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Mindfulness Sessions For The Prevention of Compassion Fatigue in Pediatric Oncology Nurses

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By

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ABSTRACT

MINDFULNESS SESSIONS FOR THE PREVENTION OF COMPASSION FATIGUE IN PEDIATRIC ONCOLOGY NURSES

Over the last several years, compassion fatigue (CF) has been considered one of the main reasons that nurses choose to leave the bedside and the profession. While many healthcare organizations recognize the problems that are associated with CF, only a few have worked towards preventing it. An intervention that has shown promise of aiding nurses with CF is mindfulness. The purpose of this quantitative pretest-posttest design was to focus on the effects of the Koru® Mindfulness program with CF and resilience in pediatric oncology nurses. Data collected from the Professional Quality of Life (ProQOL) v.5 and the Brief Resilience Scale distributed to a convenience sample of pediatric oncology nurses that belonged to a closed Facebook® group. Informed consent obtained on all participants prior to enrollment into the Koru® course. All 9 of the 11 pediatric oncology nurses completed both the pre and post surveys. Results showed statistically significant improvements in CF, specifically burnout and secondary trauma, for pediatric oncology nurses. Results showed improvements in resilience and compassion satisfaction, but not statistically significant. These findings support the use of the Koru® mindfulness sessions for pediatric oncology nurses for compassion fatigue.

Keywords: pediatric oncology nurses, Koru® mindfulness, quantitative

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I. Introduction

Overview

An estimated 30-50% of new registered nurses choose to leave the profession or change positions in the first three years (Salmond, 2017). Compassion fatigue (CF) is considered a contributing factor behind nurses that choose to leave the bedside and the profession. CF occurs when a nurse is in an exhausted and dysfunctional state after being chronically exposed to stressful situations and suffering patients (Delaney, 2018). Specialized nurses that work in areas associated with higher levels of emotional stress are more likely to have CF (Abernathy & Martin, 2019). CF is estimated to affect up to 39% of registered nurses with those at the highest risk working in oncology, pediatrics, hospice, and emergency settings (Durning, 2016). CF comes from caring for patients that have chronic pain and suffering associated with their diagnosis. For instance, nurses in the oncology department are more at risk for CF due to a significant amount of time spent at the bedside with patients in chronic pain and suffering (Wells-English et al., 2019). This risk can be genuine for nurses that work in a pediatric oncology department. According to Abernathy and Martin (2019), CF symptoms include many physical symptoms for the nurse, such as headache, anger, muscle tension, and fatigue. Ultimately, CF can result in increased absenteeism, decreased productivity, and an increased risk of errors (Wells-English et al., 2019). One way to decrease CF is through interventions, such as mindfulness sessions.

While many healthcare organizations recognize the problems associated with CF, only a few have worked towards preventing it. An intervention that has shown promise of aiding nurses with CF is mindfulness. Mindfulness is a practice that allows one to purposefully pay attention to the moment without judgment (Slayter et al., 2017). According to Wells-English, Giese, and

Price (2019), nurses who practice mindfulness have increased satisfaction and decreased CF. The implementation of mindfulness interventions can assist organizations in the retention of nurses. Also, mindfulness intervention can increase resiliency and skills in coping with stressful events (Belton, 2018). By providing interventions to address CF, healthcare organizations can move towards retaining nursing staff that is productive, safe, and experienced in specialized fields. Thus, retaining experienced nurses could potentially save money by decreasing patient errors and increasing work productivity.

Statement of the Problem

Nurses that work in specialized areas, such as pediatric oncology, are more at risk for leaving the nursing profession and bedside due to CF. An organization can expect to pay approximately $38,000 to $60,000 in lost revenue to replace a nurse (Belton, 2018). These figures can rise significantly if the nurse is a specialized, experienced nurse due to all the education and training received over the years. While healthcare organizations recognize CF, contributes to attrition, only a few have developed interventions to treat and prevent CF and increase resilience as an initiative to retain specialized nurses. The purpose of this study is to determine whether mindfulness sessions can decrease CF and increase resilience for pediatric oncology registered nurses.

Need for the Study

Currently, the United States is facing a nursing shortage predicted to worsen over the next several years. In order to fill the gap and prevent exasperating the problem, it is estimated that approximately 1.1 million registered nurses (RN) will be needed by the year 2022 (Haddad, Annamaraju, & Toney-Butler, 2020). One reason known to be contributing to the shortage is that baby boomers are starting to retire and leave the nursing profession. One-third of the

workforce makes up the estimated one million nurses over the age of 50 and will retire within the next 15 years (Haddad, Annamarajau, & Toney-Butler, 2020). Nursing shortages cause high rates of errors, morbidity, and mortality (Haddad, Annamarajau, & Toney-Butler, 2020). However, this number could change due to nurses leaving the profession for other reasons, such as CF. According to Yang and Kim (2016), CF is a factor concerning nurse turnover.

Compassion fatigue (CF) was first identified by Carla Joinson (1992) as a unique type of burnout that only affects people in professions that provide care to others (Harris & Griffin, 2015). Her observations reveal that nurses who frequently handled heartache ended up losing their abilities to provide nurture. CF is a phenomenon or condition that occurs after being exposed to chronic suffering and high-stress situations and leaving one in an emotional and dysfunctional state (Abernathy and Martin, 2019; Delaney, 2018). Overall, it is a result of built-up emotions from adverse events (West et al., 2017). Burnout and secondary traumatic stress are the two main elements that comprise CF (West et al., 2017). The first element, burnout, results from the increased general expectation of healthcare, demands in the workplace, limited resources, stressors, and policies within the organization (Harris & Griffin, 2015). The other, secondary traumatic stress, occurs when the nurse feels anxiety, pressure, stress, and other emotions related to the patient and family's trauma (Kelly et al., 2017). When it comes to burnout and secondary traumatic stress, not everyone believes both must occur for the provider to experience CF (Sheppard, 2015). Alone, secondary traumatic stress can cause CF, according to Sheppard (2015). Also, some believe that burnout is a result of CF. (West et al., 2017). Whether both elements are present or not, CF's symptoms can be detrimental to the nurse who is affected.

The phenomenon of CF can have symptoms which include: an increase in the number of days absent from work, inability to communicate with patients and families, feelings of dread

when going to work, an increase in the number of clinical errors, inability to sleep and feel emotions, substance abuse, and headaches (Ames et al., 2017; West et al., 2017). Due to the constant care given to patients by nurses at the bedside, they are most at risk for CF. One reason is because of the empathy that is needed by the nurse in order to provide excellent care. Empathy is the ability to feel what others are feeling. Empathy can leave the nurse with emotions, either positive or negative, after caring for and meeting the patient's needs. Unfortunately, there are times during which the nurse is not able to meet these needs. These times occur from the result of an injury endured or the patient's condition or the diagnosis. Because the nurse cannot produce positive outcomes for the patient due to factors beyond their control, they are at risk for CF. In this case, the CF is related to the inability to regulate their empathy and the negative energy left behind as a result (Craigie et al., 2016). Overall, nurses affected with CF have physical and emotional exhaustion, disengagement, and distress (Al-Majid et al., 2018). Additionally, CF can have dire consequences for healthcare organizations, patients, families, and co-workers (Al-Majid et al., 2018). CF is associated with an increase in attrition rates, decreased quality of care, and a decrease in productivity (Al-Majid et al., 2018). The phenomenon or condition of CF lowers the nurse's ability to provide excellent care that is safe, which is valued by organizations and regulators (Al-Majid et al., 2018).

The nursing shortage will only worsen if interventions do not get developed to assist with stress-related issues, such as CF. Organizations can assist in retaining nurses by developing interventions that can work towards treating and possibly preventing CF. Also, due to the strain that stressful situations place on the nurse, it is essential to look for ways to increase resiliency. This is especially true for specialized nurses in the pediatric oncology department due to the large amount of time spent at the bedside with patients that are in chronic pain and suffering.

Assumptions

Since this study aims at RNs who work in a pediatric oncology setting, the primary investigator assumed that they had experienced emotional and stressful situations. Additionally, RNs who work in this setting care for their patients over an extended time-period and develop close relationships with them. This close relationship can result in the RN experiencing CF due to chronic pain and suffering experienced by the patients due to the diagnosis. The RNs in this study are not assumed to have the same professional experience caring for this patient population. The primary investigator assumed the RNs could access a device to: (a) participate in the online mindfulness sessions; (b) utilize the accompanying mindfulness app; and (c) complete the pre and post-surveys.

Research Questions

1. Will Pediatric oncology nurses who participate in a four-week Koru® mindfulness program report decreased compassion fatigue at completion of the program?

2. Will Pediatric oncology nurses who participate in a four-week Koru® mindfulness program report increased resiliency at completion of the program?

Limitations

Limitations to the study's external validity were due to the small sample size related to the allowed online class size and virtual platform. The Koru® course would normally have been taught in-person, instead participants had to locate a quiet space at home. This proved challenging for some participants who have small children under the age of 5 and those who have school-aged children in online school themselves. However, due of restrictions brought forth from the COVID-19 pandemic and social distancing guidelines, in-person sessions were not a possibility in this study.

Additionally, the study invitation posted on a closed Facebook® group for pediatric oncology nurses in Central Arkansas. The generalizability of the study to other specialties or areas in nursing is a possible limitation due to only a single group of pediatric oncology nurses participated in the study.

Definition of Terms

Compassion Satisfaction comes from the feeling of pleasure or positivity that one feels when helping (Stamm, 2010). In this study, compassion satisfaction is measure by the ® v.5 scale by the overall score of positive feelings experienced by the participants.

Compassion fatigue comes from the negative feelings associated with working in emotional and stressful situations (Stamm, 2010). In this study, compassion fatigue is shown in the ProQOL v.5 scale by measuring two-subscales: burnout and secondary traumatic stress.

Burnout is part of CF and comes from the hopeless feeling associated with the inability to do one's job in an effective manner (Stamm, 2010).

Secondary Traumatic Stress is a part of CF and comes from working around or being exposed to patients that have experienced stressful events that are extreme and traumatic (Stamm, 2010).

Resilience comes from the ability to recover or 'bounce back' from an event and measured by the Brief Resilience Scale (Smith et al., 2008).

Summary

This quantitative pretest-posttest design research study examined the Koru® mindfulness course's effectiveness on CF and resilience in pediatric oncology nurses. The measurement of CF occurred on the ProQOL v.5 Likert-style scale. Additionally, the Likert-style Brief Resilience Scale measured resilience. Developing interventions that work to decrease CF and increase resilience is needed to assist in nursing retention. This intervention could positively impact

nurses and patients by keeping experienced nurses at the bedside and delivering exceptional, safe patient care.

II. Literature Review

The purpose of this study is to determine whether mindfulness sessions can decrease CF and increase resilience for pediatric oncology registered nurses measured by the ProQOL v.5 and the Brief Resilience Scale. This chapter will open with a review of the Neuman System Model (NSM) as the conceptual framework for this study. Following the NSM introduction, the literature review will define mindfulness; discuss mindfulness for resilience, CF, and compassion satisfaction; and examine the Koru® mindfulness course.

Conceptual Framework

The conceptual framework assists the primary investigator in defining goals and outcomes and identifying the study's focus (McEwen & Wills, 2014). Overall, the framework provides a way to organize and structure information to predict, explain, and describe the data collected rationally and systematically. Neuman's System Model serves as the conceptual framework of this study for its holistic, prevention-based qualities.

