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Resiliency Can Be Taught: The Impact of an Evidence-Based Training on Nurse Resilience

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Resiliency Can Be Taught: The Impact of an Evidence-Based Training on Nurse Resilience

A Paper Submitted in Partial Fulfillment of the Requirements

For NURS 5382: Capstone

In the School of Nursing

The University of Texas at Tyler

by

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And finally, to my family – who are so supportive of taking care of yourself and instilling this value in me. The motto “may you be kind to yourself” applies to my experience throughout balancing graduate school, a project implementation, and clinicals all in the semester. Could not have done this without them!

Executive Summary

A small project team implemented a resiliency training class as part of an evidence-based nursing intervention. Nurses at a tertiary care facility who work on a pediatric hematology/oncology unit participated in the 2-hour training course and learned multiple skills directed at improving resiliency. All participants surveyed responded positively to the class. Future directions for the project include long term follow-up and continued resiliency classes with varied topics to continue improving resilience and decreasing burnout.

Resiliency Can Be Taught: The Impact of an Evidence-Based Training on Nurse Resiliency

Nurse resilience is inversely tied to burnout and an important skill to support in frontline nurses. We conducted a resilience-skills training at a pediatric tertiary care facility with 430 beds in North Texas, focusing on inpatient nurses on the hematology and oncology unit. A wealth of evidence supporting the impact of resilience training and its benefits for up to six months in nurses provided the basis of this intervention. We created and delivered a training course as a pilot intervention. Future classes will be delivered, based on this pilot, to continue addressing burnout at this facility.

Rationale for the Project

Nurse burnout and resilience are buzzwords mentioned within hospital settings for years, by researchers and regulatory agencies, including Joint Commission (Joint Commission, 2019). Nursing as a career brings inherent challenges related to ethical dilemmas, fluctuating work schedules, physically and mentally taxing jobs, and the pressures of the COVID-19 pandemic. Now more than ever, nursing staff is asked to do more with less resources, pay, or staffing. Mandatory overtime is implemented at several North Texas area hospitals to combat the lack of available trained staff. There is a risk that if nurses do not make time to care for themselves, they will burn out and leave the field entirely. Burned-out nurses are more likely to leave the bedside (Tubbert, 2016), and burnout is a predictor of depression (Mbanga et al., 2019). With seemingly no end in sight for a bedside nursing shortage, it is imperative that we help protect and guide nurses to reduce burnout.

The challenge the nursing and hospital communities now face is finding an effective method to decrease burnout. Kutlurkan et al. (2016) identified the tie between increased resilience and lower levels of burnout. Resilience has been shown in the literature as a skill that

can be strengthened by individuals. Resilience-focused interventions can aid a person to build the skills that support resilience, with outcomes including reduced burnout with implications for improved patient safety, staff happiness, and financial implications for hospital systems seeking to retain their nursing workforce.

Literature Synthesis

Researchers have studied resiliency- and burnout-related trainings of various styles and lengths. The success of a variety of these trainings demonstrates the possibility that a flexible timeline structure can still produce a very successful outcome. Educational content in these programs varied widely, from four hours to 12 weeks (Babanataj et al., 2019; Craigie et al., 2016; Delaney, 2018; Dubois & Gonzalez, 2018; Slatyer et al., 2018; Magtibay et al., 2019). Interventions may be largely divided into two subcategories: thematically focused interventions and mindfulness-based interventions.

Mindfulness-based interventions include trainings that increase awareness of and mental focus on present moment and experience (Craigie et al, 2016; Slatyer et al., 2018; Delaney, 2018). These trainings include didactic education about mindfulness and meditation and create space for attendees to practice mindfulness throughout class time (Magtibay et al., 2019). Gilmartin et al. (2017) identified that brief mindfulness-based interventions of four hours or less had positive impacts on provider wellbeing, stress, mindfulness, resiliency, and anxiety. DuBois & Gonzalez (2018) measured a combination program that included both mindfulness and theme-based elements with positive outcomes.

Thematically focused trainings include Babanataj et al. (2019), which studied nurses who participated in an intervention centered around the concepts of resilience, supportive factors, and self-care. Grabbe et al. (2020) studied an intervention centered around emotional regulation

without the use of a mindfulness training. Both of these studies showed positive outcomes in participating nurses.

Researchers have found that participants benefit from resiliency trainings on multiple measures sometimes immediately after training, and for up to six months later (Babanataj et al., 2019; Craigie et al., 2016; Delaney, 2018; DuBois & Gonzalez, 2018; Grabbe et al., 2020; Magtibay et al., 2017; Martin et al., 2020; Slatyer et al., 2018). Resiliency training outcomes have included improvement in one or more of the following for each study: subjective happiness, compassion satisfaction, burnout, secondary traumatic stress, mindfulness, mindful attention awareness, Copenhagen burnout inventory, Connor-Davidson resilience scale, stress, ease of asking for help, feelings of being overwhelmed, and occupational stress.

