. All these findings are likely due to the smaller sample size, as a much larger sample size would be required to adequately power projects to answer such questions.

CHAPTER 5

SIGNIFICANCE AND IMPLICATIONS

Discussion

The pandemic exacerbated the chronic issue of burnout in nursing and healthcare. Current measures for stress reduction in nurses are minimal at best, given the nursing resources required to address the pandemic. Nurses treat patients with inconsistent restrictions on visitors, provide futile care to some, and see unparalleled human suffering and death. Unclear and conflicting policy changes increase patient and nurse frustrations. Healthcare institution initiatives to thank healthcare workers for their service result in nurses feeling like "we are being martyred without our consent" (Nelson & Lee-Winn, 2020, p. S127). As the pandemic recedes, the trauma and issues with burnout remain.

Practicing mindfulness is a self-care strategy that is evidence-based in reducing anxiety, symptoms of depression, and psychological stress over multiple different populations (Crowley et al., 2017; Maddock & Blair, 2021). This was further demonstrated in this project by reducing OLBI scores by 2.52 points on average. Nurses are burnt out, leaving the profession at a record rate, and there is a gap where nurses would effectively destress from their day. There are changes an individual nurse can make to practice mindfulness and better cope with stress. There are also changes health care institutions and nursing schools can make to improve nurse retention and better health outcomes for their patients.

This project hypothesized that six-weeks of practicing mindfulness could reduce nurse burnout. This was assessed by a pre- and post-test OLBI administered before and after the mindfulness intervention. On pre-test, the OLBI score mean was 44.50 which indicated that those who participated in this project were burnt out. On the post-test OLBI, the mean score was 41.98, which is a reduction in burnout, but still meets criteria for burnout with the OLBI instrument. While the intervention worked as intended, it did not completely eliminate burnout in participants.

Strengths

The project sample size was adequate to produce powered, statistically significant results. There was no conflict of interest with the project manager. Project objectives were clearly stated and measured, an extensive literature review was completed, and inclusion/exclusion criteria were clearly stated. This is one of the first projects that inquired about the ACEs and PCEs factor in nurse burnout, and while not correlated in this project, further projects could explore this topic in more detail.

Limitations

The project could not determine the relationship between ACEs, PCEs, and burnout due to inadequate sample size. Because of the limited nature of the ACE/PCE binary tools, a larger participant pool would be required to satisfy Cronbach's alpha for internal consistency, and the project manager was unable to recruit such a number. As a result, further projects and studies are indicated to determine relationships between ACEs, PCEs, and the perception of burnout in the nurse and healthcare worker population.

Implications

Individual

While the issue of burnout is indicative of a systemic problem, an individual nurse can take measures to help him or herself in the absence of an institutional paradigm shift. Nurses who practice mindfulness can gain mastery over the initial impulse to overreact to a situation, process a situation, work through it before reacting, and, more importantly, decrease anxiety and symptoms of burnout (Naik et al., 2019). On an individual level, integrating mindfulness practice into the nurse's routine can help lower their levels of burnout. Over time, this leads to improved personal health and better stress management skills (Darch et al., 2017). Lower burnout leads to a decrease in somatic symptoms that in turn improve concentration, decrease missed days at work, and reduce errors in care (Adimando, 2017). These changes can result in an overall increased quality of life.

Nursing Education

Nursing education play an essential role in the upstream impacts by shaping tomorrow's nurses. As discussed in the literature review, early childhood trauma can have lasting implications on an individual's psychological and physiological development and can lead to increased risk behaviors resulting in negative emotional, social, economic, and health consequences for the remainder of one's adult life. Adult trauma can destabilize an individual's sense of personal safety, concept of self, self-efficacy, their ability to moderate emotions and impair social relationships (Stokes et al., 2017). Though not correlated in this project, it is thought that healthcare workers have a similar, if not higher, number of ACEs, so the predisposition for more sensitive stress responses is already present in many healthcare workers (Girouard & Bailey, 2017).

It has been recommended that all health professional programs incorporate increasing resiliency through educational interventions amongst students (Moroney & Strickland, 2021). Despite nearly two-thirds of nursing students having a history of trauma, there is a current lack of resiliency training in nursing curricula (Cannon et al., 2020). Resiliency training can help mitigate the effects of stress and burnout and can be delivered in educational interventions targeted to specifically address burnout before it has a chance to start (Darch et al., 2017). Incorporating self-care strategies and MBSR interventions can be a quick, targeted intervention added to nursing curricula that would serve as another tool in the student's arsenal against burnout.

Healthcare Institutions

Unit and department managers can glean knowledge from the findings in this project and offer mindfulness apps for improved health and interventions at the beginning and end of a shift, in addition to increasing empathy toward staff (Ren et al., 2020). Nurse managers can offer empathy, encouragement, and reminders to practice self-care or lead a guided meditation to improve staff outlook and decrease stress.

Healthcare institutions can incorporate nursing continuing education credits into mindfulness. This would have a dual benefit of helping the nurse increase their knowledge while also satisfying continuing education credits. Practicing nurses can take their understanding of mindfulness and trauma to help their patients, themselves, and other nurses who may be struggling. Additionally, the healthcare institution could partner with a paid mindfulness app and offer the app free to employees as a fringe benefit. Reducing burnout is essential to improve nurse retention and recruitment, so it should be a focus for healthcare administrators as the repercussions of burnout can be detrimental to

patient outcomes. Nurses who are given workplace support for a healthy lifestyle experience increased personal health and better stress management. This translates into the nurse then becoming a health role model that can inspire others to make healthy behavior changes. These lower stress nurses deliver better patient care, and in being a healthy role model, the nurse is viewed as more valid and credible (Darch et al., 2017). A health care institution that helps to target burnout will be likely to save money and have better patient satisfaction because of less stressed staff.