The Neuman System Model (NSM), developed by Betty Neuman, a nurse theorist, focuses on protecting patients from stress and relieving stress using a systematic approach and prevention as an intervention (McEwen & Wills, 2014). Neuman developed the model based on the belief that through interventions specific to the client, stress or stressors can be relieved or reduced, and healing can occur (Turner & Kaylor, 2015). These interventions or strategies work for the client by maintaining, attaining, or retaining wellness at an optimal level. For this study, pediatric oncology nurses are the clients, and mindfulness sessions are the intervention for prevention.

Turner and Kaylor (2015) state that the NSM model views the client uniquely based on built-in reactions to how they respond to changes within their surroundings or environment.

These responses or defenses developed over time by the client result in positive or negative outcomes. These outcomes result from two different protective barriers against stressors- the line of defense and the flexible line of defense. The line of defense is their average level of wellness and ability to adjust to stressors. The flexible line serves as a protector for this line. The goal is to have the flexible line expand away from the regular line to provide more protection because less protection is available the closer the two lines are to each other. The flexible line works to prevent stressors from invading the client's line of defense. The NSM model system reduces actual or potential stress through prevention strategies at the primary, secondary, or tertiary levels. Mindfulness sessions fit into the primary and secondary levels of prevention strategies.

According to Turner and Kaylor (2015), the client needs to develop the ability to identify stressors to regain wellness and stability at the primary level for prevention. The ability to identify stressors will help prevent stressful situations from occurring. Through mindfulness sessions, clients can learn self-awareness regarding their emotions towards potential stressors and specific situations. Once able to identify the stressors or situations, clients will need to communicate any concerns found in their work environment openly. If the client experiences the stressor, a secondary level of prevention is needed.

Turner and Kaylor (2015) conclude that intervention for secondary level prevention is needed after the stressor occurred. To preserve the line of defense, the nurse must view the issue as a short-term problem that requires a change to occur. Mindfulness sessions teach the client how to label thoughts and feelings, stay present in the moment, and acknowledge the moment without judgment. Regarding CF in pediatric oncology nurses, this framework fits into this

study of preventing CF by expanding the flexible line of defense and building resilience through mindfulness sessions.

Literature Review

The purpose of this literature review is to discuss the relationship of mindfulness to CF and resilience. The review utilized the Cumulative Index of Nursing and Allied Health Literature (CINHAL) Complete and the OVID databased through the Arkansas Tech University (ATU) library portal. Phrases and keywords used were *compassion fatigue, mindfulness, nurses, oncology, Koru*, and *pediatric* with publication dates between 2015-2020. An exception to the publication dates was made to include original articles and studies of significance for this review. Also, the primary investigator performed an internet search utilizing Google Scholar using keywords and phrases including *"compassion fatigue and mindfulness," "compassion fatigue and mindfulness and oncology nursing," "mindfulness and nursing,"* and *"compassion fatigue and mindfulness and nurse*." The criteria for the inclusion of articles for this literature review included research and peer-reviewed articles that focused on compassion fatigue, compassion satisfaction, resilience, and mindfulness.

The first section provides a discussion of research related to defining and understanding mindfulness. The second section identifies research related to mindfulness's benefits regarding resilience, CF, and compassion satisfaction. Last, the third section will discuss the Koru® mindfulness sessions.

Mindfulness

The term mindfulness comes from Buddhism roots and is a considered reflective practice (Slater et al., 2018). According to Merriam-Webster (2021) dictionary, mindfulness is the "quality or state of being aware or mindful" (para. 1). Overall, mindfulness is a transformative

state that involves a person being present in the moment and paying attention without passing judgment (Greeson et al., 2014; Slater et al., 2018). Additionally, mindfulness allows one to accept and acknowledge the moment or state of being as it is happening. The act of a person being in the moment and accepting that moment allows one not to get emotionally or mentally overwhelmed by the specific situation (Silver et al., 2018). The mindfulness technique allows a person to regulate emotions while being in any environment (i.e., home, work) and aware of their feelings simultaneously (Abulruz & Havaineh, 2019). The mindfulness technique would allow pediatric oncology nurses to focus on providing care while not becoming overwhelmed by the situation that occurs because they provide long-term care to patients with chronic pain and suffering associated with their diagnosis. The mindfulness technique has positive benefits for healthcare workers that include decreased burnout and CF.

Silver et al. (2018) discovered that mindfulness practice has several benefits, such as increased empathy and work engagement and decreased CF and burnout. The study aimed to examine different variables (burnout, empathy, work engagement, and CF) and their relationship to mindfulness on 441 genetic counselors in this survey-based study. The research study intended to discover factors that impacted patient care quality and satisfaction within the profession. The research study did not mention the term mindfulness to the participants in order to prevent bias. To participate in the study, participants had to be actively practicing and providing direct patient care. The study used the Mindfulness Attention Awareness Scale to measure mindfulness, the Interpersonal Reactivity Index to measure empathy, the Professional Quality of Life (ProQOL) v.5 scale to measure burnout and CF, and the Utrecht Work Engagement Scale to measure work engagement. The study found a correlation between participants practicing mindfulness through yoga, meditation, and breathing exercise higher for work engagement ($r = 0.24$; $p = 0.002$),

empathic concern (r = 0.11, p = 0.03), personal distress (r = -0.15, p = 0.001), and lower for CF (r = -0.48; $p < 0.001$) and burnout (r = - 0.50, $p < 0.001$).

Mindfulness for Resilience, Compassion Fatigue, and Compassion Satisfaction

Concerning nurses, resilience is the ability to recover or bounce back from a situation or an event that is extremely stressful. Overall, resilience is one's ability to adapt when faced with tragedy, threats, adversity, health problems, and stress related to the workplace, family, or financial issues (Abualruz & Hayajneh, 2019). Mindfulness sessions and interventions have shown to benefit nurses in many ways, including increasing resilience scores.

Delaney (2018) conducted an 8-week Mindful Self-Compassion training study on 13 nurses from various disciplines (i.e., oncology, cardiology, intensive care). The study aimed to evaluate the efficacy of Mindfulness Self-Compassion after an 8-week intervention on the training's effect on lived experience, resilience, and CF. Initial enrollment into the study was 18, but five participants did not complete the 8-week study. This pilot study was an observational mixed (qualitative and quantitative) research study. The study used the Neff Self-Compassion Scale for self-compassion, the ProQOL v.5 scale for burnout, secondary trauma, compassion satisfaction, the Conor-Davidson scale for resilience, and the Friebury Short Mindfulness Scale for mindfulness before and after the intervention. The 8-week intervention comprised lessons taught by a fully accredited mental health professional trained in Mindful Self-Compassion regarding practices and principles useful when faced with challenging life moments by responding with understanding, kindness, and care. The intervention included a half-day retreat, weekly two-and-a-half-hour sessions, and daily practice at home or using four practice CDs. Pearson correlation analyzed the data in order to show whether there was a small ($r = \pm$ 0.1 to 0.29), medium ($r = \pm$ 0.30 to 0.49), or large ($r = \pm$ 0.5 to 1.0) connection between mindfulness

and burnout, secondary trauma, compassion satisfaction, and resilience. Also, the study tested for whether the results were significant (p = < 0.05). The study showed that an increase in mindfulness resulted in a significant decrease in burnout (r = -0.60; p = 0.03), secondary traumatic stress (r = -0.54; p = 0.05), and a significant increase in resilience (r = + 0.66; p = 0.01). Participants had an increase in compassion satisfaction (r = -0.25; p = 0.41), but it was not significant. These results support mindfulness to decrease burnout and secondary trauma while increasing compassion satisfaction and resilience.

Similar CF results occurred in a 6-week mindfulness-based intervention study that included 48 oncology nurses (Duarte & Pinto-Gouvia, 2016). The study aimed to examine the efficacy of a shortened, onsite mindfulness-based intervention on different psychological outcomes (anxiety, CF, stress, self-compassion) for oncology nurses. The study initially had 94 participants, but due to insufficient follow-up, only 48 completed the study. Participants were nurses from two hospitals in Portugal that specialized in oncology. The nurses separated into either an experimental or wait-list group, which had no intervention. The intervention taught by a clinical psychologist in Mindfulness-Based Stress Reduction (MBSR) training and generally based on exercise and principles found in MBSR. The mindfulness intervention included weekly themes, exercises, homework, and six two-hour sessions. The experimental group completed pre-and post-tests and a follow-up at three months. The study used ProQOL v.5 to measure compassion satisfaction, burnout, and secondary trauma. Data were analyzed using two (condition) by two (time) Analysis of Variance (ANOVA) using partial eta squares (η^2) indicating either small (0.01), a medium (.06), or large (0.14) size of the effect. Also, the results were tested for significance (p < 0.05) which resulted in a significant decrease in CF (partial η^2 = 0.29; p = <0.001); burnout (η^2 = 0.19; p = 0.002) and a significant increase in mindfulness

(partial $\eta^2 = 0.10$; $p = 0.041$). In conclusion, this study supports the use of mindfulness for oncology nurses to decrease burnout and secondary trauma, factors that makeup CF. Additionally, this study utilized the ProQOL v. 5 to measure compassion satisfaction, burnout, and secondary trauma, supporting the use of the survey in research studies measuring the mindfulness intervention.

Another study conducted by Abernathy and Martin (2019) found that compassion satisfaction increased when mindfulness was used as part of an intervention. The quantitative pre-post intervention-based study aimed to evaluate the level of CF in nurses that work at a children's hospital in the cardiovascular intensive care unit. The study sample included 26 pediatric cardiovascular nurses. The intervention included participants receiving one-to-one education with the primary investigator centered around meditation, self-care, CF, and mindfulness. Additionally, the researchers wanted to examine the effectiveness of meditation audio files on CF; therefore, participants were also given audio files with a schedule for listening to a guided meditation at least four days a week. The study used the ProQOL v. 5 to measure compassion satisfaction, burnout, secondary trauma, and the paired-t-tests to compare the mean scores pre-and post-test. The study results showed statistically significant ($p = < 0.05$) improvements in all three areas after being analyzed by SPSS. These results included an increase in compassion satisfaction ($p = 0.002$), decreased burnout ($p = 0.037$), and secondary trauma ($p = 0.005$). In conclusion, these findings favor a structured month-long mindfulness intervention on CF influences thwarting CF within the pediatric nursing population.

Koru® Mindfulness Sessions

An *unfurling fern frond* is the New Zealand Maori word for Koru and represents "balanced growth" (Greeson et al., 2014). The Koru® program, developed by psychiatrist Holly

Rogers and a resident of psychiatry Margaret Maytan, focuses on being practical, accessible, and producing results immediately (korumindfulness.org, n.d.). The Koru® program derived from the desire to teach students in college old mindfulness techniques, such as guided meditation, breathing techniques, and visualization exercises that are useful when facing the challenges and difficulties of college life. The Koru® mindfulness program is a structured, brief four-week mindfulness program that consists of a small class that meets once a week for approximately 75-90 minutes, accompanied by *The Mindfulness Twenty-Something* book by Holly Rogers, and has 10-minutes of daily homework. Since its development, the Koru® program has grown and opened the Center for Koru Mindfulness in 2013. The center offers a one-year certification program and support for those interested in becoming a trained Koru® teacher. Before taking the certification program, one must attend a mindfulness-training program, have experience facilitating or teaching classes/groups, experience with diverse populations, have diversity training, an ongoing practice of mindfulness, and participate in a three-day-long or silent mindfulness retreat. The structure and teaching methods of the Koru® mindfulness program allow it to produced results similarly seen in an 8-week Mindfulness-Based Stress Reduction program.

