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*California State University, Northern California Consortium Doctor of Nursing Practice*

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**Impact of Mindfulness Practice on Compassion Fatigue in Pediatric Cardiovascular  
Critical Care Nurses: A Quality Improvement Project**

Kendy Luu

San Jose State University

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Committee Members: Dr. Julie Collier, Andy Helgesen

Date of Submission: April 1, 2022

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## ABSTRACT

**Background:** A considerable proportion of the extant literature on healthcare has documented compassion fatigue (CF) as a major factor that contributes to poor job performance, satisfaction, and negative patient outcomes (Figley, 2002). CF is well known to negatively impact patient care and outcome, relationships, and job satisfaction among pediatric cardiovascular intensive care (CVICU) nurses. Developing interventions to reduce burnout and CF bear the potential to reduce costs and improve quality care; one particularly promising approach in this regard is the practice of mindfulness-based stress reduction (MBSR). **Purpose:** This quality improvement project aimed to determine the impact of an abbreviated MBSR program delivered through a mobile application intended to help the pediatric CVICU nurses identify and target the symptoms of CF. **Method:** This project implemented a six-week MBSR program, delivered via the mindfulness smartphone-based application *Insight Timer* with a group of pediatric CVICU nurses. **Result:** A total of 15 participants completed this project. The participants' burnout and stress scores decreased, while their mindfulness and compassion scores increased after the project was completed. Participants' reflections revealed that they became aware of their emotions and the variables contributing to their emotional distress. **Conclusion:** The abbreviated MBSR curriculum demonstrated an innovative but practical platform utilizing a mobile application shown to help busy CVICU nurses. Conclusively, the project showed that MBSR was effective in alleviating fatigue and cultivating nurses' emotional well-being.

# IMPACT OF MINDFULNESS PRACTICES ON COMPASSION FATIGUE

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**LIST OF ABBREVIATIONS**

CINAHL	Cumulative Index of Nursing and Allied Health Literature
CV	Cardiovascular
CVICU	Cardiovascular Intensive Care
IHI	Institute of Healthcare Improvement
IRB	Institutional Review Board
MAAS	Mindful Attention Awareness Scale
MBSR	Mindfulness-Based Stress Reduction
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analysis
ProQOL	Professional Quality of Life

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**Impact of Mindfulness Practices on Compassion Fatigue in Pediatric Cardiovascular  
Critical Care Nurses: A Quality Improvement Project**

**CHAPTER 1: COMPASSION FATIGUE AND MINDFULNESS PRACTICES**

Compassion fatigue (CF) is a multidimensional and complex phenomenon, and its impact is experienced on both personal and organizational levels (Sabo, 2006). In an effort to address CF and its negative outcomes, the Institute of Medicine (IOM) has therefore called for effectual strategies to duly address the work environment (IOM, 2004). Additionally, the Institute of Healthcare Improvement's initiatives to enhance the quality of medical care include three vital components: enhancing patient experience, improving population health, and reducing healthcare expenses (Berwick et al., 2008; Rafeedie et al., 2018). A fourth initiative was subsequently added to strengthen healthcare employees' work-life balance (Bodenheimer & Sinsky, 2014; Best, 2019). Addressing nursing burnout (BO) and CF may contribute to achieving these goals.

**Background and Significance**

By definition, CF is characterized as a condition involving exhaustion, devitalization, and instability, physically, emotionally, and socially, due to repeated exposure to compassionate stress (Figley, 2002). Figley (2002) also mentioned that CF is essentially a combination of two components: BO and secondary traumatic stress (STS). The term "burnout" has been described by psychologist Herbert Freudenberger as a slow, continuous depletion of energy and strength resulting from occupational accumulative stress (Catalano, 2006). Additionally, STS, typically referred to as post-traumatic stress, is an occupational hazard that one experiences because of being in close proximity to another's pain and suffering (Beck, 2011).

CF has been well known to adversely impact patient care and outcomes, as well as relationships and job satisfaction among healthcare professionals, especially critical care nurses



(Dilig-Ruiz et al., 2018). Such adverse impacts put them at risk of wanting to leave the profession altogether, resulting in a substantial financial loss. In fact, Garrett (2008) remarked that hospital nursing vacancies were expected to reach 800,000 (29%) by 2020. According to a recent report by the staffing agency *Incredible Health*, 34% of nurses surveyed reported they were very likely to leave their positions by the end of 2022, with 44% citing burnout and a high-stress environment as the primary reasons (Landi, 2022). Likewise, Brewer et al. (2012) reported that the nursing turnover rate increased to over 43% during the first three years of employment owing to a number of factors, including work satisfaction and management support. According to the 2020 National Health Care Retention & RN Staffing Report (2021), the average cost of turnover for each nurse is \$40,038. With an estimated replacement cost of \$10,098 to \$88,000 per nurse (Li & Jones, 2013), it is clear that keeping them from leaving is immensely cost-effective. Berger et al. (2017) noted that nearly 30% of pediatric nurse participants had conspicuously high BO and STS. Especially for pediatric cardiovascular intensive care (CVICU) nurses, these challenges include long work hours, physically and emotionally taxing tasks from the management, fast-paced environment, and high levels of stress due to the acuity and extremely unstable conditions of their patients (CVICU Staff Meeting, 2020; Forsyth et al., 2022). All these factors can potentially lead to moral distress and drive the pediatric CVICU nurses to quit their profession altogether.

Additionally, findings of a number of studies reveal that CF causes a decline in quality patient care and patient satisfaction as well as increased medical errors, infection, and mortality rates (Cimiotti et al., 2012; Garrett, 2008). Kelly and Tyson (2016) found that working in an exhausted environment can cause the level of compassion, empathy, and effective communication to decrease over time; these factors explain why around 36% of nurses miss and

fail to report vital information in patients' assessment and care (McHugh et al., 2011).

Interestingly, labor disputes, such as nursing strikes triggered by CF, BO, and high dissatisfaction among nurses, also adversely affect patient care outcomes. Evidently, for patients admitted during a strike, in-hospital mortality and hospital readmission surged by 19.4 % and 6.5%, respectively ( Gruber & Kleiner, 2012; McHugh et al., 2011).

To ensure that the nurses are satisfied with their professional roles and the patients receive high-quality care, there is a dire need for a platform that could enhance awareness, improve resilience, and minimize the adverse psychological effects of CF and its components among nurses. Taken together, evidence that CF and BO contribute to nurses' turnovers and adverse patient care outcomes suggests that interventions to reduce the same have the potential to reduce costs and improve quality care. One particularly promising approach is mindfulness-based stress reduction (MBSR).

### **Mindfulness-Based Stress Reduction (MBSR)**

Mindfulness activities focus on drawing attention to thoughts, feelings, and awareness in a nonjudgmental and curious manner to achieve higher self-compassion, in addition to emotional, spiritual, and physical wellness (Kabat-Zinn & University of Massachusetts Medical Center, 2005). Combining mindfulness meditation, yoga, and body awareness, Dr. Kabat-Zinn developed an eight-week MBSR curriculum focused on mindfulness training (Kabat-Zinn & Hanh, 2009; Kabat-Zinn, 2003). MBSR has been well examined and validated as scientifically and clinically beneficial in improving body image, activity levels, mood, and self-esteem (Kabat-Zinn et al., 1985).

### **Purpose of this DNP Project**

The proposed quality improvement (QI) project aimed to target CF by evaluating whether an abbreviated six-week MBSR program, delivered through a smartphone-based application called *Insight Timer* could impact the symptoms of CF and its components among the pediatric CVICU nurses.

### **Theoretical Framework**

A number of theoretical nursing frameworks have been developed to deal with the issue of nursing BO and CF. Jean Watson's theory of human caring (Cara, 2003), one of the most prominent theories, underlies certain potential ways for healthcare professionals to withstand the professional, policy, and workplace stressors to remain compassionate with their patients.

Watson defined her theory as “caring human relationships and the deeply human experiences of life itself, not just health-illness phenomena” (Fawcett, 2002). Three core elements of this theory are: (1) the carative factors, (2) the transpersonal caring relationship, and (3) caring occasion or moment (Cara, 2003).

Watson used “carative” as an evolutionary terminology, which contrasts with the traditional medical term “curative” used by Irvin Yalom because the former believed that the focus of her theory is on the nursing practices and not the disease or illness (Cara, 2003; Willis & Leone-Sheehan, 2018). There are 10 carative factors, and later these factors were transformed into the clinical Caritas processes to highlight a greater loving and caring component of her theory (Cara, 2003; Willis & Leone-Sheehan, 2018).



*Figure 1: Watson's Theory 10 Carative Factors*  
*Note. From Jean Watson Caring Theory Weebly. (n.d)*

Using the Caritas process as the framework for a caring-loving relationship, Watson developed transpersonal caring, which is the foundation of her theory. Transpersonal caring can be described as a special, trusting, and loving human interaction between caregivers and patients, caregivers and themselves, and caregivers and coworkers (Cara, 2003). In essence, transpersonal care genuinely encourages one to truly step beyond ego and seek a deeper, inner connection to care for others in a manner that can deliver healing and meaning (Cara, 2003; Willis & Leone-Sheehan, 2018). Lastly, the caring moment refers to the time and place at which the care is delivered. It can also be described as a mutual, dynamic connection in a caring, loving partnership between the nurse and patient that could enable both sides to align with Maslow's hierarchy of needs (Clark, 2016; George, 2011). The idea behind a caring moment is to encourage caregivers to deviate from being task-orientated to having a “caring moment” (Kornusky & Karakashian, 2018).

A number of scholars have discussed how Watson's theory can be applied to reduce CF, which may surface because of workplace pressure, interaction with patients, and the environmental conditions at the location of caregiving (e.g., Cara, 2003). Watson (2011) emphasized that healthcare workers who work directly in caring and healing settings should

engage themselves in self-mindfulness interventions, such as meditation, yoga, and other reflective practices. Pipe et al. (2009) adopted Watson's theory as the theoretical framework to create a four-hour MBSR program that included classroom instruction based on Kabat-Zinn's meditation teaching guide. They reported that their abbreviated MBSR program caused a reduction in stress, fatigue, and anxiety among the participants. This finding confirmed the effectiveness of MBSR, which is consistent with the aim of Watson's Caritas process and transpersonal caring components—which emphasize care for self and others as a means of promoting a healing work environment (D'Alfonso, 2017). With the application of mindfulness practices and adopting theory of human caring as the theoretical framework, pediatric CVICU nurses can incorporate self-care strategies in their routine to improve their transpersonal relationships with themselves, their patients, and their colleagues.

### **Literature Review**

A meticulous review of the literature was conducted to appraise the effects of MBSR on CF, BO, and STS in pediatric cardiovascular nurses. Because of the dearth of concrete research findings on intervention strategies involving this specific population, the search was expanded to include all US healthcare workers. PubMed/MEDLINE and Cumulative Index to Nursing and Allied Health Literature (CINAHL) are the primary databases that were included in the searching process. The thorough literature search was accomplished by using the following key phrases: “mindfulness,” OR “MBSR,” “compassion fatigue,” OR “burnout,” “mobile application,” “web-based tool,” “healthcare workers,” OR “nurses,” AND/OR “pediatric.” The inclusion criteria included peer-reviewed articles published in academic journals in the last 10 years, and in the English language, focusing on healthcare professionals. The exclusion criteria excluded studies with only one gender, one race, without clear outcomes, or those irrelevant to the subject of

mindfulness, without mindfulness interventions, and with interventions focused primarily on non-nurses, students, or patients.

Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and the above-mentioned criteria, the search initially yielded 199 articles. After 49 duplicated studies were eliminated, 150 articles were finally selected and reviewed by title and abstract. A total of 123 articles were excluded because of unaligned age groups and their irrelevance to the research topic, leaving the remainder 27 articles for full-text evaluation. Finally, 20 articles were disregarded because of wrong age group, inappropriate interventions, and irrelevance to PICOT question, ultimately leaving seven articles that fulfilled the inclusion criteria. Please see the attached PRISMA flowchart in Appendix A for a detailed report and explanation.

The final literature review included seven articles: three were systematic review studies (Cocker & Joss, 2016; Ghawadra et al., 2019; Gilmartin et al., 2017), one was a randomized controlled study (Moody et al., 2013), two were quasi-experimental studies (Wylde et al., 2017; Jakel et al., 2016), and one was a practice-based experimental study (Luberto et al., 2017). Most of the participants in these studies were over 18 years and came from a wide range of in- and out-patient settings, including both pediatrics and adult specialties. Although the majority of the studies were conducted in the United States, all the systematic reviews considered studies from other countries, namely, Australia, Israel, and Malaysia.

### ***The Effects of MBSR on CS, CF, and BO***

Gilmartin et al. (2017) conducted a systematic review of mindfulness interventions on 833 healthcare providers and reported that nine of the 14 included studies evidenced significant improvements in the participants' emotional and physical well-being. Five studies reported a

substantial reduction in stress levels ( $p < .05$  to  $p < .001$ ), and one study found significant reductions in participants' BO symptoms after mindfulness intervention ( $p < .05$ ; Gilmartin et al., 2017). Importantly, participants from eight studies verbalized their interest in and validated the benefits of the MBSR program.

Moody et al. (2013) completed a mindfulness study with 48 participants, mostly nurses, from two urban academic pediatric departments in New York and Israel. The participants were randomized and placed in the intervention or control group. The participants in the former were provided with an MBSR course—an eight-week session of mindfulness education. The authors found no significant difference in the pre- and post-intervention BO scores or stress levels ( $p > .05$ ). However, a qualitative analysis of the participants' journal entries indicated decreased stress and enhanced mindfulness, inner peace, and self-awareness.

Cocker and Joss (2016) conducted a methodical review to assess the effect of mindfulness interventions on participants, mostly nurses, with regard to CF, BO, and STS. The mindfulness interventions used were adapted from the MBSR and introduced online in mobile applications, and in class, with sessions ranging from two to eight weeks. The authors reported that 10 out of the 13 studies reported a significant improvement in at least one element of CF; however, none of the studies actually evidenced any discernible positive changes in all three elements after the mindfulness intervention.

Along similar lines, Ghawadra et al. (2019) explored the effect of MBSR on nurses' psychological distress. Their findings acquired from a comprehensive evaluation of nine studies revealed a positive impact of the MBSR on the nurses' occupational satisfaction. Three of the included studies demonstrated a reduction in anxiety and depression, four studies confirmed an

improvement in mindfulness, and three studies showed an improvement in work–life satisfaction.

Luberto et al. (2017) conducted a practice-based experimental study to gauge the effectiveness of mindfulness-based cognitive therapy (MBCT) to mitigate nurses' BO and stress. About 65 healthcare workers participated in a four-week, in-person program of 60 minutes per week. The obtained results confirmed that the MBCT program content was acceptable ( $M = 9.18/10$ ), with 51% homework practice compliance. There was a significant reduction in stress ( $\Delta M = 2.1, p < 0.001, d = 0.85$ ) and BO ( $\Delta M = 0.46, p = 0.01, d = 0.57$ ). Several qualitative themes emerged through data from questionnaires, demonstrating an improvement in self-regulation, mindfulness skills, stress reduction, and well-being post-intervention. Evidently, the MBCT study results show that it was feasible for the nurses to enroll in this in-person mindfulness program, which effectively improved their working environment. However, attending such an in-person program may not be feasible for some nurses because of their work demands.

### *Smartphone-based MBSR Exercises for Nurses*

Brady et al. (2012) positively concluded that MBSR interventions can help staff reduce their stress and improve self-care practices, which, in turn, results in improved patient care. However, traditional mindfulness activities through in-class meetings could potentially be counter-productive. For instance, it might be challenging for busy nurses to practice mindfulness interventions within their schedules. A quasi-experimental study by Wylde et al. (2017) confirmed that mindfulness intervention via smartphone applications provided more benefits for nurses than the traditional in-person approach when dealing with stress and fatigue. The study participants were 95 pediatric nurses in an urban children's hospital, divided into two groups: 49



nurses for four weeks of traditional in-class meditation (TDM) and 46 nurses for four weeks of smartphone-delivered mindfulness (SDM) program. The authors concluded that the TDM group reported acting with less awareness ( $b = -2.309, p < 0.01$ ), less compassion and satisfaction ( $b = -4.58, p < 0.10$ ), more CF ( $b = 36.45, p = 0.05$ ), and more BO ( $b = 3.94, p < 0.10$ ), as compared to the SDM group.

The majority of healthcare professionals experience stressful moments in many different ways; nurses are particularly at significant risk of suffering from traumatic stress due to the nature of their work. Jakel et al. (2016) conducted a quasi-experimental study concerned with the utilization of the Provider Resilience Mobile Application (PRMA) in assisting the participants to build resilience in their stressful working situations. A convenience sample of 25 oncology nurses, divided into intervention group ( $n = 16$ ) and control group ( $n = 9$ ), was provided education related to CF and BO. However, only the former group received intervention via PRMA for six weeks. While the authors expected the finding would show that PRMA reduced stress and CF in these participants, the obtained results did not reveal any significant differences between the two groups in managing stress and CF ( $p > 0.05, CI 95\%$ ). Additionally, no apparent correlation between the pre- and post-test scores regarding BO and STS in the intervention group was observed.

### **Conclusion of Literature Review**

On the whole, it could be deduced that mindfulness-based interventions had a favorable impact on the work–life balance of healthcare professionals, including nurses. All studies but one confirmed that the MBSR approach is reliable for helping nurses mitigate CF and BO and cope with their stressful working conditions. A statistically significant improvement in stress, BO, CS, and mindfulness ( $p < 0.01$  to  $p < 0.05$ ) was observed among the participants (Cocker & Joss,

2016; Gilmartin et al., 2017; Ghawadra et al., 2019; Moody et al., 2013, Wylde et al., 2017; Jakel et al., 2016; Luberto et al., 2017). Three studies included both quantitative and qualitative analyses, with the qualitative analysis and themes projecting promising and positive trends in the participants' mindfulness skills, self-awareness, inner peace, and CF reduction subsequent to the adoption of mindfulness practices (Moody et al., 2013; Luberto et al., 2017; Gilmartin et al., 2017). Various instruments were used to validate the quantitative analysis, such as the Mindfulness Attention Awareness Scale (MAAS), Maslach Burnout Inventory, and the Professional Quality of Life (ProQOL; Cocker & Joss, 2016; Gilmartin et al., 2017; Ghawadra et al., 2019; Moody et al., 2013, Wylde et al., 2017; Jakel et al., 2016; Luberto et al., 2017).

However, the seven studies showed a similar set of limitations. First, there were threats to generalizability as these studies were conducted in either one hospital or large urban tertiary hospitals, while smaller or rural institutions are likely to have different findings. While the majority of the studies addressed the benefit of MBSR and utilization of mobile applications on CF, only one study actually mentioned the assessment for qualitative biases and costs associated with the intervention used; only Gilmartin et al. (2017) specifically mentioned the utilization of the critical appraisal skills program to evaluate the qualitative biases in their study, which showed the qualitative adjudication was excellent with a Cohen's *K* value of 0.89. With other studies, most of the qualitative themes were collected from self-reports and presented in detail by the authors and were susceptible to bias and validity (Moody et al., 2013; Luberto et al., 2017).

Four of the seven studies had small sample sizes (ranging from 23 to 95 participants), which might have affected the ability to yield meaningful results. The samples of three studies were drawn from various healthcare providers, though nurses constituted a greater proportion of the sample (Gilmartin et al., 2017; Cooker & Jones, 2016; Luberto et al., 2017). The sample

demographics for each of the seven studies also differed, but the common themes were that the participants were primarily white, female nurses with 0–5 years of clinical experience. This could impact the validity of the results, as different racial and ethnic groups, in addition to years of clinical practices, might provide different outcomes.

Furthermore, the usage of mobile applications was restricted to iOS and Android in the studies. However, the concept of mobile-based mindfulness practice was growing in popularity as new technologies emerged, and therefore, these results might lose their validity over time. Perhaps, because of busy schedules and time constraints, the participant dropouts that occurred in one randomized controlled study account for the unequal number of participants between the intervention and control groups, which also posed a threat to validity (Moody et al., 2013).

### **Gap in Literature**

MBSR has the potential to reduce CF and BO among healthcare professionals, especially nurses. Although limited studies were found to be centered on pediatric CVICU nurses, the potential benefits of mindfulness-based interventions identified by multiple studies might be generalizable to this population, as they encountered similar challenges. These challenges might include busy schedules, time constraints, clinical experiences, and expectations of professionalism, science, ethics, and interpersonal relationships with their patients, coworkers, and management teams. Nonetheless, as CVICU nurses still seem to experience high levels of stress and BO, MBSR may be a step in the right direction to mitigate CF, BO, and STS.

Although Dr. Kabat-Zinn initially designed the standard MBSR as an eight-week long program, numerous modified and abbreviated versions have been introduced to make it more manageable for busy healthcare professionals while preserving its beneficial elements and feasibility (Brady et al., 2012). Mackenzie et al. (2006) demonstrated over the shortened four

weeks of MBSR that the participants reported a significant decrease in BO symptoms and increased relaxation and life satisfaction. In addition, two other six-week MBSR programs yielded significant improvements in stress levels, BO, and mindfulness (Duarte & Pinto-Gouveia, 2016; Suyi et al., 2017). These results confirmed that a modified and shortened MBSR program that aims at minimizing stress, anxiety, BO, and CF while improving work-life balance is appropriate for busy pediatric CVICU nurses.

While traditional mindfulness practices are beneficial and typically presented through in-person meetings and seminars, time- and resource-related constraints can limit engagement and practices. As a result, on-demand, mobile-based mindfulness applications are gaining prominence. In sum, a modified, convenient, and readily available mindfulness curriculum that accommodates the nurses' schedules and increases accessibility may help increase the likelihood of their participation in mindfulness practices (Gilmartin et al., 2017).

## CHAPTER 2: METHODOLOGY

### Design

This DNP project was a quasi-experimental, pre- and post-test design consisting of one group of participants, namely, the pediatric CVICU nurses. The intervention, an MBSR program, was implemented over six weeks. Data collection was done before and after the intervention.

