

The Effect of a Mindfulness-based Intervention on Occupational Stress Among In-patient Adult
Oncology Nurses

Nursing Practice Project Proposal

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On my honor as a student, I have neither given nor received inappropriate aid on this assignment

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Abstract

Problem/Background: Continuous exposure to death and dying patients is ubiquitous in oncology nurses. Over time, oncology nurses can develop occupational stress especially when involved in the care of acutely ill patients and patients at the end of life. Due to these highly stressful exposures, oncology nurses are placed at increased risk for burnout, a condition that contributes to medical errors, emotional exhaustion, and low patient satisfaction. Physical or mental collapse caused by occupational stress is common among oncology nurses. The development and testing of mindfulness-based interventions in the hospital setting can modify occupational stress perceptions and promote quality of life among oncology nurses.

Purpose of the Project: The purpose of this Quality Improvement project was to provide oncology nurses an opportunity to participate in on-site mindfulness-based intervention education sessions to minimize occupational stress.

Methods: A convenience sample of 17 oncology nurses were recruited from a central Virginia academic medical center's adult in-patient units. Participants received a mindfulness-based intervention, once weekly, during 20-minute sessions over four weeks, to determine the effect on occupational stress and mindfulness. Non-parametric analyses were performed using Wilcoxon signed-rank tests for perceived stress and mindfulness attention awareness.

Results: Results demonstrate a statistically significant reduction in occupational stress and improvement in mindfulness attention awareness among inpatient oncology nurses who participated in the intervention.

Conclusion: This project provides supporting evidence that the utilization of mindfulness-based interventions may be an effective short-term strategy for reducing oncology nurses' symptoms of psychological stress and improving their overall mindfulness while providing care in a highly

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stressful clinical setting. Further studies that evaluate long term outcomes among a larger sample are needed.

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Problem Description

Occupational stress experienced by nurses in a variety of clinical settings is becoming more apparent worldwide (Ribeiro et al., 2014). Oncology nursing involves the management of individuals with complex oncologic pathologies who may have a poor prognosis, close and constant contact with patients who are in severe pain, distress and some who are approaching death. Oncology nursing deals with difficult patient and family situations, which can pose an additional challenge and contribute to job dissatisfaction, stress, and burnout (Potter et al., 2010). Occupational stress has the potential to have devastating effects on all nurses, but particularly oncology nurses, that can result in high nursing staff turnover.

Estimates indicate that occupational stress is the largest occupational health problem after musculoskeletal disorders (Bernal et al., 2015). Occupational stress is defined as the harmful physical and emotional response that occurs when the perceived job demands exceed the workers' perceived capabilities and resources (Lambert & Lambert, 2001). Estimates put the overall annual U.S. cost of work-related stress at \$300 billion (Riley et al., 2017). These costs are due in large part to turnover and absenteeism, both of which increase with higher levels of workplace stress (Bureau of Labor Statistics, 2001).

Although investigators have found high levels of work-related stress across occupations, frontline mental health care providers who deliver direct services to those with serious mental health issues, may be particularly prone to stress exposure (Riley et al., 2017). In 2016, the Critical Care Societies Collaborative (CCSC), comprised of four major United States professional and scientific societies, convened and published a document that focuses attention on the prevalence of burnout syndrome and other psychological disorders like occupational stress and recommended stress reduction training and cognitive-behavioral therapy as potential

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interventions to help prevent and treat this important issue (Moss, Good, Gozal, Kleinpell, & Sessler, 2016).

The American Association of Critical-Care Nurses (AACN) confirms that acute and critical care nurses repeatedly voice concerns regarding the status of health care work environments, which is why the reaffirmation of safe and respectful work environments are measured by the AACN healthy work environment (HWE) assessment tool to ensure an organization's ethical accountability for the provision of safe and optimal care to patients and families (A Journey to Excellence, 2016). Supportive administrators and policies that promote positive healthy nurses' work environments must be willing to provide occupational health resources to individual nurses that foster self-care and resilience in the practice setting (Alexander et al., 2015). Nurses who are skilled in exercising self-reflection and self-care are better equipped to manage complex clinical dilemmas with emotional resilience, leading to safer and higher quality patient care and optimized outcomes (Alexander et al., 2015). It is not a new approach to focus on self-care strategies to prevent and help nurses cope with stress.

Mindfulness-based interventions (MBIs) are recommended by the National Health Service and the National Institute for Health and Care Excellence for the prevention and management of stress (National Institute for Health and Care Excellence, 2009). According to a recent critical review of the literature, mind-body practices are a clear strategy for nurses to manage stress and build emotional resilience (Smith, 2014). Nurses in a variety of specialty areas have reported improved outcomes after implementing mind-body techniques over time (Alexander et al., 2015). Several investigators have explored the impact of mindfulness training in healthcare professionals through interventions focused solely on meditation such as guided breathing, while others use mindfulness-based interventions that combine meditation, discussion,

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teaching, and homework (e.g., Mindfulness-based Stress Reduction) (Spinelli, Wisener, & Khoury, 2019).

Mindfulness-based stress reduction (MBSR) was developed by Kabat-Zinn at the University of Massachusetts Medical Center in 1979 (Smith, Richardson, Hoffman, & Pilkington, 2005). Mindfulness-based stress reduction is a stress reduction intervention that can be used to retrain the mind to change its usual responses to stressful situations and has substantial research-based evidence for its efficacy in a variety of medical, social, educational, intercultural, and work-site settings (Grossman, Niemann, Schmidt, & Walach, 2004). More than three decades of empirical research illustrating the health benefits of this valuable approach of teaching non-reactive awareness of one's affective response to external events is presented as the key to changing one's internal experience of stress (Klatt, Steinber, & Duchemin, 2015).

Traditionally, MBSR is a time-intensive structured mind-body program held for an eight week period for a combined total of 26 hours that utilizes mindfulness meditation and yoga postures to help manage a variety of adverse health issues, including stress (Klatt, Steinber, & Duchemin, 2015). This type of required time commitment of traditional MBSR is not as applicable for personnel working in a chronically high stress work environment who may not have time or energy to address their stress outside of work hours, but who could greatly benefit from the stress reduction effects it offers (Klatt, Steinber, & Duchemin, 2015).

MBIs implemented during the actual workday, that are onsite as part of an institutional initiative to combat stress and its impact in an attempt to transform organizational culture has been tested (Klatt, Steinber, & Duchemin, 2015). One type of a MBI is called Mindfulness in Motion (MIM) and is delivered within the workplace and structured in short sessions that do not impact the professional routine (Klatt, Steinber, & Duchemin, 2015). MBIs have been shown to

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provide a valid option for nurses to improve psycho-physical well-being within their work environment. The greatest advantage to MBI's is that the intervention can be provided through simple meditation exercises which do not require a specific environment and it can be performed in any workplace setting (Cocchiara et al., 2019). However, data from some MIM intervention studies do not conduct measurements of mindfulness. Studies without such measures of mindfulness, participant responsiveness and exposure to the key intervention component, makes it difficult to conclude whether changes in stress resulted from increased levels of mindfulness or some other aspect of the intervention (Burton et al., 2017).

Kemper et al. (2011) conducted an anonymous survey of 342 nurses that demonstrated 50% of nurses had high expectations in mind-body training aimed at reducing anxiety, gaining serenity and a greater psychic well-being. Almost all of the nurses reported having tried a mind-body practice, and among these, 34% reported participation in meditation activities such as yoga, chi, or qigong. The findings of this study demonstrate interest and demand for MBSR is strong and growing. To highlight the rising problem of burnout, the National Academy of Medicine (NAM) held a public meeting in 2017 to address burnout among healthcare professionals and its negative impact on quality, safety, and health care system performance (Dyrbye, 2017).

Project Purpose

Education regarding methods of stress reduction and body awareness of stress levels can be provided as a primary prevention measure before stress levels become high and burnout is experienced. In order to enhance mindfulness and address occupational stress among oncology nursing staff, this Doctor of Nursing Practice (DNP) student investigator aimed to implement a MBI on-site. The DNP student investigator implemented an intervention that was previously tested but adapted by an abbreviated mindfulness-based intervention during shift hours.

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Therefore, the purpose of this QI project was to determine the short-term effects of an MBI on occupational stress among inpatient adult oncology nurses.