Researchers have not identified any risks of harm in the studies reviewed. Limitations for most of these studies include small sample size, no control group, and single-hospital studies. Literature findings had limited high levels of evidence but did include two systematic reviews and one randomized control trial (Gilmartin et al., 2017; Grabbe et al., 2020; Melnyk et al., 2020). Reference Appendix A for further statistical information and analyses.

Project Stakeholders

An interdisciplinary team formed to implement and maintain this intervention. The team included a nurse project leader, nurse managers, nurse educators, and quality nurses who assisted and functioned as champions for this project. Prior to implementation, the team sought approval from the Medical Director and Administrative Director. The unit-based chaplain was highly engaged in the process, as she is a champion for staff self-care and highly respected by nursing staff. Our team considered patients and their families to be stakeholders because their care could benefit from having nurses who are resilient and well-rested.

Implementation Plan

In order to successfully implement the plan, our team recognized the necessity of buy-in and support from both the leadership team and the nurses identified to participate in the resiliency training. The nurses needed to see an identified benefit from attending the training. Fortunately, an existing broad scope project addressing nurse burnout was already approved and underway when we discussed the resiliency training class as a potential intervention to the leadership team, which resulted in immediate support. As there was already an ongoing umbrella project addressing other causes of burnout on the unit, nurses identified that the team suggesting this class was invested in their individual well-being and in creating an evidence-supported intervention. The umbrella project of nurse burnout is not discussed in this implementation plan but was a partial factor in the success of the project. Baseline data on resilience was obtained as part of the larger initiative prior to class initiation and is a recommendation for anyone undertaking a similar project interested in comparing pre- and post-intervention outcomes. We took the following steps to plan and implement this project:

1. **Initial meeting:** We identified key stakeholders and champions for the project and discussed the plan for the resilience class; made small tweaks to content and structure as group suggested.
2. **Class planning:** We identified class format (Zoom), maximum number of participants with the class co-leader (Chaplain). This project utilized the goal of eight to ten participants to keep the class size small enough to allow for deep conversation amongst attendees.
3. **Schedule:** We scheduled a class date & time. We recommend a class time ranging from two to four hours.

4. **Class development:** Co-leaders worked together to identify a roadmap for the class: how long each topic would be allotted, which self-assessment tool will be used for nurses to identify their level of burnout, what tools will be provided as “homework”, handouts and references were needed. Feedback from staff nurses was incorporated into the class foci of resilience and exhaustion as a timely way to address current issues that concerned nurses.
5. **Opportunity presentation:** We presented the class opportunity during a staff meeting, explained the rationale, topics to be covered, and the date/time of the class.
6. **Opportunity reminder:** Emailed all unit nurses a reminder about the class including who to reach out to if they are interested in attending. We created flyer for communal spaces on the unit as an additional reminder for staff interested in attending.
7. **Invite:** Invited interested nurses to the Zoom class through email calendars, and maintained a waitlist for nurses beyond the available class size.
8. **Final class development:** Worked with the chaplain to finalize the plan for class, including having all handouts available, PowerPoint creation to help guide class, link to self-assessment, etc.
9. **Survey creation:** Create a survey to send to participants following the class to obtain feedback on the course.
10. **Class reminder:** Emailed attendees within 1 week of class to remind them of the time and Zoom login information. Explained expectations of engagement on Zoom (camera on, muted when not talking, etc.). If any nurses responded that they were no longer able to attend, extended invitation to waitlist.

11. **Conduct class:** Held class on Zoom with nurse group. The course included a self-assessment of resilience, discussion regarding the impact of exhaustion, sleep hygiene tips, box breathing exercise, discussion about taking quality breaks during a shift, and a primer on mindfulness meditation and practice during the class.
12. **Post-survey:** Sent out post-class survey to identify participants' perception of class and recommended changes for the future. We included the reference sheet highlighting tools that were used in class in the post-survey email.
13. **Post-class debrief:** We met with chaplain to conduct a debrief following the class and to identify changes for the future. We met with the leadership team to review survey responses. The findings from outcomes measured by the Brief Resilience Scale and the qualitative feedback from the post-survey were disseminated to the management team and other stakeholders as recommended by Alexandrove et al., (2019) in Phase Four of the Outcomes Management Model. This process helped to validate the purpose of having the course and to provide support for future iterations of the course. The discussion with stakeholders also helped us identify additional improvements that should be made to address resiliency outside the scope of the class.