### Setting

The facility chosen for this DNP project has been nationally recognized as a tertiary-level, nonprofit, academic medical center. Specifically, its 36-bed CVICU was the proposed location for this MBSR intervention. Currently, this unit consists of an interdisciplinary team that includes intensivists, surgeons, cardiologists, advanced practice providers, nurses, and respiratory therapists. In the CVICU, providers and nurses care for critically ill patients with either congenital or acquired heart diseases whose complexity and acuity are among the nation's highest. The unit is staffed with more than 200 nurses, who are specially trained in special cardiac therapies, such as heart failure treatments, heart transplants, and mechanical circulatory supports, including ventricular assist devices and extracorporeal membrane oxygenation.

### Participants

A convenience sample of CVICU registered nurses was recruited to participate in this abbreviated MBSR intervention. Managers, upper administrators, and contracted employees were not invited to participate. Recruitment was conducted through staff meetings, local improvement team (LIT) meetings, and work emails sent to the CVICU nursing listServe. The recruitment template is included in Appendix B. Participants were required to have reliable Internet access and connectivity to use the *Insight Timer* application on their mobile devices during the intervention period.

## **Data Collection**

Damrosch's self-generated code sheet for anonymity protection was used to secure participants' identities and anonymity while conducting the surveys (Damrosch, 1986; Vacek et al., 2017). The participants' demographic data, including race, age, education, and experience with mindfulness practices were collected (please view Appendix C for the attached Damrosch's sheet and demographic questionnaire). Private and protected data, namely, medical, detailed employment and academic background, and financial records, were not collected and accessed.

The primary goal was to determine the efficacy of a six-week abbreviated MBSR in reducing CF and BO among pediatric CVICU nurses. Its outcome was investigated using ProQOL scale, MAAS scale, and participants' reflection surveys. At baseline and after the intervention, the three ProQOL subscales' scores and MAAS scores were recorded to evaluate the participants' BO, compassion satisfaction (CS), STS, and mindfulness levels. The participants' reflections were reviewed independently by the project leader (PL) at the intervention's endpoint. The ProQOL scale, MAAS scale, and reflection prompts were digitized and distributed electronically through Qualtrics anonymous links to the participants. The instruments and prompts, along with the electronic links to Qualtrics, are included in Appendix D, E along with the permission to use them.

### ***The Professional Quality of Life Scale***

This tool is a self-report instrument that is frequently used to assess CS, BO, and STS among healthcare professionals (Heritage et al., 2018; Brown & Ryan, 2003) within the 30-day period. CS is described as a preventative measure against CF. Although both BO and STS represent the negative effects of CF, only STS includes anxiety (Stamm, 2016). ProQOL is deemed one of the best tools to be used on health professionals at risk of CF because of its ability

to explore both the negative and positive effects of caring for people experiencing emotional trauma (Adhikari, 2020). Stamm (2016) found ProQOL scale to be reliable and valid at the following levels: CS  $\alpha = 0.88$  ( $n = 1,130$ ), BO  $\alpha = 0.75$  ( $n = 976$ ), and CF  $\alpha = 0.81$  ( $n = 1,135$ ). The ProQOL scale has a high degree of validity and reliability; therefore, it has been used in a large number of studies investigating CF.

The most recent version, the ProQOL-5 scale, comprises three distinct 10-item subscales (CS, BO, and STS). Each item assesses how often the participants experienced the symptoms over the previous 30 days, using a 5-point Likert scale, with 1 indicating *never* and 5 indicating *very often*. For instance, for one item: “My job makes me happy,” participants will rate it on a scale of 1 to 5 according to its frequency. A higher score indicates higher levels of each subcomponent of CF (Stamm, 2016).

### ***The Mindfulness Attention Awareness Scale***

This instrument is a validated and well-established scale used for measuring mindfulness levels (Brown & Bryan, 2003; Gilmartin et al., 2017). MAAS comprises 15 items, each of which is scored on a 6-point Likert scale, with 1 indicating *almost always* and six indicating *almost never*. For instance, participants may respond to the item “I find it difficult to maintain concentration on what is happening in the present” with a score of 1 to 6 in accordance with its frequency. A higher MAAS score indicates a higher level of dispositional mindfulness (Brown & Ryan, 2003).

MAAS has been assessed for validity and reliability using confirmatory factor analysis and has been utilized in several studies. In Brown's analysis, MAAS had an acceptable internal consistency (0.82) and four-week test–retest reliability (interclass  $r = 0.81$ ; Brown & Ryan, 2003). Numerous studies have confirmed a significant correlation between MAAS scores and

other psychometric tests of mindfulness, including  $r$  with the Cognitive Affective Mindfulness Scale = 0.51,  $p < 0.01$ ;  $r$  with the Mindfulness Questionnaire = 0.38,  $p < 0.01$ ; and  $r$  with the Freiburg Mindfulness Inventory = 0.31,  $p < 0.01$  (Baer et al., 2006; Black et al., 2012; Best, 2019).

To complement the quantitative data and understand the participants' opinions, motivations, and thoughts regarding MBSR practices, their reflections were collected for a thematic analysis. Thematic analysis was considered appropriate for this project because of its flexibility, in addition to epistemological and theoretical independence (Banerjee et al., 2017).

### **Procedure**

The intervention was an abbreviated six-week MBSR program, delivered by smartphone application *Insight Timer*. In a systematic study conducted in 2018 to review the web- and mobile-based tools and applications that assisted in addressing stress, BO, and CF, *Insight Timer* was highly appreciated because of its desirable features that made it optimal for this QI project (Pospos et al., 2018). *Insight Timer* is a free application with a visually appealing user interface and has more than 40,000 free meditation choices. It also includes an integrated timer and reminders for practice sessions (Pospos et al., 2018; Best, 2019). Please view Appendix G for screenshot of the *Insight Timer* website.

The intervention was delivered by the PL, who was trained to provide and coach MBSR practices. The readings and mindfulness practices were adopted from Dr. Kabat-Zinn's widely acclaimed book *Full Catastrophe Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness* and Dave Potter's *Palouse Mindfulness MBSR* online training course. The PL also partnered with the Office of Professional Fulfillment and Resilience (OPFAR) to effectually utilize the resources and enhance the success of the QI project. Over the course of six



weeks, participants actively engaged in mindfulness practices from week 2 to week 5. The first and last week of the program were spent on introductory reading and conclusions, respectively. Each week, one informational module with readings, practice instructions, reminders, and checklists was sent through emails. The six modules are enumerated as follows:

- Module 1: The project's description and instructions on how to complete the surveys, and introduction to the *Insight Timer* application.
- Module 2: The origin of MBSR and introduction to the first and second formal practices: *Body Scan* and *Sitting Meditation*.
- Module 3: Weekly reading and introduction to the third and fourth formal practices: *Lake Meditation* and *Rain Meditation*.
- Module 4: Weekly readings and introduction to the fifth and sixth formal practices: *Yoga Meditation* and *Loving-Kindness Meditation*.
- Module 5: Weekly readings, journaling, and introduction to the last two formal practices: *Raisin Meditation* and *Mindfulness Eating Meditation*.
- Module 6: Reflection and conclusion of the MBSR program. The ProQOL and MAAS surveys were sent out, and data were collected and analyzed.

Participants were encouraged to practice the corresponding mindfulness practice of their preference, which could be found by searching for *MBSR* search phrase in the application, for at least 15–20 minutes, at least three times a week for four weeks. Participants were instructed to chronicle their experiences, as well as their emotional, mental, and physical reactions when practicing the guided meditation sessions. According to Brown (2018), practicing mindfulness interventions for an allotted time, paying purposeful attention, and journaling were a couple of

ways for participants to practice and focus on themselves and give themselves “caring moments,” as the theory of human caring mentions.

The total estimated time that the participants actively spent on this project was between 5 and 10 hours. The breakdown of this estimation is included in Appendix G. All procedures and activities within the project complied with the ethical standards of the Institutional Review Board (IRB). Importantly, this DNP project was reviewed and determined that it did not meet the definition of human subject research by the facility’s IRB. Therefore, no further IRB review and approval were required. Please view Appendix H for further information.

### **Data Analysis**

From the demographic survey, participants' information, such as frequency distribution of their gender, race, in addition to the mean and standard deviation for their age, nursing career length, and years of experience with mindfulness practices, were evaluated using descriptive statistics. To investigate the effects of the abbreviated MBSR intervention on the participants, a series of paired-sample t-tests were performed to compare the mean scores of CS, BO, STS, and mindfulness levels before and after the intervention, using Intellectus Statistics™ (2021) software. Additionally, the related themes discovered in the participants’ reflection were examined in detail using NVivo for qualitative comparative analysis.

### **Data Protection and Confidentiality**

As stated earlier, Damrosch's code was self-generated by each participant to protect their identities and preserve anonymity. No personal identifiers were revealed in any report or publication of the results. The consent forms were stored separately and securely from the collected data. Through survey results, all qualitative and quantitative data were stored on both a password-protected computer and Box—the file storage, sharing, and collaboration tools used

throughout the facility's system. File transfer process was minimized to protect the data, and any research files and information were compressed and encrypted before any transfer. Other secure and convenient methods of the file transfer included the facility's Box platform and SJSU's supported Microsoft OneDrive.

This QI project was intended to be a positive experience for the participants. However, there was a possibility of participants encountering personal discomfort, distress, or anxiety. There were also uncommon or previously unknown risks. Owing to the possibility of occurrence of such undesirable situations, the participants had the right to withdraw from the project at any time and without penalty. The PL also partnered with the OPFAR and Human Resource Team to better utilize and offer alternative resources to these individuals if these situations arose. The fundamental goal was that each participant would be able to incorporate some of the content from this project into their self-care toolkit to enhance their work-life balance and mind-body wellness.

There were no additional costs to participate. *Insight Timer* was a free application, and the subscription was not required for participation. To incentivize the completion and retention of the project, each participant was given a \$15 Starbucks gift card. For 10–20 participants, this amount ranged from \$150–\$300. In addition, the individuals who fully completed the intervention phase and surveys were asked for emails to enter a raffle drawing for a \$100 Apple gift card. Altogether, the estimated budget ranged from \$250 to \$400.

### CHAPTER 3: RESULTS

The study used Intellectus Statistics™ (2021) software to analyze the data and calculate frequencies and percentages for categorical variables, in addition to the means and standard deviations for ratio variables. A series of paired t-tests were conducted to compare participants' pre- and post-test scores after the MBSR intervention.

To acquire a deeper and richer understanding of the participants' experience and perceptions about MBSR practice, NVivo qualitative data analysis software was used for thematic analysis. Participant's open-ended answers were collected, organized, and coded independently into themes by experienced qualitative researchers.