Available Knowledge

Search Strategy

A literature search was conducted from June 2019 to July 2019 using a set of electronic databases: PubMed, Web of Science and CINAHL. All levels of evidence were included, and search terms were kept as broad as possible to ensure a comprehensive review of literature. The search strategy was developed in consultation with the assistance of a research librarian at the University of Virginia.

The year of publication was not restricted. Search terms included “nurse,” “nurses,” “nurs*,” “stress,” “burnout,” “mindfulness,” “compassion fatigue,” and “mindfulness based programs.” All abstracts that were in the English language were reviewed. Articles were accepted if conducted outside of the United States (US). Gray literature was not included in this database search.

The inclusion criteria for eligible studies were peer-reviewed articles and dissertations adhering to the following population, intervention, comparison, outcome, and setting (PICOS) criteria: 1) Sample consisted of a majority of nurses, 2) Intervention was based primarily on meditation or mindfulness or movement meditation and could be conducted in person through a group or individual settings, 3) At least one quantitative measure (e.g., mindfulness, anxiety, well-being, stress, burnout, self-compassion, clinical skills) taken at baseline and post-intervention must be reported, and 4) Participants were employed in a hospital setting.

Studies were excluded if: 1) Nurses were not the majority of participants in the project measured, 2) Mindfulness or meditation was not the primary intervention, 3) Qualitative studies,

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4) Data were already included in other articles, 5) Publication language was not in English, 6) Interventions were based online, and 7) Participants were not working in a hospital setting.

Selection of Studies

The search was completed from all databases and compiled into one organized citation manager (Zotero, Fairfax, Virginia). The total search resulted in 317 studies where duplicates were removed and 234 relevant publications remained. The relevant title search was conducted next thereby excluding 91 studies. The remaining abstracts were then reviewed and retained based on inclusion and exclusion criteria leaving the search with 45 studies for full text review. All levels of evidence from systematic reviews to case reports and expert opinion were eligible for inclusion. Reference lists of selected articles were also hand searched for other relevant articles.

The final total included eight studies for final review. The 37 excluded studies either did not meet the criteria of including nurses as the majority of participants or did not use Mindfulness, or meditation training, were qualitative studies, and/or the studies were unavailable. The number of studies identified and selected at each stage is summarized in the PRISMA flow (Figure 4).

Literature Review

Study Settings, Participants and Interventions

This literature review consisted of experimental and quasi-experimental studies and was designed to evaluate the effect of mindfulness-based interventions in nurses. A total of eight studies for final review included three systematic reviews with meta-analysis of pooled data, five randomized controlled trials (RCTs), two quasi-experimental non-randomized controlled trials and one pre-post research design. These studies consisted of single and multi-center institutions.

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Half of the studies were carried out in the US; three of the studies were conducted in the US, one in Europe, (US and Israel, and one each in South Korea, China, Turkey, and Portugal). The sample size at baseline varied from 25 to 248. The combined average number of participants involved in all eight studies was 83. More than half of the studies used a randomized controlled trial RCT design. Kravits et al. (2010) used a pre-post research design, while Duarte & Pinto-Gouveia (2016) used a nonrandomized, wait-list comparison design. All of the interventions consisted of hospital-based on-site mindfulness interventions in different clinical settings ranging from oncology, acute and critical care units. The majority of participants studied were nurses who worked in hospitals.

All of the investigators used self-selected participants which is a standard and preferred practice for MBIs as this type of intervention is believed to be most effective when individuals choose to engage (Guillaumie, Boiral, & Champagne, 2017). Where participants opt into an intervention, they may be more motivated to engage with the program and therefore, provide a selection bias (Guillaumie, Boiral, & Champagne, 2017).

Half of the studies utilized a theoretical framework. Kravits et al. (2010) and Tsai (1992) focused primarily on Lazarus and Folkman's (1984) Cognitive Model of Stress and Coping. All of the studies conducted utilized a multitude of instruments, but most commonly used was the Professional Quality of Life Scale (ProQual) and Maslach Burnout Inventory (MBI).

The most frequent intervention components were relaxation, meditation (with no specific approach mentioned) and the MBSR program. Klatt, Steinber, and Duchemin (2015) complemented this with other components such as yoga. Kravits et al. (2010) used art therapy. Most interventions were based on group meetings. The number of meetings varied substantially across studies: Tsai (1992) held 90 minute sessions over five weeks, Kravits et al. (2010) held

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one six hour session with three additional sessions held off site, Cohen & Katz (2005a) held two and a half hour sessions over eight weeks and one six hour day long retreat, Duarte & Pinto-Gouveia (2016) held two hour sessions over six weeks, Chang & Kwak (2016) held sessions ranging from one hour to 90 minute sessions over eight weeks, Klatt, Steinber, and Duchemin (2015) one hour sessions for eight weeks and Moody et al. (2013) held six weekly one hour sessions with an initial six hour session and concluded with a three hour wrap up session for a total of eight weeks. Onan, Işıl, & Barlas (2013) held nine sessions once weekly with each session lasting 90 minutes. Instructors of the interventions ranged from certified Yoga instructors, a principal investigator, and a trained instructor of MBSR. Cohen & Katz et al. (2005a), Duarte & Pinto-Gouveia (2016), and Chang & Kwak (2016) utilized trained professionals as a MBSR instructor followed by peer-led instructors in Kravit's (2010) project.

An independent *t*-test illustrated no significant differences between the treatment and wait-list control groups' means on the mindfulness attention awareness scale (MAAS) pre-intervention and highly significant differences on the means post-intervention ($P = .001$) (Cohen-Katz et al., 2005a). The Brief Symptom Inventory (BSI) analyzed the number of people showing elevated psychological distress pre-intervention decreased following the MBSR program in both the treatment and wait-list control groups. Twenty-five percent of the treatment group showed elevated psychological distress pre-intervention and only eight percent showed elevated psychological distress post-intervention. However, a Fisher exact test did not reveal a pre-post statistically significant difference in either the treatment ($P = .25$) or wait-list control ($P = .16$) group, which they attributed to having a small sample size (Cohen-Katz et al., 2005a).

Study Results

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Although intervention delivery differed between studies, significant effects were consistently found within seven of the eight studies. Onan, Işıl, and Barlas (2013) investigated the mean ways of coping, which revealed an increase in the scores for effective mindfulness meditation techniques and a reduction for ineffective techniques after mindfulness training compared to the pre-training scores. However, the researchers found that cognitive behavioral interventions, relaxation techniques and group-based approaches reduced stress and anxiety among oncology nurses, with the stress scores exhibiting a statistically significant reduction after the training ($p=0.000$; $p=0.000$; $p=0.006$). There was an insignificant difference between the post-training and one month scores post-intervention demonstrating that stress reduction was maintained one month after the training ($p=0.006$; $p=0.005$; $p=0.008$) (Onan, Işıl, & Barlas, 2013).

A goal of Klatt, Steinber, and Duchemin's (2015) mindfulness intervention was that the nurses who work in chronic high stress environments would increase the ability to remain resilient in the face of stressful work events. They suggested that resiliency improved the perceived stress response. Using the Connor-Davidson Resiliency Scale, they found that resiliency improved after their 8 week intervention in the MIM group (112.9%, $p = 0.0230$, $t = 2.397$), with no change in the waitlist control group (101.7%, $p = 0.7330$, $t = 0.3345$; Klatt, Steinber, & Duchemin, 2015). These data show that a meditation program is a safe, effective, modality to reduce occupational stress and suggested that hospitals implement these meditation programs universally (Guillaumie, Boiral, & Champagne, 2017).

A limitation to Klatt, Steinber, and Duchemin's (2015) project was that it was delivered on-site thereby relying heavily on institutional support to replace costly nursing personnel. In all other studies, project participants were required to attend during their personal time. Another

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limitation is that a conveniently located conference room is required on-site for optimal attendance (Klatt, Steinber, & Duchemin, 2015).

Duarte and Pinto-Gouveia (2016) proposed that administrative support is required to ensure attendance and intervention adherence. Moody et al. (2013) was unable to show any statistically significant effects of the mindfulness training on burnout, perceived stress, or depression and attributed this to the severity of the oncology nurse level of perceived stress and burnout. The Tsai (1992) study reported that nurses who participated in relaxation training focused on occupational stress reported lower stress scores than the control group. However, Tsai (1992) reported no interaction effect between treatment and length of time over the six weeks, illustrating the control and intervention group had different peaks for decreasing stress scores scattered throughout the six weeks for both groups.