In a study by Heath et al. (2020), Koru® and Mindfulness-Based Stress Reduction certified facilitators taught 39 participants skills to prevent burnout and improve team-based care. This retrospective study aimed to improve "team-based" delivery of care and prevent burnout in healthcare professionals, students, and facilities from seven colleges in the UK and a residency program. The pilot study assigned the 39 participants to four different Cultivating Practices for Resilience (CPR) camps. The CPR camps lasted one weekend, starting on Friday and ending on Sunday. The interventions for the participants at the camp included guided

imagery, mindful hiking, yoga, mindful eating, and labeling thoughts. In addition, structured programming for each participant was offered around their ability to recognize stress in the workplace, work-life balance, and mindfulness practices. Following the camp, participants gave retrospective answers to questions regarding information learned about work-life balance, strategies to reduce stress, and "habits and practices of resilient people." Data analysis was performed using a paired-sample *t*-test. All four camps showed statistically significant findings for "habits and practices of resilient people" ($p = <.001$, $p = <.001$, $p = .003$, $p = .006$) and "building resilience and preventing/coping with stress/burnout in self and others" ($p = .001$, $p = <.001$, $p = .002$, $p = <.001$). Three of the four camps showed statistically significant findings for "work-life balance" ($p = <.001$, $p = .007$, $p = .004$, $p = .49$). This study did not use a scale to measure resilience, stress, or work-life balance. This study did not separate the camps or interventions into specific mindfulness programs (Koru® vs. Mindfulness-Based Stress Reduction). This study supports the use of the Koru® Mindfulness program for burnout in healthcare professionals, such as pediatric oncology nurses.

In a study conducted by Greeson et al. (2014), the Koru® intervention increased mindfulness and self-compassion, yielding similar results to an 8-week Mindful Self-Compassion program, an 8-week Mindfulness-Based Stress Reduction program, and an 8-week Mindfulness-Based Cognitive Therapy program. The intervention-based study aimed to examine the Koru® mindfulness program for effectiveness. The study sample included 90 university students and was completed by 74. Participants were assigned to either the experimental or wait-list group. The Koru® program required participants to attend four 75-minute classes, a commitment to 10 minutes of daily meditation, and daily readings from the coursebook. The study used the Perceived Stress Scale, the Self-Compassion Scale, the Gratitude Questionnaire,

the Medical Outcome Sleep Study Scale, and the Cognitive and Affective Mindfulness Scale-Revised, along with a demographic questionnaire. The study utilized SPSS to analyze results for significance. Results in the experimental group showed over time increases in mindfulness (t = -6.60, p < .001) and self-compassion (t = -6.38, p < .001), in addition to decreases of perceived stress (t = 3.62, p = .001) and sleep problems (t = 3.04, p = .003). When the wait-list group took the Koru® course, all significant results mirrored those found in the experimental group. This study was conducted on college students and did not measure CF or resilience. These findings support the claim that a four-week Koru® mindfulness program can have the same effects as an 8-week Mindfulness-Based Stress Reduction program.

Summary

A literature review indicated that mindfulness could decrease CF or increase compassion satisfaction in healthcare providers (Abernathy & Martin, 2019; Craigie et al., 2016; Delaney, 2018; Duarte & Pinto-Gouveia, 2016; Hanna & Pidgeon, 2018; Slayter et al., 2017). Also, mindfulness can increase resilience (Delaney, 2018; Slater et al., 2018). The results occur by utilizing a mindfulness intervention by itself instead of being combined with another intervention. A significant limitation discovered is the lack of a consistent, standardized mindfulness program that can be an intervention for CF. Even though several studies saw increased compassion satisfaction or decreased CF, no study utilized the same mindfulness intervention. Also, Mindfulness-Based Stress Reduction programs are helpful but timely. No mindfulness studies discovered utilizing Koru® to measure the program's effects on CF as part of this literature review. Another limitation was the lack of mindfulness-only interventions performed on pediatric oncology nurses to decrease CF and increase resilience. Evidence

supports the need to utilize the Koru® program and review the effects of CF and resilience in pediatric oncology nurses.

III. Methodology

Research Design

A quantitative pretest-posttest design was utilized in this study to focus on the effects of the Koru® Mindfulness program with CF and resilience in pediatric oncology nurses. CF is more likely to be associated with specialized nurses who work in areas associated with higher levels of emotional stress related to witnessing patients' chronic pain and suffering (Abernathy & Martin, 2019). CF is considered a contributing factor in the nursing shortage. Additionally, to recover from situations of high emotional stress, nurses need to have resiliency. Programs, such as Koru®, that target CF and resiliency must be offered by organizations in order to assist with nursing retention. Organizations with high nursing retention rates have better patient outcomes, fewer errors, and a lower mortality rate (Haddad, Annamaraju, & Toney-Butler, 2020).

Setting

The setting chosen for this study was an online platform called Zoom®. Zoom® is an application that allows videoconferencing to take place virtually (Antonelli, 2020). It provides both video and virtual audio communication through phones and computers that have Windows®, Mac®, iOS®, and Android® software (Antonelli, 2020). For this study, an academic Zoom® account provided enhanced security features by preventing unauthorized persons' security breach into the system. This platform allowed participants to participate in the study while following social distancing guidelines, which was necessary due to the COVID-19 pandemic to stay compliant with the Center for Disease Control (CDC) guidelines.

Population/Sample

The population of interest for this study was pediatric oncology nurses that work in the Central Arkansas Region. The principal investigator used a convenience sample of registered nurses to recruit participants from a closed Facebook® group called *I Hate Childhood Cancer*. Professional pediatric oncology nurses comprised the *I Hate Childhood Cancer* Facebook® group. The purpose of the group is to connect professional pediatric oncology nurses to communicate and offer support to each other. Currently, there are over 100 members in the group. Membership to the group is by invitation only. An administrator invites a new pediatric oncology nurse once identified in Central Arkansas. The identification of nurses for the group occurs through word of mouth by current members and certification.

For the study, a flyer recruiting participants posted onto the site. The primary investigator received a letter of permission from an administrator before the posting. Only 11 participants participated from the nurses that express interest on a first-come basis. Participation in the study was voluntary. A study information sheet went via email to those that expressed interest in the study. The primary investigator notified participants that the decision to participate or not participate would have no direct effect on their membership with the closed Facebook® group. Before enrollment, those selected gave informed consent. After consent, an email that discussed the Koru® course and the accompanying app for their mobile devices went to the participants. This study's inclusion criterion included being a pediatric oncology nurse and a commitment to attend a 90-minute Koru® session once a week for four-weeks.

Human Subjects

Before starting the study, the Review of Human Participants' Research application was completed and submitted by the primary investigator to the Arkansas Tech University Institutional Review Board (IRB). In addition to the application, the Facebook® flyer (see Appendix A), study information sheet (see Appendix B), informed consent (see Appendix C), Koru® course requirements (see Appendix D), the mindfulness pre-survey (see Appendix E), the mindfulness post-survey (see Appendix F) and letter of permission for Facebook® group (see Appendix G) went to the IRB. The application required the primary investigator to provide a detailed description regarding the purpose, participants, methodology, procedures, risk, costs, benefits, consenting process, data collection, and dissemination of results to the IRB. The study received approval on December 7, 2020. The invitational Facebook® flyer posted on December 9, 2020, to the *I Hate Childhood Cancer* group page.

This study had voluntary participation. The participants received the primary investigator's name, the Graduate Research Advisor's name, and Arkansas Tech University IRB contact information for reference. Once the primary investigator received an email from 11 participants expressing interest in participating in the study, the study information sheet and informed consent went out via email. Once consent was received from the participants in the form of an 'I agree' email reply, the primary investigator sent a hyperlink to the REDCap® site to complete the pre-mindfulness survey. The REDCap® survey remained anonymous by having participants develop a unique identifier to track results while maintaining confidentiality. The unique identifier developed by the participant entering: the first letter of the city they were born, the first digit of their street address, the first three letters of their mother's name, and the date only of their birthday excluding month and year. The unique identifier allowed the primary

investigator to compare pre and post- mindfulness survey responses without compromising the participants' anonymity. The Koru® mindfulness course took place on four consecutive Fridays during January 2021. The first session occurred on January 8, 2021, and the final course occurred on January 29, 2021. Following the last session, the post-mindfulness survey hyperlink went out to the participants via email.

The study data collected was reported as aggregate without identifiable information that could link a participant to the study. Only the primary investigator and critical study personnel have access to the data. The data collected via the REDCap® safely secured database is in password-protected files. The primary investigator will keep printed copies in their home office under lock and key located in a file cabinet, and all data destroyed at the earliest opportunity. After seven years, all data will be gone and no longer housed.

Instruments

This study used B.H. Stamm's Professional Quality of Life Version 5 (ProQOL v.5) scale and the Brief Resilience Scale. The ProQOL v.5 measures the quality of life for someone who has a job that involves helping others (i.e., healthcare professional, police office, fireman) (Stamm, 2010). It measures the effects, both positive and negative, that occur when people work around stressful events (Stamm, 2010). The ProQOL v.5 scale is free to use as long as The Center for Victims of Torture is credited with the link (www.proqol.org), not sold, and the only changes made to the scale is using the word 'nurse' to replace the word 'helper' specifically. The scale has shown up in over 200 papers and 100,000 internet articles regarding CF (Stamm, 2010). The ProQOL scale has validity and reliability of a=0.88 for compassion satisfaction, a=0.75 for burnout, and a=0.81 for CF based on 2% variance shared with secondary traumatic

stress and burnout variance of 5% (www.statisticsolutions.com). The primary investigator chose this scale due to its validity regarding measuring CF and availability.

Stamm's ProQOL scale measures compassion satisfaction (CS), burnout, and secondary traumatic stress (STS). Burnout and STS are considered parts that makeup CF, while CS is on the other side of CF because it is a positive feeling one gets from caring for others. The scale consists of 30 statements that involve providing care or 'help' to others. Due to pediatric oncology nurses' nature of care, this scale measures the positive and negative effects they may experience. The survey consists of 30- Likert scale statements that asked the participants to rate statements based on a frequency scale of 5 = always, 4 = often, 3 = sometimes, 2 = rarely, and 1 = never.

Similarly, the Brief Resilience Scale (BRS) utilizes the Likert scale for rating statements regarding an individual's ability to recover or 'bounce back' from stressful events (Salisu & Hashim, 2017). The BRS scale has six statements that look to measure resilience. Participants rate the comments with a probability scale of 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree. Several resiliency scales do not specifically measure resiliency but instead measure participants' characteristics (Salisu & Hashim, 2017). The scale has reliability ranging from 0.80 – 0.91 with Cronbach's alpha (Smith et al., 2008). Additionally, it is free for use as long as the authors are cited (Smith et al., 2008). The primary investigator chose the BRS because it measures resiliency and is reliable.

Pilot Study

This study is a pilot study regarding the Koru® mindfulness course on CF and pediatric oncology nurses' resilience. The course was led by a Certified Koru® Mindfulness instructor for four consecutive Fridays during January 2021. Meditation skills taught to the participants in the

course included dynamic and diaphragmatic breathing, walking meditation, guided imagery, and eating meditation. Guided meditations that were taught included body scanning, labeling thoughts, reciting verses with breathing (Gatha), and labeling feelings. Participants were given an accompanying app for their devices, a pdf version of the book *The Mindful Twenty-Something* by Holly Rogers, MD, and a secure link to the Zoom® meetings through an academic institutional account. Participants were encouraged to practice principles learned in the course via the app and given the option of reading the book for optimal benefits related to the course.

