Title

Efficacy of a Mindfulness-Based Intervention in Reducing Burnout and Increasing Resilience in Registered Nurses Caring for Patients with Hematologic Malignancies

Author

Kopp, Erin Allyson

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Efficacy of a Mindfulness-Based Intervention in Reducing Burnout and Increasing Resilience in Registered Nurses Caring for Patients with Hematologic Malignancies

A dissertation submitted in partial satisfaction of the

requirements for the degree of Doctor of Nursing Practice

by

Erin Allyson Kopp

2020

ABSTRACT OF THE DISSERTATION

Efficacy of a Mindfulness-Based Intervention
in Reducing Burnout and Increasing Resilience
in Registered Nurses Caring for Patients with Hematologic Malignancies

by

Erin Allyson Kopp
Doctor of Nursing Practice
University of California, Los Angeles, 2020
Professor Carol Pavlish, Chair

Background: Significant burnout is well documented in nurses. Hematology nurses are exposed to conditions positively correlated with vulnerability to burnout yet have not been studied. Resilience levels are inversely related with reported burnout. Cultivation of resilience is possible, and potentially reduces burnout. Mindfulness-based interventions (MBIs) have been identified throughout the literature as viable and feasible mechanisms to mitigate burnout and increase resilience in nurses.

Objectives: The purpose of this DNP scholarly project was to determine the feasibility and efficacy of an abbreviated, four-week MBI in reducing burnout and increasing resilience in hematology registered nurses working at a National Cancer Institute (NCI) designated cancer center.

Methods: A pre-post intervention project design was utilized. A convenience sample of 40 registered nurses were enrolled. All nurses working inpatient and outpatient within hematology were eligible. Enrollment was self-selection. Demographic data were collected at the onset of the project. An online mindfulness intervention was introduced during a 30-minute, online session. Participants were then asked to practice guided mindfulness daily for four weeks. Participants were asked to complete the Maslach's Burnout Inventory and the Connor-Davidson Resilience Scale via REDcap at baseline and at the end of the four-week intervention. Frequency of practice was reported. Although not intended, all components of the intervention and analysis occurred during the COVID-19 pandemic crisis.

Results: All components of the study were completed by 20 nurses. The Wilcoxon and two-tailed Spearman testing were used for analysis. Resilience increased post intervention ($z=2.49$; $p=.01$; Change in M 28.1 to 30.65). No significant changes were noted in the three burnout dimensions. Positive correlation between frequency of mindfulness practice and increased resilience (.480) was found.

Conclusion: Practice of a four-week, online mindfulness intervention proved beneficial in increasing resilience in a small sample of hematology nurses in an NCI designated cancer center. In addition to the stressors inherent to hematology nursing, this sample of nurses coincidentally faced the demands of a pandemic. Future studies of mindfulness and its impact on resilience and burnout are necessary to fully explore potential benefits in this population; focus on responses during health emergencies is also critical.

The dissertation of Erin Allyson Kopp is approved.

Eunice Lee

Mary Ann Lewis

Huibrie Pieters

Carol Pavlish, Chair

University of California, Los Angeles

2020

Dedication

This doctoral project is dedicated to my children. May they always know that they are strong enough to overcome any obstacle. May they be blessed with the resilience to weather the storm so that they may flourish and find peace in times of calm.

This project is dedicated to my family. Without the love and support you have provided me, I would never have become the person that I am.

This project is dedicated to all nurses. For your spirit, your commitment to others, and your sacrifice. May we always look forward to a better future, built on the foundation of the past.

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Acknowledgements

Maslach Burnout Inventory-Health Services Survey used with permission

Wheel of Awareness by Dr Dan Siegel used with permission

Connor-Davidson Resilience Scale (CD-RISC 10) used with permission

Curriculum Vitae

Erin Kopp, ACNP-BC

Education:

- University of California Los Angeles- Graduated June 2008
  Acute Care Nurse Practitioner/Clinical Nurse Specialist
- University of Phoenix- Graduated May 2005
  Bachelor's of Science Nursing
- Glendale Community College- Glendale, Ca. - June 1998 - May 2001
  Associate of Science in Nursing; Vice-president; Outstanding Graduate Award; 4.0 GPA

Professional Experience:

- City of Hope- November 2014-Present
  Senior Manager Hematology Nurse Practitioners
- University of California Los Angeles- 2012-2018
  Lecturer in Bachelor's of Nursing program- Pathophysiology, Anatomy, Physiology
- Stafford, Shapiro, Yee, and Polonsky- August 2012-October 2014
  Nurse Practitioner Medical Oncology/Hematology
- Dorothea Spambalg, MD- October 2012-February2014
  Nurse Practitioner Endocrinology
- VITAS Healthcare Corporation- October 2011- February 2012
  Nurse Practitioner Hospice
- Pacific Medical Group- March 2011-March 2012
  Nurse Practitioner Internal Medicine
- Chapparal Medical Group- July 2010-September 2011
  Nurse Practitioner Endocrinology
- Medtronic Diabetes- April 2009-March 2011
  Diabetes Clinical Manager
- Citrus Community College- August 2005-April 2009
  Instructor registered nursing program/licensed vocational nursing program

Certifications

- Institute for Healthcare Improvement

Professional Organizations

- Sigma Theta Tau International Nursing Honor Society
- Oncology Nursing Society
- California Association of Nurse Practitioners
- Advanced Practitioner Society for Hematology and Oncology
- American Nurses Association
- American Society for Transplantation and Cellular Therapy

Speaker Bureau

- Actelion 2017-Present
- Kyowa Kirin-2018-Present
- Incyte-2019-Present

Invited Lecture

- National Comprehensive Cancer Network Nursing Congress May 2020- "Recognition and Management of Graft Versus Host Disease"
- How the Experts Treat Hematologic Malignancies City of Hope National Conference March 2019. "Mindfulness: The Key to Managing Stressors Unique to the Nursing Profession"; "Management of GVHD of the Skin".
- How the Experts Treat Hematologic Malignancies City of Hope National Conference March 2018. "Considerations in GVHD"; "Mindfulness Interventions in Patients post HSCT".
- How the Experts Treat Hematologic Malignancies City of Hope National Conference March 2017. "Presentation and Management of Chronic Graft vs Host Disease"; " Quality of Life in the Older Adult With Hematologic Malignancies"
- National Comprehensive Cancer Network Congress October 2016. Supportive Care in Cutaneous T- Cell Lymphoma/Managing Tumor Lysis Syndrome in Peripheral T-Cell Lymphoma.
- How the Experts Treat Hematologic Malignancies City of Hope National Conference March 2016. "Considerations for the Older Adult in HSCT"; "T Cell Lymphoma-Nursing Considerations"; "Neurotoxicity Seen in Hematology"
- Western Institute of Nursing Conference April 2008. Caring for the Chronically Ill Symposium; "Removing the Barriers from Pain in Heart Failure: Opening the Door to Higher Quality of Life."