Evaluation

The purpose of this project was to determine whether regular mindfulness practice with use of the UCLA Mindful app was effective at reducing nurse burnout. The hypothesis of the project was that regular mindfulness practice would decrease nurse burnout, which was found to be statistically significant. Participants were asked to evaluate the project's merits as part of the questionnaire. Participant feedback was overall positive and was well received. When asked for comment on areas for improvement, one participant stated the OLBI would better if there was a neutral response. Another participant stated their main source of stress is their personal life and not their job. Out of the 44 participants, these were the only two comments received.

End-Product Dissemination

This project was presented to the Andrews University Nursing Program via Zoom. Additionally, a poster presentation was created and submitted to Andrews University Nursing Program, the Michigan Council of Nurse Practitioners, and the Association of Public Health Nurses for consideration in poster presentations in their annual conferences and to the Oakland County Health Division nursing administrator,

and the Chief Nursing Officers as McLaren Oakland, Trinity Health St. Joseph Mercy Oakland, and Royal Oak Beaumont.

Sustainability

This project attempted to decrease nurse burnout with use of the UCLA Mindful app. The UCLA Mindful app is a free app with meditations offered in over fourteen languages, with approximately fourteen different meditations available (UCLA MARC, 2022). Those who participated in this project can continue with meditations using the UCLA Mindful app as they choose. These basic meditations are a starting point to actualizing the benefits of reducing nurse burnout.

Mastery of DNP Essentials

The DNP Essentials were eight competencies established by the American Association of Colleges of Nursing in 2006. These eight components are deemed essential for all DNP graduates, regardless of their practice specialty (American Association of Colleges of Nursing [AACN], 2006). The essentials focus on translating research into nursing practice, designing, implementing, and evaluating programs used in specific populations, leading change across complex systems, and improving patient outcomes (Bowie et al., 2019). This proposal exemplified mastery of specific DNP essentials discussed below.

Essential I. Scientific Underpinnings for Practice

This project utilized the scientific underpinnings of nursing practice by incorporating scientific methods, creating a PICOT, and following a specific methodology. Nursing science draws knowledge from other sciences, such as

psychology, sociology, medicine, communication, philosophy, and theology, all incorporated into this project (Zaccagnini & White, 2017).

Essential III. Clinical Scholarship and Analytical Methods for Evidence-Based Practice

This project incorporates clinical scholarship, as it was a work in progress, evolving as new knowledge was generated. This new knowledge translated into practice applied to nurse burnout. Evidence-based practices are practice driven, so this proposal can contribute to evidence-based practices in the future (Zaccagnini & White, 2017).

Essential IV. Information Systems – Technology and Patient-Care Technology for the Improvement and Transformation of Health Care

Utilizing various platforms of social media, Google forms, the UCLA Mindful app, and Forms.app in the implementation of this proposal demonstrated the use of technology to enhance and improve nurses' mental health.

Essential VII. Clinical Prevention and Population Health for Improving the Nation's Health

This project sought to improve the nursing population's burnout and mental and physical health and well-being by applying mindfulness to nurses.

Essential VII. Advanced Nursing Practice

Once the project was approved to progress, the essential was satisfied. The writer monitored the progress of participating nurses and communicated with the DNP project chair and DNP project mentor for guidance. Advanced nursing practice is characterized by any nursing intervention that influences a patient's or population's health through direct or indirect care (Moran et al., 2017).

References

Adimando, A. (2017). Preventing and alleviating compassion fatigue through self-care: An educational workshop for nurses. *Journal of Holistic Nursing*, *36*(4), 304–317. https://doi.org/10.1177/0898010117721581

Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, *2*(4), 314–324. https://doi.org/10.1002/hbe2.195

Albatnuni, M., & Koszycki, D. (2020). Prayer and well-being in Muslim Canadians: Exploring the mediating role of spirituality, mindfulness, optimism, and social support. *Mental Health, Religion & Culture*, *23*(10), 912–927. https://doi.org/10.1080/13674676.2020.1844175

Allgood, M. R. (2018). *Nursing theorists and their work* (9th ed.). Elsevier.

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

American Nurses Association. (2015). *Code of ethics for nurses with interpretive statements*. ANA Publishing.

Avino, K. (2020). Mindfulness: A self-care strategy. *Alabama Nurse, 47*(2), 22–23.

Baker, C. (2017). *Evidence-based practice: An integrative approach to research, administration, and practice: Quantitative research designs: Experimental, quasi-experimental, and descriptive*. Jones & Bartlett Learning.

Belton, S. (2018). Caring for the caregivers: Making the case for mindfulness-based wellness programming to support nurses and prevent staff turnover. *Nursing Economic$*, *36*(4), 191–194.

Bethell, C., Jones, J., Gombojav, N., Linkenbach, J., & Sege, R. (2019). Positive childhood experiences and adult mental and relational health in a statewide sample. *JAMA Pediatrics*, *173*(11), e193007. https://doi.org/10.1001/jamapediatrics.2019.3007

Black, D. S., O'Reilly, G. A., Olmstead, R., Breen, E. C., & Irwin, M. R. (2015). Mindfulness meditation and improvement in sleep quality and daytime impairment among older adults with sleep disturbances. *JAMA Internal Medicine*, *175*(4), 494. https://doi.org/10.1001/jamainternmed.2014.8081

Bowie, B. H., DeSocio, J., & Swanson, K. M. (2019). The DNP degree. *JONA: The Journal of Nursing Administration*, *49*(5), 280–285. https://doi.org/10.1097/nna.0000000000000751

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

Butts, J. B., & Rich, K. L. (2015b). *Philosophies and theories for advanced nursing practice* (2nd ed.). Jones & Bartlett Learning.