Data Collection

In this quantitative pretest-posttest design study, data collected from an online survey utilizing the REDCap® website that measured the Koru® course's effectiveness on CF and resilience. A voluntary group of 11 participants selected from a convenience sample of pediatric oncology nurses that are members of the *I Hate Childhood Cancer* closed Facebook group participated in the study. Data for the study were collected before the first Koru® session and upon completion of the last one. The pre-mindfulness survey included the Likert scale comments/statements for the ProQOL v.5 scale and BRS, in addition to a few demographic questions. Similarly, the post-mindfulness survey included the ProQOL v.5 and BRS comments/statements. The difference was that it asked about satisfaction with the course instead of demographics.

Participants were sent an email with a hyperlink to the REDCap® site for the pre-mindfulness survey after obtaining consent. The primary investigator obtained the email addresses after the participants sent an electronic communication to the primary investigator stating their desire to participate in the study. The REDCap® survey link went to 11 pediatric oncology nurses. Following the last mindfulness session, participants received the post-

mindfulness survey. The REDCap® site ensured the confidentiality and anonymity of the participants.

Data Analysis

Two methods, descriptive and inferential statistics, were used to analyze data for this study. The data from the pre- and post-mindfulness survey questions were aggregated from the REDCap® survey site. Additionally, the data were paired and matched using participants unique identifier that allowed confidentiality and anonymity. Statistical analysis using IBM SPSS v. 25 was used to measure the mean, standard deviation, and range of the data. In addition, a paired sample *t*-test was used to compare mean scores to test for significance between the two mean scores of the pre- and post- mindfulness surveys. Last, results were analyzed by Cohen's *d* formula in order show whether the effect size was small (.20), medium (.50), or large (.80) (Polit & Beck, 2017). The primary investigator used descriptive statistics to discuss the participants' findings regarding demographic data, mindfulness course questions/satisfaction, the ProQOL v.5 scale, and the BRS. Inferential statistics in this study served to determine whether or not the Koru® mindfulness course decreased CF and increased pediatric oncology nurses' resilience.

Summary

The focus of this quantitative pretest-posttest design research study was to determine the effects of the Koru® mindfulness course on CF and resilience for pediatric oncology nurses. The data collected from the ProQOL v.5 scale and BRS sent out to 12 pediatric oncology nurses via the REDCap® site. The recruited convenience sample of pediatric oncology nurses came from a closed Facebook site called *I Hate Childhood Cancer*. The ProQOL v.5 and the BRS both use a Likert scale that focuses on CF and resiliency. Before posting the Facebook flyer, the primary

investigator obtained IRB approval. All participants were volunteers for the study and gave informed consent before data collection.

IV. Results

This chapter presents the findings of this study to determine whether Koru® mindfulness sessions can decrease CF and increase resilience for pediatric oncology registered nurses. Pediatric oncology nurses that are members of the *I Hate Childhood Cancer* Facebook® group volunteered to participate in this study. Due to the Centers of Disease Control restrictions related to the covid-19 pandemic, only 11 pediatric oncology nurses were accepted to participate in the study. One participant only completed the post- survey, and another only completed the pre-survey, these results were excluded due to matching of data for pre- and post-surveys. The overall completion rate $N = 9$ from the 11 nurses that volunteered to participate was 82%. Data collection occurred using the REDCap® online database that contained the ProQOL v.5 and the Brief Resilience Scale surveys. REDCap® also collected demographic data related to years of nursing experience, pediatric nursing experience, specialized pediatric nursing experience, and degree level. This chapter will present the demographic results first, followed by the pre and post ProQOL v.5 and Brief Resilience Scale results, and last the results to the evaluative questions on understanding mindfulness and satisfaction related to the mindfulness sessions.

Demographic Results

The demographics collected data on the years of practicing as a nurse, pediatric nurse, pediatric specialty nurse, and educational level. The demographic questions were limited due to the small sample size related to the covid-19 pandemic and maintaining the Centers for Disease Control and Prevention (CDC) guidelines for social distancing. The demographic questions and results can be seen in the table shown below entitled *Summary of Demographic Results*.

Table 1

Summary of Demographic Results

N = 9 Characteristics	# of participants	% of participants
Years Practicing as a Nurse		
0 – 5	2	22.3%
6 – 10	3	33.3%
11 – 20	3	33.3%
More than 20 years	1	11.1%
Years Practicing as a Pediatric Nurse		
0 – 5	2	22.3%
6 – 10	3	33.3%
11 – 20	3	33.3%
More than 20	1	11.1%
Years Practicing in Specialized Pediatric Field (Oncology, Emergency Department, Intensive Care, etc.)		
0 – 5	2	22%
6 – 10	4	45%
11 – 20	3	33%
More than 20	0	0%
Highest Nursing Educational Degree		
Diploma	0	0%
Associate	1	11%
Bachelors	5	56%
Masters	3	33%
Doctor in Nursing	0	0%
Doctor of Philosophy in Nursing	0	0%

The first and second demographic survey questions assessed the *years practicing as a nurse* and *years of practicing as a pediatric nurse* for the participants *(N = 9).* The findings indicate that most participants in the study have 6-20 *years of practicing as a nurse* and *years of practicing as a pediatric nurse* (n = 6, 66.6%) experience. Nurses with 0-5 y*ears practicing as a nurse* and *years of practicing as a pediatric nurse* experience, made up the second largest group (n = 2, 22.3%). Only one participant had more than 20 years (n=1; 11.1%) of y*ears practicing as a nurse* and *years of practicing as a pediatric nurse* experience.

Demographic question three assessed for specific experience in the number of *years of practicing in a specialized field* (i.e., oncology, emergency department, intensive care). The results indicated that most participants in the study have 6-10 years (n = 4, 45%) of experience in *years of practicing in a specialized field.* Next, came participants with 11-20 years (n=3, 33%) followed by 0-5 years (n=2, 22%) for experiences in *years of practicing in a specialized field.*

The last demographic questions examined the *highest nursing educational degree* held by the participants. The demographic survey found that the majority of participants held a Bachelors's in the science of nursing degree (n = 5, 56%), followed by a Master's in the science of nursing (n = 3, 33%) and Associate's (n = 1, 11%). None of the participants held a diploma or doctorate degree.

Group Results for ProQOL v.5 and Brief Resilience Scale

This section will present the pre and post-survey results of the group for burnout, compassion satisfaction, secondary trauma, complete ProQOL v.5, and resilience. The groups results consist of survey answers for the ProQOL v.5 and Brief Resilience Scale matched up by participant to the pre and post-surveys. The ProQOL v.5 survey statements measure for compassion satisfaction (CS), burnout, and secondary traumatic stress (STS). The survey consists of 30 Likert scale statements that asked the participants to rate statements based on a frequency scale of 5 = always, 4 = often, 3 = sometimes, 2 = rarely, and 1 = never. Similarly, the Brief Resilience Scale measures for resilience. The scale consists of six Likert scale statements based on a probability scale of 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree.

The data were analyzed using IBM SPSS v. 25 and the paired samples *t*-test. IBM SPSS v. 25 measured the mean, standard deviation, and range of the data. The mean for each item in

the ProQOL v.5 and the Brief Resilience Scale was calculated for the pre-and post- mindfulness surveys. The interpretation scoring tool for the ProQOL v.5 guided reviewing the sections (burnout, compassion satisfaction, secondary traumatic stress) and the survey in its entirety. The paired sample *t*-test compared mean scores to test for significance between the two mean scores of the pre- and post- mindfulness surveys. Last, Cohen's *d* formula analyzed the results to show whether the effect size was small (.20), medium (.50), or large (.80) (Polit & Beck, 2017). This allowed the primary investigator to determine the effectiveness of the Koru® mindfulness intervention for CF by reviewing the results of the ProQOL v.5 and each section.

Table 2

Summary of Professional Quality of Life (ProQOL) v.5 Mean Results

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pretest burnout	2.5111	9	.42557	.14186
	posttest burnout	1.8667	9	.46637	.15546
Pair 2	pretest_compassion_satisfaction	3.7778	9	.41767	.13922
	posttest_compassion_satisfaction	4.2486	9	.49214	.16405
Pair 3	pretest_secondary_trauma	2.5222	9	.63004	.21001
	posttest_secondary_trauma	1.9972	9	.34831	.11610
Pair 4	pretest_proqol	2.9370	9	.22757	.07586
	posttest_proqol	2.7042	9	.12672	.04224

Table 3

Summary of Professional Quality of Life (ProQOL) v. 5 Paired Sample t-test Results

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	pretest burnout - posttest burnout	.64444	.69662	.23221	.10898	1.17991	2.775	8	.024
Pair 2	pretest_compassion_satisfaction - posttest_compassion_satisafaction	-.47083	.75218	.25073	-1.04901	.10735	-1.878	8	.097
Pair 3	pretest_secondary_trauma - posttest_secondary_trauma	.52500	.53968	.17989	.11017	.93983	2.918	8	.019
Pair 4	pretest_proqol - posttest_proqol	.23287	.18838	.06279	.08807	.37767	3.708	8	.006

According to the ProQOL v.5 interpretation tool, burnout was determined by reviewing items numbered as 1, 4, 8, 10, 15, 17, 19, 21, 26, and 29 on the ProQOL v.5 scale. In addition, reverse coding was required for the items numbered 1, 4, 15, 17, and 29. *Pair 1 pretest burnout* – *posttest burnout* differ significantly, $t(8) = 2.78$, $p = .02$, $d = .93$, 95% *CI* [.11, 1.18] on measuring burnout. The mean for the *posttest burnout* ($M = 1.87$, $SD = .47$) was statistically

significantly lower than the *pretest burnout* (*M* = 2.51, *SD* = .43) for burnout. These findings support the Koru® mindfulness intervention as an effective intervention for burnout in pediatric oncology nurses.

According to the ProQOL v.5 interpretation tool, compassion satisfaction was determined by reviewing items numbered as 3, 6, 12, 16, 18, 20, 22, 24, 27, and 30. *Pair 2 pretest compassion satisfaction – posttest compassion satisfaction* do not differ significantly, *t*(8) = -1.878, *p* = .10, *d* = .63, 95% *CI* [-1.05, .11] on measuring compassion satisfaction. The mean for the *posttest compassion satisfaction* (*M* = 4.25, *SD* = .49) was not statistically significantly higher than the *pretest compassion satisfaction* (*M* = 3.78, *SD* = .42) for compassion satisfaction. These findings do not support the Koru® mindfulness intervention as an effective intervention for compassion satisfaction in pediatric oncology nurses.

According to the ProQOL v.5 interpretation tool, secondary traumatic stress was determined by reviewing items numbered as 2, 5, 7, 9, 11, 13, 14, 23, 25, and 28. *Pair 3 pretest secondary trauma – posttest secondary trauma* differ significantly, *t(8)* = 2.92, *p* = .02, *d* = .97, 95% *CI* [.11, .94], on measuring secondary traumatic stress. The mean for the *posttest secondary trauma* (*M* = 1.20, *SD* = .35) was statistically significantly lower than the *pretest secondary trauma* (*M* = 2.52, *SD* = .63), for secondary traumatic stress. These findings support the Koru® mindfulness intervention as an effective intervention for secondary traumatic stress in pediatric oncology nurses.