Publications/Posters

- Efficacy of a Mindfulness-Based Intervention in Reducing Burnout and Increasing Resilience in Population of Hematology Nurses- Poster- UCLA Research Days 2020
- Ruxolitinib as Salvage Therapy for Chronic Graft-Vs-Host Disease. Publication Blood 2019
- Optimizing Care of Cutaneous T-Cell Lymphoma (CTCL Patients Receiving Anti-CCR4 Monoclonal Antibody Mogamulizumab- Presentation- Dermatology Nurses Association 2/2019
- Monoclonal Antibody Mogamulizumab- Dermatology Nurses Association 2/2019

Introduction and Background

Nurses caring for patients in high stress areas including oncology identify significant burnout (Rushton, Batcheller, Schroeder, & Donohue, 2015; Wu, Singh-Carlson, Odell, Reynolds, & Su, 2016). Burnout serves as an umbrella term that encompasses the emotional exhaustion, depersonalization, and reduced personal achievement experienced by individuals working in intense, stressful environments (Rushton et al., 2015). Oncology nurses are highly vulnerable to burnout due to extended interactions with patients and their family members, and intense therapeutic relationships forged in emotionally charged scenarios (Wu et al., 2016). Additionally, perceptions of demands are exacerbated in settings such as oncology, where death, significant morbidity, and uncertainty surrounding viability of treatment prevails (Rushton et al., 2015).

Hematologic malignancies are often treated by clinicians who also treat patients with solid tumors. Many studies address oncology and hematology nurses as one homogenous group. However, hematology is a unique specialty outside of oncology, and hematologic malignancies come with unique challenges, especially when hematopoietic stem cell transplant (HSCT) is involved. Induction chemotherapy, conditioning treatments, transplant, and recovery are the requisite steps in the treatment trajectory for individuals in the peri-transplant continuum. Registered nurses (RNs) care for patients at every step of the HSCT journey. Because patients with hematologic malignancies spend significant time in both the outpatient clinic and inpatient setting, stronger therapeutic relationships between RNs, patients, and family members evolve (Wu et al., 2016). Unfortunately, the strong bond created between nurse and patient can increase the risk of emotional distress for the RNs involved in their care. Chronic exposure to patient and

family suffering related to treatment, poor outcomes, or death leaves RNs especially vulnerable to burnout (Wu et al., 2016).

Resilience is defined "as the ability to adapt coping strategies to minimize distress," (Rushton, et al., 2015, p. 413) and can be cultivated. Personal resilience is cited as a protective mechanism that can limit the effects of clinician burnout (Rushton, et al, 2015). Findings suggest that interventions aimed at increasing hope and coping also increase resilience (Rushton, et al, 2015). An inverse relationship between resilience and burnout has been established in studies involving nurses (Rushton et al., 2015). Resilience can be fostered in any individual, serving as a protective factor against burnout (Jackson, Vandall-Walker, Vanderspank-Wright, Wishart, & Moore, 2018).

Mindfulness is defined as non-judgmental awareness and focus on the present (Duarte & Pinto-Gouveia, 2016). Mindfulness based interventions (MBIs), have been identified as viable and feasible options to mitigate nurse burnout (Kemper & Khirallah, 2015; Mackenzie, Poulin, & Seidman-Carlson, 2006; Wu et al., 2016;). Different modalities of MBI trainings are described in various studies and are associated with statistically significant reductions in burnout scores (Braun, Kinser, & Rybarcczyk, 2019; Duarte & Pinto-Gouveia, 2016). Mindfulness practice is also associated with increased well-being and self-regulation (Siegel, 2018) and decreased levels of self-reported burnout (Duarte & Pinto-Gouveia, 2016; Wu et al., 2016). Increased levels of resilience are supported through mindfulness practice as well (Siegel, 2018).

Problem Statement

Burnout in healthcare professionals has been linked to threats to patient safety and overall clinician well-being (Press Ganey, 2019). Based on reports of burnout rates among health care professionals (National Academy of Medicine, 2019) including 40% among oncology nursing

staff (Wu et al., 2016), it is proposed that the burnout risk for nurses caring for patients with hematologic malignancies is significant. In 2019, the National Academy of Medicine highlighted the unmet need of burnout mitigation (NAM, 2019). Change is called for at the system and policy levels, but the impact of individual response to external variables is acknowledged. As models for change are explored and implemented, interventions that alter personal responses to adversity and actively address the burnout epidemic are needed. The primary purpose of this DNP scholarly project was to provide a means of clinical inquiry into the feasibility and efficacy of an MBI for hematology RNs to increase resilience and reduce burnout syndrome.

PICOT Question

A scholarly DNP project focused on the following PICOT question, allowing for exploration of a MBI in a select population: How feasible and effective is an abbreviated MBI on reducing burnout and increasing resilience in a population of RNs practicing in hematology/ HSCT?

Theoretical Framework

Jean Watson contributed to the movement in nursing theory that focuses on unique healing approaches fostered by the human capacity to care (Butts & Rich, 2018). In 1979, the Theory of Human Caring Science was initially presented as the Theory of Human Caring. Watson sought to assert a theoretical framework that differentiated nursing from other professions, while highlighting the complementary nature of the practice to standard medicine (Butts & Rich, 2018). In 1985, the base theory was formalized in the book *Nursing: Human Science and Human Care*. Watson used this text to outline ten carative factors (Appendix A) inherent to the caring occasion, to define the human experience in the context of social history and interaction, and to identify the opportunity for human growth within the care experience

(Butts & Rich, 2018). By 2008, Watson integrated a spiritual component to the theory, and turned the focus inward to the individual, highlighting the importance of personal evolution in *The Philosophy and Science of Caring* (Watson, 2008). Carative factors became Carative processes (Appendix A); general principles became defined practices to elevate the caring experience.

Watson focused on the interpersonal relationships involved in the caring experience in her original texts. However, in 2008, she reported the need to evolve her theory and connect the individual experience to the universal experience. Caritas nursing is built on the foundational belief that "what we do for ourselves benefits others…Caring affects the universal field to which we all belong, and we energetically affect it with our consciousness and our concrete acts," (Watson, 2008, p.11). Watson suggests that nurses increase fluency in caring through a purposeful acquisition of growth and self-awareness. Habituation of skills that foster the following caritas literacy dimensions are encouraged (Watson, 2008):

- Cultivate caring consciousness
- Ability to center (quiet and pause)
- Ability to read the field
- Ability to be present (be with and do for others)
- Ability to ground self and other
- Hold other with attitude of unconditional loving-kindness
- Cultivate individual practices for spiritual growth

Watson cites mindfulness-based practice as a primary practice that opens the individual nurse to the cultivation of caritas literacy.

Evidence Search

Using the terms mindfulness, mindfulness intervention, mindfulness-based intervention efficacy, nurse, nurse burnout, burnout, oncology nurse, resilience, and hematology, a search was conducted using the following databases: PubMED, CINAHL, EBSCOhost, PsycINFO, and Google Scholar. Fifty articles were critically reviewed for this paper. All studies summarized and in the Table of Evidence (Appendix B) below were chosen according to one or more of the following criteria: pilot/feasibility study of MBI with registered nurses, establishing prevalence of burnout in healthcare providers/nurses, relationship between resilience and burnout, examination of efficacy of MBI, and review of intervention/tools for evaluation.

Synthesis of Literature

Throughout the literature on burnout, the prevalence of burnout in nursing and its detrimental effects are clear. Some researchers report that up to 70% of all nurses experience burnout (Kinser, Braun, Deeb, Carrico & Dow, 2016). Nurses working in high-acuity, high pressure environments such as intensive care and oncology units are at higher risk than nurses working in other specialties (Rushton, et al., 2015). Duarte & Pinto-Gouveia (2016) identify oncology nursing as a specialty with a significantly increased prevalence of burnout symptoms. Resilience refers to the ability to positively adjust to adversity (Arrogante & Aparicio-Zaldivar, 2017) and is cited as a protective factor against burnout (Rushton, et al., 2015). Mindfulness-based intervention (MBI) is correlated with a decrease in self-reported burnout, as well as increased resilience (Duarte & Pinto-Gouveia, 2016; Kinser, et al., 2016). Exploration of the unique interventions utilized throughout the studies in this synthesis highlights potential benefits of mindful practice and describes limitations that may minimize the efficacy of MBI among RNs.