Cannon, L. M., Coolidge, E. M., LeGierse, J., Moskowitz, Y., Buckley, C., Chapin, E., Warren, M., & Kuzma, E. K. (2020). Trauma-informed education: Creating and pilot testing a nursing curriculum on trauma-informed care. *Nurse Education Today*, *85*, 104256. https://doi.org/10.1016/j.nedt.2019.104256

Cain, C. (2021). In the moment. *American Journal of Critical Care*, *30*(1), 10–10. https://doi.org/10.4037/ajcc2021103

Centers for Disease Control and Prevention. (2021a, January 21). *Coping with stress*. Centers for Disease Control and Prevention| COVID-19. https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html?CDC_AA_refVal=https://www.cdc.gov/coronavirus/2019-ncov/prepare/managing-stress-anxiety.html

Centers for Disease Control and Prevention. (2021b, February 1). *Interim infection prevention and control recommendations for healthcare personnel during the coronavirus disease 2019 (COVID-19) pandemic*. Centers for Disease Control and Prevention COVID-19. https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html

Ceravolo, D., & Raines, D. A. (2018). The impact of a mindfulness intervention for nurse managers. *Journal of Holistic Nursing*, *37*(1), 47–55. https://doi.org/10.1177/0898010118781620

Chen, R., Sun, C., Chen, J., Jen, H., Kang, X., Kao, C., & Chou, K. (2020). A large-scale survey on trauma, burnout, and posttraumatic growth among nurses during the COVID-19 pandemic. *International Journal of Mental Health Nursing*, *30*(1), 102–116. https://doi.org/10.1111/inm.12796

Clark, C. (2020, August 31). *HCA hospitals accused of requiring covid-infected nurses to work*. Medpage Today. https://www.medpagetoday.com/hospitalbasedmedicine/nursing/88370

Clarke, J., & Draper, S. (2020). Intermittent mindfulness practice can be beneficial, and daily practice can be harmful. an in depth, mixed methods study of the "Calm" app's (mostly positive) effects. *Internet Interventions*, *19*, 100293. https://doi.org/10.1016/j.invent.2019.100293

Cole, D. (2017). The high cost of caring. *Psychology Today*, *50*(6), 84–91.

Crowley, M. J., Nicholls, S. S., McCarthy, D., Greatorex, K., Wu, J., & Mayes, L. C. (2017). Innovations in practice: Group mindfulness for adolescent anxiety - results of an open trial. *Child and Adolescent Mental Health*, *23*(2), 130–133. https://doi.org/10.1111/camh.12214

Darch, J., Baillie, L., & Gillison, F. (2017). Nurses as role models in health promotion: A concept analysis. *British Journal of Nursing*, *26*(17), 982–988. https://doi.org/10.12968/bjon.2017.26.17.982

Dev, V., Fernando, A. T., Lim, A., & Consedine, N. S. (2018). Does self-compassion mitigate the relationship between burnout and barriers to compassion? A cross-sectional quantitative study of 799 nurses. *International Journal of Nursing Studies*, *81*, 81–88. https://doi.org/10.1016/j.ijnurstu.2018.02.003

Dols, J., Chargualaf, K. A., & Martinez, K. S. (2019). Cultural and generational considerations in RN retention. *JONA: The Journal of Nursing Administration*, *49*(4), 201–207. https://doi.org/10.1097/nna.0000000000000738

Dutton, S., & Kozachik, S. L. (2020). Evaluating the outcomes of a web-based stress management program for nurses and nursing assistants. *Worldviews on Evidence-Based Nursing*, *17*(1), 32–38. https://doi.org/10.1111/wvn.12417

Ede, D. E., Walter, F. A., & Hughes, J. W. (2020). Exploring how trait mindfulness relates to perceived stress and cardiovascular reactivity. *International Journal of Behavioral Medicine*, *27*(4), 415–425. https://doi.org/10.1007/s12529-020-09871-y

Elanges, S. R., Lowe, J., & Nicholas, L. (2018). *Patient-centered care in action* [Unpublished manuscript]. Andrews University.

Fang, Y., Kang, X., Feng, X., Zhao, D., Song, D., & Li, P. (2018). Conditional effects of mindfulness on sleep quality among clinical nurses: The moderating roles of extraversion and neuroticism. *Psychology, Health & Medicine*, *24*(4), 481–492. https://doi.org/10.1080/13548506.2018.1492731

Farina, S. M., Minerva, E., Glunt, J., & Bernardo, L. (2018). Introducing mindfulness practices for self-care. *Journal for Nurses in Professional Development*, *34*(4), 194–198. https://doi.org/10.1097/nnd.0000000000000456

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (2019). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACE) study. *American Journal of Preventive Medicine*, *56*(6), 774–786. https://doi.org/10.1016/j.amepre.2019.04.001

Fitzpatrick, B., Bloore, K., & Blake, N. (2019). Joy in work and reducing nurse burnout: From triple aim to quadruple aim. *AACN Advanced Critical Care*, *30*(2), 185–188. https://doi.org/10.4037/aacnacc2019833

Fleischmann, R., & Posner, M. (2020). Meditation for increased mindfulness and memory: An analysis on the impact of meditation on mindfulness and working memory capacity in high school students. *Journal of Student Research*, *9*(2). https://doi.org/10.47611/jsrhs.v9i2.1079

Flook, L., Smalley, S. L., Kitil, M., Galla, B. M., Kaiser-Greenland, S., Locke, J., Ishijima, E., & Kasari, C. (2010). Effects of mindful awareness practices on executive functions in elementary school children. *Journal of Applied School Psychology*, *26*(1), 70–95. https://doi.org/10.1080/15377900903379125