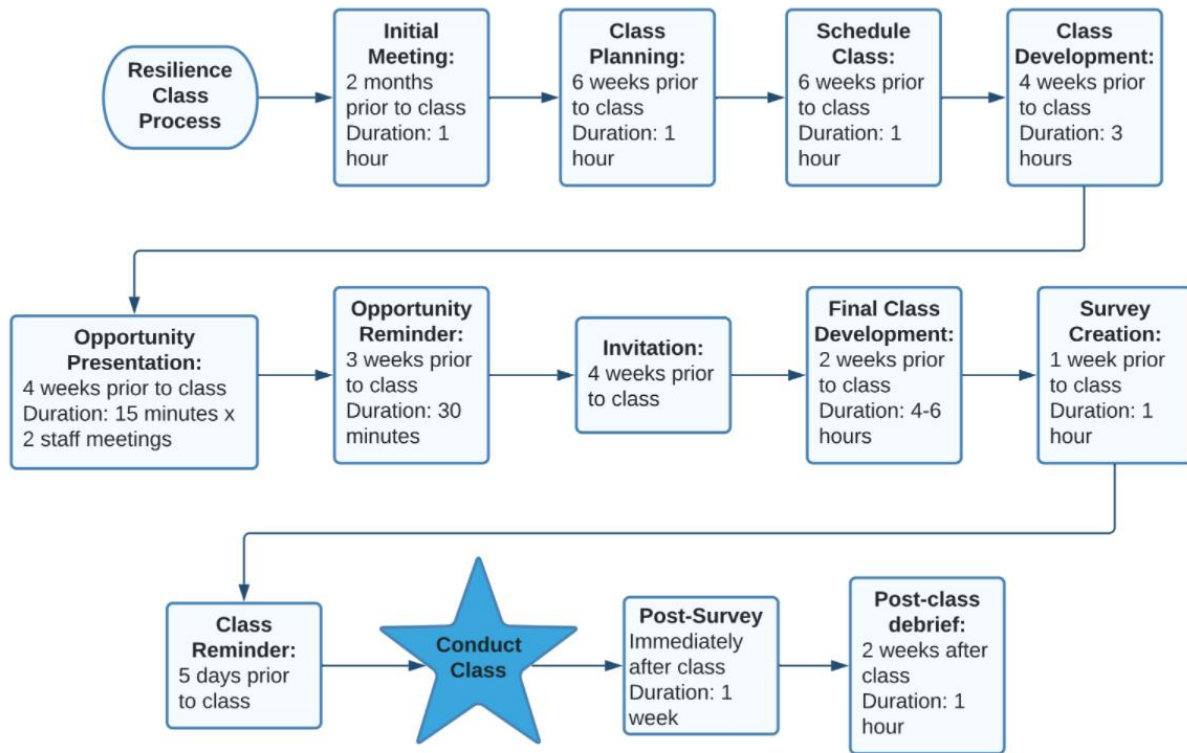
Timetable/Flowchart

The intervention of a resilience class was completed in a relatively short time frame. The process from planning to initial follow-up took approximately 10 weeks. The initial meeting with the stakeholders involved in the project occurred approximately two months prior to the desired class date, and the process continued through the several steps until the post-class debrief with the stakeholders to review outcomes and processes. Refer to Figure 1 to review the timing of each step in relation to when the class was conducted, as well as the approximate duration of

each step. Of note, the class development portion would take longer for those with less exposure to resilience interventions, such as mindfulness.

Figure 1

Resilience Class Planning Flowchart



Data Collection Methods

Data collection of both subjective and objective information helped our team to appropriately evaluate the impact that the evidence-based intervention had on the nurses. Our team measured outcomes via an online survey that contained questions from the Brief Resilience (Smith et al., 2008) and the team-developed 13-question subjective survey. In addition to the objective Brief Resilience Scores, feedback was obtained on each individual tool discussed during the class, on the nurse’s intent to continue utilizing the tool, and on general feedback and topics for future classes. See Appendix D for the questions asked.

The Brief Resilience Scale (Smith et al., 2008) is a validated tool with only six questions that measures levels of resilience. The project team compared scores of participants compared to the overall unit scores due to the ongoing data collection for the larger nurse burnout project. Ultimately, a measurement of longitudinal impact of the class may be measured through future administrations of the Brief Resilience Scale, however this was not feasible due to the limited time allotted for project implementation and measurement.