Burnout among healthcare providers has been defined by many scholars. Kinser, et al., (2016) describe burnout as exhaustion manifested by decreased work efficacy. For health care providers, burnout is measured by levels of depersonalization (decrease in seeing patients as humans) and emotional exhaustion (lacking the emotional energy to perform at work), which are viewed as negative constructs. A third dimension, personal accomplishment, is tied closely, and inversely, to the first two (Braun, et al., 2019; Maslach, Leiter, & Schaufeli, 2009). High burnout levels among healthcare professionals are associated with depression, absenteeism, and potential decrease in executive function, such as paying attention and regulating emotions, that may lead to compromised patient care (Halbesleben, Wakefield, Wakefield, & Cooper, 2008; National Association of Medicine, 2017; Parker & Kulik, 1995). Kinser et al., (2016) suggest that burnout among nurses occurs over time, opening the possibility for early assessment and intervention.

Resilience has become the focus of studies within healthcare as a potential mechanism to minimize burnout (Kinser, et al., 2016; Rushton et al., 2015). Rather than being seen as an inherent trait present in some while not in others, resilience is believed to be cultivated through strategies and activities that strengthen self-efficacy, hope, and coping tools (Rushton et al., 2015). Resilience has been positively correlated with higher levels of personal accomplishment, while simultaneously being linked inversely to emotional exhaustion and depersonalization (Rushton et al., 2015). In a grounded theory study, Jackson, et al., (2018) connect burnout and resilience directly, as part of the same continuum in a theoretical explanation titled "Managing exposure: resilience and burnout in critical care nurses." Those who described themselves as "burnt out" in this study were "not able to adequately manage exposure" to workplace adversity while resilience occurred through awareness and the ability to effectively manage exposure to adversity (Jackson et al., 2018, p. 34).

MBIs are shown to minimize burnout and increase resilience. An integrative review on MBIs and burnout among healthcare professionals provides evidence that MBIs may lead to reduced burnout through the increased resiliency associated with MBI practice (Braun et al., 2019). Kemper and Khirallah (2015) report an association between online mindfulness modules and increased resilience. Through mindfulness practice, resiliency is increased as the individual learns to focus on the present moment, mitigating the effects associated with worrying and anxiety. Emotional regulation contributes to the ability to deal with distress without suffering from lasting effects over time (Kinser et al., 2016).

Multiple MBI approaches aimed at reducing burnout and increasing resilience have been presented in the literature. As mentioned earlier, an integrative review of 26 studies by Braun et. al., (2019) asserts that two commonalities exist amongst all MBIs, specifically: (a) some form of mindfulness exercise or practice is included; and (b) a state of mindfulness in the present that evolves into a mindful disposition over time is the goal of mindful practice. Mindfulness-based stress reduction (MBSR) serves as the foundational practice of MBI, particularly within the field of healthcare. MBSR is traditionally an 8-week intervention, requiring group meetings of 2.5 hours per week and 45 minutes of home practice daily. MBSR originated in the works of Jon Kabat-Zinn (Kabat-Zinn, 1990). In-session practice is combined with home habituation. The MBSR manual provides a comprehensive guide that has been adapted to populations, including healthcare professionals (Braun, et al., 2019). Feasibility of operationalizing a time-intensive program like MBSR is identified as a limitation in multiple studies, (Braun et al., 2019). Thus, the need for implementing convenient, accessible interventions within nursing populations is clear (Kemper & Kirallah, 2015a). Kemper and Kirallah (2015a) successfully recruited 1,031 registrants with 513 completing at least one module provided in a unique online MBI (Kemper &

Kirallah, 2015b). A pilot study of pediatric intensive care unit (PICU) nurses aimed to illustrate the feasibility of a 5-minute daily MBI. Feasibility was established with a 50 percent response rate and a 75 percent rate of completion for the intervention (Gauthier, Meyer, Grefe, & Gold, 2015). Although accessible and liked by participants, a paucity of literature on the efficacy and effectiveness of these shorter programs exists. The proposed MBI, consisting of a six-week, five-minute daily intervention utilized by over 10,000 participants world-wide is based on Siegel's Wheel of Awareness (2018) and will be described subsequently. This intervention has the potential to contribute to the literature on MBI, burnout, and resilience in hematology RNs.

Methods

Project Design

This project was designed as a clinical-based inquiry to examine the clinical issues of nurse burnout and resilience; implement and evaluate the feasibility an abbreviated MBI; analyze the efficacy of the MBI in decreasing reported burnout scores and increasing nurses' resilience in a complex practice setting. A single intervention group was oriented to an abbreviated MBI and surveyed pre-intervention and post-intervention. The original plan was to have the intervention run for six weeks; however, the accelerating effect of the COVID-19 pandemic in March-April 2020 called for a shorter practice period of four weeks. Post-intervention surveys were completed within two weeks of the cessation of the MBI.

Ethics and IRB

This scholarly project was approved as an expedited study by the Institutional Review Boards of a National Cancer Institute (NCI) designated cancer center and the University of California Los Angeles as exempt.

Sample and Setting

A convenience, self-selected group of RNs working in an NCI-designated cancer center and caring for adult patients with hematologic malignancies served as the sample. Approximately 750 hematology RNs were eligible for the intervention. Participation was voluntary, and the sample was not randomized.

Inclusion criteria for participation in the intervention included: (a) active employment as a full-time, part-time, or per diem, day or night shift RN, in the inpatient or outpatient setting within hematology services; and (b) provision of direct patient care/has direct patient interaction. Exclusion criteria included: (a) lapse of employment for greater than two weeks ; (b) nurse manager position at the medical center; and (c) advanced practice nurse position in hematology at the medical center. The choice to exclude nurse managers from the sample is based on the assumption that burnout and resilience scores for nurse managers are associated with the unique challenges of nurse leadership (Press Ganey, 2019). Advanced Practice Registered Nurses (APRNs) were also excluded since their role in hematology differs extensively from bedside or clinic RNs.

Recruitment of subjects was accomplished through multiple avenues. An email was sent to all RNs who worked in the inpatient and outpatient hematology settings at the medical center after IRB approval with a follow-up one week after the initial email (Appendix C). Paper flyers were placed in break areas, central meeting locations, and in all unit bathrooms approximately two weeks prior to initiation of the intervention (Appendix D). Five-minute, face-to-face information sessions at staff meetings occurred in three clinical outpatient areas, allowing for direct recruitment of potential participants. Explanations of the time requirements of the study

and the need for commitment to the entire program was made explicit on paper and in person to inform recruits and maximize retention. Total recruitment period was three-weeks.

Intervention

A mindfulness intervention based upon Dr. Dan Siegel's Wheel of Awareness (Siegel, 2018) was introduced during a 20-minute, asynchronous recorded session, available via the internet for one week to participants. The Wheel of Awareness is a guided intervention, led by Dr. Siegel on the website MindSight. Mindsight is accessible via computer, phone, and tablet. Users of the intervention do not incur any charges. Participants are introduced to the ideas of conscious knowing versus known facts, experiences, and feelings. Nurses partaking in the project were asked to participate in the 5-7 minute, self-guided practice, individually, on a daily basis throughout the four-week study. Participants were given access to view and practice the voice-guided practice in any setting, at any time of the day. Actual days of practice were reported by the participant at the end of the four weeks.