#### Sample Characteristics

Initially, 20 CVICU nurses were recruited and agreed to participate in the project. However, only 15 of them completed the entire project. Three participants did not complete the post-surveys; two participants terminated their employment with the organization and therefore were not eligible to participate in this study as planned. As shown in Table 1, there were nine female (60%) and six male participants (40%) with their ages ranging from 25 to 34 years. Of these participants, 11 had a bachelor's degree (73%), three had earned a Master of Science in Nursing (20%), and one had an associate degree (7%). The majority of participants were single ( $n = 8$ , 53%), and most of them did not have children ( $n = 14$ , 93%). The sample had each one representative from the following race/ethnicity: White/Caucasian/multi-racial, Black/African American, Hispanic, Native Hawaii/Pacific Islander, though the majority was Asian ( $n = 7$ , 47%). Out of 15 participants, 11 declared themselves to be religious ( $n = 11$ , 73%), while others were either non-religious or spiritual ( $n = 4$ , 27%). The majority of participants have had

previous experience with meditation before partaking in this MBSR intervention ( $n = 9$ , 60%).

Descriptive analyses for sample characteristics as presented in Table 1.

**Table 1**

*Characteristics of Participants (N=15)*

<b>Demographic Variables</b>	<b>n</b>	<b>%</b>
<b>Marital Status</b>		
Single (never married)	8	53
Married, or in a relationship	5	33
Divorced	2	13
<b>Gender</b>		
Male	6	40
Female	9	60
<b>Family</b>		
No Children	14	93
Children	1	7
<b>Ethnicity</b>		
Asian	7	47
Caucasian ( White/ Hispanic/Multi-Racial)	4	27
Hispanic	2	13
African American	1	7
Native Hawaiian or Pacific Islander	1	7
<b>Religion</b>		
Non-religious (or spiritual)	3	20
Religious	11	73
Spiritual	1	7
<b>Education</b>		
Bachelor's degree	11	73
Master's degree	3	20
Associate degree	1	7
<b>Age Range</b>		
25 - 34	6	40
18 - 24	3	20
35 - 44	4	27
45 - 54	2	13
<b>Meditation Experience</b>		
Experience	9	60
No Experience	6	40

*Note.* Due to rounding errors, percentages may not equal 100%.

### Quantitative Data: Pre- and Post-Intervention ProQOL and MAAS Scores

For the ProQOL data set, each subscale score had different meanings. For example, higher scores on BO and STS equated to higher levels of BO and STS. However, the CS scale scores illustrated how well a participant was safeguarded from CF; the higher the score, the more

resilient to CF the participant was. For MAAS score, a higher value simply indicated a higher level of mindfulness.

A series of two-tailed, paired samples t-test was conducted to examine if the MBSR intervention affected the participants' mean numbers of ProQOL subscale scores and mindfulness scores at baseline and at the end of a six-week period. The null hypothesis was established as there would be no difference in the mean scores of compassion, BO, STS, and mindfulness scores after six weeks from the means of those scores at baseline. According to the alternative hypothesis, there was a significant difference in the mean scores after six weeks from the mean scores at baseline.

Prior to the analysis, the normality of distribution and homogeneity of variance were assessed using a series of Shapiro–Wilk tests and Levene's tests, respectively. The results of these tests suggested the possibility that the differences in the pre- and post-test scores were produced by a normal distribution with equal variances, and thus, all the assumptions about normality and homogeneity of variance were satisfied.

### *Compassion*

The result of the two-tailed paired samples t-test was significant according to an alpha value of 0.05,  $t(14) = -3.49$ ,  $p = .004$ , indicating that the null hypothesis can be rejected. This finding suggested that the difference in the mean values of pre- and post-test compassion was different from zero. The mean of pre-test compassion scores ( $M = 38.27$ ;  $SD = 5.68$ ) was lower than the mean of post-test compassion scores ( $M = 43.67$ ;  $SD = 3.81$ ). The results are summarized in Table 2.

***Burnout***

The result of the two-tailed paired samples t-test was significant according to an alpha value of 0.05,  $t(14) = 4.67$ ,  $p < .001$ , indicating that the null hypothesis can be rejected. This finding suggested that the difference in the mean values of pre- and post-test BO scores was significantly different from zero. The mean of pre-test BO scores ( $M = 25.67$ ;  $SD = 4.70$ ) was significantly higher than the mean of post-test BO scores ( $M = 20.53$ ;  $SD = 3.56$ ). The results are encapsulated in Table 2.

***Secondary Traumatic Stress Score***

The result of the two-tailed paired samples t-test was significant according to an alpha value of 0.05,  $t(14) = 3.03$ ,  $p = .009$ , indicating that the null hypothesis can be rejected. This finding suggested that the difference in the mean values of pre- and post-test STS scores was different from zero. The mean of pre-test STS scores ( $M = 26.73$ ;  $SD = 4.96$ ) was higher than the mean of post-test STS scores ( $M = 23.13$ ;  $SD = 5.45$ ). The results are summarized in Table 2.

***Mindful Attention Awareness Scale Score***

The result of the two-tailed paired samples t-test was significant according to an alpha value of 0.05,  $t(14) = -5.15$ ,  $p < .001$ , indicating that the null hypothesis can be rejected. This finding suggested that the difference in the mean values of pre- and post-test mindfulness scores was different from zero. The mean of pre-test mindfulness score ( $M = 3.35$ ;  $SD = 0.98$ ) was lower than the mean of post-test mindfulness scores ( $M = 4.41$ ;  $SD = 0.54$ ). The results are encapsulated in Table 2.

**Table 2***Comparison Results of Mean Scores on All Variables*

Variables	Pre-Intervention		Post-Intervention		<i>t</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Compassion	38.27	5.68	43.67	3.81	-3.49	0.004	0.90
Burnout	25.67	4.70	20.53	3.56	4.67	<0.001	1.21
STS	26.73	4.96	23.13	5.45	3.03	0.009	0.78
Mindfulness	3.3	0.98	4.41	0.54	-5.15	<0.001	1.33

*Note.* *N* = 15. Degrees of Freedom for the *t*-statistic = 14. *d* represents Cohen's *d*.

### **Qualitative Data: Participants' Experiences with Practice of Mindfulness**

The thematic analysis performed using the NVivo qualitative analysis program revealed that the participants adopted and applied multiple mindfulness practices, essentially breathing, stopping or pausing to charge, and body scanning because these short practices positively affected their work and life routines. The following five themes explained their experiences and overall perceptions.

#### ***A Journey of Empowerment***

This MBSR intervention enabled the participants to face their emotions and specify factors causing emotional stress. One of the participants affirmed, "I was able to self-identify some triggering events that stress me out." The training also allowed participants to manage and cope with stressful emotions using a wide range of coping strategies. Before the activity, some participants received medical treatment for anxiety. However, after the training, their go-to coping strategy was mindfulness practices, including breathing, body scanning, loving, kindness, stopping or pausing to recharge, and reducing doctor visits substantially. What followed was the expression of one participant, "I was able to take less of my anxiety medications and don't need to see my doctor as often – just to ask for happy pills." Most participants regarded their journey as "great," "good," and "helpful." Please see the word cloud illustrated in Figure 2.



**Figure 2***Participant's One-Word Description of Their Journey****Internal and External Challenges***

Most participants reported that they experienced no challenge. Some, however, confronted internal and external challenges influencing their ability to effectively apply and benefit from mindfulness practices. While internal challenges were inherent factors and within individuals' control, external challenges were beyond the participant's control.

***Lack of motivation:*** Some participants did not perform or allocate time to mindfulness practices. As one said, "On my day off, I can be unproductive and sleep all day."

***Lack of concentration:*** Some participants could not manage stressful emotions using mindfulness practices because of distractions, including excessive thoughts and overwhelming, negative emotions. One participant stated, "Unable to 100% concentrate at times. Excessive thoughts and feelings when practicing."

***Lack of understanding mindfulness skills:*** Some participants felt confused and could not select from a range of mindfulness exercises. As one participant stated, "We discussed many practices, and I don't know which to select."

***Time constraints:*** Time pressure was the fundamental challenge experienced by the participants. Despite their willingness, they lacked time to implement mindfulness practices. As seen in the statement given by one participant, "[I] don't have time to practice as much as I want."

***Work pressure:*** Workload and lack of management support resulted in participants losing control of their emotions at the workplace, and they were only able to gain composure after leaving work. As one participant noted, “Workplace culture, lack of support at work, stress me out, and sometimes mindfulness practices don't seem to work because I am so annoyed and irritated. It gets better when I get off work, though.”

### ***Living in The Moment***

The participants changed their attitudes toward their work and life routines. Before the training on meditation, some worked on an “autopilot” mode, but MBSR training changed it radically. When describing their experience, one participant said, “[I] live for the present, am not on autopilot mode often.”

The participants noted three important benefits from this change of attitude. First, they increased their awareness of their surroundings and paid more attention to details. As one participant said, “Be more mindful of things around me. Encouraged by being alive and well.” Second, their self-awareness substantially improved. The participants were readily able to identify life stressors and employed the learned tools to manage stressful emotions. As one participant suggested, “It is great for me to self-identify the trigger events; it helps me prevent myself going to those melt-down points by stopping myself from going down the spiral path.” Finally, their social awareness increased, and they became more open, mindful, and accommodating others’ feelings. As one participant stated, “[I’m] able to look into other's perspective, consider other's response and be mindful of other's feeling and reaction.” However, a few participants noted that they did not experience any changes in their routines after this MBSR intervention.

### *Temporary Benefits*

Although most participants practiced mindfulness and verified its benefits, some still endured personal and work-related stress and attributed it to workplace culture and workload. One participant said, “The workplace culture bogged me down. Peaceful after the exercises, but then, when I entered work, the anxiety, annoying, and stress resurfaced.” Additionally, a lack of management support caused stressful situations in the workplace. A participant confirmed, “Still quite a burnout/anxious at work. Potentially because of busy assignment, struggle with work duty, not receiving enough help at work.” Workload restricted the level of social interaction, implying a lack of social support. “[I] tend to withdraw from the social network due to overworking and being depressed after work.”

### *Providing Patient-Centered Care*

Prior to the training, the participants were on autopilot often; they also let personal and work-related stressors interfere with the quality of care they provided. After the intervention, they became more sympathetic, manifested empathy, listened better, were nonjudgmental, and were open to feedback. As one participant noted, “[I’m] more present with each patient instead of worrying too often about the tasks that need to be completed.” Another participant said, “[I’m] more thoughtful, listen to my patients more and consider their feelings, thoughts, and perspective when providing care.” This change in attitude enhanced the participants’ well-being, as they felt happier and experienced fewer episodes of frustration and anger. One participant claimed: “[I] slow down, so I can prevent medication and care errors.” It also increased the nurses’ sense of confidence. As one of them said, “I feel confident and more in control of my emotion now.”

## CHAPTER 4: DISCUSSION

### Major Highlights

As stated earlier, the objective of this project was to assess the feasibility of using an abbreviated MBSR program through a smartphone-based application to reduce fatigue, BO, and STS experienced by CVICU nurses working in high-stress environments. Overall, this project showed that MBSR was effective at reducing CF and cultivating nurses' emotional well-being. Based on the participants' reflection, this project, specifically the readings and guided meditations, enabled participants to be aware of their emotions and acknowledge the variables contributing to their emotional distress. Participants revealed a transformation in their attitudes as to their profession, workplace, and daily self-care routines. The attitude shift enriched the participants' emotional and physical well-being, as they felt optimistic and reported fewer episodes of impatience and exasperation at work and daily activities.