Data Collection Steps

1. We conducted a unit-wide resiliency survey of staff to identify topics of concern related to resilience and burnout, which included a baseline survey of resilience with the Brief Resilience Scale for all nurses on the unit.
2. During the training class, we had participants complete the Brief Resilience Scale again to have participant-specific data to compare to the whole unit.
3. Following the training, we emailed a post-survey that included the following:
 - Demographic information including years as a nurse, years on the unit, shift they work, age, experience within the department (charge nurse, bedside nurse, transplant nurse, etc.)
 - Brief Resilience Score
 - Open-ended question about topics that were most useful
 - Likelihood of implementing tools they were taught about in class
 - Plan to implement mindfulness during their shift
 - Plan to implement sleep hygiene techniques
 - Plan to implement 3 Good Things at the end of a shift
 - Free response for additional thoughts or comments on course content

4. We compiled information from the post-survey into a succinct report.
5. We held a meeting with stakeholders to review the course, identify benefits, and identify areas for change in the future.
6. We will send out follow-up survey to participants 6 months after the course to identify if they have continued practices learned in the course, as well as a repeat of the Brief Resilience Score.

Statistics

Descriptive statistics used in the evaluation of this project included the distribution of scores, central tendency, and variability if there was a large enough sample size from the Brief Resilience Scores completed in class. Inferential statistics will be completed with paired *t*-tests after multiple cohorts of nurses attend the course. We will be able to determine longitudinal effects of the course across time by sending out future follow-up surveys.

Cost/Benefit Discussion

Direct assessment of cost versus benefit was challenging for a project of this scope. The purpose of the project, to reduce burnout amongst nurses, was meaningful from several financial perspectives. We recognized that burned out nurses were more likely to be involved in adverse events (Batalha & Melleiro, 2019). Infection rates have been positively associated with burnout in nursing (Galletta et al., 2016). Haddadin et al., (2020) recognized the financial impact of preventable patient harm such as central line-associated bloodstream infections is approximately \$46,000 per infection and causes over 28,000 deaths per year and has negative effects on patient care. Nurses are more likely to leave the workforce when burned out, costing healthcare facilities on average \$5-8 million per year to replace their staff (Nursing Solutions Incorporated, 2016).

The benefits of reduced burnout need to be studied more in depth to identify what level of burnout or percentage decrease in burnout score correlates with a nurse remaining at the bedside for additional time. However, the cost of the training is negligible compared to the benefit of even one nurse remaining within the hospital's workforce. The average hourly salary for a nurse on this particular unit is \$33/hour, and therefore the total cost of this training was estimated at \$100 per person. Additional compensated time for the planning and execution by the team was approximately \$1500. This equates to approximately \$2000 for the class and 7 attendees. This was markedly less expensive than the cost of the loss of one nurse. For the first year of work on this unit, training costs alone total approximately \$13,000 for hospital orientation, unit orientation shifts, preceptor pay, and unit-specific trainings such as chemotherapy administration training. The cost of on-boarding a new nurse does not include fees for continuing education, Pediatric Advanced Life Support classes, or training for specialty roles such as charge nurse or Bone Marrow Transplant nurse. Therefore, the estimate of saving \$13,000 per nurse retained is grossly underestimated. Indeed, the Robert Wood Johnson Foundation (n.d.) estimates the cost to replace a nurse at between \$22,000 and \$64,000. Additionally, loss of nursing staff requires existing staff to work overtime, which includes bonus compensation and overtime pay.

Discussion of Results

Fortunately, the class had good turnout. The original aim was to have 8-10 participants, and the inpatient nursing staff was interested enough that there was a waitlist created for future classes. The seven nurses who attended the pilot class were highly engaged in the conversation. All attendees received post surveys twice but only four attendees provided responses. The survey did not include participant identifiers so our team could not determine which participants chose not to fill out the survey. Nurses reported years of experience on the survey as follows: 8 or more

years (n=3), 1-3 years (n=1). Respondents reported their ages as: 36 years old or greater (n=3), and 20-25 years (n=1).

Half (n=2) of respondents had a previous mindfulness practice. All participants planned on incorporating a mindfulness practice in the future. Staff identified plans for practicing mindfulness in the future, which included times of high stress, prior to shifts, and throughout their shift. The respondents also identified that a lack of time would not be an impediment to practicing mindfulness, as they became aware in class that even a brief moment of mindfulness can be powerful. Half of respondents had practiced box breathing prior to class, and all of respondents wrote a plan to practice box breathing in the future.

Half of respondents had a previous bedtime routine. Half of participants identified plans to modify their sleep hygiene habits following the class. One nurse noted that her schedule lacks consistency to create a routine but that she does prioritize rest. One of the respondents had utilized the 3 Good Things exercise prior to class, but all discussed a plan to utilize this tool in the future. Several of the respondents mentioned purchasing a journal to keep at bedside to create a habit of practicing this exercise prior to bed.