Duarte and Pinto-Gouveia's (2016) study was a six week mindfulness-based group intervention built generally on the principles and exercises of MBSR reduction by Kabat-Zinn. However, the length of the program was adapted to make it easier to incorporate into nurses' work schedules. Study results were promising, but also had several limitations. Restrictions related to shifts and management of human resources did not allow randomization of participants to the intervention and participants were assigned by choice rather than by chance, which may have introduced selection bias (Duarte & Pinto-Gouveia, 2016). There was also a high attrition rate in this project. They attributed the missing data at the final measure secondary to the multitude of questionnaires administered. They also reported the use of multiple testing which can increase errors in inference and can lead to type I errors (Duarte & Pinto-Gouveia, 2016).

Chang and Kwak's (2016) study was a RCT on 50 in-patient nurses, examining the effects of a meditation program on nurses' power and quality of life. They found the frequency

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of attendance to the session was proportional to the degree of quality of life improvement ($r = .619$, $p = .003$) and participants were more satisfied with the program ($r = .463$, $p = .034$).

Kravits et al. (2010) had missing demographic data but it is not clear if these missing data had an impact on the analysis of specific measures related to the interventions, as those measures had a 100% response rate. All investigators among the eight studies called for future studies that longitudinally identify the processes and structures that promote robust, enduring healthy work habits. It has been demonstrated that a high turnover rate is associated with oncology nurses and would be worth the financial investment necessary to offer such self-care options for retaining qualified nurses (Kravits, 2010).

In addition to standard MBSR interventions, the inclusion of non-MBSR interventions in this review indicate that regardless of variations in intervention delivery, including length, dosage and technique of mindfulness-based interventions, short-term stress outcomes were improved (Guillaumie, Boiral, & Champagne, 2017).

Implications for Nursing

The complex nature of oncology patients and their treatments and other specialty nursing roles creates a certain amount of inevitable stress that may lead to occupational stress and burnout (Grafton, Gillespie, & Henderson, 2010). The data strongly support MBIs to decrease the occupational stress response and describes these as a vital resource that highlights the need for interventions to support mindfulness-based development and organizational strategies for nurses to be part of mainstream nursing education.

Theoretical Framework

Cognitive Model of Stress and Coping

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The theoretical framework for this project is based on the integration of stress, appraisal, and coping theories as they relate to how individuals react to psychologically stressful situations and/or environments (Lazarus & Folkman, 1984). Cognitive appraisal and coping are two critical processes that mediate the person-environment relationship. Cognitive appraisal has three categories: primary appraisal, secondary appraisal, and reappraisal (Figure 2).

Primary appraisal is the individual's evaluation of an event or situation as a potential hazard to their well-being and is also defined as when an individual concentrates on the magnitude of an event or situation, possibly causing harm. According to Lazarus and Folkman (1984), there are three types of primary appraisal: (a) irrelevant (b) benign positive, and (c) stressful, where the individual only perceives negative results or that the circumstances are detrimental to his or her well-being. Stressful appraisal will be the main focus as applied to this project.

Secondary appraisal is the individual's evaluation of his or her ability to handle an event or situation. This estimation of the range of coping skills in the individuals' repertoire occurs in relation to a primary appraisal of a situation (Lazarus, 1999). Thus, the evaluation is dependent on the subjective interpretation of whether or not the event poses a threat to the individual (i.e., primary appraisal) and whether or not the individuals perceive that they have the resources to cope with this event. The resulting appraisal then generates an emotion, or meaning, as attributed to the particular event or situation. The individual is now able to move from thinking to action, described as coping (Lazarus, 1999). An individual employs coping strategies in one of two ways: 1) By problem-focused coping, which is actively or behaviorally altering the external person-environment relationship; 2) Or emotion-focused coping, which is altering the personal or internal meaning or relationships (Lazarus, 1999).

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Occupational stress encountered as a consequence of engaging in holistic relationships can deplete the self and result in diminished personal resources and resilience that culminate in a reduced ability to manage a positive stress response (Grafton, Gillespie, & Henderson, 2010). Bush (2009) summed this up by stating, “Only when nurses take the time to heal themselves can they be truly available to aid in the healing of others” (p. 27). Researchers agree that a resilient individual is one who exhibits positive adaptation and cognitive transformation and is able to restore and strengthen the biopsychosocial-spiritual well-being of the self, cope more effectively during stressful situations, grow and learn from the experience, and, therefore, reduce vulnerability to future stress (Jackson et al., 2007).

This theoretical framework is relevant to this project as it applies cognitive approaches to oncology nurses as they appraise factors that contribute to occupational stress. Integrating this framework that incorporates stress, appraisal, and coping theories will help determine the psychological steps on how the oncology nurses cope with psychologically stressful situations and/or environments after the implementation of a mindfulness-based intervention.

Methods

QI Project Setting and Design

A one group pre-post intervention design was conducted to examine the effectiveness of MBIs on occupational stress in oncology nurses working on an in-patient unit over a four-week period. The project setting takes place in central Virginia at an academic medical center (AMC). The inpatient oncology and stem cell transplant cancer unit consisted of a day room where the intervention was conducted. The stem cell transplant unit employed 19 registered nurses and combined with oncology units employed 33 registered nurses. Recruitment took place on all units.

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Institutional Review Board (IRB) approval took place and each participant was provided with a study information sheet (IRB approval number 3317). A letter of invitation to participate in the project was sent to all Registered Nurses (RN) via electronic staff mail (e-mail) by the assistant nurse manager. The invitation letter explained the nature of the project and the appropriate contacts if one wished to enroll (Appendix D). The recruitment e-mail was sent out in two different waves, approximately two weeks apart to allow ample time for potential participants to respond in order to maximize participation. A walk-in enrollment was also allowed for the first and second week due to the fact that some participants who wished to enroll were not working during the first week of implementation.

Participants

Recruitment for this project was done using convenience sampling. Inclusion criteria were: RNs who work in any of the described adult oncology units, who are not on new employee orientation and nurses taking full patient assignments with no assistance from preceptors. The nurses did not receive any compensation for taking part in this project. The nurses verbally committed to attend every weekly session.

Intervention

Project support and approval was provided by the nurse manager, assistant nurse manager, and oncology director. The nurse manager and assistant nurse manager facilitated access to space close to the oncology units and reserved time on both day and night shifts throughout the four weeks. Because of rotating shift constraints, the MBI was held every day on the first and second week of implementation and then during the days those enrolled for each following week on both morning and night shifts (Table 3). The MAAS and PSS were administered and collected prior to the intervention on the first week and second week and after

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completion the final week of the intervention (Table 2). The demographic data were collected prior to the intervention on the first week and second week for all study participants (Appendix C). All questionnaires were coded by participants with use of their birth date on each questionnaire to maintain anonymity.

Intervention Components

The intervention consisted of a four-week MBI, based on the principles and exercises of MBSR (Kabat-Zinn, 1990). The time duration of each session was adapted to enable incorporation of the intervention into the oncology nurses' work schedule. The classes consisted of:

1. Relaxing music in the background to control the environment.
2. Begin each session by asking participants to count their respirations by placing their right hand on their chest and counting only inhalations for 30 seconds as timed by the instructor.
3. State that the intent of the mindfulness sessions is to encourage the explicitly defined objective of the program: stress reduction through mindful awareness of habitual patterns of stress reactivity.

Intervention by Week

- Week 1: Discussed types of communication/relational patterns participants noticed in life, and how to become aware of bodily patterns.
 - Participants were asked to cross their arms over their chest, then cross their arms the opposite way and notice whether or not this feels uncomfortable, or unusual, as it is different than their typical habit of which arm is typically on top.

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- Participants were asked to relax their feet and legs, then drop their weight into the chair, relax their shoulders down, and relax the muscles of the face. Then, they were asked to mindfully relax all the muscles of their body.
- Participants were asked to settle into their chairs and instructed to close their eyes and begin a body scan> The body scan consisted of tensing and relaxing each part of the body, bringing attention to their feet, legs, buttocks, stomach, chest, shoulders, lips, and open and close the lower jaw, thereby relaxing the jaw.
- Week 2: Participants were asked to become aware of their breathing by concentrating on the rise and fall of their chest. For just a few minutes, participants were encouraged to allow the mind-chatter to become quiet.
 - Participants were asked to take a deep breath in through the nose, then breath out through the mouth.
 - They were encouraged to:
 - Breathe in feeling the lungs expanding and breathe out to feel a sense of letting go;
 - Breathe in to feel the body getting fuller, then breathe out to feel the release of any tension;
 - Breathe in feeling alive and awake, then breathe out feeling muscles relaxing;
 - Breathe in that sense of fullness, then breathe out that unnecessary tension.