Previous studies identify time commitment and location of MBI programs as challenges to validity of results. Nursing shifts are long and demanding. Requiring class attendance for 1.5-2 hours weekly precludes busy individuals from engaging in the intervention. In light of previous research, the time required to participate was limited to viewing the 20-minute online introduction video and the aforementioned daily practice. Participants were sent a direct link to the intervention and could access the abbreviated MBI at any time and from any location with a computer or a smart device. Nurses were advised to access the intervention during break time only if they choose to participate during working hours.

Data Collection

Maslach's Burnout Inventory-Health Service Survey (MBI-HSS) is a 22-item instrument measuring burnout scores in nurses in three dimensions; emotional exhaustion (9 items), depersonalization (5 items) and diminished personal accomplishment (8 items) (Appendix E). Responses are based on the number of days a respondent has experienced the feeling described in each item (0-6). Reliability of MBI-HSS has been confirmed in studies with large samples (N=1600 and N=900) with a Cronbach alpha average of 0.8 (Pisanti, Lombardo, Lucidi, Violani, & Lazzari, 2012;

Resilience was measured by the Connor Davidson Resilience Scale (CD-RISC). In 2003, Kathryn M. Connor and Jonathan R.T. Davidson developed the initial scale to measure resilience in sufferers of Post-Traumatic Stress Disorder (PTSD). Originally, the scale contained 25 items, evaluated on a five-point Likert scale ranging from 0-4. Factor analysis produced five measurable factors including: (a) personal competence; (b) acceptance of change and secure relationships; (c) trust/tolerance/strengthening effects of stress; (d) control; and (e) spiritual influences. In 2007, Campbell-Sills and Stein refined the original CD-RISC 25, and created the 10-item CD-RISC (Appendix F), assessing individual's ability to endure difficult situations (Campbell-Sills & Stein, 2007). Response to change, personal problems, illness, pressure, failure, and painful feelings are measured directly on the CD-RISC 10 (Campbell-Sills & Stein, 2007). While the abridged version correlated highly with the original CD-RISC (r=.92), the results were not limited to those who suffered from trauma and are more readily used in the general population. Cronbach's alpha 0.85 established internal consistency.

Prior to the intervention, all participants completed a demographic survey including age, gender, years of nursing practice, and inpatient or ambulatory practice as primary setting, and

experience with mindfulness (Appendix G). The MBI-HSS and CD-RISC 10 were assessed prior to and immediately after the four-week intervention via the online survey system, REDcap.

Data Analysis

Analysis of the data addressed four distinct categories: (a) feasibility; (b) categorical variance in the descriptive statistics; (c) effectiveness in decreasing burnout and increasing resilience; and (d) the relationship between mindfulness practice, burnout, and resiliency.

a) The feasibility of offering an abbreviated MBI training to a group of nurses, by measure of acceptability and practicality was determined through the descriptive statistics of: (a) frequency of daily use of intervention, range of 0-28, (b) number of participants who participated in the MBI, but did not complete the final survey, and (c) number of participants that completed both baseline and final surveys. Drop-out rate at post intervention was reported.
b) Categorical variance noted in the descriptive statistics derived from the demographic survey. Age, outpatient versus inpatient practice, and number of years practicing in nursing, and experience with mindfulness are included.
c) Effectiveness of the abbreviated MBI in decreasing burnout and increasing resilience was measured by comparing the group means of baseline (pre-intervention) scores on the three dimensions of the MBI-HSS and CD-RISC 10 to scores on the same measures post intervention. A Wilcoxson test was utilized for comparison of each dependent variable.
d) Correlation between the descriptive statistics and increase/decrease in scores on both the MBI-HSS and the CD RISC were evaluated via Spearman correlative analysis.

Results

Between February 17, 2020 and March 3, 2020, a total of 40 RNs responded and consented to participate in the project; 27 (68%) RNs completed the intervention, baseline surveys, and reported frequency of practice. Post-intervention data were collected from March 31, 2020 through April 10, 2020. Only 20 of the original 40 (50%) RNs completed all pre and post-intervention surveys. The results of those 20 RNs are reported. Of note, due to the COVID-19 pandemic, changes to visitor policies, staffing, and workflow at the medical center began during the first two weeks of March 2020. Stay at home orders were issued by California Governor, Gavin Newsom, on March, 19, 2020.

Table 1 displays the frequency counts for selected variables. Table 2 shows the psychometric characteristics for the eight summated scale scores. To answer the PICOT question, Table 3 displays the Wilcoxon tests for the scale scores based on time (pretest versus posttest). As additional findings, Table 4 presents the Spearman correlations between the four improvement scores with the number of intervention days.

Participant Characteristics

Table 1 displays the frequency counts for selected variables. The sample was all female, with ages ranging from 18 to 35 years (30.0%) to 54 to 71 years (25.0%) with the median age of 44.50 years. Reported years of nursing experience ranged from 0 to 3 years (10.0%) to 20 + years (30.0%) with the median years of experience of 15.50. Most RNs (85.0%) practiced in outpatient settings. Five (25.0%) reported having previous mindfulness experience. The number of intervention days ranged from none (5.0%) to 20 to 25 days (30.0%) with the median number of intervention days being 7 days. No remarkable differences were noted in the demographic characteristics between those who completed the entire intervention, and those lost to attrition.

Psychometrics Properties of Scales

Table 2 displays the psychometric characteristics for the eight summated scale scores. These included pretest and posttest scores for resilience, emotional exhaustion, depersonalization, and personal accomplishment. Cronbach alpha reliability coefficients ranged in size from $\alpha = .70$ to $\alpha = .87$ with the median sized coefficient being $\alpha = .85$. This suggested all scales had acceptable levels of internal reliability.

Efficacy of Intervention

Evaluation of the question, "Does an MBI decrease burnout and increase resilience scores?" is highlighted in Table 3. The Wilcoxon tests for the four scale scores based on time period are outlined. Inspection of the table found significant increases in resilience from pretest ($M = 28.10$) to posttest ($M = 30.65$), $z\ (19) = 2.49$, $p = .01$. However, no significant pretest to posttest differences were found for emotional exhaustion ($p = .13$), depersonalization ($p = .45$), and personal accomplishment ($p = .93$).

Additional Findings

As additional findings, Table 4 displays the Spearman correlations between the four improvement scores with the number of intervention days done by the respondent. Improvement scores were based on score differences that yielded a favorable outcome. For the resilience and personal accomplishment scores, the improvement score formula was posttest minus pretest. For the emotional exhaustion and depersonalization scores, the improvement score formula was pretest minus posttest. Significant Spearman correlations were found for the number of intervention days with improvements in resilience ($r_s\ [18] = .48$, $p = .03$) and emotional exhaustion ($r_s\ [18] = .52$, $p = .02$).

Summary

Using survey data from 20 nurses, this scholarly DNP project addressed the questions of feasibility and efficacy of an abbreviated MBI on reducing burnout and increasing resilience in a population of RNs practicing in hematology / HSCT. A statistically significant improvement in resilience scores was found from pretest to posttest (Table 3). In addition, improvements in resilience and reductions in emotional exhaustion were significantly related to the number of intervention days done by the respondent (Table 4).