In the free response portion of the survey, participants mentioned that the small group size and the meditation suggestions were both conducive to a positive class experience. All respondents provided positive feedback, such as that the class was helpful to them, and that they felt rejuvenated after the class.

The instructors who co-lead the class also had positive feedback and perceived that the class went well. They echoed the sentiment that the small class size was a factor in the success of the class and in the individual staff's ability to feel comfortable speaking up about challenging experiences they have on the unit. The class provided ample time for debriefing but was also

structured to help staff not ruminate on negative things. The leaders provided tools and resources plus time to practice effective skills, while encouraging staff to recognize ways they can use these tools to meet challenges.

Due to feasibility issues, our team did not measure additional benefits of this training such as the nurses' desire to stay as a bedside nurse, changes in mood or depression, self-compassion, and other meaningful metrics. However, the team did consider possible unknown positive impacts of this class on the participants. Long-term, we may see changes in nurse retention rates as a result of these trainings.

Conclusions/Recommendations

Resiliency training can provide a method to teach bedside nurses powerful tools that decrease their burnout and improve resilience, resulting in improved staff retention and safer patient care. Implementing an evidence-based project requires thorough planning and forethought, buy-in and support from key stakeholders, and regular feedback from involved parties. Unit champions increased the buy-in of unit nurses to attend a resiliency training program and then to adopt new practices that will increase resiliency and reduce burnout. Strong literature support provided the basis for recommendations made to key leadership to obtain support for implementation of this pilot program on a larger scale.

Future implications and directions for this project could include offering classes with different resilience-related topics offered on a rotating basis so attendees could join future sessions without repeating material. Leaders could consider hiring experts to assist in providing tools for staff, such as additional mindfulness and meditation training. Additionally, longitudinal studies of the effect of resiliency trainings have on nurse burnout and nurse retention rates at this particular institution will be conducted.

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Appendix A

Synthesis Table

Studies	Design	Sample	Intervention	Outcome
Babanataj	Quantitative quasi-experimental	$n=30$ convenience sample of ICU RNs in Iran	Resilience training	CDRS before intervention mean = 67.97, after intervention mean = 81.43. P value =0.001 Occupational stress (ENSS): Before mean: 149.33, After mean: 129.22, P value =0.001
Craigie	Quantitative: Quasi-experimental	Convenience sample of RN from single healthcare institution. $n=21$, 20 at end of study Direct patient care and leadership in sample at tertiary medical center	Participation in MSCR training	Pre-test/post-test $p < 0.05$: depression, TNA $p < 0.01$: burnout Cohen's d: Med: stress, compassion satisfaction, burnout, TNA, obsessive passion Small: depression, STS Pre-test/follow-up $p < 0.05$: stress, compassion satisfaction, obsessive passion $p < 0.01$: burnout, TNA Cohen's d: Medium for stress, compassion satisfaction, burnout, trait-negative affect, and obsession passion Small for depression, secondary traumatic stress. Depression did not last at follow up Burnout had maintained improved scores
Magtibay	Quantitative: Quasi-experimental	Convenience sample from single healthcare institution $n = 50$ initially, then 45, 40, and 33 participants at weeks 8, 12, and 24.	SMART training modules	Week 8 showed improvement in all categories Improvement highest btw wk 8&12 <ul style="list-style-type: none"> • Subjective happiness scale: p value < 0.001 at 12 & 24weeks • Mindful Attention Awareness scale: p value < 0.05 at 8, 12, 24weeks • Generalized Anxiety Disorder: p value < 0.001 at 8, 12, 24 weeks • Perceived Stress Scale: p value < 0.001 at 12 & 24weeks • Copenhagen Burnout Inventory personal, work, and client-based burnout $p < 0.001$ at 12 & 24weeks • CDRS: p value < 0.05 at 12 and 24 weeks