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- Participants were told: You may say I don't know what being mindful is and isn't. Mindfulness isn't about being perfectly present and focused at all times. Mindfulness isn't something only for people who practice yoga or meditate. Mindfulness is about being aware when your mind has wandered and bringing your focus and attention back to the moment.
- Participants were instructed to tense each part of the body (the lower body, the torso, the neck and shoulders, the head) and then release the tension as each body part relaxes.
- Week 3: Participants were led through stress relieving techniques such as:
 - Participants were instructed to use the STOP technique: a mini-meditation consisting of a pause (Stop, Take a breath, Observe current state of mind and body, Proceed). This guided participants through scenarios and to be mindful of their body while listening to a stressful experience and how they can implement the STOP technique in their everyday practice;
 - Participants were reminded to start small and stick with this new habit;
 - Participants were reminded to be comfortable and meditate in any position they'd like, including sitting on a chair even standing;
 - Participants were reminded that they were doing it right;
 - Participants were told that often meditators quit soon after they begin since they believe they are not correct in their methods. Participants were reminded that if the mind keeps wandering, that process is normal. They were instructed to return to the breathing exercises and to focus on each breath coming in and out.

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- Week 4: Participants were led through visualization of their thoughts:
 - Participants were asked to empty their mind by envisioning their thoughts as objects and through breathing and focus, on each one for a few seconds before pushing the thoughts further and further away.
 - Participants were asked to visualize a stressful event that happened at the workplace and be mindful of how their body was feeling during that event.
 - Participants were asked to visualize an image of a mountain. The participants were asked to imagine themselves as a solid mountain, with all the situations in life circling around the mountain while the mountain stays still. The participants were asked to imagine the body as an unmovable mountain.
- At the end of each session the participants were asked to count their respirations for 30 seconds.

Measures

Demographic data of the oncology nurses included: Age, race, years of experience in oncology, years of experience in nursing, level of education, partner status, and self-identified gender (Appendix C). The PSS was utilized to measure perceived occupational stress (Appendix A). The PSS is the most widely used psychological instrument that measures perception of stress (Cohen, Kamarck, & Mermelstein, 1983). The PSS is a 14-item instrument that uses a 5-point Likert-type scale designed to measure the degree to which situations in one's life are appraised as stressful (Cohen, Kamarck, & Mermelstein, 1983). Scores range from 0 to 45 with higher scores indicating higher stress levels and has well-established validity and reliability in adults (Cohen, Kamarck, & Mermelstein, 1983). The PSS was designed for use with community participants with at least a junior high school education. Items are designed to be easily

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understood with response alternatives simple to grasp (Cohen, Kamarck, & Mermelstein, 1983). Items were intended to test how unpredictable, uncontrollable, and overloaded respondents find their lives (Cohen, Kamarck, & Mermelstein, 1983).

The MAAS is focused on the presence or absence of attention to and awareness of what is occurring in the present rather than the past (Appendix B). The scale focuses on attributes such as acceptance, trust, empathy, gratitude, and others that have been associated with mindfulness (Shapiro & Schwartz, 2000). The MAAS is a 15-item self-report inventory utilizing a Likert-type scale to measure participants' mindfulness during everyday occurrences (Brown & Ryan, 2003). The MAAS assesses individual frequency of mindful states over time while centering on the presence or absence of attention to, and awareness of what is occurring at the present time (Brown & Ryan, 2003). Carlson and Brown (2005) studied the validity of the MAAS in a cancer patient population that was enrolled in a MBSR program and established research application to measure the role of mindfulness and psychological well-being.

Statistical Analysis

Study participant recruitment began in February 2020 and data were collected during March. All de-identified data were analyzed using SPSS Statistical Package for Social Sciences, Version 25 (Armonk, NY: 2017). A two-sided p value of less than .05 was used to establish statistical significance and data were analyzed with an intention to treat protocol. Each participant used their birthdate as their identification number for all questionnaires which helped to maintain anonymity and allowed paired analyses. Means, standard deviations, frequencies and percentages were reported for descriptive data as appropriate. At the conclusion of the final week all surveys were scored and entered into an SPSS spreadsheet. A non-parametric analysis was conducted by performing Wilcoxon signed-rank tests for these outcome measures: Perceived

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stress and mindfulness attention awareness scale (Table 4). These two scales of data did not fit a normal distribution and had a small sample size; therefore, Wilcoxon signed-rank test was used for analysis.

Results

Seventeen participants were enrolled, however, two participants dropped out after the first week of implementation. The majority of the sample were female ($n = 13$, 86.7%) and all participants were Registered Nurses ($N = 15$, 100%). The participant mean age was 30 years ($SD \pm 9.817$; range 22 – 52 years) (Figure 1) with the majority of participants identifying their race as Caucasian ($n = 11$, 73.3%), followed by African-American ($n = 3$, 20%), and other ($n = 1$, 6.7%). The majority of participants reported their partner status as single ($n = 12$, 80%), while the remaining as married ($n = 3$, 20%). Most participants achieved a baccalaureate degree ($n = 13$, 86.7%), with 4.1 years of nursing experience ($SD \pm 2.52$, range less than 1 to 10 years).

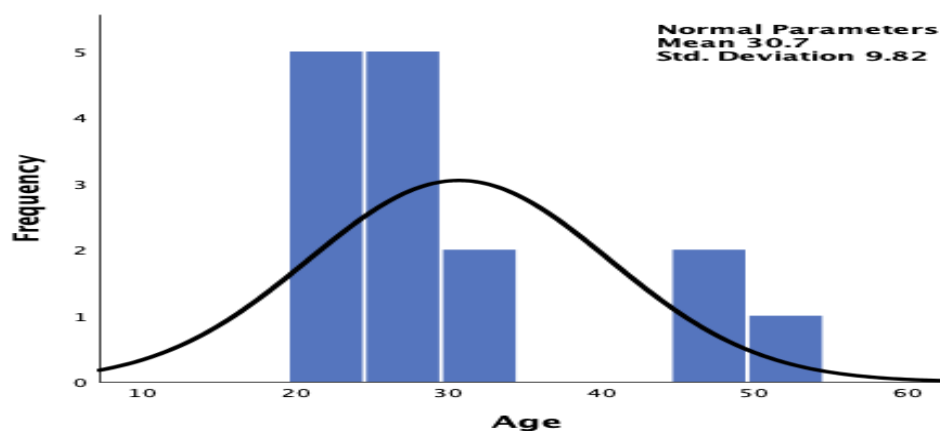


Figure 1: Histogram of Participants age

The mean number of years of experience in oncology nursing was 3.86 years, ($SD \pm 2.47$, range less than 1 to 10 years) (Figure 2). Most participants worked day shift hours ($n = 8$,

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53.3%) and attended all four weekly sessions ($n = 11$, 73.3%). There was no statistically significant difference in self-reported stress levels by assigned shift, day or night.

The two nurses that did not elect to continue with the project after the first week scored highest in the mindfulness meditation scores and tested in moderate perceived stress range.