Discussion

As the first look into the relationship between burnout, mindfulness, and resilience in a small sample of hematology nurses, this project serves as the foundation for future inquiry into the topic. Findings from this project provide preliminary support for an abbreviated MBI as a feasible and effective means of mitigating burnout and increasing resilience in RNs working in hematology. Registered nurses in acute settings are cited as having higher levels of vulnerability to burnout related to the complexity of patient care, dealing with patient pain and suffering, and perceptions of resource limitations and insufficient time to complete all aspects of care (Taylor, 2019). Nurses practicing within the specialty of hematology experience these challenges on a day-to-day basis. Acuity levels, shift demands, resource scarcity and treatment of patients with specified disease types are commonalities that researchers from other institutions could perceive as grounds for considering the application of the results from this scholarly project. MBIs are correlated with reduction in burnout and increases in resilience (Goodman & Schorling, 2012; Gilmartin, Goyal, Hamati, Mann, Saint, & Chopra, 2017). Although no statistically significant reduction was found in the three dimensions of burnout in this project, resilience increased at the end of the intervention. A positive correlation was made between the frequency of mindful

practice and decreases in emotional exhaustion and increases in resilience. These findings echo the assertions made by Press Ganey (2019) that mindfulness is a protective predictor of emotional exhaustion. Jackson et al (2018) adds a deeper layer of meaning to the findings, linking burnout and resilience on one continuum of balance; as resilience increases, elements of burnout decrease.

Feasibility

Evaluating the feasibility of an abbreviated MBI was a focus of this project. While traditional Mindfulness Based Stress Reduction (MBSR) programs are cited throughout the literature, time commitments are potentially onerous and include: 2.5 hours per week of in person education for eight weeks, 45 minutes of daily practice, and a seven-hour silent retreat. Goodman & Schorling (2012), offered eleven classes based on MBSR over six years to healthcare providers with a 70% completion rate. However, healthcare professionals from multiple disciplines cite lack of time and appropriate location to practice mindfulness as barriers to engagement with MBI based programs (Gilmartin et al., 2017). As an alternative, Kemper and Khayat (2015), found that brief, online, mindfulness interventions were feasible and lead to participation by diverse groups and large sample size (n=213). Gilmartin et al., (2017), identify home practice of five to twenty minutes up to thirty minutes daily as effective in improving resilience and coping for palliative care nurses. In another study, researchers invited participants to a one day, in-person practice followed by a request for them to practice twenty minutes per day at home, and found the practice to be acceptable (Fourer, Besley, Burton, Yu, & Crisp, 2013).

The DNP project reported in this paper used a similar approach of an abbreviated MBI and applied it to hematology direct care RNs, to allow for the chronically busy (Fourer et al.,

2013) nurse to participate with minimal adjustments in their schedules. Forty RNs signed up for this project; 27 (68%) reported intervention frequency indicating daily practice for at least some of the days; 20 nurses (50%) completed all the surveys and the intervention. The challenges related to recruitment of participants for this project included lack of attendance at multiple staff meetings and lack of nurse utilization of work email. A factor contributing to attrition was the absence of touchpoints during the intervention to encourage continued engagement. In addition, the entire project took place during the onset of the COVID-19 pandemic. As a result, stressors experienced by RNs increased, staff members became ill, and access to email and surveys was compromised. Despite the challenges, 20 nurses found the abbreviated MBI feasible, and were able to incorporate it into their lives even during a global pandemic.

Resilience

While burnout scores vary based on individual characteristics, commonalities amongst groups of nurses may allow for greater insight into the cultivation of resilience (Press Ganey, 2019). Significant improvement was noted in resilience scores after participation in the MBI intervention. Fourer et al. (2013) present theories about the evolution of beliefs surrounding resilience. At one time, resilience was viewed as a trait that one was born with. Today, resilience is believed to be a life force that can be acquired, molded, and developed (Fourer et al., 2013). Dan Siegel (2007) asserted that this resilience could be developed through mindfulness practice. This is demonstrated in the small population of nurses that participated in this project. In addition, increased resilience was correlated with frequency of practice, similar to findings presented by Kemper, Mo and Khayat (2015). According to Gillman, Adams, Kovac, Kilcullen, House, and Doyle (2015), developing resilience is not an option for nurses caring for patients with malignancies; it is essential. Results from this project show that resilience can be nurtured

in this population. Statistical significance was achieved, beyond the level of sheer chance. One must consider that resilience was fortified in this population, within the context of the additional pressures of the COVID-19 pandemic.

Burnout

Burnout scores are divided into the three dimensions: emotional exhaustion, depersonalization, and personal achievement (Rushton et al., 2015). This project aimed to effectively reduce emotional exhaustion and depersonalization while increasing feelings of personal achievement. While no statistically significant changes in these scores were found in this project, a positive correlation between frequency of MBI practice and a decrease in emotional exhaustion was identified. Similar findings are reported by Press Ganey (2019), citing increased mindfulness as a protective predictor of emotional exhaustion. Significant changes in overall burnout scores in populations of nurses vary. Personal achievement scores are reported as high, even when emotional exhaustion and depersonalization are present (Rushton, Batcheller, Schroeder, & Donohue, 2015). Press Ganey (2019) asserts that different levels of burnout are associated with varied years of experience in nursing. In addition, feelings of burnout are related to the balance of stressors against reward (Press Ganey, 2019). Some studies have quantified improvement in burnout scores despite the diversity of burnout experiences in populations of nurses (Duarte & Pinto-Gouveia, 2016; Kinser, et al., 2016). For this project, length of time allotted for the intervention, the potential for individuals with differing levels of burnout choosing to participate, small sample size, and the added stressors related to the COVID-19 pandemic may have limited the overall impact of the intervention on burnout.

Limitations

Many limitations exist in this project. Threats to validity exist in spite of mitigation attempts. A non-randomized sample allows for potential bias. Self-selected participants may have had a pre-existing interest in mindfulness, had a higher motivation to change, or had other undisclosed reasons driving a desire to participate. Participants may have had lower or higher levels of burnout than those who chose not to participate, thereby skewing results. However, allowing self-selection and avoiding randomization allowed for more individuals to participate and potentially benefit from the MBI. As the project's aim was to establish that a group difference exists, without attempting to predict future results, the trade-off in sample selection was reasonable.

The small sample size limits generalizability. Surveys were available in digital form only, while some participants may prefer paper and pencil (Reid-Pointe, 2020). Nurses were offered only one choice of mindfulness practice that may not have appealed to them. Email recruitment may not be the communication method of choice for nurses working long shifts.

Interpretation and utilization of the findings faces potential limitations. No other data exists on the use of the Wheel of Awareness in a population of nurses to diminish burnout. Replication of the study with a similar MBI, administered in a similar fashion will need to be completed outside of the bounds of this project to ensure that the data is robust. Increased sample size, powered to establish effect was not done. While the data may not be completely generalizable, the characteristics of the sample population is relatable amongst nurses caring for acutely ill patients in high stress environments. Differences in technology capabilities at different institutions may limit the ability to recreate the intervention. Support from administration will directly influence the recruitment of participants and application at the workplace.

Although unexpected, the COVID-19 pandemic crisis occurred concomitantly with this project. Almost immediately after recruitment began, reports of the pandemic surfaced. Within days, changes to the institution's policy for staffing, visitors, and patient care significantly altered the work environment. Nurses worked with limited resources, caring for patients that could have potentially infected them and their families. Many employees were working longer hours and were overwhelmed by the situation as a whole. Eventually, some nurses faced changes in schedules and assignments, altering their access to surveys. It is impossible to gauge the emotional impact the crisis had on the results of the project, or the individuals that participated. However, it is interesting that resilience scores improved even in the midst of the first pandemic crisis in 100 years.