The project's findings also contribute to the existing body of evidence suggesting that MBSR through the mobile application is a feasible and cost-effective approach for nurses to combat CF and BO. A vast majority of mindfulness-related studies designed for healthcare professionals have revealed that the most effective interventions were brief and easily accessible (Howells et al., 2016; Gilmartin et al., 2017). Thus, *Insight Timer*, a mobile application, was this project's initiative to reach those effective characteristics: simplicity along with practical and realistic design for the busy CVICU nurses. Some participants found the application intuitive yet extremely convenient to use. They also appreciated the wide range of activities and guided exercises without requiring a subscription.

Prior to the intervention, the participants' ProQOL assessments showed that their scores were low to average on the BO and STS scale. Therefore, they were prone to CF, BO, and STS

(Cocker & Joss, 2016; Stamm, 2020). Nonetheless, the evidence gathered after the intervention indicated that, on average, participants' scores were lower on BO and STS scale and much higher on the compassion scale. These results validated a decreased risk for CF after the six-week MBSR intervention. Moreover, the mean mindfulness scores of all participants increased substantially after the MBSR training. Overall, the project's findings are congruous with the previous literature, showing that mindfulness-based activities have the potential as an additional tool that nurses could use to ease the symptom of fatigue and promote mindfulness and self-care strategies.

### **Limitations**

Even though this project achieved the above-mentioned desirable outcomes, it also presented some limitations. A small sample of 15 participants was used, and randomization or control groups were not utilized, suggesting that sample bias was possible and might hinder the generalizations of the findings. It was challenging to recruit for a sufficient sample size because of the six-week time commitment and a long list of participants' responsibilities, including readings, practicing exercises, and completing surveys. Future studies may use a pre-intervention design involving a larger sample size and randomization with control and experimental groups to guarantee the reliability and validity of the mindfulness intervention. Likewise, future studies may cover nurses and healthcare professionals of other clinical disciplines such as pediatric intensive care, oncology, emergency, and respiratory therapy because of the same pressures associated with ongoing high-risk patient management, treatments, and operations. Their inclusion would expand the purview of the study.

This project produced many desirable outcomes by utilizing an abbreviated MBSR program with a readily accessible mobile application. However, some studies have argued that

the traditional, in-person MBSR courses could contribute crucial advantages, including group collaboration, discussion, and face-to-face support among participants (Freedenberg et al., 2017; Best et al., 2020; Best, 2019). Nonetheless, the participants were only able to communicate via the *Insight Timer* group messaging or personal emails/ texts if they preferred to do so.

Furthermore, all meetings had to be virtual owing to the restrictions imposed because of COVID-19 pandemic. Therefore, there was no possible way of testing whether the results would have differed if the participants had enrolled in the conventional, in-person, eight-week MBSR program. Future research should compare the traditional in-person mindfulness program with the modified, abbreviated mindfulness program as developed for this project.

Another limitation is induced stress. With the COVID-19 pandemic as the backdrop, more nurses have reported increased pressure, anxiety, frustration, restlessness, and burnout (Malik et al., 2021). Hence, this MBSR program might unintentionally become an environmental stressor, as the participants needed to commit six weeks to it. It might be overwhelming to add yet another commitment to their to-do list, which could result in non-compliance and dropouts.

In the post-survey reflections, participants also stated that adhering to the mindfulness readings and exercises was challenging. Although all participants reported their compliance, many noted that constantly setting aside time for these practices was sometimes burdensome. Though they had the application installed on their mobile phones and could perform the guided practices at home, several nurses reported trouble managing their workloads and finding time for mindfulness practice. Likewise, many studies on the same subject have highlighted time constraints as the standard barrier to MBSR practices (Gilmartin et al., 2017; Mensah & Anderson, 2015). Hence, using any software or application that delivers automated text messages or reminders should be considered to overcome this issue. Another possible approach is

implementing a “buddy system” to encourage each other in the exercise of mindfulness (Bronson, 2017). This strategy may help with reminders to help participants attain goals and promote more consistent practices (Brawley et al., 2000).

Another potential barrier that could lessen the project’s benefit was the pre-exposure, pre-knowledge, or the pre-intervention expectation. The participants were provided with information modules, weekly educational newsletters, and informative readings to better acquaint and engage them with mindfulness practices. Because of these resources, participants’ preexisting knowledge of the mindfulness benefits may have influenced their responses consciously or subconsciously to show a “positive, socially desired” effect of MBSR on BO, stress, and mindfulness (Fastame & Penna, 2012; Best et al., 2020). Therefore, this bias may have affected their pre-and post-intervention scores. Future studies may amass data more objectively, going beyond self-report and assessing the respondents’ social desirability using relevant techniques to minimize bias and socially desirable effects (Fastame & Penna, 2012).

## CHAPTER 5: RECOMMENDATION FOR PRACTICES AND CONCLUSION

### Recommendation

The findings of this project are remarkable and meaningful for the upper management and leadership, as the organization makes the pledge to contribute to a culture of teamwork, support, and trust. This DNP project has contributed to the growth of evidence indicating that this abbreviated MBSR intervention is an effective instrument for achieving this culture shift by providing a low-cost, practicable method for improving the facility's nursing workforce performance and well-being. However, as with many other initiatives in healthcare, implementing mindfulness practice is bound to encounter barriers.

Institutional support for the mindfulness curriculum will be critical to the intervention's success. Ideally, introducing any form of change in an organization, such as "promoting a culture of innovation" can be one of the biggest opportunities or challenges for the organization. Leadership instability and dynamism are likely to give rise to challenges in implementing changes, as the leaders are the most influential figures in initiating and implementing changes (Denis et al., 2001). Healthcare administrators may not focus on the healthcare workers' individual needs in the presence of many other ongoing issues such as limiting medical supplies and lack of staffing and funding, especially during the pandemic. However, given the improvements in mindfulness, compassion, BO, and stress level, it is proposed that this MBSR and other mindfulness interventions be widely introduced and incorporated house-wide. Middle and upper management should be informed and fully educated about the detrimental effects of CF on both employees and the patients (Cimiotti et al., 2012; Garrett, 2008; McHugh et al., 2011). Ultimately, the management team will need to realize that MBSR can be an effective tool



to adopt, as they continue with the endeavor to make the best working environment it can be—including all the complex variables that make up the dynamic culture of the organization.

Mindfulness can be introduced into the existing nursing professional development curriculum. These opportunities will involve unit-based teaching and practice, both of which should be guided by certified stress management experts or educators. As mindfulness mobile applications have been demonstrated to be an innovative gateway for nurses to practice self-care, any facility-approved mindfulness application can be made available and installed on the nurses' work phones so they can practice at their own convenience (Brawley et al., 2000).

Further research into the benefits of MBSR for practicing nurses, as well as the impact on patient care and finance, may provide justification for workplace policy changes that contribute to MBSR being routinely offered to nurses (Smith, 2014). Hence, a possible next step in evaluating MBSR will be to conduct a comprehensive, randomized- controlled study with a larger sample and the addition of a fiscal analysis of the intervention cost ( Slatyer et al.,2018). Additionally, possible studies should poll and incorporate patient-reported outcomes such as satisfaction and quality of care to assess the quality of nursing care provided following the intervention (Montgomery et al., 2020). The nurse turnover rate, tardiness, and absenteeism may be used to measure if the proposed intervention is effective in reducing their stress and compassion levels, as often increased absenteeism, lateness, and cynical attitude are the first signs of CF at the workplace (Van Mol et al., 2015).

### **Effect of COVID-19 on Mental Health**

Healthcare workers, especially nurses, are tired and burned out after months of working during the pandemic. Setting up mental health support is important, but this initiative may not work if the nurses are not fully supported financially and socially. Therefore, it is important for

the facility to offer fair compensation and a regular work schedule that can allow the nurses to rest and spend time with their families, increasing their productivity at work and helping them serve more patients with quality and safety (Heesakkers et al., 2021).

Doctorally-prepared nurses and educators are ideal candidates to improve healthcare, adopt evidence-based practices, and promote change (Agger et al., 2017). Mental health and burnout, further magnified by the pandemic are issues that require a comprehensive public understanding, including universal screening emphasizing equity and de-stigmatization (Im & Swan, 2021). Additionally, priorities include developing targeted public health campaigns to normalize universal mental health screening for distress, CF, and depression and emphasizing the critical role of self-care for healthcare personnel during a pandemic. Organizations should spend resources to develop evidence-based mental health interventions, such as employer-based training and programs, to address CF, BO, and distress.

## **Conclusion**

Focusing on creating a healthy work culture for all the healthcare workers and shared governance for improving and cultivating a healthy work environment will allow healthcare organizations to deliver outstanding patient-centered care through compassion, safety, and excellence. It is well known that nurses are the building blocks of our healthcare system, and thus, their interests and welfare should be prioritized. Using Watson's theory of human caring, this DNP project accomplished the IHI's fourth initiative aim of addressing CF-related symptoms, enhancing work-life balance, and increasing participants' resilience. Importantly, this abbreviated MBSR curriculum demonstrated an innovative but practical, low-cost, readily accessible, and self-paced platform through a mobile application that has been shown to help busy CVICU nurses.

Although this QI pilot project had major limitations and was not intended to be generalizable to other populations, the measured findings are consistent with other notable studies. In the end, the outcomes of this DNP project are critical for both the nursing workforce and the leadership of the organization selected. Interventions to enhance teamwork and increase personal self-care mannerisms would be highly beneficial for the CVICU nurses. Understanding the workplace cultures and creating resources that support the nurses' well-being and professional development may potentially minimize the CF symptoms to keep the nurses objective, refreshed, focused, and committed to their discourses.