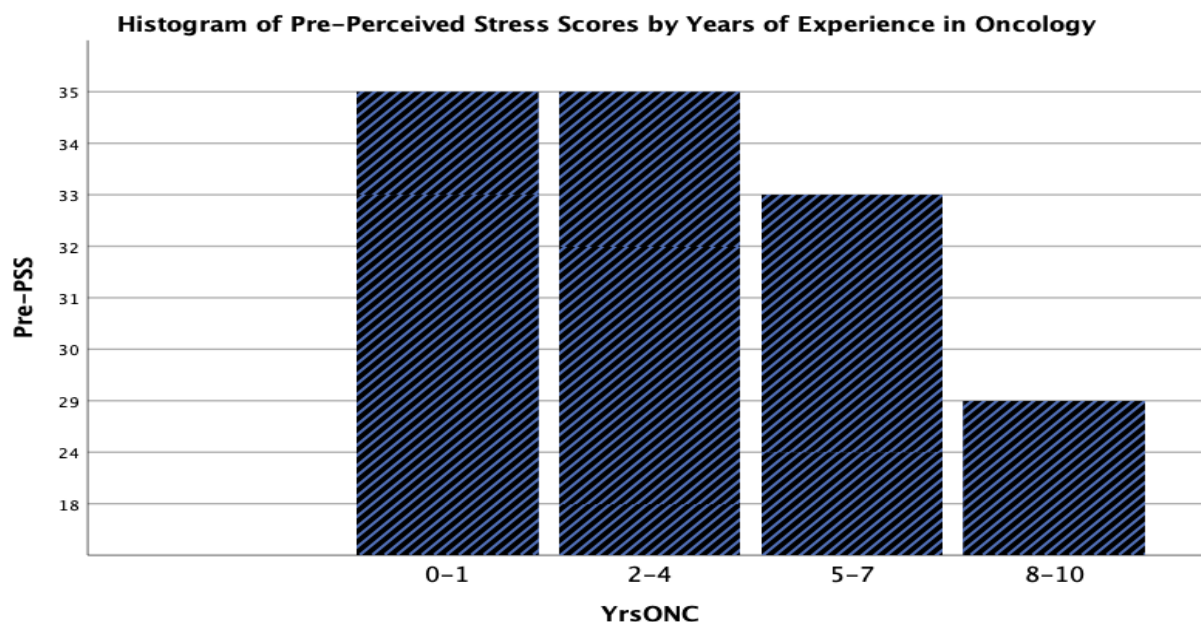


Figure 2: Histogram of Pre-PSS by Years of Experience in Oncology

Scores for the PSS revealed a significant decrease in mean overall stress scores from pre to post-intervention (30.73 ± 4.448 , 22.4 ± 4.42 respectively; $Z = -3.413$, $p = .001$). The scores for the MAAS revealed a significant increase in mean overall mindfulness scores from pre to post-intervention ($3.37 \pm .454$, $4.23 \pm .624$ respectively; $Z = -3.409$, $p = .001$.)

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum	Z score	p
Pre-PSS	15	30.73	4.448	18	35		
Post-PSS	15	22.40	4.421	14	28	-3.413	.001

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Pre-MAAS	15	3.3700	.45416	2.80	4.26		
Post-MAAS	15	4.2333	.62372	3.06	4.93	-3.409	.001

Table 4: Wilcoxon signed-rank tests comparing Pre- and Post- PSS and MAAS scores.

Discussion

The results of this project support the feasibility and effectiveness of a brief mindfulness-based intervention for reducing short-term high levels of occupational stress and enhancing mindfulness attention awareness for oncology nurses. This project focused solely on in-patient oncology nurses that ranged from general oncology to bone marrow transplant units, offering on-site interventions during shift hours to explore the effectiveness and acceptability of this modified mindfulness-based intervention. The student investigator found that overall symptoms of perceived stress and mindfulness awareness significantly improved after a weekly mindfulness-based intervention in adult inpatient oncology nurses over four weeks. Perceived stress was shown to be higher in oncology nurses with fewer years of experience, although all participants reported moderate to high stress at the beginning of this project (Figure 1). RNs, and especially oncology nurses, are at a particularly higher risk of developing high levels of occupational stress, because they constantly witness intense suffering, pain and trauma of others (Duarte & Pinto-Gouveia, 2016). (how long did each intervention take) Were the nurses supported with someone covering their patients?

Occupational Stress

These findings highlight the importance of mindfulness training in nurses' well-being and are in line with previous research on mindfulness found in healthcare professionals. Studies with nurses also found reductions in burnout, depression, anxiety and stress after a mindfulness

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intervention (Cohen-Katz et al., 2005; Mackenzie et al. 2006). Previous MBI studies found strong effects on occupational stress in healthcare professionals, as well as, effectiveness with decreasing in emotional exhaustion, compassion fatigue, depersonalization, burnout, and improving quality of life (Duarte & Pinto-Gouveia, 2016; Tsai, 1992; Chang & Kwak, 2016; Cohen-Katz et al., 2005a; Kravits et al., 2010; Onan et al, 2013; Moody et al., 2013; Klatt et al., 2015).

Similarly to Klatt, Steinber, and Duchemin's (2015) study, this intervention was also delivered on-site. Institutional support is required in order to provide on-site opportunities for nurses to take time to employ mindfulness practice. We did not provide additional pay to the nurses in our project, as found in the study completed by Klatt, Steinber, and Duchemin's (2015). Monetary incentives may have provided a greater sample size and opportunity for more widespread evaluation. Chang and Kwak (2016) found that the frequency of attendance to sessions was proportional to the degree of quality of life improvement. However, in this project participants reported decreased stress scales whether they participated in three week or four weeks of sessions. Our data mirror the findings from Tsai (1992) who reported no interaction effect between treatment and length of time over a six week course.

Mindfulness

This study's findings are consistent with previous studies of oncology nurses and mindfulness-based interventions that found decreased occupational stress (Kravits et al., 2010; Onan et al, 2013; Moody et al., Duarte & Pinto-Gouveia, 2016). MBIs proved effective not just in oncology nurses but also healthcare professionals throughout hospital and ICU settings (Tsai, 1992; Chang & Kwak, 2016; Cohen-Katz et al., 2005a; Klatt et al., 2015). It has been noted that

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without emotional regulatory skills, the repeated exposure to trauma, pain and suffering of others could be associated with adverse consequences (Duarte & Pinto-Gouveia, 2016).

Overall, the project findings are important in that they provide justification for a meditation program as a modality to decrease occupational stress in nurses (Duarte & Pinto-Gouveia, 2016; Tsai, 1992; Chang & Kwak, 2016; Cohen-Katz et al., 2005a; Kravits et al., 2010; Onan et al, 2013; Klatt et al., 2015).). Although qualitative findings were not obtained, the verbal feedback from participants were positive throughout the weekly sessions. In relation to the Cohen-Katz et al. project, we had a small sample size, but we found a statistically significant difference indicating a strong effect with the intervention. Although intervention delivery differs between our study and previous studies, significant positive effects were consistently found. All of the investigators across the studies used self-selected participants which is a standard and preferred practice for MBIs as this type of intervention is believed to be most effective when individuals choose to engage (Duarte & Pinto-Gouveia, 2016; Tsai, 1992; Chang & Kwak, 2016; Cohen-Katz et al., 2005a; Kravits et al., 2010; Onan et al, 2013; Moody et al., 2013; Klatt et al., 2015).

Key Components of the Intervention

It is not clear which component of the intervention has the strongest effect (mindfulness, meditations, relaxation, etc.) The most frequent intervention components from eight previous study reports include relaxation and meditation. This project, like Klatt, Steinber, and Duchemin (2015), used relaxation and meditation as well as yoga positions/poses and stretching. Most interventions were based on group meetings for all studies, but during this project, most oncology nurses attended their sessions individually, whenever they had a moment to break from their patient workload. Across several studies, including this one, data has shown that a

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meditation program is a safe, effective, and integrative modality to reduce occupational stress and suggested that hospitals implement these meditation programs universally (Duarte & Pinto-Gouveia, 2016; Tsai, 1992; Chang & Kwak, 2016; Cohen-Katz et al., 2005a; Kravits et al., 2010; Onan et al, 2013; Moody et al., 2013; Klatt et al., 2015).

Strengths and Limitations

Limitations

This study's data had several limitations. Those limitations include the inability to test longitudinally for behavior changes that may take place to promote robust, enduring health care habits. The small sample precludes generalizing findings outside of the nurses that participated. Engaging experienced oncology nurses in developing new self-care behaviors was challenging, especially since there was no additional incentive given to the nursing staff to participate. Another major limitation of this project was the lack of a control group or randomization against which comparisons on pre- and post-test results could be made. A non-probability, convenience sample carries the risk of sampling bias and weakens the project's rigor. We chose to test the scores of occupational stress and mindfulness, which prohibited the comparison of other variables that previous studies researched such as testing the effects of burnout, emotional exhaustion, traumatic stress, job dissatisfaction, and depersonalization.

However, due to the COVID-19 pandemic that arose across the nation during the time of this project, the sessions were condensed into to four weeks.

Strengths

Intervention reliability was a strength of this project because it had the same instructor conducting each session; a limitation that was found in previous studies using a variety of instructors for mindfulness intervention sessions. Another study strength was the attendance

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accessibility for the MBI sessions on the same floor as the oncology units. The Doctor of Nursing Practice (DNP) student investigator provided sessions on multiple days each week to facilitate weekly attendance for the full duration of this project. In addition, only two questionnaires were required (pre- and post-project) (Table 2) as well as attendance records that validated participants had attended every weekly session that was offered to ensure a low attrition rate.