Foli, K. J., Reddick, B., Zhang, L., & Krcelich, K. (2020). Nurses' psychological trauma: "They leave me lying awake at night". *Archives of Psychiatric Nursing*, *34*(3), 86–95. https://doi.org/10.1016/j.apnu.2020.04.011

Forms.app. (2023). *Features*. Features forms.app. https://forms.app/en/features

Fowler, K., & Wholeben, M. (2020). COVID-19: Outcomes for trauma-impacted nurses and nursing students. *Nurse Education Today*, *93*, 104525. https://doi.org/10.1016/j.nedt.2020.104525

Galla, B. M., O'Reilly, G. A., Kitil, M., Smalley, S. L., & Black, D. S. (2015). Community-based mindfulness program for disease prevention and health promotion: Targeting stress reduction. *American Journal of Health Promotion*, *30*(1), 36–41. https://doi.org/10.4278/ajhp.131107-quan-567

Girouard, S., & Bailey, N. (2017). ACEs implications for nurses, nursing education, and nursing practice. *Academic Pediatrics*, *17*(7), S16–S17. https://doi.org/10.1016/j.acap.2016.09.008

Google. (2021). *How to use google forms - computer - docs editors help*. Google Forms. https://support.google.com/docs/answer/6281888?hl=en

Halbesleben, J. B., & Demerouti, E. (2005). The construct validity of an alternative measure of burnout: Investigating the English translation of the Oldenburg burnout inventory. *Work & Stress*, *19*(3), 208–220. https://doi.org/10.1080/02678370500340728

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

Hanafin, S., Cosgrove, J., Hanafin, P., Brady, A.-M., & Lynch, C. (2020). Burnout and its prevalence among public health nurses in Ireland. *British Journal of Community Nursing*, *25*(8), 370–375. https://doi.org/10.12968/bjcn.2020.25.8.370

Hilcove, K., Marceau, C., Thekdi, P., Larkey, L., Brewer, M. A., & Jones, K. (2020). Holistic nursing in practice: Mindfulness-based yoga as an intervention to manage stress and burnout. *Journal of Holistic Nursing*, *39*(1), 29–42. https://doi.org/10.1177/0898010120921587

Hines, S. E., Chin, K. H., Glick, D. R., & Wickwire, E. M. (2021). Trends in moral injury, distress, and resilience factors among healthcare workers at the beginning of the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, *18*(2), 488. https://doi.org/10.3390/ijerph18020488

Hornor, G. (2017). Resilience. *Journal of Pediatric Health Care*, *31*(3), 384–390. https://doi.org/10.1016/j.pedhc.2016.09.005

Hoseinabadi, T. S., Kakhki, S., Teimori, G., & Nayyeri, S. (2020). Burnout and its influencing factors between frontline nurses and nurses from other wards during the outbreak of coronavirus disease -COVID-19- in Iran. *Investigación y Educación en Enfermería*, *38*(2), 1–12. https://doi.org/10.17533/udea.iee.v38n2e03

Iwamoto, S. K., Alexander, M., Torres, M., Irwin, M. R., Christakis, N. A., & Nishi, A. (2020). Mindfulness meditation activates altruism. *Scientific Reports*, *10*(1). https://doi.org/10.1038/s41598-020-62652-1

Janko, M. R., & Smeds, M. R. (2019). Burnout, depression, perceived stress, and self-efficacy in vascular surgery trainees. *Journal of Vascular Surgery*, *69*(4), 1233–1242. https://doi.org/10.1016/j.jvs.2018.07.034

Kelly, L. A., Gee, P. M., & Butler, R. J. (2021). Impact of nurse burnout on organizational and position turnover. *Nursing Outlook*, *69*(1), 96–102. https://doi.org/10.1016/j.outlook.2020.06.008

Kohn, M. A., & Senyak, J. (2023, January 26). *Sample size for before-after study (paired t-test)*. University of California San Francisco (UCSF) Clinical & Translational Science Institute. https://sample-size.net/sample-size-study-paired-t-test/

Kurosaka, A., & Payton, J. (2020). Prevention strategies to cope with nurse burnout in nephrology settings. *Nephrology Nursing Journal*, *47*(6), 539. https://doi.org/10.37526/1526-744x.2020.47.6.539

Kurtkoti, R. (2020). Surveys as research tools. *British Journal of Community Nursing*, *25*(Sup12), S5–S5. https://doi.org/10.12968/bjcn.2020.25.sup12.s5

Largent, E. A., & Lynch, H. (2017). Paying research participants: The outsized influence of "undue influence". *IRB*, *39*(4), 1–9. https://pubmed.ncbi.nlm.nih.gov/29038611/

Lee, J.-H., Hwang, J., & Lee, K.-S. (2019). Job satisfaction and job-related stress among nurses: The moderating effect of mindfulness. *Work*, *62*(1), 87–95. https://doi.org/10.3233/wor-182843

Lo, H. M., Wong, S. L., Wong, J. H., Yeung, J. K., Snel, E., & Wong, S. S. (2017). The effects of family-based mindfulness intervention on ADHD symptomology in young children and their parents: A randomized control trial. *Journal of Attention Disorders*, *24*(5), 667–680. https://doi.org/10.1177/1087054717743330

Maddock, A., & Blair, C. (2021). How do mindfulness-based programmes improve anxiety, depression and psychological distress? A systematic review. *Current Psychology*. https://doi.org/10.1007/s12144-021-02082-y

Majid, U. (2018). Research fundamentals: Study design, population, and sample size. *Undergraduate Research in Natural and Clinical Science and Technology (URNCST) Journal*, *2*(1), 1–7. https://doi.org/10.26685/urncst.16

Malekzadeh, J., Amouzeshi, Z., & Mazlom, S. (2018). A quasi-experimental study of the effect of teaching Orem's self-care model on nursing students' clinical performance and patient satisfaction. *Nursing Open*, *5*(3), 370–375. https://doi.org/10.1002/nop2.151

Manjili, R. H., Zarei, M., Habibi, M., & Manjili, M. H. (2020). COVID-19 as an acute inflammatory disease. *The Journal of Immunology*, *205*(1), 12–19. https://doi.org/10.4049/jimmunol.2000413

McCluncie-Trust, P. (2020). Potential impacts of COVID-19 pandemic: What will happen to nursing after the pandemic? It is likely to involve new technologies and new ways of working. *Kai Tiaki Nursing New Zealand*, *26*(3), 20–21.