Implications

Findings from this project echo the messaging from the NAM (2019), Press Ganey (2019), and the voices of nurses themselves. Burnout exists and is detrimental to both the individual nurse, and the patients they care for. Emotional and physical challenges associated with patient care will continue to be present. Limited resources, time constraints, and the demands of the profession are unlikely to improve. As such, strategies to minimize burnout are essential. Traditional approaches to burnout mitigation have yet to resolve the problem. Efforts aimed at strengthening the individual, as well as the healthcare system, against the demands of the profession have replaced attempts to resolve issues once they exist. Burnout is shown to worsen over time. Therefore, early intervention in essential.

Resilience is cited as the fulcrum upon which the balance of stressors and coping are built (Fourer et al., 2013). The Joint Commission (2019) cites the development of resilience as a critical piece in the process of building personal protection from burnout. Earvolino-Ramirez

(2007), highlights the need for the identification of resilience-based interventions. Abbreviated MBIs are associated with the development of resilience. This project achieved a statistically significant increase in resilience in a small population of hematology nurses. However, larger studies, incorporating lessons learned from this project are needed. Increased sample sizes, across multiple institutions, randomized control trials are required to assert generalizability and efficacy. Advanced Practice Professionals and nurse managers have been included in previous studies along with registered nurses, limiting the ability to associate results specifically to populations of RNs. Unique studies involving these populations need to be explored.

Improvement in resilience scores from a sample of RNs enduring the impact of a pandemic cannot go unnoticed. Most studies cannot assess the relationship between interventions and outcomes in the time of crisis. Due to the fact that this project in inextricably linked to the circumstances surrounding the development of COVID-19 and its impact on nurses, the potential for application to future crises is appreciated.

Conclusion

Results from this project offer insight about the impact of an abbreviated MBI for RNs caring for patients with hematologic malignancies. Even with the added emotional burden of nursing during a pandemic, the intervention proved feasible and created a measurable positive impact. Resilience was increased after the participation in the practice of a four-week, online MBI, in a small sample of hematology nurses at an NCI designated cancer center. Emotional exhaustion reduction was correlated with frequency of practice. Although this project faced limitations, the results cannot be ignored. While future studies of mindfulness and its impact on resilience and burnout are necessary to fully explore potential benefits in this population and in others, this project provides the basis upon which future research can be built.

Tables

Table 1: Frequency Counts for Selected Variables

Variable	Category	*n*	%
Gender			
	Female	20	100.0
Age category			
	18-35	6	30.0
	36-53	9	45.0
	54-71	5	25.0
Years in nursing			
	0-3 years	2	10.0
	4-10 years	5	25.0
	11-20 years	7	35.0
	20+ years	6	30.0
Practice setting			
	Inpatient	3	15.0
	Outpatient	17	85.0
Mindfulness experience			
	Yes	5	25.0
	No	15	75.0
Intervention days			
	None	1	5.0
	2 to 4 days	5	25.0
	5 to 9 days	5	25.0
	10 to 19 days	3	15.0
	20 to 25 days	6	30.0

Note. $N = 20$.

[a] Age: $Mdn = 44.50$ years.

[b] Years of Experience: $Mdn = 15.50$ years.

[c] Intervention Days: $Mdn = 7$ days.

Table 2: Psychometric Characteristics for the Summated Scale Scores

Scale Score	Items	*M*	*SD*	Low	High	α
CDRISC Resilience Pretest	10	38.10	5.46	29.00	48.00	.87
CDRISC Resilience Posttest	10	40.65	4.58	33.00	50.00	.87
Emotional Exhaustion Pretest	9	31.55	9.44	14.00	49.00	.87
Emotional Exhaustion Posttest	9	29.05	9.48	14.00	49.00	.87
Depersonalization Pretest	5	10.35	4.52	5.00	20.00	.81
Depersonalization Posttest	5	10.10	5.26	5.00	24.00	.84
Personal Accomplishment Pretest	8	44.50	5.75	35.00	53.00	.70
Personal Accomplishment Posttest	8	44.20	6.62	32.00	56.00	.80

Note. $N = 20$.

Table 3: Wilcoxon Tests for Scales Scores Based on Time

Scale Score	Time	*M*	*SD*	*z*	*p*
CDRISC Resilience				2.49	.01
	Pretest	28.10	5.46		
	Posttest	30.65	4.58		
Emotional Exhaustion				1.53	.13
	Pretest	3.51	1.05		
	Posttest	3.23	1.05		
Depersonalization				0.76	.45
	Pretest	2.07	0.90		
	Posttest	2.02	1.05		
Personal Accomplishment				0.09	.93
	Pretest	5.56	0.72		
	Posttest	5.53	0.83		

Note. $N = 20$.

Table 4: Spearman Correlations Between Improvement Scores with Intervention Days

Improvement Score [a]	Intervention Days	
CDRISC Resilience	.48	**
Emotional Exhaustion	.52	**
Depersonalization	.09	
Personal Accomplishment	.10	

Note. $N = 20$.

[a] Improvement scores were based on whatever difference score yielded a favorable outcome. For the resilience and personal accomplishment scores, the improvement score formula was posttest minus pretest. For the emotional exhaustion and depersonalization scores, the improvement score formula was pretest minus posttest.

* $p < .10$. ** $p < .05$.

Appendices

Appendix A: Watson's Carative Factors (1979)

1. Formation of a humanistic-altruistic system of values
2. Instillation of faith-hope
3. Cultivation of sensitivity to oneself and others
4. Development of a helping-trusting relationship
5. Promotion and acceptance of the expression of positive and negative feelings
6. Systematic use of the scientific-problem-solving method for decision making
7. Promotion of interpersonal teaching-learning
8. Provision for a supportive, protective, and (or) corrective mental, physical, sociocultural, and spiritual environment
9. Assistance with gratification of human needs
10. Allowance for existential-phenomenological forces

Watson's Carative Processes (2002-2007)

1. Practicing loving kindness and equanimity for self and other
2. Being authentically present: enabling/sustaining/ honoring deep belief system and subjective world of self/other
3. Cultivating one's own spiritual practices, deepening self-awareness, going beyond "ego-self"
4. Developing and sustaining a helping-trusting, authentic caring relationship
5. Being present to, and supportive of, the expression of positive and negative feelings as a connection with deeper spirit of self and the one-being-cared-for

6. Creative use of self and all ways of knowing/being/doing as part of the caring process (engaging in artistry of caring-healing practices)
7. Engaging in genuine teaching-learning experiences within context of caring relationship-attend to whole person and subjective meaning; attempt to stay within other's frame of reference (evolve toward "coaching" role vs. conventional imparting of information)
8. Creating healing environment at all levels (physical, nonphysical, subtle environment of energy and consciousness whereby wholeness, beauty, comfort, dignity and peace are potentiated (Being/Becoming the environment)
9. Reverentially and respectfully assisting with basic needs; holding an intentional, caring consciousness of touching and working with the embodied spirit of another, honoring unity of Being; allowing for spirit-filled connection
10. Opening and attending to spiritual, mysterious, unknown existential dimensions of life-death-suffering; *"allowing for a miracle"*