The time duration from previous study interventions was their main limitation and showed low satisfaction scores by the nurses lasting at minimum an hour long for each session. This led nurses to higher stress levels thinking about their patients on the floor, which is why this project was conducted for a max total of 20 minutes that ensured the oncology nurses' focus on the mindfulness sessions. (Describe this in methods above- 20 minutes- and if coverage for their patients. Also describe the student investigator experience teaching).

Ethical Considerations

The project was submitted to the University of Virginia's IRB and approved (Appendix G). The primary investigator completed CITI training (Appendix H) and made every effort to uphold the confidentiality of voluntary participants. The primary lead instructor of the MBI was certified by taking the online eight week mindfulness-based stress reduction course (Appendix F). No consent was necessary, but a study information sheet was provided to all participants prior to participation (Appendix E) and approved by the institutional IRB. The enrolled oncology nurses were given a study information sheet that informed them of the purpose of the project, including the risks, benefits, duration, data collection process, any potential inconvenience/emotional stress, and the right to stop at any time during the project. The nurses were provided with the opportunity to ask questions and seek clarifications. Every measure was

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taken to protect confidentiality and no personal identification was obtained. The project was approved by the medical institution's oncology director and nurse manager.

Conclusion

This quality improvement project highlights the potential positive effects of MBIs in oncology nurses to treat and prevent occupational stress and promote mental health within the nursing workforce. Oncology nurses must be able to care for themselves to maintain their optimal health conditions and to reduce occupational stress. Although mindfulness interventions have largely focused on patient populations, we believe that they may be particularly well suited to oncology nurses, not only because they are in obvious need of stress reduction but also because mindfulness philosophy and nursing practice theories share a number of core values, such as the importance of fostering sensitivity, understanding, interconnectedness, and awareness of self and others (Mackenzie, Poulin, & Seidman-Carlson, 2006).

Further studies with larger sample sizes using rigorous research methods are required to support these data. More investigation is needed to determine the longitudinal effect of MBIs on nurses' clinical performance, competencies, patient outcomes, safety, and interactions with patients. Future studies with a mindfulness focus will help determine the importance of mindfulness in nurses and patients and may add to improving patient care outcomes throughout hospitals. Finally, policy changes in the workplace that support MBIs as part of routine self-care offered to improve the mental health for healthcare professionals are critically needed.

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Table 1 - Participant Demographics

	Characteristic	Frequency	Percent
Age	22	1	6.7%
	23	2	13.3%
	24	2	13.3%
	26	2	13.3%
	27	2	13.3%
	29	1	6.7%
	30	1	6.7%
	33	1	6.7%
	47	2	13.3%
	52	1	6.7%
Gender	Female	13	86.7%
	Male	2	13.3%
Years of Nursing Experience	0-1	4	26.7%
	2-4	4	26.7%
	5-7	6	40%
	8-10	1	6.7%
Years of Oncology Nursing Experience	0-1	4	26.7%
	2-4	5	33.3%
	5-7	5	33.3%
	8-10	1	6.7%
Race	Caucasian	11	73.3%
	African American	3	20%
	Other	1	6.7%
Partner Status	Married	3	20%
	Single	12	80%
Level of Education	RN	1	6.7%
	BSN	13	86.7%
	MSN	1	6.7%

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Table 2 - Schedule for Baseline and Final Measures

	Week 1	Week 2	Week 3	Week 4
Perceived Stress Scale Questionnaire (PSS)	X			X
Mindfulness Attention Awareness Scale Questionnaire (MAAS)	X			X
Nurse Demographic Data Sheet	X			

Table 3 – Schedule of Sessions Offered

	Pre-Eval X (PSS/MAAS/ Demographic)			Post-Eval X (PSS/MAAS)
MBSR (20min/ Session)	Day Shift Days: M-Thursday Hours: 12pm-2pm	X	X	X
AND				
MBSR (20min/ Session)	Night Shift Days: M-Thursday Hours: 11pm-2am	X	X	X
	Week 1	Week 2	Week 3	Week 4