McEwen, B. S. (2017). Neurobiological and systemic effects of chronic stress. *Chronic Stress*, *1*, 247054701769232. https://doi.org/10.1177/2470547017692328

Melnyk, B. (2020). Burnout, depression and suicide in nurses/clinicians and learners: An urgent call for action to enhance professional well-being and healthcare safety. *Worldviews on Evidence-Based Nursing*, *17*(1), 2–5. https://doi.org/10.1111/wvn.12416

Melnyk, B. M., & Fineout-Overholt, E. (2019). *Evidence-based practice in nursing & healthcare* (4th ed.). Wolters Kluwer Health.

Meyerowitz-Katz, G., Ravi, S., Arnolda, L., Feng, X., Maberly, G., & Astell-Burt, T. (2020). Rates of attrition and dropout in app-based interventions for chronic disease: Systematic review and meta-analysis. *Journal of Medical Internet Research*, *22*(9), e20283. https://doi.org/10.2196/20283

Moran, K., Burson, R., & Conrad, D. (2017). *The doctor of nursing practice scholarly project a framework for success* (2nd ed.). Jones & Bartlett Learning.

Moreno-Jiménez, J. E., Blanco-Donoso, L., Chico-Fernández, M., Belda Hofheinz, S., Moreno-Jiménez, B., & Garrosa, E. (2021). The job demands and resources related to COVID-19 in predicting emotional exhaustion and secondary traumatic stress among health professionals in Spain. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.564036

Moroney, T., & Strickland, K. (2021). Resilience: Is it time for a rethink? *Mar - May 2021*, *38*(2). https://doi.org/10.37464/2020.382.526

Naderifar, M., Goli, H., & Ghaljaie, F. (2017). Snowball sampling: A purposeful method of sampling in qualitative research. *Strides in Development of Medical Education*, *14*(3). https://doi.org/10.5812/sdme.67670

Naik, P., Harris, V., & Forthun, L. (2019). *Mindfulness: An introduction* [PDF]. University of Florida IFAS Extension. https://edis.ifas.ufl.edu/pdffiles/FY/FY138100.pdf

Nelson, S. M., & Lee-Winn, A. E. (2020). The mental turmoil of hospital nurses in the COVID-19 pandemic. *Psychological Trauma: Theory, Research, Practice, and Policy*, *12*(S1), S126–S127. https://doi.org/10.1037/tra0000810

O'Brien, M. E. (2018). *Spirituality in nursing standing on holy ground* (6th ed.). Jones & Bartlett Learning.

Oana Tipa, R., Tudose, C., & Lorin Pucarea, V. (2019). Measuring burnout among psychiatric residents using the Oldenburg burnout inventory (OLBI) instrument. *Journal of Medicine and Life*, *12*(4), 354–360. https://doi.org/10.25122/jml-2019-0089

Orem, D. E. (2001). Nursing: Concepts of practice (6th ed.). Mosby.

Osório, C., Probert, T., Jones, E., Young, A. H., & Robbins, I. (2016). Adapting to stress: Understanding the neurobiology of resilience. *Behavioral Medicine*, *43*(4), 307–322. https://doi.org/10.1080/08964289.2016.1170661

Owens, R. A., Alfes, C., Evans, S., Wyka, K., & Fitzpatrick, J. J. (2020). An exploratory study of a 3-minute mindfulness intervention on compassion fatigue in nurses. *Holistic Nursing Practice*, *34*(5), 274–281. https://doi.org/10.1097/hnp.0000000000000402

Peavey, E., & Vander Wyst, K. B. (2017). Evidence-based design and research-informed design: What's the difference? conceptual definitions and comparative analysis. *HERD: Health Environments Research & Design Journal*, *10*(5), 143–156. https://doi.org/10.1177/1937586717697683

Purdie, D. R., Federman, M., Chin, A., Winston, D., Bursch, B., Olmstead, R., Bulut, Y., & Irwin, M. R. (2022). Hybrid delivery of mindfulness meditation and perceived stress in pediatric resident physicians: A randomized clinical trial of in-person and digital mindfulness meditation. *Journal of Clinical Psychology in Medical Settings*. https://doi.org/10.1007/s10880-022-09896-3

Raudenská, J., Steinerová, V., Javůrková, A., Urits, I., Kaye, A. D., Viswanath, O., & Varrassi, G. (2020). Occupational burnout syndrome and post-traumatic stress among healthcare professionals during the novel coronavirus disease 2019 (COVID-19) pandemic. *Best Practice & Research Clinical Anaesthesiology*, *34*(3), 553–560. https://doi.org/10.1016/j.bpa.2020.07.008

Rebar, C. R., & Gersch, C. J. (2015). *Understanding research for evidence-based practice* (4th ed.). Wolters Kluwer Health.