The *Pair 4 pretest proqol – posttest proqol* differ significantly, *t(8)* = 3.71, *p* = .01, *d* = 1.24, 95*% CI* [.09, .38] on measuring the complete results for ProQOL v.5 (burnout, compassion satisfaction, secondary traumatic stress) survey. The mean for the *posttest proqol* (*M* = 2.70, *SD* = .13) was statistically significantly lower than the *pretest proqol* (*M* = 2.94, *SD* = .23) for

ProQOL v.5 survey. These findings support the Koru® mindfulness intervention as an effective intervention for the treatment of CF.

Table 4

Pre and Post Brief Resilience Scale Mean Results

	Mean	N	Std. Deviation	Std. Error Mean
pretest brief resilience scale	3.5741	9	1.01074	.33691
posttest brief resilience scale	4.3333	9	.62361	.20787

Table 5

Pre and Post Brief Resilience Scale Paired-Samples t-test Results

	Paired Differences					t	Df	Sig (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
pretest brief resilience scale - posttest brief resilience scale	-.75926	1.08369	.36123	-1.59226	.07374	-2.102	8	.069

According to the Brief Resilience Scale scoring tool, items numbered as 2, 4, and 6 required reverse coding compared to items # 1, 3, and 5. *Pretest brief resilience scale – posttest brief resilience scale* do not differ significantly, $t(8) = -2.102$, $p = .07$, $d = .70$, 95% *CI* [-1.59, .07] on measuring resilience. The mean for the *posttest brief resilience scale* ($M = 4.33$, $SD = .21$) was not significantly higher than the *pretest brief resilience scale* ($M = 3.57$, $SD = .34$). These findings do not support Koru® mindfulness as an effective intervention on resilience in pediatric oncology nurses.

Group Results Regarding Mindfulness Course

Table 6

Pre Mindfulness Results

N = 9 Mindfulness Questions	# of participants	% of participants
Previously Attended Mindfulness Course		
Yes	1	11%
No	8	89%
Current Understanding of Mindfulness		
Yes	4	44%
No	5	56%

As part of the pre-mindfulness survey, participants were asked questions that focused on whether participants had *previously attended a mindfulness course* and *current understanding of mindfulness.* Results found that most participants (n = 8, 88.9%) stated they had not previously attended a mindfulness course. Also, the majority of participants (n = 5, 56%) did not have a current understanding of mindfulness.

Table 7

Post Mindfulness Satisfaction Results

N = 9 Mindfulness Questions	# of participants	% of participants
Current understanding of Mindfulness		
Strongly disagree	0	0%
Disagree	0	0%
Neither agree or disagree	0	0%
Agree	6	67%
Strongly agree	3	33%
Course was helpful		
Strongly disagree	0	0%
Disagree	0	0%
Neither agree or disagree	0	0%
Agree	3	33%
Strongly agree	6	67%
Plan to continue to utilize learned content		
Strongly disagree	0	0%
Disagree	0	0%
Neither agree or disagree	1	11%
Agree	2	22%
Strongly agree	6	67%
Have already started utilizing lessons learned		
Strongly disagree	0	0%
Disagree	0	0%
Neither agree or disagree	1	11%
Agree	2	22%
Strongly agree	6	67%

Post-mindfulness results show the majority of participants (n = 6, 67%) agree that they had a *current understanding of mindfulness.* Majority of participants (n = 6, 67%) state they strongly agree that the Koru® mindfulness *course was helpful*. Additionally, most participants (n = 6, 67%) state they *plan to continue to utilize learned content* and *have already started utilizing lessons* learned. Three comments left on the post-mindfulness survey by the participants included "*the sessions were a bit long*," "*thank you, very helpful course*," and "*it was a great experience, and I really learned a lot!*".

Summary

This study found the Koru® mindfulness intervention is effective for CF in pediatric oncology nurses as measured by the ProQOL v.5 survey. The results were statistically significant for burnout (p=.02) and secondary traumatic stress (p=0.2). Additionally, the results indicated an increase in means for compassion satisfaction (pre-*M*=3.78, post-*M*=4.25); however, they were not statistically significant (*p*=.10). For resilience, the results showed an increase in means (pre-*M*=3.57, post-*M*=4.33) but were not statistically significant (*p*=.07) regarding the Koru® mindfulness intervention as measured by the Brief Resilience Scale survey. In conclusion, the post-mindfulness satisfaction results indicated that the majority of participants found the course helpful and are already utilizing learned content.

Chapter V: Conclusions

Overview

Pediatric oncology nurses are specialized and have received extensive training regarding the safe handling of chemotherapy and biotherapy agents, treatment of hematology/oncology emergencies, and overall safe, effective ways to care for pediatric oncology patients. However, due to the environment and patient population, these nurses are most likely to experience CF. According to Abernathy and Martin (2019), CF is more likely to occur in specialized nurses that work in areas associated with higher levels of emotional stress. CF is attributed to caring for patients that have chronic pain and suffering associated with their diagnosis. For instance, nurses in the oncology department are more at risk for CF due to a significant amount of time spent at the bedside with patients with chronic pain and suffering (Wells-English et al., 2019). CF occurs when a nurse is in an exhausted and dysfunctional state after being chronically exposed to stressful situations and suffering patients (Delaney, 2018). Ultimately, CF can result in increased absenteeism, decreased productivity, and an increased risk of errors (Wells-English et al., 2019).

The need to retain specialized nurses, such as pediatric oncology nurses, is essential for organizations due to the high cost of onboarding new nurses. An organization can expect to pay approximately $38,000 to $60,000 in lost revenue to replace a nurse (Belton, 2018). These figures can rise significantly if the nurse is a specialized, experienced nurse due to all the education and training received over the years. Also, organizations must ensure patients are receiving safe, effective, quality care by all healthcare providers. By providing interventions to address CF, organizations can move towards retaining nursing staff that is productive, safe, and experienced in specialized fields. Also, retaining experienced nurses will save money by decreasing errors and increasing productivity.

A review of current literature indicates that mindfulness is an intervention that has shown promise of aiding nurses with CF. Mindfulness is a practice that allows one to purposefully pay attention to the moment without judgment (Slayter et al., 2017). According to Wells-English, Giese, and Price (2019), the effects of CF are decreased, and satisfaction increases in nurses who practice mindfulness. Also, a mindfulness intervention can increase resiliency and skills in coping with stressful events (Belton, 2018). This study will be significant for organizations looking to treat and prevent the adverse effects associated with the phenomenon CF in nursing by implementing a structured mindfulness program, such as Koru®.

The purpose of the quantitative pretest-posttest research study was to determine the Koru® mindfulness course's effectiveness on CF and resilience in pediatric oncology nurses measured by the ProQOL and Brief Resilience Scale surveys. Also, the surveys included demographic questions that included the highest level of nursing degree, years of nursing experiences, years of pediatric nursing experiences, and years of specialized pediatric nursing experiences. Also, participants were asked questions regarding mindfulness, whether they attended previous mindfulness courses and satisfaction with the course. This chapter will discuss the results of the surveys, along with conclusions, implications, and recommendations for research in the future.

Discussion

Pediatric oncology nurses work in an area associated with CF due to the high levels of emotional stress attributed to their work environment and patient population (Abernathy & Martin, 2019; Wells-English et al., 2019). Mindfulness interventions have decreased CF and increased resilience (Abernathy & Martin, 2019; Delaney, 2018; Duarte & Pinto-Gouvia, 2016). However, only a limited number of research articles implementing a mindfulness intervention

were discovered in the literature review for comparison. No studies utilizing the Koru® mindfulness program for CF and resilience in nurses or pediatric oncology nurses were discovered.

The Koru® mindfulness course intervention was implemented to decrease CF and increase resilience in pediatric oncology nurses. Participation in the study was voluntary, and enrollment in the study occurred on a first-come basis. After completing the four-week research study, participants showed improvements in burnout, compassion satisfaction, secondary traumatic stress, CF, and resilience as measured by the ProQOL v.5 and Brief Resilience Scale.

Quantitative data analysis was conducted utilizing the paired-sample *t*-test in IBM SPSS Statistics v. 25 with results represented in Tables 2 - 5. A-priori power analysis of *t*-test results and sample size were further examined by Cohen's d ($\alpha = .05$) to determine if the effect of the study was small (0.2), medium (0.5), or large (0.8). Due to the small sample size ($N=9$), Cohen's d shows the relationship between the two variables and the magnitude of that relationship (effect) in order to decrease the chance of a Type II error (Pilot & Beck, 2017).

The finding of this research study indicated a statistically significant decrease in burnout ($p = .02$). This finding is slightly higher than the burnout findings ($p = .03$) by Delaney (2018) for nurses from various disciplines (i.e., oncology, cardiology, intensive care) and Abernathy and Martin (2019) for pediatric cardiovascular care nurses that also showed a statistically significant decrease in burnout ($p = .04$). Duarte and Pinto-Gouvia (2016) showed a higher level of statistical significance for burnout ($p = < .01$) for oncology nurses.

Next, this research study showed an increase in the paired means for compassion satisfaction (*pre* = 3.78; *post* = 4.25), but not a statistically significant difference ($p=.10$). These findings are similar to an increase in compassion satisfaction for nurses from various disciplines

(i.e., oncology, cardiology, intensive care) that was not statistically significant (p = .41) (Delaney, 2018). The study conducted by Delaney (2018) included a similar sample size (*N=13 verses N=9),* a half-day retreat, and eight in-person weekly two-and-a-half-hour sessions, compared to this study that did not have a retreat and only four online weekly 90-minute sessions. The study by Abernathy and Martin (2019) reported a statistically significant increase in compassion satisfaction (p = < .01) for cardiovascular pediatric intensive care nurses. Abernathy and Martin (2019) study had a larger sample size *(N=26 versus N=9),* one-to-one education with the primary investigator, and audio files with a schedule for listening to a guided meditation at least four days a week.

This research study showed a statistically significant decrease in secondary traumatic stress (p = .02). This finding is slightly higher in nurses from various disciplines (i.e., oncology, cardiology, intensive care) than the findings by Delaney (2018) that showed a statistically significant decrease in secondary traumatic stress (p = .05). Abernathy and Martin (2019) reported a lower secondary traumatic stress (p = .01) in pediatric cardiovascular intensive care nurses, which is statistically higher in significance than the finding of this study.

The findings of this research study indicate a statistically significant decrease in CF (p = .01). These results are lower than the findings of Duarte and Pinto-Gouvia (2016) for oncology nurses, which showed a much higher statistically significant decrease in CF (p = < .01). The study conducted by Duarte and Pinto-Gouvia (2016) lasted two weeks longer *(6-weeks versus 4-weeks)*, had a larger sample size (*N=48 verses N=9*), and included six in-person two-hour sessions compared to this study that had four online 90-minute sessions.

Last, when examining resilience in pediatric oncology nurses, this research study showed an increase in the means (*pre* = 3.58, *post* = 4.33); however, resilience was not statistically

significant (p = .07). These findings are different from the findings of nurses from various disciplines (i.e., oncology, cardiology, intensive care), which revealed a statistically significant increase in resilience (p = .01) (Delaney, 2018). However, Delaney (2018) utilized the Conor-Davidson scale for resilience, and this study used the Brief Resilience Scale.