Mealer	Descriptive qualitative feasibility study	n=33 RN in 11 focus groups from convenience sample via AACN	N/A	<p>Barriers to adherence: both participating on scheduled “off” days (daycare), and attending class before/after/during scheduled shifts (due to exhaustion)</p> <p>Incentives for adherence: hybrid delivery format with partial online learning, partial face-to-face learning. Financial reimbursement for attendance. Short (1 minute) homework practices</p> <p>Instructor qualifications: consistent instructors – one well-versed in MBCT and one with ICU experience. No ICU physician involvement.</p> <p>Didactic content: focus on ICU-specific burnout triggers and areas of distress – for both environmental and administrative concerns.</p>
Slayter	Quasi-experimental quantitative with waitlist control group	n=76 65 RNs for intervention data 26 for control data Control nurses were later included in the intervention for subsequent trainings	MSCR training workshop plus 3 weekly follow up sessions	<p>ProQo15:</p> <ul style="list-style-type: none"> • Time x intervention <ul style="list-style-type: none"> ○ Burnout: $p = .003$, partial $\eta^2 = .04$, a small-to-moderate effect size ○ Secondary traumatic stress: $p < .001$, partial $\eta^2 = .04$, a small-to-moderate effect size • Burnout: pre- and post-intervention scores: $t(205) = 4.15$, ($p < .001$), ($d = 0.38$); pre- and follow-up: $t(205) = 2.63$, ($p = .009$), ($d=0.39$) • Secondary traumatic stress: pre- and post-intervention compassion satisfaction scores $t(205) = -2.24$, ($p = .026$), ($d = 0.17$), marginal effect <p>DASS21:</p> <ul style="list-style-type: none"> • Depression: $p=0.007$, partial $\eta^2 = .04$, small to moderate effect size <p>SCS-SF scale: main effect for time-related change ($p=0.026$, partial $\eta^2=0.02$) small effect size</p> <ul style="list-style-type: none"> • Pre- and post-test $t(204)=3.38$, $p=0.001$, $d=0.27$, small to moderate effect size • Pre- and follow up: $t(204) = -2.93$, ($p = .004$), ($d = 0.35$) <p>WHO Five scores:</p> <ul style="list-style-type: none"> • Pre- and post-test: $t(205) = -4.47$, ($p < .001$), ($d = 0.54$), moderate effect size • Pre-test and follow up, $t(205) = -2.15$, ($p = .033$), ($d = 0.39$), small-to-moderate effect size

Delaney	Mixed methods cohort study	Initial $n = 18$ Final $n = 13$ 5 did not complete full 8-week program RNs from hospital in England	Participation in 8-week MSC training; 2.5 hours each week focused on various topics of MSC	<ul style="list-style-type: none"> • Burnout ($p=0.03$) and resilience ($p=0.01$) associated with mindfulness. • Self-compassion scale increase (0.70) with large effect size $d=1.28$ 95% CI • Increase on mindfulness scale (8.08) with large effect size and 1.4 95% CI • Qualitative themes: self-compassion, mindful awareness, acceptance, positive mental states • Secondary traumatic stress: decrease with large effect size. As both self-compassion and mindfulness scores increased, secondary traumatic stress decreased ($p<0.02$ and $p<0.05$) • Burnout: significant reduction in 6 participants from baseline • Compassion satisfaction: increased with large effect size. No statistical significance between self-compassion scores and resilience • Resilience: large effect size
DuBois	Quantitative Cohort study	$n = 61$; only 37 completed surveys; convenience sample of nurse residents at single hospital In Virginia	Completion of 10-hour resiliency training	<ul style="list-style-type: none"> • Stress in personal life decreased from 2.5 to 2.3 • Ease asking for help increased from 2.2 to 2.7 • Difficulty prioritizing care decreased from 2.25 to 2.1 • Overwhelmed by pt care decreased from 2.25 to 2.1 • MD communication confidence increased from 2.9 to 3.4 • Comfort delegating to UAP increased from 2.9 to 3.25 • Comfort in pt communication increased from 3.25 to 3.6
Martin	Mixed method quasi-experimental	$n=39$ mixture of nursing, kinesiology, nurse anesthesia, and nutrition students	Participation in MBI workshop that included mindfulness practices, information about physiological changes due to breathing practices, information from mindful self-compassion program, mindful eating practice	<ul style="list-style-type: none"> • SCF-sf mean scores pre-intervention: 33.51 (SD 4.22); post-intervention: 35.25 (SD 4.67); p value = 0.016 • SCF-sf mean scores for self-compassion $t(26) = -2.59$; $p = 0.016$; cohen's $d = 0.39$; medium effect size • PSS-10 decreased from 27.78 to 24.81; $p = 0.009$ • Pre: Moderately likely to establish a daily mindfulness meditation practice, 53.8% already practicing mindfulness. Post: 68.4 had active mindfulness practice.