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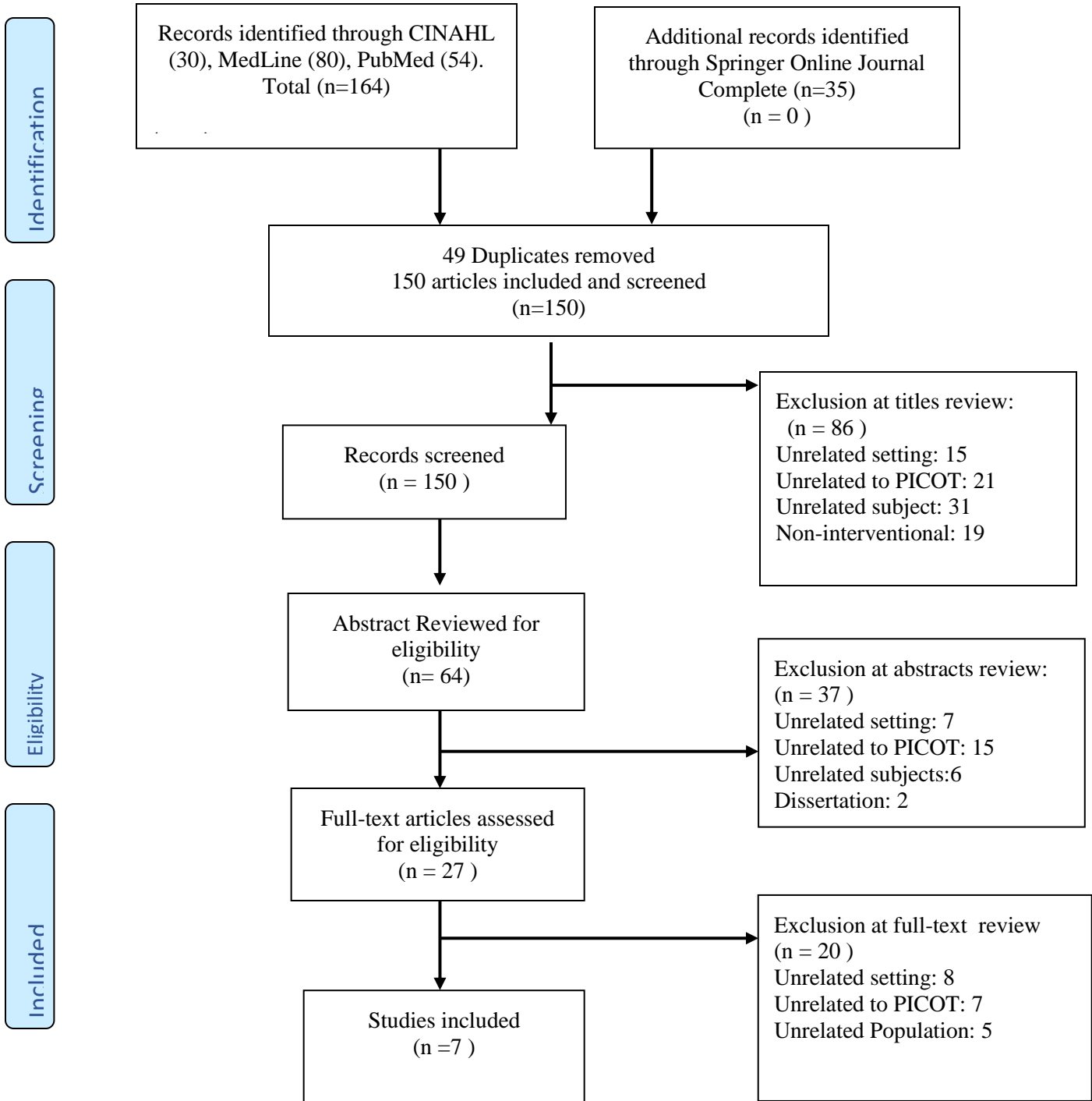
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Appendix A

Prisma Flow Diagram



Adapted from: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

## Appendix B

### DNP Project Recruitment Templates

Dear CV Heart Heroes:

This is Kendy, one of the night shift nurses in the CVICU if you don't know me. I am currently attending San Jose State University to earn my DNP. As a requirement for my degree, I am planning to conduct a quality improvement project on the unit, and would like to ask for your participation.

I would like to cordially invite you to participate in my QI project using mindfulness-based stress reduction (MBSR) through the smartphone-based application called *Insight Timer* to alleviate the symptoms of compassion fatigue and burnout. This project is only for six weeks, based on the well-known MBSR program created by Dr. Jon Kabat Zinn in the 1970s.

You will be requested to practice many exercises using the *Insight Timer* application for 15 + minutes a day, at least three times a week, for six weeks. You will also be asked to anonymously complete one survey at start point and two surveys at the end. All surveys will be done online through electronic survey links. The total estimated time that you will actively spend on QI project will be between 5-10 hours.

Each week, one informational module with relevant readings and instructions will be made available online through the Google Site link:

<https://sites.google.com/sjsu.edu/mindfulnesshub/about?authuser=1>, so you can assess them at your convenience.

As a token of my appreciation, you will be incentivized with a \$15 Starbucks eGiftcard upon completion of all components of the project. Once the project ends, you will be prompted to submit your email address in a raffle to win a \$100 Apple gift card.

If you are interested in being a part of this mindfulness journey, or just even want to know more about this project, please email me, or sign up to participate using this link:

[https://sjsu.qualtrics.com/jfe/form/SV\\_cYEYBvysS2TuGeW](https://sjsu.qualtrics.com/jfe/form/SV_cYEYBvysS2TuGeW)

Should there be any questions or concerns, please reach out to me at [quyen.x.luu@sjsu.edu](mailto:quyen.x.luu@sjsu.edu). I am looking forward to experiencing this journey to mindfulness with you.

Thank you for reading! Please take care of yourself and each other!

Kendy

### Conclusion and Surveys

Dear CV Heart Heroes:

I would like to briefly check in with you once last time as our mindfulness project is reaching its final point.

Once again, thank you so very much for taking your time to participate in this project. Over the past six weeks, we have together been introduced to a variety of mindfulness practices. Below are a few questions that I would like you to reflect upon so that you can assess your current state of mindfulness, burnout, and fatigue.

[https://sjsu.qualtrics.com/jfe/form/SV\\_dcfY76swjWEsIdg](https://sjsu.qualtrics.com/jfe/form/SV_dcfY76swjWEsIdg)

Taking time to complete these surveys and reflection questions will help you to notice and appreciate any changes (either positive or negative) that may have resulted from these mindfulness exercises. All these questions should take less than 15 minutes to complete. Your responses will remain anonymous. Should you have any questions or concerns regarding these questions, please contact me at [quyen.x.luu@sjsu.edu](mailto:quyen.x.luu@sjsu.edu).

Please take care of yourself and each other!

Kendy

**Appendix C**

## Damrosch's Self- Generated Codes for Surveys and Demographic Questionnaire

[https://sjsu.qualtrics.com/jfe/form/SV\\_cYEEYBvysS2TuGeW](https://sjsu.qualtrics.com/jfe/form/SV_cYEEYBvysS2TuGeW)

1. Please enter the FIRST letter of your mother's maiden name: \_\_\_\_\_
2. Please enter the FIRST letter of your father's first name: \_\_\_\_\_
3. How many siblings do you have? \_\_\_\_\_
4. What month ( in number) were you born? \_\_\_\_\_

This is your anonymity code \_\_\_\_\_

1. Enter the initial of your first and last name, or your anonymity code. \_\_\_\_\_
2. What is your age?
3. Indicate your gender?
4. Select your race/ethnicity?
5. Your relationship status?
6. Do you have children?
7. What is your highest level of education? ( ADN/ BSN/MSN/post Master's/DNP)
8. How many hours a week do you work?
9. What is your religious status?
10. Have you utilized any mindfulness practices or meditation?

## Appendix D

### Professional Quality of Life Scale

#### COMPASSION SATISFACTION AND COMPASSION FATIGUE (PROQOL) VERSION 5 (2009)

**1=Never**

**2=Rarely**

**3=Sometimes**

**4=Often**

**5=Very Often**

When you [help] people you have direct contact with their lives. As you may have found, your compassion for those you [help] can affect you in positive and negative ways. Below are some questions about your experiences, both positive and negative, as a [helper]. Consider each of the following questions about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the last 30 days.

1. I am happy.
2. I am preoccupied with more than one person I [help].
3. I get satisfaction from being able to [help] people.
4. I feel connected to others.
5. I jump or am startled by unexpected sounds.
6. I feel invigorated after working with those I [help].
7. I find it difficult to separate my personal life from my life as a [helper].
8. I am not as productive at work because I am losing sleep over traumatic experiences of a person I [help].
9. I think that I might have been affected by the traumatic stress of those I [help].
10. I feel trapped by my job as a [helper].
11. Because of my [helping], I have felt "on edge" about various things.
12. I like my work as a [helper].
13. I feel depressed because of the traumatic experiences of the people I [help].
14. I feel as though I am experiencing the trauma of someone I have [helped].
15. I have beliefs that sustain me.
16. I am pleased with how I am able to keep up with [helping] techniques and protocols.
17. I am the person I always wanted to be.
18. My work makes me feel satisfied.
19. I feel worn out because of my work as a [helper].
20. I have happy thoughts and feelings about those I [help] and how I could help them.
21. I feel overwhelmed because my case [work] load seems endless.
22. I believe I can make a difference through my work.
23. I avoid certain activities or situations because they remind me of frightening experiences of the people I [help].
24. I am proud of what I can do to [help].
25. As a result of my [helping], I have intrusive, frightening thoughts.

- 
26. I feel "bogged down" by the system.
27. I have thoughts that I am a "success" as a *[helper]*.
28. I can't recall important parts of my work with trauma victims.
29. I am a very caring person.
- 
30. I am happy that I chose to do this work.

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**YOUR SCORES ON THE PROQOL: PROFESSIONAL QUALITY OF LIFE SCREENING**

Based on your responses, place your personal scores below. If you have any concerns, you should discuss them with a physical or mental health care professional.

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**Compassion Satisfaction \_\_\_\_\_**

Compassion satisfaction is about the pleasure you derive from being able to do your work well. For example, you may feel like it is a pleasure to help others through your work. You may feel positively about your colleagues or your ability to contribute to the work setting or even the greater good of society. Higher scores on this scale represent a greater satisfaction related to your ability to be an effective caregiver in your job.

The average score is 50 (SD 10; alpha scale reliability .88). About 25% of people score higher than 57 and about 25% of people score below 43. If you are in the higher range, you probably derive a good deal of professional satisfaction from your position. If your scores are below 40, you may either find problems with your job, or there may be some other reason—for example, you might derive your satisfaction from activities other than your job.

---

**Burnout \_\_\_\_\_**

Most people have an intuitive idea of what burnout is. From the research perspective, burnout is one of the elements of Compassion Fatigue (CF). It is associated with feelings of hopelessness and difficulties in dealing with work or in doing your job effectively. These negative feelings usually have a gradual onset. They can reflect the feeling that your efforts make no difference, or they can be associated with a very high workload or a non-supportive work environment. Higher scores on this scale mean that you are at higher risk for burnout.

The average score on the burnout scale is 50 (SD 10; alpha scale reliability .75). About 25% of people score above 57 and about 25% of people score below 43. If your score is below 43, this probably reflects positive feelings about your ability to be effective in your work. If you score above 57 you may wish to think about what at work makes you feel like you are not effective in your position. Your score may reflect your mood; perhaps you were having a "bad day" or are in need of some time off. If the high score persists or if it is reflective of other worries, it may be a cause for concern.

---

**Secondary Traumatic Stress \_\_\_\_\_**

The second component of Compassion Fatigue (CF) is secondary traumatic stress (STS). It is about your work related, secondary exposure to extremely or traumatically stressful events. Developing problems due to exposure to other's trauma is somewhat rare but does happen to many people who care for those who have experienced extremely or traumatically stressful events. For example, you may repeatedly hear stories about the traumatic things that happen to other people, commonly called Vicarious Traumatization. If your work puts you directly in the path of danger, for example, field work in a war or area of civil violence, this is not secondary exposure; your exposure is primary. However, if you are exposed to others' traumatic events as a result of your work, for example, as a therapist or an emergency worker, this is secondary exposure. The symptoms of STS are usually rapid in onset and associated with a particular event. They may include being afraid, having difficulty sleeping, having images of the upsetting event pop into your mind, or avoiding things that remind you of the event.

The average score on this scale is 50 (SD 10; alpha scale reliability .81). About 25% of people score below 43 and about 25% of people score above 57. If your score is above 57, you may want to take some time to think about what at work maybe frightening to you or if there is some other reason for the elevated score. While higher scores do not mean that you do have a problem, they are an indication that you may want to examine how you feel about your work and your work environment. You may wish to discuss this with your supervisor, a colleague, or a health care professional.