Appendix B: Table of Evidence

Author, YEAR	**Purpose**	**Sample & Setting**	**Method** **Design** **Interventions** **Measures**	**Results**	**Discussion, Interpretation, Limitation of Findings**
Arrogante, O. & Aparicio-Zaldivar, E. (2017). Burnout and health among critical care professionals: the mediational role of resilience. *Intensive and Critical Care Nursing*, 42, 110-115. http://dx.doi.org/10.1016/j.iccn.2017.04.010	Analyze the mediational role of resilience between the burnout experienced by the critical care professional Establish Relationship between burnout, resilience, and health.	Correlational and-cross-sectional study ICU in Madrid, Spain 12-bed ICU 52 critical care professionals (nurses (30), nursing assistants (14), physicians (8). Voluntary, convenience sample	Self-reported questionnaire Connor-Davidson Resilience Scale (10-item CD-RISC) Maslach Burnout Inventory-Health Science Survey (MBI-HSS). 22-item scale made up of three sub categories Short Form-12 Health Survey (SF-12)	Nurses represented >50% of sample Burnout: Emotional exhaustion and depersonalization Level medium for sample Personal accomplishment level high Correlation between burnout, mental health, and resilience (Pearson's correlation coefficient -0.51 and 0.58) Negative relationship between emotional exhaustion and depersonalization with resilience	Mediational role of resilience in critical care providers Negative impacts of burnout syndrome mitigated by resilience Resilience did not mediate relationship between burnout and physical health Limitations include: small sample size, lack of heterogeneity in sample, self-reported measures

Author, YEAR	**Purpose**	**Sample & Setting**	**Method** **Design** **Interventions** **Measures**	**Results**	**Discussion, Interpretation, Limitation of Findings**
Duarte, J., & Pinto-Gouveia. (2016). Effectiveness of a mindfulness-based intervention on oncology nurses' burnout and compassion fatigue symptoms: a non-randomized study. *International Journal of Nursing Studies*, 64, 98-107. http://dx.doi.org/10.1016/j.ijnurstu.2016.10.002	Explore the effectiveness of an on-site, abbreviated MBI for nurses	91 nurses Working in two major oncology hospitals in Portugal Female= 82 Male=9 Mean age= 41 Married or cohabitating= 61 Mean years in practice= 17.90	Non-randomized, wait-list comparison design Intervention: six-week group MBI based on Mindfulness-Based Stress Reduction (MBSR) Six, two-hour long sessions CD with guided meditation Participants asked to practice at home for at least 15 min per day Professional Quality of life Scale (ProQOL-5)	No significant difference between experimental and comparison groups regarding demographic statistics Significant interaction between time and condition for compassion fatigue Individuals in the intervention scored lower on compassion fatigue, experience avoidance and higher in observing and non-judging	Nurses in the interventional group reported significant reduction in compassion fatigue Hypothesize that mindfulness leads to the development of emotional regulation leading to a reduction in compassion fatigue Increase in self-compassion and mindfulness after intervention First study to evaluate MBI in oncology nurses Explored efficacy of shorter MBI Limitations include: small sample size comprised of mostly women, non-

Author, YEAR	Purpose	Sample & Setting	Method Design Interventions Measures	Results	Discussion, Interpretation, Limitation of Findings
			Depression, Anxiety, Stress Scale (DASS-21) Acceptance and Action Questionnaire-II (AAQ-II) Ruminative Responses Scale-Short (RSS) Five Facets of Mindfulness Questionnaire (FFMQ) Self-Compassion Scale (SCS) Satisfaction with Life Scale (SWL) All questionnaires completed before,		randomized, lack of follow up assessment

Author, YEAR	Purpose	Sample & Setting	Method Design Interventions Measures	Results	Discussion, Interpretation, Limitation of Findings
			immediately after intervention and at 3-month follow-up		
Hae, K.L., Rahmat, N., Subramanian, P, & Ker, P.C. (2014). The effects of mindfulness training program on reducing stress and promoting well-being among nurses in critical care units. *Australian Journal of Advanced Nursing,* 31, (3), 22-31. =285671898965330; res=IELAPA> ISSN : 0813-0531.	To evaluate the efficacy of a mindfulness based intervention in stress reduction and increase of well-being in critical care nurses	Voluntary sample of 41 critical nurses. 37 completed the program Age Mean= 29.19 SD=5.4 Years of Nursing Mean=6.03 SD=4.8 Current clinical setting CCU 6(16.2) CICU 9(24.3) ICU 12 (32.4) NICU 8(21.6) CHDW 2(5.4)	Design Quasi-experimental, single-group, pre-post study design Intervention-adapted version of mindfulness-based cognitive therapy. 5 weeks, 2 hours per week with intermittent practice No comparison group Self-reported Perceived Stress Scale (PSSP and Depression Anxiety Stress	Improvement perceived stress p<.001 Improvement stress DASS-S, p=.002 Anxiety DASS-A; p<.001 Depression DASS- D; p<.001 Mindfulness MAAS; p <.001 Happiness SHS; p=.028	Mindfulness-based cognitive therapy intervention results in decrease of stress and improve well-being in critical nurses Sample powered Majority of participants Malay and Muslim Potential to apply regardless of cultural background Limitation: no control group Voluntary sample group No measure of lasting effects

Author, YEAR	Purpose	Sample & Setting	Method Design Interventions Measures	Results	Discussion, Interpretation, Limitation of Findings
			Scale (DASS) used for stress measure Mindfulness Attention and Awareness Scale and Subjective Happiness Scale		No measure of how often practiced No follow-up
Jackson, J., Vandall-Walker, V., Vanderspank-Wright, B., Wishart, P., & Moore, S.L. (2018). Burnout and resilience in critical care nurse: A grounded theory of managing exposure. *Intensive & Critical care Nursing*, 48, 28-35. https://doi.org/10.1016/j.iccn.2018.07.002	To better understand nurse burnout and the process of resilience for critical nurses responding to adversity in the workplace	Convenience, purposive and snowball sample of 11 critical care nurses in Canada Age 20-59 Female Years of Nursing: 4-36 Years in Critical Care:1-24	Grounded theory, utilizing Corbin and Strauss methodology Qualitative, open-ended interviews regarding burnout and resilience	Grounded Theory "Managing Exposure: Resilience and Burnout in Critical Care Nurses".	Process of adversity begins with exposure to a problem. Awareness drives the process response. Processes consist of thriving, resilience, survival, and burnout. Burnout and resilience seen as part of a continuum. Meta-cognition critical to resilience Limitations include limited sampling pool, homogeneity of sample, self-censoring of response

Author, YEAR	**Purpose**	**Sample & Setting**	**Method** **Design** **Interventions** **Measures**	**Results**	**Discussion, Interpretation, Limitation of Findings**
Mackenzie, C.S., Poulin, P.A., & Seidman-Carlson, R. (2006). A brief mindfulness-based reduction intervention for nurses and nurse aides. *Applied Nursing Research*, 19, 105-109. doi:10.1016/j.apnr.2005.08.002	To evaluate the efficacy of an abbreviated mindfulness intervention in minimizing stress among registered nurses and nurses' aides	Nurses and nurses' aides in a large urban, geriatric hospital N=16 for intervention group N=14 for wait list group Age in years Mean 44.78 control group Mean 48.62 intervention group Job title RN Control Group= 7 Intervention=11 Registered Practical Nurse Control Group=3 Intervention=2 Nurse Aide Control =4 Intervention=3	Participants recruited from both long-term and complex continuing care Intervention comprised of a shortened version a traditional MBSR program; four 30-minute group sessions CD of guided meditation provided Participants to practice 10 min/day; 5 days/week Evaluation tools: Maslach Burnout Inventory Smith Relaxation Dispositions Inventory	Effectiveness evaluated by group X time interaction MBSR reduced exhaustion Job-related personal accomplishment increased with intervention p=0.004 Intervention group score for well-being and life satisfaction increased	Support feasibility and effectiveness in small sample of brief MBI Looked at both group interaction and individual Small sample size Significant effect noted Heterogeneity of group Brief program designed to minimize time demands No follow up study Study has been cited as foundational for multiple subsequent studies