Rushton	Quantitative Cohort Study	<p><i>n</i> = 192 convenience sample of nurses from large academic institutions. Primarily white females in their 30s from a variety of shifts</p>	<p>Participation in MEPRA training over 6 sessions (24 hours total) with in-person interactive training. Incorporate practice, role play, video review, mindfulness practices, and group activities. Additional 10 minutes daily meditation practice provided, reflective questions</p>	<ul style="list-style-type: none"> • Perceived ethical confidence scale: increased from 3.49 (0.66) to 3.94 (0.53): <i>p</i> <0.001 • Moral sensitivity: increase from 4.39(0.91) to 4.44 (0.52); <i>p</i> = 0.32 • Moral competence: increase from 3.57 (0.91) to 4.00 (0.877); <i>p</i><0.001 • Resilience scores: increase from 3.39(0.72) to 3.66(0.70); <i>p</i><0.001 • Multidimensional emotional empathy: increase from 3.92 to 3.66; <i>p</i> = 0.13 • Work Engagement: increase from 4.97(0.95) to 5.25 (0.82); <i>p</i><0.001 • Burnout inventory: emotional exhaustion decreased from 3.76 to 3.614; <i>p</i>=0.19; depersonalization decrease from 3.05 to 3.03; <i>p</i> = 0.85 • Turnover intention; 2.75 to 2.48; <i>p</i> = 0.05 • Moral distress decreased from 3.53(2.39) to 3.49(2.26); <i>p</i> = 0.85 • Psychiatric symptom increase in cognitive, decrease in anxiety, depression, anger; none statistically significant • Mindful attention awareness: increase 3.76 (0.79) to 3.9 (0.81); <i>p</i> = 0.03
Gilmartin	Systematic Review	<p><i>n</i> = 14 from 4181 original articles identified</p>	<p>Brief (</=4 hours) mindfulness-based intervention</p>	<ul style="list-style-type: none"> • Qualitative study with CASP score of 3/10 • D&B tool: 18 (14-25; SD 3.38). 64% studies scored low on measures of internal validity d/t lack of blinded studies • Provider-well being: 9/14 studies reported statistical significance for this. 2 studies showed no improvement in well-being • 2/14 assessed provider behavior. No effect from one, increase in error interception practices on the second.
Grabbe	Randomized Control trial	<p><i>n</i> = 77 convenience sample</p> <p>Varied unit representation, primarily female, average years of experience = 17</p>	<p>Mindful based intervention: Community Resilience Model taken over 3 hours in person</p>	<ul style="list-style-type: none"> • Well-being: <i>p</i> = 0.006 • Resilience: <i>p</i> = 0.004 • STS: <i>p</i> = 0.009 • SSS-8: <i>p</i> = 0.004 • Time not significant for burnout: <i>p</i> = 0.149 <p>No statistical significantly changes over time for the control group</p> <p>Participants monitored over 1 year post intervention with durable results</p>

Melnyk	Systematic Review	<i>n</i> = 29 studies and 2708 participants. Utilized PRISMA guideline and electronic databases to search for articles published between 2008 and 2018	Intervention directed towards nurses or physicians and improving mental health, well-being, physical health, and lifestyle behaviors	<ul style="list-style-type: none"> • Mindfulness-based stress reduction: 86% studies reported significant differences in mindfulness, 44% showed difference in stress, 37.5% reported improvement in general mood measurement, 43% showed reduction in anxiety, 44% identified reduced depression • Improved resilience shown in 1/5 studies that measured resilience. Well-being improved in 56% of studies, 25% sleep studies reported improvement • Sleep improved in 17% of studies
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Legend:

2MBI = Maslow Burnout Inventor 2-item questionnaire

AACN = American Association of Critical Care Nurses

BRS = Brief Resilience Scale

CA = Chronbach alpha

CBI = Copenhagen Burnout Inventory

CDRS = Connor-Davidson Resilience Scale

DASS= Depression Anxiety Stress Scale

ENSS = Expanded Nursing Stress Scale

F/U= follow up

IPSI = Ilfeld Psychiatric Symptom Index

MAAS = Mindful Attention Awareness Scale

MBI = Mindfulness-based intervention

MCQ = Moral Competence Questionnaire

MDT = Moral Distress Thermometer

MEES = Multidimensional Emotional Empathy Scale

MEPRA = Mindful Ethical Practice and Resilience Academy

MSC = Mindful Self-compassion

MSCR= Mindful self-care and resiliency

MSQ = Moral Sensitivity Questionnaire

PECS = Perceived Ethical Confidence Scale

ProQoL = The Professional Quality of Life Scale

PSS-10 = Perceived Stress Scale - 10

Pt = patient

SCS-FS = Self Compassion Scale (short form)