© B. Hudnall Stamm, 2009-2012. *Professional Quality of Life: Compassion Satisfaction and Fatigue Version 5 (ProQOL)*. [www.proqol.org](http://www.proqol.org). This test may be freely copied as long as (a) author is credited, (b) no changes are made, and (c) it is not sold. Those interested in using the test should visit [www.proqol.org](http://www.proqol.org) to verify that the copy they are using is the most current version of the test. 2



# IMPACT OF MINDFULNESS PRACTICES ON COMPASSION FATIGUE

## WHAT IS MY SCORE AND WHAT DOES IT MEAN?

In this section, you will score your test so you understand the interpretation for you. To find your score on each section, total the questions listed on the left and then find your score in the table on the right of the section.

### Compassion Satisfaction Scale

Copy your rating on each of these questions on to this table and add them up. When you have added then up you can find your score on the table to the right.

- 3. \_\_\_
- 6. \_\_\_
- 12. \_\_\_
- 16. \_\_\_
- 18. \_\_\_
- 20. \_\_\_
- 22. \_\_\_
- 24. \_\_\_
- 27. \_\_\_
- 30. \_\_\_

The sum of my Compassion Satisfaction questions is	So My Score Equals	And my Compassion Satisfaction level is
22 or less	43 or less	Low
Between 23 and 41	Around 50	Average
42 or more	57 or more	High

Total: \_\_\_\_\_

### Burnout Scale

On the burnout scale you will need to take an extra step. Starred items are "reverse scored." If you scored the item 1, write a 5 beside it. The reason we ask you to reverse the scores is because scientifically the measure works better when these questions are asked in a positive way though they can tell us more about their negative form. For example, question 1. "I am happy" tells us more about

You Wrote	Change to
	5
2	4
3	3
4	2
5	1

the effects of helping when you are *not* happy so you reverse the score

- \*1. \_\_\_ =
- \*4. \_\_\_ =
- 8. \_\_\_
- 10. \_\_\_
- \*15. \_\_\_ =
- \*17. \_\_\_ =
- 19. \_\_\_
- 21. \_\_\_
- 26. \_\_\_
- \*29. \_\_\_ =

The sum of my Burnout Questions is	So my score equals	And my Burnout level is
22 or less	43 or less	Low
Between 23 and 41	Around 50	Average
42 or more	57 or more	High

Total: \_\_\_\_\_

### Secondary Traumatic Stress Scale

Just like you did on Compassion Satisfaction, copy your rating on each of these questions on to this table and add them up. When you have added then up you can find your score on the table to the right.

- 2. \_\_\_
- 5. \_\_\_
- 7. \_\_\_
- 9. \_\_\_
- 11. \_\_\_
- 13. \_\_\_
- 14. \_\_\_
- 23. \_\_\_
- 25. \_\_\_
- 28. \_\_\_

The sum of my Secondary Trauma questions is	So My Score Equals	And my Secondary Traumatic Stress level is
22 or less	43 or less	Low
Between 23 and 41	Around 50	Average
42 or more	57 or more	High

Total: \_\_\_\_\_

## Permission to Use the ProQOL

3/25/22, 1:37 PM

SJSU Mail - Permission to Use ProQOL



Kendy Luu &lt;quyen.x.luu@sjsu.edu&gt;

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**Permission to Use ProQOL**

---

**ProQOL Office** <noreply@surveygizmo.com>  
Reply-To: ProQOL Office <proqol@cvt.org>  
To: quyen.x.luu@sjsu.edu

Wed, Apr 7, 2021 at 1:07 PM

Thank you for your interest in the ProQOL.

The ProQOL measure may be freely copied and used, without individualized permission from the ProQOL office, as long as:

- (a) You credit The Center for Victims of Torture and provide a link to [www.ProQOL.org](http://www.ProQOL.org);
- (b) It is not sold; and
- (c) No changes are made, other than creating or using a translation, and/or replacing "[helper]" with a more specific term such as "nurse."

Because you have agreed that your use of the ProQOL follows the above criteria, the ProQOL Office at the Center for Victims of Torture grants you permission to use the ProQOL. Your recorded request is attached here as a PDF.

If you have any questions or comments, you can contact us at [proqol@cvt.org](mailto:proqol@cvt.org). Note that unfortunately our capacity is quite limited, as this is a volunteer-run effort, but we will do what we can to respond within a couple of weeks.

Thank you!

The ProQOL Office  
at The Center for Victims of Torture  
[proqol@cvt.org](mailto:proqol@cvt.org)

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 **PermissionToUseProQOL.pdf**  
18K

**Appendix E**

The Mindful Attention Awareness Scale (MAAS)

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what really reflects your experience rather than what you think your experience should be. Please treat each item separately from every other item.

1	2	3	4	5	6
almost always	very frequently	somewhat frequently	somewhat infrequently	very infrequently	almost never

- \_\_\_\_\_ 1. I could be experiencing some emotion and not be conscious of it until sometime later.
- \_\_\_\_\_ 2. I break or spill things because of carelessness, not paying attention, or thinking of something else.
- \_\_\_\_\_ 3. I find it difficult to stay focused on what's happening in the present.
- \_\_\_\_\_ 4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.
- \_\_\_\_\_ 5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention.
- \_\_\_\_\_ 6. I forget a person's name almost as soon as I've been told it for the first time.
- \_\_\_\_\_ 7. It seems I am "running on automatic," without much awareness of what I'm doing.
- \_\_\_\_\_ 8. I rush through activities without being really attentive to them.
- \_\_\_\_\_ 9. I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.
- \_\_\_\_\_ 10. I do jobs or tasks automatically, without being aware of what I'm doing.
- \_\_\_\_\_ 11. I find myself listening to someone with one ear, doing something else at the same time.
- \_\_\_\_\_ 12. I drive places on 'automatic pilot' and then wonder why I went there.
- \_\_\_\_\_ 13. I find myself preoccupied with the future or the past.
- \_\_\_\_\_ 14. I find myself doing things without paying attention.
- \_\_\_\_\_ 15. I snack without being aware that I'm eating.

Scoring: To score the scale, simply compute a mean (average) of the 15 items.

Permission to Use the MAAS

3/25/22, 1:41 PM

SJSU Mail - Permission to use MAAS for DNP project



Kendy Luu <quyen.x.luu@sjsu.edu>

**Permission to use MAAS for DNP project**

2 messages

**Kendy Luu** <quyen.x.luu@sjsu.edu>  
 To: kwbrown@vcu.edu

Thu, Feb 25, 2021 at 3:40 PM

Dear Dr. Brown,  
 I am writing to respectfully ask for your permission to use the Mindful Attention Awareness Scale MAAS for my Doctor of Nursing Practice (/ DNP) project with the San Jose State University.

My purpose statement for my DNP project:  
 The purpose of my pilot project is determine the impact of a six weeks Mindfulness-based Stress Reduction ( MBSR) program utilizing a mobile application and web-based tools on symptoms of compassion fatigue in pediatric critical care nurses at a level 1 trauma center.

Please let me know if you have further questions or concerns. I am looking forward to hearing from you.

Kind Regards

--  
 (Kendy) Q. Luu, MSN, RN.

**Kirk Warren Brown** <kwbrown@vcu.edu>  
 To: Kendy Luu <quyen.x.luu@sjsu.edu>

Fri, Feb 26, 2021 at 6:00 AM

hi Kendy,

Yes you are welcome to use the MAAS for your study. You can find the scale, along with background normative and other information, on the 'Lab > Tools for Researchers' page of my Lab website, the link for which is below. The 'Publications' page has papers related to the validation of the MAAS. See especially Brown and Ryan (2003).

All the best with your research,

Kirk

-----  
 Kirk Warren Brown PhD  
 Associate Professor • Social Psychology and Health Psychology  
 Director • COBE Contemplative Science and Education Core  
 Department of Psychology • Virginia Commonwealth University  
 806 West Franklin Street • Richmond, VA 23284-2018  
 T 804.828.6754 F 804.828.2237  
 WellbeingLab

Senior Editor, *Oxford Handbook of Hypo-egoic Phenomena* (2016). Oxford U Press.  
 Senior Editor, *Handbook of Mindfulness* (2015). Guilford Press.  
 Academic Editor, PLOS ONE

Pronouns: he/him/his

Kirk

## Appendix F

### Permission for Palouse Mindfulness Worksheet



December 12, 2021

To whom it may concern:

You are welcome to use whatever you find on the [palousemindfulness.com](http://palousemindfulness.com) site, free of charge, for your own work, writing, research, or teaching, with the following conditions:

All of the primary documents which are authored by me are on the site as PDF documents, and may be copied. You are also free to modify any of the documents authored by me (worksheets, practice sheets, etc.). Almost all of the documents have WORD versions as well as PDF versions, and you can access the WORD version by taking the document url and changing the extension from "pdf" to "docx" (e.g., *STOP.pdf* becomes *STOP.docx*).

If you do use Palouse Mindfulness materials, I ask two things:

- (1) Don't just duplicate the course on your own site. You can link to any part of the site or to the entire site, but don't copy the contents somewhere else. If you want to link to the course or any part of it from your own site, that's fine, but if you want to make the course as a whole available to people, send them directly to [palousemindfulness.com](http://palousemindfulness.com). This ensures the integrity of the course and that the latest version of the materials is available.
- (2) Let people know the source of the materials you use is [palousemindfulness.com](http://palousemindfulness.com), and that everything there is available at no cost, so there is transparency about the source and so that they can know there is more material there for them to access.

Keep in mind that the permissions I have been given to use videos and written material created by other teachers was given to me only in the context of the Palouse Mindfulness course. If you use any of these materials, the original url links, as used in the Palouse Mindfulness course, must be used rather than copying the material to a different site. That is, if you wish to use a YouTube video or a document written by someone other than me, you don't have permission to copy the content itself to another website, without permission from the original author and/or publisher. On the other hand, anything written or produced by me personally can be copied or modified freely as long as it is credited to the source, [palousemindfulness.com](http://palousemindfulness.com).

With these conditions in mind, if part of the use of these materials is for the teaching of an in-person mindfulness course based on [palousemindfulness.com](http://palousemindfulness.com), it's fine with me for you to charge a fee to cover your costs and to compensate you for your time and effort.