Ren, Y., Song, H., Li, S., & Xiao, F. (2020). Mediating effects of nursing organizational climate on the relationships between empathy and burnout among clinical nurses. *Journal of Advanced Nursing*, *76*(11), 3048–3058. https://doi.org/10.1111/jan.14525

Rozworska, K. A., Poulin, P. A., Carson, A., Tasca, G. A., & Nathan, H. J. (2019). Mediators and moderators of change in mindfulness-based stress reduction for painful diabetic peripheral neuropathy. *Journal of Behavioral Medicine*, *43*(2), 297–307. https://doi.org/10.1007/s10865-019-00079-4

Rushton, C. (Ed.). (2018). *Moral resilience*. Oxford University Press. https://doi.org/10.1093/med/9780190619268.001.0001

Rushton, C., Caldwell, M., & Kurtz, M. (2016). Moral distress: A catalyst in building moral resilience. *CE: AJN, American Journal of Nursing*, *116*(7), 40–49. https://doi.org/10.1097/01.naj.0000484933.40476.5b

Rushton, C. H., Swoboda, S. M., Reller, N., Skarupski, K. A., Prizzi, M., Young, P. D., & Hanson, G. C. (2021a). Mindful ethical practice and resilience academy: Equipping nurses to address ethical challenges. *American Journal of Critical Care*, *30*(1), e1–e11. https://doi.org/10.4037/ajcc2021359

Rushton, C., & Thompson, L. (2020). Moral outrage: Promise or peril? *Nursing Outlook*, *68*(5), 536–538. https://doi.org/10.1016/j.outlook.2020.07.006

Rushton, C., Turner, K., Brock, R., & Braxton, J. M. (2021b). Invisible moral wounds of the COVID-19 pandemic: Are we experiencing moral injury? *AACN Advanced Critical Care*, *32*(1), 119–125. https://doi.org/10.4037/aacnacc2021686

Spencer, J., & Jewett, C. (2021, April 8). 12 months of trauma: More than 3,600 US health workers died in COVID's first year. *Kaiser Health News and The Guardian*. https://www.theguardian.com/us-news/ng-interactive/2020/aug/11/lost-on-the-frontline-covid-19-coronavirus-us-healthcare-workers-deaths-database

Stillwell, S. B., Vermeesch, A. L., & Scott, J. G. (2017). Interventions to reduce perceived stress among graduate students: A systematic review with implications for evidence-based practice. *Worldviews on Evidence-Based Nursing*, *14*(6), 507–513. https://doi.org/10.1111/wvn.12250

Sullivan, L. M. (2018). *Essentials of biostatistics in public health* (3rd ed.). Jones & Bartlett Learning.

Summers, R. F., Gorrindo, T., Hwang, S., Aggarwal, R., & Guille, C. (2020). Well-being, burnout, and depression among North American psychiatrists: The state of our profession. *American Journal of Psychiatry*, *177*(10), 955–964. https://doi.org/10.1176/appi.ajp.2020.19090901

Sussman, R., & Gifford, R. (2018). Causality in the theory of planned behavior. *Personality and Social Psychology Bulletin*, *45*(6), 920–933. https://doi.org/10.1177/0146167218801363

University of California Los Angeles Mindful Awareness Research Center (2022). *UCLA Mindful* (Version 1.4) [Mobile app]. Apple App Store. https://itunes.apple.com/us/app/ucla-mindful/id1459128935?ls=1&mt=8

Valencia, G. V. D. R. (2020). *Calm: A mindfulness mobile app for stress reduction in the workplace* [Doctoral dissertation, University of San Diego Hahn School of Nursing and Health Science]. 10.22371/07.2020.007

Zaccagnini, M. E., & White, K. W. (2017). *The doctor of nursing practice essentials a new model for advance practice nursing* (3rd ed.). Jones & Bartlett Learning

Appendix A

Recruitment Flyer

Click or tap here to enter text.

Appendix B

Initial Screening Questionnaire and Combined Implied Informed Consent Type

Description

Implied Informed Consent for Participation in a Research Project
Project Title: Effects of a Mindfulness Intervention on Nurse Burnout

Dear Participant:
You are being asked to participate in a scholarly project being conducted in the Doctor of Nursing Practice program at Andrews University located in Berrien Springs, Michigan. This quality improvement project focuses on nurse burnout and instituting mindfulness practice to determine the impacts of such practice on burnout. This project is for nurses who have worked during the last two years only. If you agree to participate, two weeks from now, you will be sent a link via your email in order to respond to a questionnaire (OLBI pre-test, ACEs and PCEs score) to measure the level of burnout you are at in that given time, as well as early childhood trauma history and positive childhood experiences. Upon completion of this survey, you will be emailed a link to the UCLA Mindfulness website, with a link for the UCLA Mindfulness app to be downloaded on your smartphone. You will be asked to participate in mindfulness practice with the UCLA Mindfulness app at least five days per week, for one full mindfulness activity of your choice can range from four minutes to 19 minutes over six weeks. At the end of the six weeks, you will repeat the OLBI test only as a post-test to measure your burnout level.

Procedures, Risk, Confidentiality, and Benefits
Your participation is entirely voluntary. Your involvement consists of completing the initial OLBI, ACEs, and PCEs surveys and demographic data sheet, which should take less than 30 minutes of your time. Your completion of the questionnaire will be your consent to participate in the study. Once you have decided to participate, you will be asked to download the UCLA Mindfulness app onto your smartphone and use the app to access mindfulness activities. Your confidentiality will be assured by not asking you to include your name at any time during the study. You will also be assigned an alphanumeric code that serves to further de-identify you. The link for the survey will be sent only to you, and you will be asked not to forward the link to anyone else. Your email address will be used only for the sole purpose of this project and will not be shared with anyone else. Furthermore, your response will not be shared with your management or organizations and will not be used for any marketing purposes. Your responses will be kept in a password-protected computer and will be destroyed after five years.