Author, YEAR	Purpose	Sample & Setting	Method Design Interventions Measures	Results	Discussion, Interpretation, Limitation of Findings
			Intrinsic Job Satisfaction subscale Satisfaction with Life Scale Orientation to Life Questionnaire		
Rushton, C. H., Batcheller, J., Schroeder, K. & Donohue, P. (2015). Burnout and resilience among nurses practicing in high-intensity settings. *American Journal of Critical Care*, 24(5), 412-420. Doi:http://dx.doi.org/10.4037/ajcc2015291	Support the creation of a healthy workplace. Design a 2-phase project to enhance resilience in nurses. Reduce turnover and increase retention. Phase 1 of 2 phase project	N=114 nurses practicing in high-intensity units (2 pediatric, 2 oncology, 2 adult critical care) Across 4 hospitals	Cross-sectional survey design Maslach Burnout Inventory (22-item scale) Moral distress scale (19-item scale) Perceived stress scale (10-item scale) Resilience scale-CD-RISC (25-item scale) Meaning scale (6-item scale)	Specialty areas did not differ significantly on scores of burnout. Emotional exhaustion and depersonalization scores 1 SD greater than standard sample from the medical profession Levels of moral distress significantly higher for nurses in critical care Highest mean scores on emotional exhaustion and depersonalization for nurses with 3 to 10 years of experience	Confirms relationship of variables of burnout and modulating factors including resilience and hope Nurses working in high-stress areas report emotional exhaustion. Supports previously found data Strong association between high levels of resilience and low levels of burnout predictive validity for burnout

Author, YEAR	Purpose	Sample & Setting	Method Design Interventions Measures	Results	Discussion, Interpretation, Limitation of Findings
			State Hope Scale (6-item scale)	Well-being correlated with personal accomplishment Moral distress significant predictor of all aspects of burnout Greater resilience protected nurses from emotional exhaustion and contributed to personal accomplishment	Emotional exhaustion highest Resilience encompasses internal stability, awareness and flexibility allowing for reaction that protect against negative consequences Limitations include single-site study

Appendix C: Recruitment Email

Hello City of Hope Registered Nurses!

Please take a moment to look at this email and consider the possibilities that mindfulness may have on resilience and burnout. We all know that being a nurse at City of Hope requires heart, passion, and dedication. But what toll is taken on us every day?

Erin Kopp, MSN, ACNP-BC, DNPc and Carol Pavlish, PhD, from the Department of Nursing at the University of California, Los Angeles are conducting clinical inquiry as part of a DNP scholarly project examining the role of mindfulness in levels of burnout and resilience. You are considered eligible as a possible participant in this project because you are a registered nurse, practicing in hematology. Your participation in this project is voluntary.

If you are currently employed as a registered nurse in either the inpatient or outpatient setting and you have contact with patients suffering from hematologic malignancies/HSCT, then you may qualify.

At this time, managers and directors are not eligible

Advance practice nurses are not eligible

Participation in the project will include:

Participation will take a total of about 6 hours time over a total of 6 weeks. You will be asked to:

- Provide demographic information. Identifying information will not be requested of you
- View an introduction video about mindfulness
- Complete two survey tools
- Practice a mindfulness exercise for 5-7 minutes daily and record participation
- Complete two survey tools at the close of the project

There is no cost to you. The mindfulness intervention is available free of charge and can be completed anywhere via a digital device

Please contact Erin Kopp at ekopp@coh.org if you are interested in participating or have any questions!

Recruitment starts now. You will receive a confirmation email and a link to the project by Feb 28th.

Appendix D: Recruitment Flyer

CALLING ALL HEMATOLOGY RNs

We invite you to participate in a clinical inquiry looking at the relationship between mindfulness, burnout, and resilience

A study for nurses by nurses

Erin Kopp, MSN, ACNP-BC, DNPc and Carol Pavlish, PhD, from the Department of Nursing at the University of California, Los Angeles are conducting a clinical inquiry into the role of mindfulness in levels of burnout and resilience.

Who

- Registered Nurses that work with patients with hematologic malignancies
- Inpatient or outpatient
- Have been working at UCLA for the past 6 months

***Managers and advanced practice nurses are not eligible at this time

Participation will take a total of about 6 hours time over a total of 6 weeks. You will be asked to:

- Provide demographic information. Identifying information will not be requested of you
- View an introduction video about mindfulness
- Complete two survey tools
- Practice a mindfulness exercise for 5-7 minutes daily and record participation
- Complete two survey tools at the close of the project

What is involved?

- 3 short online surveys at the beginning of the project followed by 2 at the completion
- Participation in daily guided mindfulness practice that can completed using:
  - Computer
  - Tablet
  - Mobile phone
- Participation is totally voluntary

Interested?

Email the Principal Investigator at:

- Erin Kopp, ACNP-BC, DNPc
- ekopp@coh.org with the subject line mindful

Appendix E: Maslach Burnout Inventory (MBI)©

Review Copy: MBI Human Services Survey

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

How often 0-6	Statements:
1. _____	I feel emotionally drained from my work.
2. _____	I feel used up at the end of the workday.
3. _____	I feel fatigued when I get up in the morning and have to face another day on the job.
4. _____	I can easily understand how my recipients feel about things.
5. _____	I feel I treat some recipients as if they were impersonal objects.
6. _____	Working with people all day is really a strain for me.
7. _____	I deal very effectively with the problems of my recipients.
8. _____	I feel burned out from my work.
9. _____	I feel I'm positively influencing other people's lives through my work.
10. _____	I've become more callous toward people since I took this job.
11. _____	I worry that this job is hardening me emotionally.
12. _____	I feel very energetic.
13. _____	I feel frustrated by my job.
14. _____	I feel I'm working too hard on my job.
15. _____	I don't really care what happens to some recipients.
16. _____	Working with people directly puts too much stress on me.
17. _____	I can easily create a relaxed atmosphere with my recipients.
18. _____	I feel exhilarated after working closely with my recipients.
19. _____	I have accomplished many worthwhile things in this job.
20. _____	I feel like I'm at the end of my rope.
21. _____	In my work, I deal with emotional problems very calmly.
22. _____	I feel recipients blame me for some of their problems.

(Administrative use only)

EE Total score: _____ DP Total score: _____ PA Total score: _____

EE Average score:_____ DP Average score:_____ PA Average score:_____

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Appendix F: Connor-Davidson Resilience Scale – 10-item (CD-RISC-10) ©

Please indicate how much you agree with the following statements as they apply to you over the last month. If a particular situation has not occurred recently, answer according to how you think you would have felt.

Question	Not true at all 0	Rarely true 1	Sometimes true 2	Often true 3	True nearly all the time 4
1. I am able to adapt when changes occur.					
2. I can deal with whatever comes my way.					
3. I try to see the humorous side of things when I am faced with problems.					
4. Having to cope with stress can make me stronger.					
5. I tend to bounce back after illness, injury, or other hardships.					
6. I believe I can achieve my goals, even if there are obstacles.					
7. Under pressure, I stay focused and think clearly.					
8. I am not easily discouraged by failure.					
9. I think of myself as a strong person when dealing with life's challenges and difficulties.					
10. I am able to handle unpleasant or painful feelings like sadness, fear, and anger.					

Appendix G: Demographic Survey

- Age: 18-35 36-53 54-71
- Gender: Male Female Prefer Not to Respond
- Number of years in nursing: 0-3 4-10 11-20 20+
- Practice setting: inpatient outpatient

Previous experience with mindfulness practice: Yes No

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