The demographic results indicated most participants in the study have 6-20 *years of practicing as a nurse* and y*ears practicing as a pediatric nurse* (n=6, 66.7%) experience. Additionally, most participants have over 5 *years practicing in specialized pediatric field* (n=7, 78%) experience. The majority of participants held a Bachelor's or Master's degree as their *highest nursing educational degree (*n = 8; 89%). Following the completion of the study, the results showed all of the participants (n = 9, 100%) agree or strongly agree that they have a *current understanding of mindfulness,* compared to the 56% (n=5) of participants that did not have a *current understanding of mindfulness*. The majority of participants (n = 6, 67%) state they strongly agree that the Koru® mindfulness *course was helpful*. Additionally, most participants (n = 6, 67%) state they *plan to continue to utilize learned content* and *have already started utilizing lessons* learned. Three comments left on the post-mindfulness survey by the participants included "*the sessions were a bit long*," "*thank you, very helpful course*," and "*it was a great experience, and I really learned a lot!*".

Conclusion

This study revealed the Koru® mindfulness course offers a structured four-week program that can decrease CF and increase resilience in pediatric oncology nurses. Compared to recent mindfulness-based intervention studies, this study identified the Koru® mindfulness intervention can statistically significantly decrease CF compared to other programs. The Koru® mindfulness program increased resilience but was not statistically significant compared to another program

that used a different measuring tool. Based on the results of this study, it is concluded that organizations offering the Koru® mindfulness course can expect to see a decrease in CF and an increase in resilience. However, due to only pediatric oncology nurses' limited participation sample, these findings are limited and not enough to generalize to the entire nursing population. Further research with different specialized groups or a larger sample of nurses might show different findings related to the Koru® mindfulness intervention for CF and resilience.

The Neuman System Model (NSM) was the guiding conceptual framework for this study. Neuman developed the model based on the belief that through interventions specific to the client, stress or stressors can be relieved or reduced, and healing can occur (Turner & Kaylor, 2015). In this study, the nurse was the client, and the NSM provided the foundation for implementing an intervention (mindfulness course) which targeted CF because of its effects on pediatric oncology nurses. This study suggests that by implementing the Koru® mindfulness program, nurses can experience a reduction in the effects of CF and an increase in resilience.

Implications

These findings suggest the Koru® mindfulness intervention decreases CF and increases resilience in pediatric oncology nurses. The literature review supported the benefits of a mindfulness-based intervention on CF and resilience; however, no studies were found to utilize a developed, structured program similar to Koru. According to Wells-English, Giese, and Price (2019), the effects of CF decreases, and satisfaction increases in nurses who practice mindfulness. The implementation of mindfulness interventions can assist organizations in the retention of nurses. Also, mindfulness intervention can increase resiliency and cope with stressful events (Belton, 2018). By providing interventions to address CF, organizations can move towards retaining nursing staff that are productive, safe, and experienced in specialized

fields. Retaining experienced nurses will save money by decreasing errors and increasing productivity. An organization should implement structured mindfulness-based programs, such as Koru®, to decrease CF and increase resilience. If implemented during the onboarding process or orientation, organizations could protect their nursing staff by preventing CF.

Recommendations

Research into preventing and treating CF among nurses is needed to keep experienced nurses at the bedside. Many organizations have acknowledged CF as a severe phenomenon that leads to increased absenteeism, increased errors, and decreased work engagement. Also, CF is viewed as a contributor to nurses leaving the bedside and the profession. Currently, there is little knowledge regarding ways to decrease CF and increase resilience. This study was conducted virtually due to the Covid-19 restrictions implemented by the Centers for Disease Control. Further research is needed to evaluate the difference between presenting the Koru® mindfulness sessions (in-person vs. virtually). Also, further research is needed regarding follow-up timeframe to monitor for continued effects of a decrease in CF and increase resilience experience by nurses (one-month, three-months, one-year) related to the 67% (n=6) of participants that stated that they *plan to continue to utilize learned content* and *have already started utilizing lessons* learned following the completion of this study.

REFERENCES

Abernathy, S., & Martin, R. (2019). Reducing compassion fatigue with self-care and mindfulness. *Nursing Critical Care, 14(5),* 38-44. doi:10.1097/01.ccn.0000578852.69314.be

Abualruz, H. and Hayajneh, F. (2019) The contrary impact of resilience on the complicated nursing work environment: A literature review. *Open Journal of Nursing, 9,* 1188-1201. DOI: 10.4236/ojn.2019.911087.

Al-Majid, S., Carlson, N., Kiyohara, M., Faith, M., & Rakovski, C. (2018). Assessing the degree of compassion satisfaction and compassion fatigue among critical care, oncology, and charge nurses. *JONA: The Journal of Nursing Administration, 48(6)*, 310–315. https://doi.org/10.1097/nna.0000000000000620

Ames M., Salmond, E., Holly, C., & Kamienski, M. (2017). Strategies that reduce compassion fatigue and increase compassion satisfaction in nurses: A systematic review protocol. *The Joanna Briggs Institute,* 1800-1803. doi:10.11124/JBISRIR-2016-003142.

Antonelli, W. (2020, November 18). *What is Zoom? A comprehensive guide to the wildly popular video-chatting service for computers and smartphones*. Business Insider. Retrieved January 24, 2021, from https://www.businessinsider.com/what-is-zoom-guide#what-is-zoom?

Belton, S. (2018). Caring for the caregivers: making the case for mindfulness-based wellness

programming to support nurses and prevent staff turnover. *Nursing Economics, 36(4),* 191-194

Craigie, M., Slatyer, S., Hegney, D., Osseiran-Moisson, R., Gentry, E., Davis, S., Dolan, T., & Rees, C. (2016). A pilot evaluation of a mindful self-care and resiliency (MSCR) intervention for nurses. *Mindfulness, 7(3),* 764-774. doi:10.1007/s12671-016-0516-x

Delaney, M. C. (2018). Caring for the caregivers: Evaluation of the effect of an eight-week pilot mindful self-compassion (MSC) training program on nurses' compassion fatigue and resilience. *Plus One, 13(11)*. doi:10.1371/journal.pone.0207261

Duarte, J., & Pinto-Gouveia, J. (2016). Effectiveness of a mindfulness-based intervention on oncology nurses' burnout and compassion fatigue symptoms: A non-randomized study. *International Journal of Nursing Studies, 64,* 98-107. doi:10.1016/j.ijnurstu.2016.10.002

Durning, M. (2016). *Compassion fatigue: How nurses can care for themselves*. Oncology Nursing News. https://www.oncnursingnews.com/view/compassion-fatigue-how-nurses-can-care-for-themselves

"Empathy." (n.d.) Merriem-Webster.com dictionary. Retrieved on January 21, 2021 from https://www.merriam-webster.com/dictionary/empathy

Greeson, J., Juberg, M., Maytan, M., James, K. & Rogers, H. 2014. A randomized controlled

trial of koru: a mindfulness program for college students and other emerging adults. *Journal of American College of Health. 62(4)*. 222-233. Doi: 10.1080/07448481.2014.887571

Haddad, L. M., Annamaraju, P., Toney-Butler, T. (2020). *Nursing shortage*. StatPearls [Internet]. Retrieved January 22, 2021, from https://www.ncbi.nlm.nih.gov/books/NBK493175/.

Hanna, A & Pidgeon, A (2018). Leveraging mindfulness to build resilience and professional quality of life in human service professionals. *Lidsen Publishing Inc*. 1-21

Harris, C., & Griffin, M. (2015). Nursing on Empty. *Journal of Christian Nursing, 32(2),* 80-87. doi:10.1097/CNJ.0000000000000155

Heath, J., Walmsley, L. A., Aker, R. M., Ferrin, S., Stone, D., & Norton, J. C. (2020). CPR to the rescue! An interpersonal pilot program: Cultivating practices for resilience (CPR) camp. *Clinical Nurse Specialist, 34(2),* 63–69. https://doi.org/10.1097/nur.0000000000000506

Kelly, L., Baker, M., & Horton, K. (2017). Code Compassion: A caring fatigue reduction intervention. *Nursing Management, 48(5),* 18-22. doi:10.1097/01.NUMA.0000515800.02592.d4

McEwen, M. & Will, E.M. (2014). *Theoretical Basis for Nursing* (4th ed.). Lippincott, Williams & Wilkins

"Mindfulness" (n.d.). Merriem-Webster.com dictionary. Retrieved March 6, 2021, from https://www.merriam-webster.com/dictionary/mindfulness

Polit, D. & Beck, C.T. (2017). *Nursing Research* (10th ed.) Lippincott, Williams, & Wilkins

Professional Quality of Life Scale (ProQOL). (2017). Statistics Solutions. Retrieved January 23, 2021, from https://www.statisticssolutions.com/professional-quality-of-life-scale-proqol/

Salisu, I., & Hashim, N. (2017). A critical review of scales used in resilience research. *IOSR Journal of Business and Management, 19(04),* 23–33. https://doi.org/10.9790/487x-1904032333

Salmond, E., (2017). Experiences of compassion fatigue in direct care nurses: A qualitative systematic review protocol. *JBI Evidence Synthesis, 15(7),* 1805-1811. doi: 10.11124/JBISRIR-2016-003143.

Sheppard, K. (2015). Compassion fatigue among registered nurses: Connecting theory and research. *Applied Nursing Research, 28(1),* 57-59. doi: 10.1016/j.apnr.2014.10.00

Silver, J., Caleshu, C., Casson-Parkin, S., and Ormond, K (2018). Mindfulness among genetic counselors is associated with increased empathy and work engagement and decreased burnout and compassion fatigue. *Journal of Genetic Counseling 27*: 1175-1186 http://doi.org/10.1007/s/10897-018-0236-6

Slater, P., Edwards, R. & Badat, A. (2018). Evaluation of a staff well-being program in a

pediatric oncology, hematology, and palliative care services group. *Journal of Healthcare Leadership 10* 67-85. doi: 10.2147/JHL.S176848

Slatyer, S., Craigie, M., Heritage, B., Davis, S., & Rees, C. (2017). Evaluating the effectiveness of a brief mindful self-care and resiliency (MSCR) intervention for nurses: A controlled trial. *Mindfulness, 9(2),* 534-546. doi:10.1007/s12671-017-0795-x

Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International journal of behavioral medicine, 15(3),* 194-200. doi: 10.1080/10705500802222972

Stamm, B. H. (2009). *Professional Quality of Life: Compassion Satisfaction and Fatigue Version 5 (ProQOL).* Professional Quality of Life Measure. Retrieved September 2, 2020, from https://proqol.org/uploads/ProQOL_5_English.pdf

Stamm, B. H. (2010). The ProQOL (Professional Quality of Life Scale: Compassion Satisfaction and Compassion Fatigue). *Pocatello*, ID: ProQOL.org. Retrieved September 2, 2020 from www.proqol.org

The Koru story - mindfulness for college-aged students. (2020). The Center for Koru Mindfulness Retrieved on March 10, 2021, from https://korumindfulness.org/about/the-koru-story/.