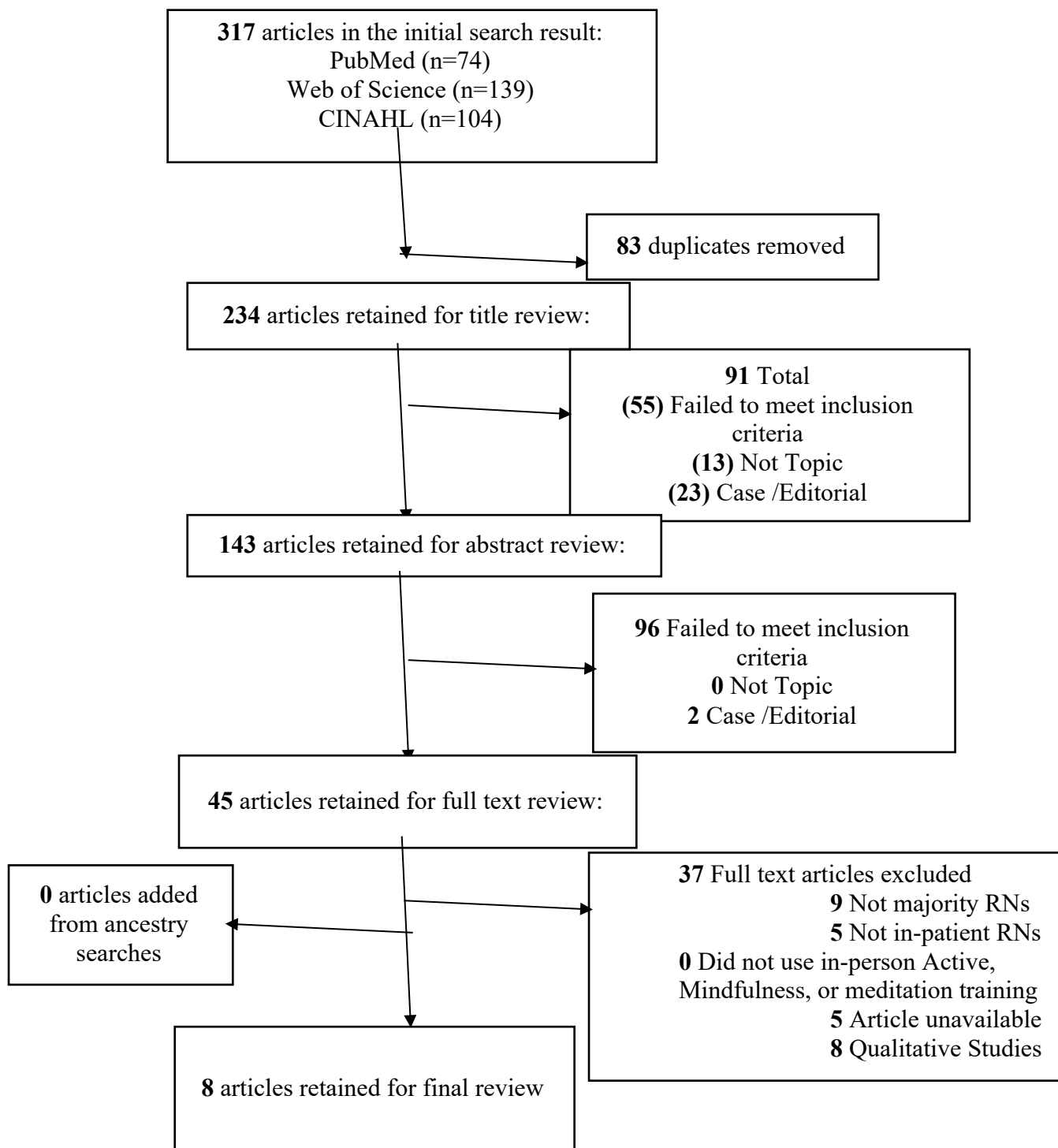


Figure 3. Literature Search Procedure PRISMA flow chart

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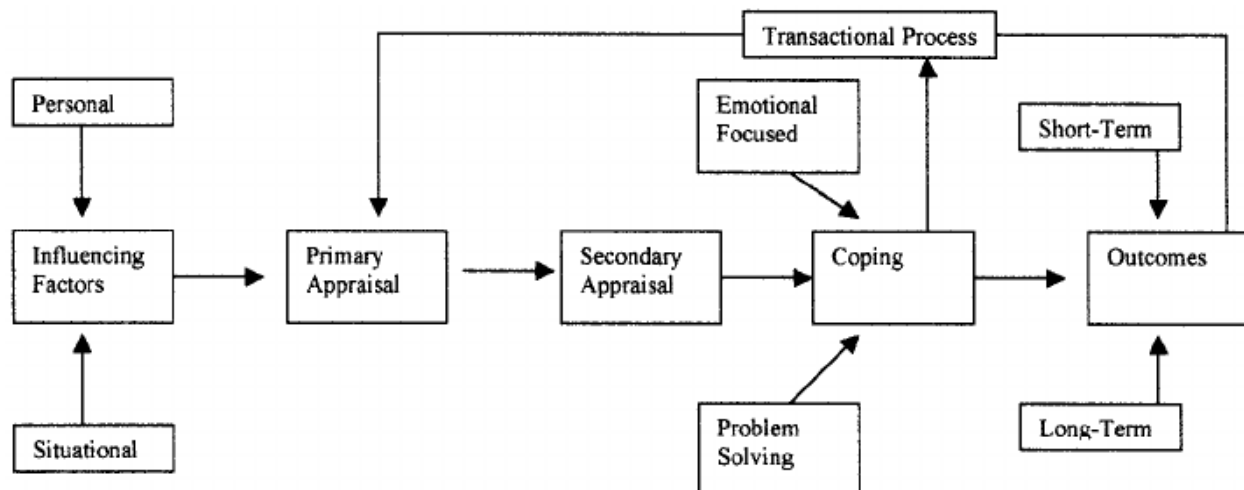


Figure 4. Transactional Model of Stress by Lazarus and Folkman (1984)

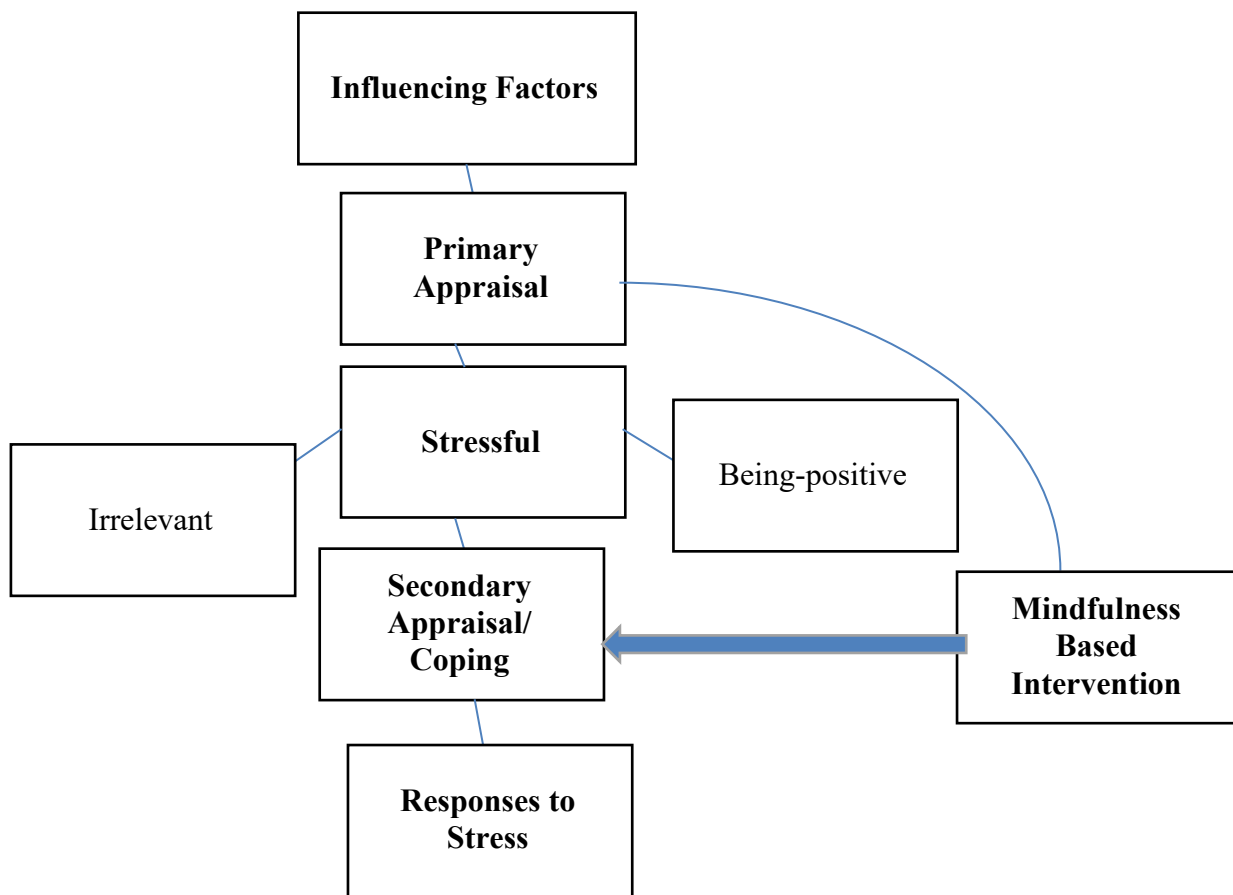


Figure 5. Modified Cognitive Model of Stress and Coping

APPENDIX A

8 Digit Number: _____

Perceived Stress Scale (PSS)**INSTRUCTIONS:**

The questions in this scale ask you about your feelings and thoughts during THE LAST MONTH. In each case, you will be asked to indicate your response by placing an "X" over the circle representing HOW OFTEN you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer fairly quickly. That is, don't try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

- | | | | | | |
|--|----------|----------|----------|----------|----------|
| 1. In the last month, how often have you been upset because of something that happened unexpectedly? | 0 | 1 | 2 | 3 | 4 |
| 2. In the last month, how often have you felt that you were unable to control the important things in your life? | 0 | 1 | 2 | 3 | 4 |
| 3. In the last month, how often have you felt nervous and "stressed"? | 0 | 1 | 2 | 3 | 4 |
| 4. In the last month, how often have you dealt successfully with day to day problems and annoyances? | 0 | 1 | 2 | 3 | 4 |
| 5. In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life? | 0 | 1 | 2 | 3 | 4 |
| 6. In the last month, how often have you felt confident about your ability to handle your personal problems? | 0 | 1 | 2 | 3 | 4 |
| 7. In the last month, how often have you felt that things were going your way? | 0 | 1 | 2 | 3 | 4 |
| 8. In the last month, how often have you found that you could not cope with all the things that you had to do? | 0 | 1 | 2 | 3 | 4 |

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- 9. In the last month, how often have you been able to control irritations in your life?**

0 1 2 3 4

- 10. In the last month, how often have you felt that you were on top of things?**

0 1 2 3 4

- 11. In the last month, how often have you been angered because of things that happened that were outside of your control?**

0 1 2 3 4

- 12. In the last month, how often have you found yourself thinking about things that you have to accomplish?**

0 1 2 3 4

- 13. In the last month, how often have you been able to control the way you spend your time?**

0 1 2 3 4

- 14. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?**

0 1 2 3 4

APPENDIX B

8 Digit Number: _____

The Mindful Attention Awareness Scale (MAAS)

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience.

1	2	3	4	5	6
Almost always	Very frequently	Somewhat frequently	Somewhat infrequently	Very infrequently	Almost never

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

APPENDIX C

8 Digit Number: _____

Nurse Demographic Data Sheet

Age: _____

Self-Identified Race: _____

Self-Identified Gender: _____

Partner Status: _____

Level of education: _____

Years of experience in nursing: 0-1 2-4 5-7 8-10 >10 years

Years of experience in oncology: 0-1 2-4 5-7 8-10 >10 years

MINDFULNESS IN ONCOLOGY NURSES

APPENDIX D

E-mail Letter of Invitation for Participants

Dear Fellow Oncology Nurse:

Are you feeling stressed? Looking for ways to manage stress? Want to become more mindful?

My name is Meghan Hill and I am an Oncology Nurse and a Doctor of Nursing Practice student at the University of Virginia. I am implementing mindfulness education to adult oncology nurses for my Quality Improvement Project.