SSS-8 = Secondary Traumatic Stress Scale

STAIY2 = Spielberger State-Trait Anxiety Inventory form Y2

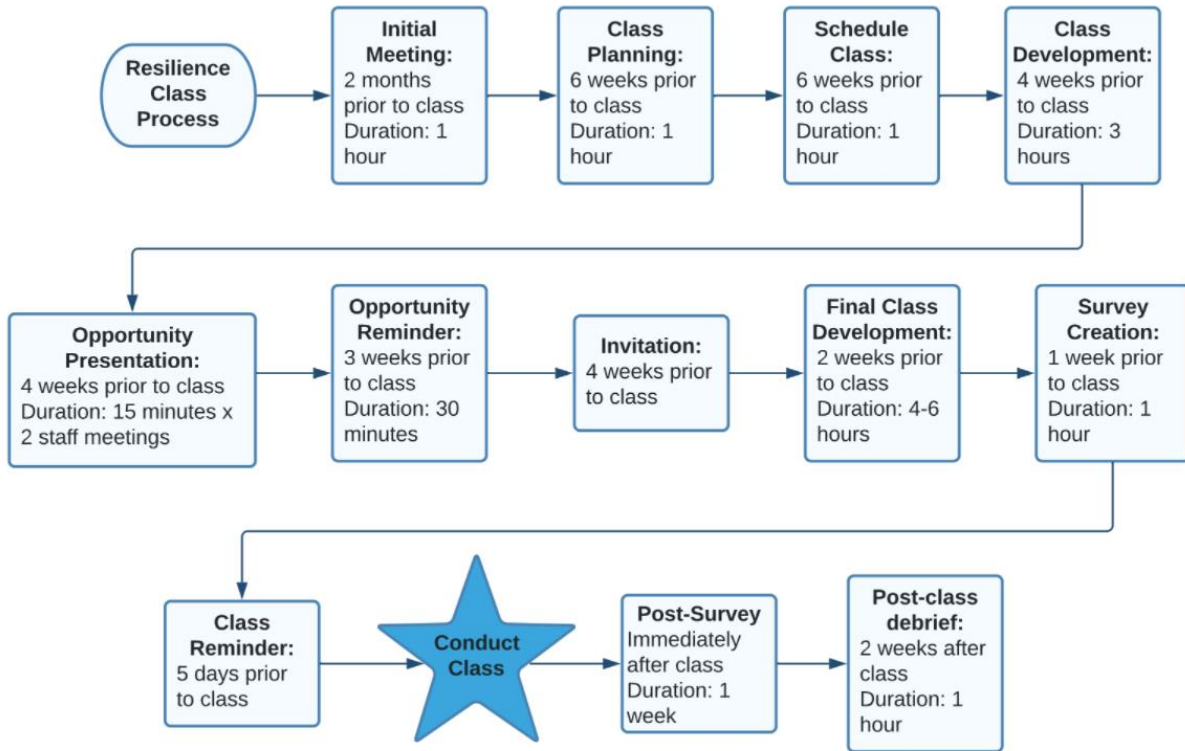
STS = secondary traumatic stress

TNA = trait negative affect

WE = Work Engagement

Appendix B

Flowchart



Appendix C

Brief Resilience Scale

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I tend to bounce back quickly after hard times	1	2	3	4	5
I have a hard time making it through stressful events	5	4	3	2	1
It does not take me long to recover from a stressful event	1	2	3	4	5
It is hard for me to snap back when something bad happens	5	4	3	2	1
I usually come through difficult times with little trouble	1	2	3	4	5
I tend to take a long time to get over set-backs in my life	5	4	3	2	1

Source: *Smith et al., 2008.*

Appendix D

Staff Post-Survey Questions

1. What was your brief resilience scale score?
 - a. Free response
2. How many years have you been a nurse?
 - a. 0-1
 - b. 1-3
 - c. 4-7
 - d. 8+
 - e. Prefer not to say
3. What age range are you?
 - a. 20-25
 - b. 26-35
 - c. 36+
 - d. Prefer not to say
4. Did you have previous mindfulness practice?
 - a. Yes
 - b. No
5. Do you plan on practicing mindfulness following class? If so, please describe when you plan to incorporate this practice.
 - a. Free response
6. Did you have a previous bedtime routine before class?
 - a. Yes
 - b. No
7. Will you change your bedtime/sleep hygiene habits following class? If yes, please describe.
 - a. Free response
8. Have you done box breathing before class?
 - a. Yes
 - b. No
9. Do you plan to incorporate box breathing into your life? If yes, please describe.
 - a. Free response
10. Have you done the 3 Good Things exercise before class?
 - a. Yes
 - b. No
11. Do you plan to incorporate the 3 Good Things into your life? If yes, please describe.
 - a. Free response
12. Which parts of class were the most useful?
 - a. Free response
13. What topics are pertinent for future classes?
 - a. Free response
14. Any additional thoughts for the team?
 - a. Free response