There are no known risks associated with participating in this study. At end of the study, you will be asked to complete a post-test OLBI within seven (7) days and receive a $5 gift card from Amazon via your provided email address. You will also be sent the results of the study via PowerPoint. You will be able to withdraw from the project at any time. Your participation, however, will be very beneficial in advancing knowledge in nurse burnout. Only a limited number of studies have been completed in this area within the United States.

Thank you very much for your assistance with the study.

Project Investigator:

Sandra Elanges, DNP-c, BSN, RN
Doctor of Nursing Practice Candidate
Andrews University, Berrien Springs, MI
Email: elanges@andrews.edu

* Required

1. Are you a nurse? *

   Mark only one oval.

   - ◯ Yes
   - ◯ No

2. Have you worked as a nurse during the pandemic? (part time, full time, PRN, per diem, contract, travel, etc.) *

   Mark only one oval.

   - ◯ Yes
   - ◯ No

3. Would you like to participate in a study on nurse burnout? *

   Mark only one oval.

   - ◯ Yes
   - ◯ No
   - ◯ Maybe

4. If you answered yes or maybe on the previous question, please provide your email address in response. If no, simply respond with "no." *

   _____

5. What is your highest degree or licensure? *

Mark only one oval.

- ◯ Licensed Practical Nurse (LPN)
- ◯ Diploma RN
- ◯ Associate's Degree in Nursing (ADN)
- ◯ Bachelor's Degree in the Science of Nursing (BSN)
- ◯ Master's Degree in Nursing (MSN)
- ◯ PhD/DNP in Nursing
- ◯ Advanced Practice Registered Nurse (CNS, CNM, CRNA, APRN, NP, etc.)
- ◯ None of these

6. What country do you live in? *

Mark only one oval.

- ◯ United States
- ◯ Canada
- ◯ Other: _____

7. What gender do you identify as? *

Mark only one oval.

- ◯ Female
- ◯ Male
- ◯ Other: _____

8. How old are you? *

Mark only one oval.

- ◯ 20-29
- ◯ 30-39
- ◯ 40-49
- ◯ 50-59
- ◯ 60-69
- ◯ 70-79
- ◯ 80+

9. What race do you identify as? *

Mark only one oval.

- ◯ Caucasian/White
- ◯ African-American/Black
- ◯ Native American/Alaskan Native/First Nations
- ◯ Asian
- ◯ Multiple races
- ◯ Prefer not to say

10. What ethnicity do you identify as? *

Mark only one oval.

- ◯ Hispanic
- ◯ Non-Hispanic
- ◯ Prefer not to say

Appendix C

Oldenburg Burnout Inventory (OLBI)

oldenburg burnout inventory

name: *date:*

Instructions: Below you find a series of statements with which you may agree or disagree. Using the scale, please indicate the degree of your agreement by selecting the number that corresponds with each statement.

		strongly agree	*agree*	*disagree*	*strongly disagree*
1.	I always find new and interesting aspects in my work *(D)*	*1*	*2*	*3*	*4*
2.	There are days when I feel tired before I arrive at work *(E.R.)*	*1*	*2*	*3*	*4*
3.	It happens more and more often that I talk about my work in a negative way *(D.R)*	*1*	*2*	*3*	*4*
4.	After work, I tend to need more time than in the past in order to relax and feel better *(E.R)*	*1*	*2*	*3*	*4*
5.	I can tolerate the pressure of my work very well *(E)*	*1*	*2*	*3*	*4*
6.	Lately, I tend to think less at work and do my job almost mechanically *(D.R)*	*1*	*2*	*3*	*4*
7.	I find my work to be a positive challenge *(D)*	*1*	*2*	*3*	*4*
8.	During my work, I often feel emotionally drained *(E.R.)*	*1*	*2*	*3*	*4*
9.	Over time, one can become disconnected from this type of work *(D.R)*	*1*	*2*	*3*	*4*
10.	After working, I have enough energy for my leisure activities *(E)*	*1*	*2*	*3*	*4*
11.	Sometimes I feel sickened by my work tasks *(D.R)*	*1*	*2*	*3*	*4*
12.	After my work, I usually feel worn out and weary *(E.R)*	*1*	*2*	*3*	*4*
13.	This is the only type of work that I can imagine myself doing *(D)*	*1*	*2*	*3*	*4*
14.	Usually, I can manage the amount of my work well *(E)*	*1*	*2*	*3*	*4*
15.	I feel more and more engaged in my work *(D)*	*1*	*2*	*3*	*4*
16.	When I work, I usually feel energized *(E)*	*1*	*2*	*3*	*4*

Note: Disengagement items are 1, 3(R), 6(R), 7, 9(R), 11(R), 13, 15. Exhaustion items are 2(R), 4(R), 5, 8(R), 10, 12(R), 14, 16. (R) means reversed item when the scores should be such that higher scores indicate more burnout.

disengagement sub-total: ***exhaustion sub-total:*** ***full scale total:***

Delgadillo et al (2018) reported "Therapists are identified as having low, medium or high OLBI-D scores, based on scores above or below 1 standard deviation of the mean (M = 2.15, SD = 0.52; ≤1.62 = low, 1.63 to 2.67 = medium, ≥2.68 = high)."

Oldenburg Burnout Inventory Scoring

1) "Reverse" scores on items 2, 3, 4, 6, 8, 9, 11, 12. This means if you scored a 1, make it a 4. If you scored a 3, make it a 2, etc.
2) Add together scores on all 16 items, including those "reversed" as above.
3) Your total score should be between 16-64.