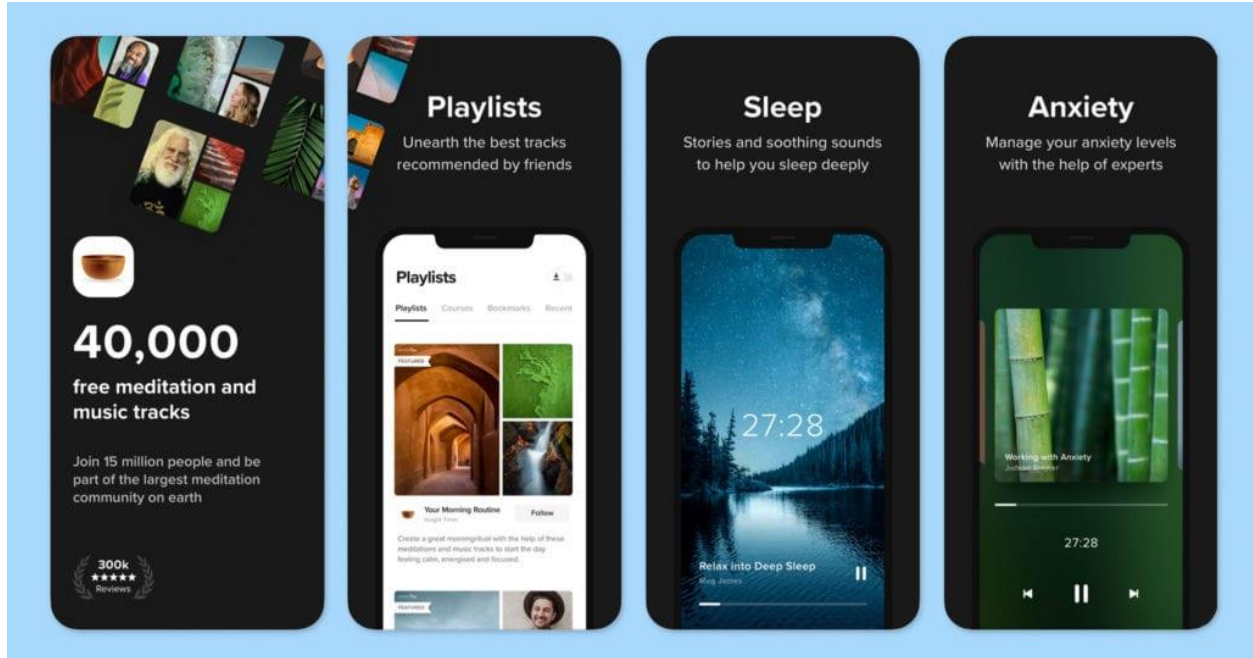
Dave Potter (founder of Palouse Mindfulness)

**Appendix G**

Project Timeline Table and Insight Timer Website

Module	PI's Activities	Expected Hours	Participants' activities
1	<ul style="list-style-type: none"> <li>-Overview of the project</li> <li>-Consent forms</li> <li>-Introduction to the Google Site and <i>Insight Timer</i> application</li> <li>-Pre-survey ProQOL</li> <li>-Pre-survey MAAS</li> <li>-Demographic surveys</li> <li>-Damrosch's self-generated code sheet for anonymity</li> </ul>	At least 30 to 60 minutes for the reading and navigating through the mobile application	<ul style="list-style-type: none"> <li>-Participants will access the Google Site and become familiar with the project's components</li> <li>-Participants will complete pre-intervention surveys</li> </ul>
2	<ul style="list-style-type: none"> <li>-PL will upload the weekly readings and mediation materials</li> </ul>	At least 45 to 60 minutes this week	<ul style="list-style-type: none"> <li>-Participants will perform 15–20 minutes of mindfulness practice three times per week</li> </ul>
3	<ul style="list-style-type: none"> <li>-PL will upload the weekly readings and mediation materials</li> </ul>	At least 45 to 60 minutes this week	<ul style="list-style-type: none"> <li>-Participants will perform 15–20 minutes of mindfulness practice three times per week</li> </ul>
4	<ul style="list-style-type: none"> <li>-PL will upload the weekly readings and mediation materials</li> <li>-PL will check-in through emails</li> </ul>	At least 45 to 60 minutes this week	<ul style="list-style-type: none"> <li>-Participants will perform 15–20 minutes of mindfulness practice three times per week</li> </ul>
5	<ul style="list-style-type: none"> <li>-PL will upload the weekly readings and mediation materials</li> </ul>	At least 45 to 60 minutes this week	<ul style="list-style-type: none"> <li>-Participants will perform 15–20 minutes of mindfulness practice three times per week</li> </ul>
6	<ul style="list-style-type: none"> <li>-PL will conduct the final check-in and provide the post-intervention surveys</li> <li>-Post-survey: ProQOL</li> <li>-Post-survey: MAAS</li> <li>-Program is concluded</li> </ul>	At least 30 minutes; each survey will take 5 to 15 minutes to complete	<ul style="list-style-type: none"> <li>-Participants will complete post-surveys</li> </ul>

Insight Timer Website



## Appendix H

### Institutional Review Board’s Documentation

Protocol # 62084 ( New )  
 PD: Kandy Quyen Xuan Luu  
 Review Type: HSR  
 Medical

PROTOCOL  
 APPLICATION FORM  
 Human Subjects Research  
 Stanford University

Title : Impact of Mindfulness Practices on Compassion Fatigue in Cardiovascular Critical Care Nurses: A Pilot Study  
 Approval Period: .

- Funding - Fellowships**
- Gift Funding**
- Dept. Funding**
- Other Funding**

**1. Title**

Impact of Mindfulness Practices on Compassion Fatigue in Cardiovascular Critical Care Nurses: A Pilot Study

**2. Attachments**

Attachment Name	Attached Date	Attached By	Submitted Date
ProQOL	07/04/2021	keluu	
The_Mindful_Attention_Awareness_Scale_-_Trait_(1)	07/04/2021	keluu	
MAAS - Permission to use MAAS for DNP project	07/04/2021	keluu	
PermissionToUseProQOL	07/04/2021	keluu	
HSR Determination Form	07/04/2021	keluu	

**IRB Notes to Researcher:**

If the project evolves to include potentially generalizable knowledge, please check back in with us for an updated assessment.

**IRB Responses:**

**Yes/No**

- Based on the information provided in this application, the IRB has determined that this project does not meet the definition of research as defined in 45 CFR 46.102(d), nor the definition of clinical investigation as defined in 21 CFR 50.3(c)

Y
- Based on the information provided in this application, the IRB has determined that this research does not involve human subjects as defined in 45 CFR 46.102(f) or 21 CFR 50.3(g).

N



**HSR Form Processed 62084, Kendy Quyen Xuan Luu**

**irbeducation@stanford.edu <irbeducation@stanford.edu>**

Fri 7/30/2021 1:37 PM

To: Luu, (Kendy) Quyen <KeLuu@stanfordchildrens.org>

Protocol Number: 62084 (NEW)

Review Type: HSR

Protocol Director: Luu

Department: IT Services

Protocol Title: Impact of Mindfulness Practices on Compassion Fatigue in Cardiovascular Critical Care Nurses: A Pilot Study

Thank you for your submission. On the basis of the information provided, the IRB has determined that this project does not meet the definition of human subject research as defined in federal regulations 45 CFR 46.102 or 21 CFR 50.3. No further IRB review is required. Please see your HSR application form in eProtocol for the completed determination and any additional instructions.

To do so, go to 'My Dashboard' and select 'Non-Active Protocols'. Open the protocol number in question. Click the bottom left red tab, "Print View" for a PDF of the HSR application - the HSR determination will be on page 2.

Thank you,

Dianne M. Ferris

IRB 98 Manager

email: irbeducation@stanford.edu

phone: (650) 723-6900

DocuSign Envelope ID: C6DE819D-5B35-4A19-9F3F-CD9E580D4C9F

**SJSU IRB Exclusion Decision Tool: Does My Project Need IRB Review?**

**Instructions:** Use this decision tool to determine whether a complete application needs to be submitted for your proposed project to the Institutional Review Board. This worksheet is designed to help investigators find out whether their project constitutes human subjects research, according to the definitions provided by [the federal regulations](#) for the protection of human subjects. This worksheet is NOT designed to determine whether a research project involving human subjects is exempt. [Exclusion and Exemption are not the same thing](#). Please fill out the information in the exact prescribed order to ensure accuracy.

**Students:** Complete this worksheet in the exact prescribed order with your faculty supervisor.

**All:** Retain this worksheet for your records. A copy of this worksheet does not need to be submitted to the IRB office. IRB office staff will not confirm your decision.

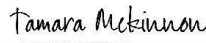
Kendy Quyen Luu

Completed By: \_\_\_\_\_

8/4/2021

Date: \_\_\_\_\_

Signature of Faculty Supervisor (if applicable): \_\_\_\_\_

DocuSigned by:  
  
E48D98EE9B264DF...

8/4/2021

Date: \_\_\_\_\_

Project Title: Impact of Mindfulness Practices on Compassion Fatigue in Pediatric Cardiovascular Critical Care Nurses: A Pilot Study

**Does It Meet the Federal Definition of "Research"?**

**1. Is your project a *systematic investigation*, including research development, testing, and evaluation?**

A ***systematic investigation*** refers to a strategy of study involving a methodical procedure or plan that is theoretically grounded, specifies a focused and well-defined research problem or question, is informed by the empirical findings of others, is analytically robust, and provides a detailed and complete description of data collection methods. A study that is systematic allows conclusions to be drawn from the results. Although some qualitative research projects may not have specific aims or hypotheses at the outset, these may still be systematic investigations if their purpose is to compare results to other assessments or to draw conclusions.

Yes, or Not Sure? Continue to question #2.

No → STOP. Submission of an IRB application is not required even if you answer yes to

DocuSign Envelope ID: C6DE819D-5B35-4A19-9F3F-CD9E580D4C9F

the questions on the remainder of the worksheet. Projects that are not systematic investigations do not meet the federal regulatory criteria for oversight. **However, please read the section below “Not Human Subjects Research: Additional Information and Restrictions” prior to beginning your project.**

**2. Is the project designed to develop or contribute to *generalizable knowledge*?**

**Generalizable knowledge** means a set of conclusions, facts, or principles that enhances scientific or academic understanding by applying broadly to a whole category, such as a population or field of knowledge. Generalizable knowledge is produced when investigators make the components of their research design and the analyzed findings available to other professionals or academics. Traditionally this occurs when publishing or presenting at a professionally refereed venue, conference, or competition, but it may also occur through new media methods of discourse. In qualitative research, generalizable knowledge may emerge when the research generates detailed descriptions of phenomena which may be transferable to like situations or when new theories, principles, or statements of relationships are developed as a result of the data collection. The SJSU Office of Research considers master's theses and dissertations to be works that contribute to generalizable knowledge. However, projects which are disseminated exclusively at SJSU and are not intended for dissemination beyond the instructional setting are *typically* not designed to contribute to generalizable knowledge. Likewise, research projects which are designed as common biographical research, oral histories, and journalism are *typically* not designed as a systematic investigation to contribute to generalizable knowledge. The purpose of these activities is often to create a record of specific historical events or persons, and findings are usually not generalized to a broader population or group.

Yes, or Not Sure? Continue to question #3.

No → STOP. Submission of an IRB application is not required even if you answer yes to the questions on the remainder of the worksheet. Projects that are not designed to develop or contribute to generalizable knowledge do not meet the federal regulatory criteria for oversight. **However, please read the section below “Not Human Subjects Research: Additional Information and Restrictions” prior to beginning your project.**

**Does It Involve "Human Subjects"?**

**3. Will the research involve *interaction* or *intervention* with living individuals or the collection of *individually identifiable private information*?**

**Interaction** includes communication or interpersonal contact between the investigator and the subject that solicits information about the individual. Examples of interaction may include collecting personal data through questionnaires, interviews, tests, and performance evaluations. Examples of personal information include opinions, thoughts, perceptions,