Turner, S. B., & Kaylor, S. D. (2015). Neuman systems model as a conceptual framework for Nurse Resilience. *Nursing Science Quarterly, 28(3),* 213–217.

https://doi.org/10.1177/0894318415585620

Wells-English, D., Giese, J., & Price, J. (2019). Compassion fatigue and satisfaction: Influence on turnover among oncology nurses at an urban cancer center. *Clinical Journal of Oncology Nursing, 23(5),* 487-493 doi: 10.118/19.CJON.487-493

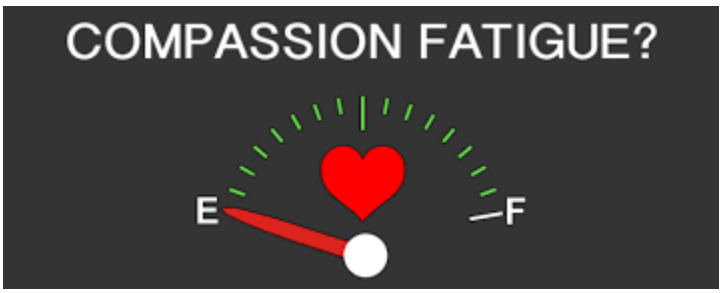
West, M. M., Wantz, D., Shalongo, G., Campbell, P., Berger, K., Cole, H., Seroski, D., & Cellitti, K. (2017). Evaluation of compassion and resilience in nurses: From evidence-based projects to research findings. *Nursing Palliative Care, 2(4),* 1-7. doi:10.15761/NPC.1000159

Yang, Y., & Kim, J. (2016). Factors influencing turnover intention in clinical nurses: Compassion fatigue, coping, social support, and job satisfaction. *Journal of Korean Academy of Nursing Administration, 22(5),* 562-569. https://doi.org/10.11111/jkana.2016.22.5.562

APPENDICES

Appendix A: Facebook Flyer

Attention Pediatric Oncology Nurses!



You are invited to participate in a study to examine the relationship between mindfulness, compassion fatigue and resiliency among registered nurses within an inpatient pediatric oncology department.

The study will take a total of 4-weeks to complete and will consist of a survey to measure compassion fatigue and resilience prior to and following a Koru® mindfulness course. The course will be held once a week for 90-minutes and will be accompanied by an app that will require 10 minutes per day of meditation.

Mindfulness may have a positive impact on your state of mind and information learned from this study may potentially benefit other nurses in the future.

If you are interested, please send an email to Sara Neal, BSN, RN, CPN, CPHON at sneal6@atu.edu by December 14, 2020. Please don't hesitate to ask questions by contacting Sara Neal at 501-276-4968.

Appendix B: Study Information Sheet

I am grateful for your consideration in participating in this research study. This intent of this letter is to explain the research purpose, benefits, confidentiality and participation guidelines for this research study.

The purpose of this study is to examine the relationship between participation in a Koru® mindfulness program and decreased compassion fatigue and increased resiliency among registered nurses that provide care primarily to pediatric oncology patients. Overall, this study explores the impact of mindfulness session on compassion fatigue and resiliency.

The study will take place, virtually, during the day, via Zoom, on Fridays over a 4-week time period from January 8th – 29th. During this time, participants will be expected to attend a 90-minute Koru® virtual course once a week, utilize an accompanying mindfulness practice app for 10 minutes a day, and read from the book entitled: *The Mindful Twenty Something* (optional). Prior to the first session and following the last session, there will be a survey to complete in order to track information regarding compassion fatigue and resiliency. Surveys are anonymous and your responses will be kept confidential. You will be asked to create your own unique identifier in order to link your survey responses to future compassion fatigue assessments. Data downloaded from REDCap will be coded so that it is not possible to link your identity with any responses. No individual responses will be shared, and your responses will be combined and reported with other responses received from the participants.

Participation in this study is completely voluntary with the right to withdrawal from the study at any point. Your membership to the facebook group will not be affected if you decide to or not to participate or if you want to withdraw from the study. Your survey responses are kept confidential. The benefits for the participants include the potential decrease of compassion fatigue and potential increase of resiliency from participating in the mindfulness program and daily app activities. Knowledge gained from the study could potentially benefit pediatric nurses in the future if the Koru® program is demonstrated to prevent CF and increase resiliency of pediatric oncology nurses. The findings from this may be used to develop organizational strategies targeted at reducing compassion fatigue and increasing resiliency of nursing staff that may result in a healthier workforce and decreased turnover.

In completing the study, there is a possible risk of emotional discomfort when answering some of the survey questions. Participants are encouraged to contact psychological support services if you are experiencing emotional discomfort. These services include Arkansas Crisis Center at phone number: 888-274-7472 or website arcrisis.org; and Psychology Today at website psychologytoday.com to search via zip code for a list of support groups and counselors in your area. The Arkansas Tech University Institutional Review Board has approved this research study. If you have any questions or concerns about this study, contact the principal investigator, Sara Neal, at sneal6@atu.edu or (501) 276-4968. You may also contact my thesis chair, Dr. Shelly Randall at srandall@atu.edu. If you have additional questions about your rights as a research subject, If you have questions regarding your rights as a research participant or you have

concerns or general questions about the research, contact Arkansas Tech University IRB Office at (844) 804-2628.

Thank you for taking the time to consider participating in this research study!

Appendix C: Informed Consent

Arkansas Tech University

Informed Consent Statement for Participation in a Mindfulness Study

Title of Project: Mindfulness Sessions for Prevention of Compassion Fatigue in Pediatric Oncology Nurses

Principal Investigator: Sara Neal, BSN, RN, CPN, CPHON

Request to Participate in Research: I invite you to take part in a research study Mindfulness Sessions for Prevention of Compassion Fatigue in Pediatric Oncology Nurses, which seeks to examine that relationship between mindfulness, compassion fatigue and resilience, prior to and following Koru® mindfulness course. Taking part in this study is entirely voluntary. We urge you discuss any questions about this study with our principal investigator, Sara Neal at (501) 276-4968 or via email at sneal6@atu.edu.

Purpose: The purpose of this study is to examine the relationship between mindfulness and compassion fatigue among registered nurses that care primarily for pediatric oncology patients.

Participation: The decision to participate is completely voluntary. Once you 'agree' to participate in the study, you will be asked to take a survey measuring compassion fatigue and resilience, followed by a short generalized demographic survey. Once surveys are completed, you will take part in a 4-week Koru® mindfulness course, scheduled to take place during the month of January 2021. This will require a 90-minute virtual course ~~class~~ once a week and 10-minutes of daily homework through the associated app and optional book. Upon completion of the course, the survey measuring compassion fatigue and resilience will be re-administered, in addition to a short survey about the ~~class~~ course.

Risks: The possible risks of the study are minimal. Participants may experience emotional discomfort associated with the self-reflection needed to complete the survey. Participants are encouraged to contact psychological support services if you are experiencing emotional discomfort. These services include Arkansas Crisis Center at phone number: 888-274-7472 or website arcrisis.org; and Psychology Today at website psychologytoday.com to search via zip code for a list of support groups and counselors in your area. Participants may experience a feeling of obligation to complete the surveys, course times, and homework due to their membership in the facebook group. Also, participants may feel a loss of anonymity and confidentiality due to their participation in this study. These risks will be reduced by conducting the course, virtually, away from fellow co-workers. Also, you will be asked to create your own unique identifier in order to link your survey responses to future compassion fatigue assessments. Data downloaded from REDCap® will be coded so that it is not possible to link your identity with any responses. No individual responses will be shared, and your responses will be combined and reported with other responses received from the participants.

Benefits: The benefits for the participants include the decrease of compassion fatigue and increase of resiliency. Knowledge gained from the study could potentially benefit pediatric

nurses in the future if the Koru® program is demonstrated to prevent or decrease CF and increase resiliency of pediatric oncology nurses. The findings from this may be used to develop organizational strategies targeted at reducing compassion fatigue and increasing resiliency of nursing staff that may result in a healthier workforce and decrease turnover.

In addition, there are possible benefits to others due to compassion fatigue has been found to be a threat to the quality of care and safety for patients, retention of nurses, and productivity, the benefits to the community include a safer hospital environment for themselves and the healthcare providers.

Cost/Reimbursement: There is no financial cost.

Confidentiality: Participation in this research study will be confidential and known only by you as the ProQOL and BRS surveys. They are scored numerically by noting the frequency of occurrences and agreement with statements within the REDCap® website. The unique identifier used in these surveys will only be known to you. REDCap® data will be completely anonymized with no way to relink it to individuals after initial data collection. The Zoom meetings will be secured, chat and recording functions will be disabled. In addition, to help maintain confidentiality, participants will be asked to create a single name of their choosing to be identified by throughout the study.

Contact Information: If you have any questions about this research study, you may contact Sara Neal, Primary Investigator, at 501-276-4968 or email sneal6@atu.edu. You may also contact Dr. Shelly Randall, Graduate Research Advisor at srandall@atu.edu or through the Arkansas Tech University (ATU) Nursing Department at 479-968-0383

Participant Rights: You have the right to have all study related questions answered. If you have questions regarding your rights as a research participant or you have concerns or general questions about the research, contact Arkansas Tech University IRB Office at (844) 804-2628. For more information about participation in a research study and about the Institutional Review Board (IRB), a group of people who review the research to protect your rights, please visit Arkansas Tech University's IRB web site at https://www.atu.edu/ospui/human_subjects.php . Included on this web site, under the heading "Participant Info", you can access federal regulations and information about the protection of human research participants. If you do not have access to the internet, copies of these federal regulations are available by calling the Arkansas Tech University at (844) 804-2628

Consent: Participation is voluntary and survey responses are anonymous. By replying to this email, you indicate that you have read the information written above and have volunteered to participate in this research study. Once the reply has been received by the primary investigator, another email with a link to the survey will be sent to be completed prior to the first Koru® Zoom Session

Appendix D: Koru® Course Requirements

•Attendance at all 4 course times

•Optional reading: The Mindful Twenty-Something (a free PDF version of the book will be emailed to participants once course starts)

•10 minutes of mindfulness practice each day

•Weekly mindfulness activity

•A log of mindfulness practice submitted through the mobile app each day

•Completion of a course evaluation at the end

Koru® Class-Structure

•Four, 90-minute classes

•Classes are small, diverse groups with maximum of 12 students

•Each class includes:

•Short opening meditation

•Check-in

•Mind-body skill

•Mindfulness meditation practice

The Meditation Skills being taught:

•Class 1 – Dynamic Breathing & Diaphragmatic Breathing

•Class 2 – Walking Meditation

•Class 3 – Guided Imagery

•Class 4 – Eating Meditation

The Guided Meditations being taught

•Class 1 – Body Scan

•Class 2 – Gatha

•Class 3 – Labeling Thoughts

•Class 4 – Labeling Feelings

Appendix E: Mindfulness Presurvey

Thank you for taking the time to complete this survey.

1) Time Stamp

2) Date Stamp

3) In order to ensure anonymity and track your responses over time, please develop your own unique identifier by answering the following questions:

1) First letter of the city you were born,
2) The first digit of your street address,
3) First three letters of your mother's first name,
4) The two-digit day of your birthday.

An example of a composed personal identifier is: L35ar12.