Appendix D

Adverse Childhood Experiences Survey (ACE)

Prior to your 18th birthday:

1. Did a parent or other adult in the household often or very often… Swear at you, insult you, put you down, or humiliate you? or Act in a way that made you afraid that you might be physically hurt?
   No___If Yes, enter 1 __
2. Did a parent or other adult in the household often or very often… Push, grab, slap, or throw something at you? or Ever hit you so hard that you had marks or were injured?
   No___If Yes, enter 1 __
3. Did an adult or person at least 5 years older than you ever… Touch or fondle you or have you touch their body in a sexual way? Or attempt or actually have oral, anal, or vaginal intercourse with you?
   No___If Yes, enter 1 __
4. Did you often or very often feel that … No one in your family loved you or thought you were important or special? or Your family didn't look out for each other, feel close to each other, or support each other?
   No___If Yes, enter 1 __
5. Did you often or very often feel that … You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? or Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?
   No___If Yes, enter 1 __
6. Were your parents ever separated or divorced?
   No___If Yes, enter 1 __
7. Was your mother or stepmother:
   Often or very often pushed, grabbed, slapped, or had something thrown at her? or Sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard? or Ever repeatedly hit over at least a few minutes or threatened with a gun or knife?
   No___If Yes, enter 1 __
8. Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?
   No___If Yes, enter 1 __
9. Was a household member depressed or mentally ill, or did a household member attempt suicide? No___If Yes, enter 1 __
10. Did a household member go to prison?
    No___If Yes, enter 1 __

Now add up your "Yes" answers: _ This is your ACE Score

Appendix E

Positive Childhood Experiences Survey (PCE)

To find out what positive childhood experiences you have, answer the following questions. How much or how often during your childhood did you:

1. Feel able to talk to your family about feelings;
2. Feel your family stood by you during difficult times;
3. Enjoy participating in community traditions;
4. Feel a sense of belonging in high school;
5. Feel supported by friends;
6. Have at least two non-parent adults who took genuine interest in you; and
7. Feel safe and protected by an adult in your home.

Appendix F

Welcome to the Effects of Mindfulness on Nurse Burnout Email

Thank you for signing up to participate in my research to complete my scholarly project. Below are links to the pre-test. The pre-test includes the Adverse Childhood Experiences Survey (ACEs), the Positive Childhood Experiences Survey (PCEs), and the Oldenburg Burnout Inventory (OLBI). On the post-test, the ACEs and PCEs will not be re-assessed, while the OLBI will be administered. If at any time you have questions about your participation, please contact me via email at elanges@andrews.edu or by phone at 248-266-2793.

This project deals with your childhood and your current state of mind. This may be distressing for some. If you feel at any time you need support, please contact your local crisis center. If you are in the United States, here are some resources for you. For those in Canada, here are some resources for you.

To be involved in this project, you will be asked to complete a pre-test that includes three questionnaires. You will then be directed to the UCLA Mindful Guided Meditations page where there are links to download the app on your smartphone if so desired. You will be asked to practice a mindfulness activity of your choosing each day for six weeks via an email reminder. If you will not practice that day, simply respond with no. Participants should try to practice mindfulness at least five times a week, but it is not mandatory for participation. After six weeks has passed, you will be given a post-test, which will be shorter than the pre-test as it is only one questionnaire. Upon completion of the post-test, you will be emailed a $5 USD Amazon gift card code as a thank you for your participation.

Your first pre-test questionnaire can be accessed here, your second pre-test questionnaire can be accessed here, and your final pre-test survey can be found here.

Thank you again for your participation!

Sincerely,

Sandra Elanges, DNP-c, BSN, RN

Appendix G

Daily Check-In Email

Hello,

Will you practice mindfulness today? Please record your answer here.

Thank you!

Sandra Elanges, DNP-c, BSN, RN
Effects of Mindfulness on Nurse Burnout

Appendix H

Thank You Email

Dear Participants,

Thank you for completing six weeks of Effects of Mindfulness on Nurse Burnout. Please be on the lookout for your post-test email link in the next few days.

Once you submit your post-test burnout questionnaire, you will be emailed your Amazon gift card code.

Thank you!

Sandra Elanges, DNP-c, BSN, RN
Effects of Mindfulness on Nurse Burnout

Appendix I

Post-Test Link Email

Thank you for your participation in Effects of Mindfulness on Nurse Burnout. Please take the post-test in order to complete your participation and receive your Amazon gift card code.

The link can be found here.

Thank you!

Sandra Elanges, DNP-c, BSN, RN
Effects of Mindfulness on Nurse Burnout

Appendix J

IRB Approval Letter

Andrews University
Office of Research & Creative Scholarship

March 22, 2022

Sandra Elanges
Tel. 248-404-5280
Email: elanges@andrews.edu

David Roth (Co-PI): Tel. 248-240-4236

RE: APPLICATION FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS
IRB Protocol #:22-028 **Application Type:** Original **Dept.:** Nursing
Review Category: Exempt **Action Taken**: Approved **Advisor:** Carol Rossman
Title: Effects of a mindfulness intervention on nurse burnout.

Your IRB application for approval of research involving human subjects entitled: *"Effects of mindfulness intervention on nurse burnout"* IRB protocol # 22-028 has been evaluated and determined Exempt from IRB review under regulation CFR 46.104 (2)(i): Research that includes survey procedures in which information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subject. You may now proceed with your research.

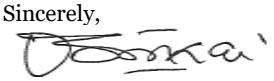
Please note that any future changes made to the study design and/or informed consent form require prior approval from the IRB before such changes can be implemented. Incase you need to make changes please use the attached report form.

While there appears to be no more than minimum risks with your study, should an incidence occur that results in a research-related adverse reaction and/or physical injury, this must be reported immediately in writing to the IRB. Any research-related physical injury must also be reported immediately to the University Physician, Dr. Katherine, by calling (269) 473-2222.

We ask that you reference the protocol number in any future correspondence regarding this study for easy retrieval of information.

Best wishes in your research.

Sincerely,



Mordekai Ongo, PhD.
Research Integrity and Compliance Officer

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