Registered Nurses will be able to participate in a once weekly, ~30 minute, mindfulness-based stress reduction education session for five weeks during shift hours. Before participating in this quality improvement project, you will be asked to read the project information sheet and discuss any questions you may have before agreeing to participate. Your involvement in this quality improvement project is completely voluntary and anonymous. To enable participation from each shift, the mindfulness-based stress reduction sessions will be held on two separate days each week on both morning and night shifts so that you can choose a session at your convenience.

This quality improvement project is open to all registered nurses who: work in any of the adult inpatient oncology units. Participation in this quality improvement project will involve the completion of two validated surveys regarding mindfulness attention awareness, perceived stress, and demographic data. No identifying information will be collected, thus ensuring that your responses remain anonymous. Participants will agree to try and attend one session weekly.

If you are interested in participating in this Quality Improvement Project please e-mail me at mah5bu@virginia.edu.

Schedule of Attendance

MINDFULNESS IN ONCOLOGY NURSES

	Pre-Eval X (PSS/MAAS/ Demographic)				Post-Eval X (PSS/MAAS)
MBSR (40min/ Session)	Day Shift	X	X	X	X
OR					
MBSR (40min/ Session)	Night Shift	X	X	X	X
	Week 1	Week 2	Week 3	Week 4	Week 5

Withdrawal from this project can be done at any time and will not impact your status with your employer or any nursing professional organization in any way. There is no penalty or loss of benefits for members who choose to withdraw from this quality improvement project. There are no foreseeable risks associated with the mindfulness-based stress reduction education. Possible direct benefits from participating in this project include decreased occupational stress.

For any project questions, you may contact me via email at mah5bu@virginia.edu or via phone at 703-628-8351 or the Principal Investigator, Jill Howie Esquivel at (jhe9f@virginia.edu).

Please note: This Quality Improvement Project will be implemented from February XX, 2020 to March XX, 2020. Thank you for your time and participation.

Sincerely,

Meghan Hill, MSN, RN, mah5bu@virginia.edu

APPENDIX E

Study Information Sheet

Please read this study information sheet carefully before you decide to participate in the study.

Study Information Sheet Key Information:

- Participate in a 30 minute weekly session about mindfulness education for five weeks
- Take 2 surveys including a demographic data sheet
- No information collected that will connect identity with responses

Purpose of the research study: The purpose of this Quality Improvement project is to provide oncology nurses an opportunity of participating in mindfulness-based stress reduction program to minimize occupational stress

What you will do in the study: The mindfulness-based stress reduction sessions consists of education in mindfulness meditation in a group format using stretching, yoga, meditation, and breathing exercises based off a validated and evidence-based practice Mindfulness-based stress reduction course by Kabat-Zinn. Participation in this mindfulness education sessions will entail completing two validated survey's including the mindfulness attention awareness scale and perceived stress scale. No participant identifiers will be used to collect this data. All participants will be asked to complete the same questionnaires using an identification number to maintain anonymity. Participants may skip any question that makes them uncomfortable and they can stop the survey at any time.

Time required: The project will require about 30 minutes of your time during each of the five weekly sessions.

Risks: There is a minimal risk for potential sore muscles after certain stretches and exercises that will be performed during the education sessions.

Benefits: The possible benefit of participating in this study is to decrease occupational stress.

Confidentiality: The information that you give in the two questionnaires answered will be handled confidentially. Your name and other information that could be used to identify you will not be collected or linked to the data. The two survey questionnaires will be collected during the sessions by the project coordinator and kept private and confidential.

Voluntary participation: Your participation in the project is completely voluntary. Your decision to participate will have no effect your job or benefits.

Right to withdraw from the project: You have the right to withdraw from the project at any time without penalty.

How to withdraw from the project: If you want to withdraw from the study, please contact the PI or project coordinator by phone or email that you will no longer be attending the weekly sessions. There is no penalty for withdrawing and will not affect your experience as an employee.

Payment: You will receive no payment for participating in the study.

MINDFULNESS IN ONCOLOGY NURSES

Using data beyond this study: The researcher would like to make the information collected in this project available to other researchers after the study is completed. The researcher will have collected no identifying information during this study and no ability to link this back to you for participating in this study.

If you have questions about the study, contact:

Principal Investigator: Jill Esquivel
University of Virginia, School of Nursing,
202 Jeanette Lancaster Way, Charlottesville, VA 22908
Telephone: (415)309-8904
Email: jhe9f@virginia.edu

Project Coordinator: Meghan Hill
University of Virginia, School of Nursing,
202 Jeanette Lancaster Way, Charlottesville, VA 22908
Telephone: (703)628-8351
Email: mah5bu@virginia.edu

To obtain more information about the study, ask questions about the research procedures, express concerns about your participation, or report illness, injury or other problems, please contact:

Tonya R. Moon, Ph.D.
Chair, Institutional Review Board for the Social and Behavioral Sciences
One Morton Dr Suite 500
University of Virginia, P.O. Box 800392
Charlottesville, VA 22908-0392
Telephone: (434) 924-5999
Email: irbsbshelp@virginia.edu
Website: <https://research.virginia.edu/irb-sbs>
Website for Research Participants: <https://research.virginia.edu/research-participants>


UVA IRB-SBS # 3317

You will receive a copy of this form for your records.

APPENDIX F



APPENDIX G



**Institutional Review Board
for SOCIAL & BEHAVIORAL SCIENCES**
UNIVERSITY OF VIRGINIA

**Office of the Vice President for Research
Human Research Protection Program**

Institutional Review Board for the Social and Behavioral Sciences

IRB-SBS Chair: Moon, Tonya
IRB-SBS Director: Blackwood, Bronwyn

Protocol Number (3317) Approval Certificate

The UVA IRB-SBS reviewed "Implementation of mindfulness education to adult oncology nurses" and determined that the protocol met the qualifications for approval as described in 45 CFR 46.

Principal Investigator: Esquivel, Jill
Protocol Number: 3317
Protocol Title: Implementation of mindfulness education to adult oncology nurses
Is this research funded? No
Review category: Expedited Review

7. Research on individual or group characteristics or behavior or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies

Review Type:

Modifications: No
Continuation: No
Unexpected Adverse Events: No

Approval Date: 2019-12-09



As indicated in the Principal Investigator, Faculty Sponsor, and Department Chair Assurances as part of the IRB requirements for approval, the PI has ultimate responsibility for the conduct of the study, the ethical performance of the project, the protection of the rights and welfare of human subjects, and strict adherence to any stipulations imposed by the IRB-SBS.

The PI and research team will comply with all UVA policies and procedures, as well as with all applicable Federal, State, and local laws regarding the protection of human subjects in research, including, but not limited to, the following:

1. That no participants will be recruited or data accessed under the protocol until the Investigator has received this approval certificate.
2. That no participants will be recruited or entered under the protocol until all researchers for the project including the Faculty Sponsor have completed their human investigation research ethics educational requirement (CITI training is required every 4 years for UVA researchers). The PI ensures that all personnel performing the project are qualified, appropriately trained, and will adhere to the provisions of the approved protocol.
3. That any modifications of the protocol or consent form will not be implemented without prior written approval from the IRB-SBS Chair or designee except when necessary to eliminate immediate hazards to the participants.
4. That any deviation from the protocol and/or consent form that is serious, unexpected and related to the study or a death occurring during the study will be reported promptly to the SBS Review Board in writing.
5. That all protocol forms for continuations of this protocol will be completed and returned within the time limit stated on the renewal notification letter.
6. That all participants will be recruited and consented as stated in the protocol approved or exempted by the IRB-SBS board. If written consent is required, all participants will be consented by signing a copy of the consent form unless this requirement is waived by the board.
7. That the IRB-SBS office will be notified within 30 days of a change in the Principal Investigator for the study.
8. That the IRB-SBS office will be notified when the active study is complete.
9. The SBS Review Board reserves the right to suspend and/or terminate this study at any time if, in its opinion, (1) the risks of further research are prohibitive, or (2) the above agreement is breached.

Date this Protocol Approval Certificate was generated: 2019-12-10

APPENDIX H



Completion Date 20-Feb-2018
Expiration Date 19-Feb-2021
Record ID 26266525

This is to certify that:

Meghan Hill


Has completed the following CITI Program course:

Human Research	(Curriculum Group)
IRB-HSR RESEARCHER BASIC COURSE	(Course Learner Group)
1 - Basic Course	(Stage)

Not valid for renewal of certification through CME. Do not use for TransCelerate mutual recognition (see Completion Report).

Under requirements set by:

University of Virginia



Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w06bca89d-7a10-4684-86af-18e99b6d95f7-26266525