Professional Quality of Life (ProQOL)
Credit: The Center for Victims of Torture (2019)
Link: ProQOL

4) I am happy.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

5) I am preoccupied with more than one person I care for.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

6) I get satisfaction from being able to care for people.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

7) I feel connected to others.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

8) I jump or am startled by unexpected sounds.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

9) I feel invigorated after working with those I nurse.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

10) I find it difficult to separate my personal life from my life as a nurse.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

11) I am not as productive at work because I am losing sleep over traumatic experiences of a person I nurse.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

12) I think that I might have been affected by the traumatic stress of those I nurse.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

13) I feel trapped by my job as a nurse.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

14) Because of my nursing, I have felt "on edge" about various things.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

15) I like my work as a nurse.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

Professional Quality of Life (ProQOL)
Credit: The Center for Victims of Torture (2019)
Link: ProQOL

4) I am happy.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

5) I am preoccupied with more than one person I care for.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

6) I get satisfaction from being able to care for people.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

7) I feel connected to others.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

8) I jump or am startled by unexpected sounds.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

9) I feel invigorated after working with those I nurse.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

10) I find it difficult to separate my personal life from my life as a nurse.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

11) I am not as productive at work because I am losing sleep over traumatic experiences of a person I nurse.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

12) I think that I might have been affected by the traumatic stress of those I nurse.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

13) I feel trapped by my job as a nurse.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

14) Because of my nursing, I have felt "on edge" about various things.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

15) I like my work as a nurse.
○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

Confidential

29) I feel "bogged down" by the system.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

30) I have thoughts that I am a "success" as a nurse.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

31) I can't recall important parts of my work with trauma victims.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

32) I am a very caring person.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

33) I am happy that I chose to do this work.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

Confidential

Brief Resilience Survey
Credit: Smith, B.W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P. and Bernard, J. or Smith et al., 2008.

34) I tend to bounce back quickly after hard times.

○ Strongly disagree ○ Disagree ○ Neither agree or disagree ○ Agree ○ Strongly agree

35) I have a hard time making it through stressful events.

○ Strongly disagree ○ Disagree ○ Neither agree or disagree ○ Agree ○ Strongly agree

36) It does not take me long to recover from a stressful event.

○ Strongly disagree ○ Disagree ○ Neither agree or disagree ○ Agree ○ Strongly agree

37) It is hard for me to snap back when something bad happens.

○ Strongly disagree ○ Disagree ○ Neither agree or disagree ○ Agree ○ Strongly agree

38) I usually come through difficult times with little trouble.

○ Strongly disagree ○ Disagree ○ Neither agree or disagree ○ Agree ○ Strongly agree

39) I tend to take a long time to get over setback in my life.

○ Strongly disagree ○ Disagree ○ Neither agree or disagree ○ Agree ○ Strongly agree

Demographics

40) About how many years have you been practicing as a nurse?

- ◯ 0-5 years
- ◯ 6-10 years
- ◯ 11-20 years
- ◯ More than 20 years

41) About how many years have you been practicing as a pediatric nurse?

- ◯ 0-5 years
- ◯ 6-10 years
- ◯ 11-20 years
- ◯ More than 20 years

42) About how many years have you been practicing in a specialized pediatric field (Oncology, Emercency Department, Intensive Care, etc)?

- ◯ 0-5 years
- ◯ 6-10 years
- ◯ 11-20 years
- ◯ More than 20 years

43) What is your highest nursing educational degree?

- ◯ Diploma in Nursing
- ◯ Associate of Science in Nursing (ASN)/Associate Degree in Nursing (ADN)
- ◯ Baccalaureate of Science in Nursing
- ◯ Master of Science in Nursing
- ◯ Doctor in Nursing (DNP)
- ◯ Doctor of Philosophy in Nursing (PhD)

44) I have previously attended a mindfulness course.

◯ Yes ◯ No

45) I have a current understanding of mindfulness.

◯ Yes ◯ No

Appendix F: Mindfulness Postsurvey

Thank you for taking the time to complete this survey.

1) Time Stamp

2) Date Stamp

3) In order to ensure anonymity and track your responses over time, please develop your own unique identifier by answering the following questions:

1) First letter of the city you were born,
2) The first digit of your street address,
3) First three letters of your mother's first name,
4) The two-digit day of your birthday.

An example of a composed personal identifier is: L5Sar12.

Professional Quality of Life (ProQOL)
Credit: The Center for Victims of Torture (2019)
Link: ProQOL

4) I am happy.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

5) I am preoccupied with more than one person I care for.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

6) I get satisfaction from being able to care for people.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

7) I feel connected to others.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

8) I jump or am startled by unexpected sounds.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

9) I feel invigorated after working with those I nurse.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

10) I find it difficult to separate my personal life from my life as a nurse.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

11) I am not as productive at work because I am losing sleep over traumatic experiences of a person I nurse.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

12) I think that I might have been affected by the traumatic stress of those I nurse.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

13) I feel trapped by my job as a nurse.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

14) Because of my nursing, I have felt "on edge" about various things.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

15) I like my work as a nurse.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

16) I feel depressed because of the traumatic experiences of the patients I nurse.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

17) I feel as though I am experiencing the trauma of a patient I have nursed.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

18) I have beliefs that sustain me.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

19) I am pleased with how I am able to keep up with nursing techniques and protocols.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

20) I am the person I always wanted to be.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

21) My work makes me feel satisfied.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

22) I feel worn out because of my work as a nurse.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

23) I have happy thoughts and feelings about those I nurse and how I could help them.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

24) I feel overwhelmed because my case nurse load seems endless.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

25) I believe I can make a difference through my work.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

26) I avoid certain activities or situations because they remind me of frightening experiences of the people I nurse.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

27) I am proud of what I can do to nurse.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

28) As a result of my nursing, I have intrusive, frightening thoughts.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

29) I feel "bogged down" by the system.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

30) I have thoughts that I am a "success" as a nurse.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

31) I can't recall important parts of my work with trauma victims.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

32) I am a very caring person.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

33) I am happy that I chose to do this work.

○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often

Brief Resilience Survey
Credit: Smith, B.W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P. and Bernard, J. or Smith et al., 2008.

34) I tend to bounce back quickly after hard times.

○ Strongly disagree ○ Disagree ○ Neither agree or disagree ○ Agree ○ Strongly agree

35) I have a hard time making it through stressful events.

○ Strongly disagree ○ Disagree ○ Neither agree or disagree ○ Agree ○ Strongly agree

36) It does not take me long to recover from a stressful event.

○ Strongly disagree ○ Disagree ○ Neither agree or disagree ○ Agree ○ Strongly agree

37) It is hard for me to snap back when something bad happens.

○ Strongly disagree ○ Disagree ○ Neither agree or disagree ○ Agree ○ Strongly agree

38) I usually come through difficult times with little trouble.

○ Strongly disagree ○ Disagree ○ Neither agree or disagree ○ Agree ○ Strongly agree

39) I tend to take a long time to get over setback in my life.

○ Strongly disagree ○ Disagree ○ Neither agree or disagree ○ Agree ○ Strongly agree

Satisfaction Questions

Please indicate your level of agreement with each item below.

40) I have a current understanding of mindfulness.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree or disagree
- ◯ Agree
- ◯ Strongly agree

41) I believe the course was helpful.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree or disagree
- ◯ Agree
- ◯ Strongly agree

42) I plan to continue to utilize content learned during these sessions.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree or disagree
- ◯ Agree
- ◯ Strongly agree

43) I have already started using techniques learned in this program.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neither agree or disagree
- ◯ Agree
- ◯ Strongly agree

Comments

44) Please provide any comments or suggestions regarding ways to improve mindfulness sessions.

45) If you have any additional comments, please post them here.

Appendix G: Letter of Permission

November 24, 2020

To Whom It May Concern

This letter is to authorize Sara Neal to post inforamiton about her study entitled *Mindfulness Sessions for Prevention of Compassion Fatigue in Pediatric Oncology Nurses* on the *I Hate Childhood Cancer* Facebook group page. This group is a closed group for Pediatric Oncology Nurses practicing in Central Arkansas.

Sincerely,

Lindsey Ward, RN, BSN, CPN, CPHON

Administrator for *I Hate Childhood Cancer* Facebook group

Table 1

Summary of Demographic Results

N = 9 Characteristics	# of participants	% of participants
Years Practicing as a Nurse		
0 – 5	2	22.3%
6 – 10	3	33.3%
11 – 20	3	33.3%
More than 20 years	1	11.1%
Years Practicing as a Pediatric Nurse		
0 – 5	2	22.3%
6 – 10	3	33.3%
11 – 20	3	33.3%
More than 20	1	11.1%
Years Practicing in Specialized Pediatric Field (Oncology, Emergency Department, Intensive Care, etc.)		
0 – 5	2	22%
6 – 10	4	45%
11 – 20	3	33%
More than 20	0	0%
Highest Nursing Educational Degree		
Diploma	0	0%
Associate	1	11%
Bachelors	5	56%
Masters	3	33%
Doctor in Nursing	0	0%
Doctor of Philosophy in Nursing	0	0%

Table 2

Summary of Professional Quality of Life (ProQOL) v.5 Mean Results

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pretest burnout	2.5111	9	.42557	.14186
	posttest burnout	1.8667	9	.46637	.15546
Pair 2	pretest_compassion_satisfaction	3.7778	9	.41767	.13922
	posttest_compassion_satisfaction	4.2486	9	.49214	.16405
Pair 3	pretest_secondary_trauma	2.5222	9	.63004	.21001
	posttest_secondary_trauma	1.9972	9	.34831	.11610
Pair 4	pretest_proqol	2.9370	9	.22757	.07586
	posttest_proqol	2.7042	9	.12672	.04224

Table 3

Summary of Professional Quality of Life (ProQOL) v. 5 Paired Sample t-test Results

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	pretest burnout - posttest burnout	.64444	.69662	.23221	.10898	1.17991	2.775	8	.024
Pair 2	pretest_compassion_satisfaction - posttest_compassion_satisafaction	-.47083	.75218	.25073	-1.04901	.10735	-1.878	8	.097
Pair 3	pretest_secondary_trauma - posttest_secondary_trauma	.52500	.53968	.17989	.11017	.93983	2.918	8	.019
Pair 4	pretest_proqol - posttest_proqol	.23287	.18838	.06279	.08807	.37767	3.708	8	.006

Table 4

Pre and Post Brief Resilience Scale Mean Results

	Mean	N	Std. Deviation	Std. Error Mean
pretest brief resilience scale	3.5741	9	1.01074	.33691
posttest brief resilience scale	4.3333	9	.62361	.20787

Table 5

Pre and Post Brief Resilience Scale Paired-Samples t-test Results

	Paired Differences					t	Df	Sig (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
pretest brief resilience scale - posttest brief resilience scale	-.75926	1.08369	.36123	-1.59226	.07374	-2.102	8	.069

Table 6

Pre Mindfulness Results

N = 9 Mindfulness Questions	# of participants	% of participants
Previously Attended Mindfulness Course		
Yes	1	11%
No	8	89%
Current Understanding of Mindfulness		
Yes	4	44%
No	5	56%

Table 7

Post Mindfulness Satisfaction Results

N = 9 Mindfulness Questions	# of participants	% of participants
Current understanding of Mindfulness		
Strongly disagree	0	0%
Disagree	0	0%
Neither agree or disagree	0	0%
Agree	6	67%
Strongly agree	3	33%
Course was helpful		
Strongly disagree	0	0%
Disagree	0	0%
Neither agree or disagree	0	0%
Agree	3	33%
Strongly agree	6	67%
Plan to continue to utilize learned content		
Strongly disagree	0	0%
Disagree	0	0%
Neither agree or disagree	1	11%
Agree	2	22%
Strongly agree	6	67%
Have already started utilizing lessons learned		
Strongly disagree	0	0%
Disagree	0	0%
Neither agree or disagree	1	11%
Agree	2	22%
Strongly agree	6	67%