Evaluating the Impact of Mindfulness-Based Practices on Nursing Students’ Perceived Stress Levels

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on Nursing Students’ Perceived Stress Levels

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This is to certify that I have examined this
Doctor of Nursing Practice DNP project manuscript
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and have found that it is complete and satisfactory in all respects,
and that any and all revisions required by the final examining committee have been made.

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DEPARTMENT OF NURSING
Dedication

Grateful. I am wholeheartedly grateful for the support, guidance, and inspiration afforded me throughout my life on Mother Earth. I am grateful to my ancestors who continue to walk with me. I am grateful to my grandmothers, Winnifred Angela Ramsay and Agnes Marian Jodhan-Boodhoo-Seenandan who both nurtured and cared for me in different but compatible ways. I am grateful to my mom, Ingrid Seenandan, who continues to be my greatest champion. I am grateful to my dad, Henry Langford, who cultivated life lessons far beyond my years and whose spirit continues to walk alongside me. I am grateful to my brother, Keiron Seenandan, my personal Buddha, whose wisdom is, and intellect is far-reaching. I am grateful to my daughters, their partners, and my grandson, Kyra Angela Marie Dookheran (Tristen Huntinghawk), Salina Ann Magan Fukumoto (Masataka Fukumoto), and Kale Hayden William Tindall, who all keep me grounded, focused, and humble.

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Abstract

Undergraduate nursing students report high levels of stress associated with academia and multiple life responsibilities. This quality-improvement pilot project sought to evaluate the outcomes of focused breathing sessions and the use of a *Nursing Process Self-Care Plan (NPSCP) Booklet* on students' perceived stress levels. The *Transpersonal Care Theory* facilitated the implementation of holistic student-centered classroom-based strategies. Fourteen students from a first-semester nursing course completed the pre-and post-test *Perceived Stress Scale (PSS)* survey and digital narrative questionnaires (*DNQ*). Descriptive and inferential statistics appraise the results from the *PSS* survey. Data from the *DNQ* were examined for patterns. Overall, the project findings support nursing students' perceived stress levels were lowered. Students' stress management strategies were captured under four categories: mindful inquiry, movement breaks, passive pauses, and cognitive events. Students identified that the focused breathing and journaling in the *NPSCP Booklet* as helpful stress reduction tools.

**Keywords:** college classroom mindfulness-based quality improvement strategies, focused breathing, journaling, nursing process, student self-care, higher education students’ perceived stress levels.
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Evaluating the Impact of Mindfulness-Based Practices on Nursing Students' Perceived Stress Levels

Mindful inquiry connects the heart with the breath cultivating the present moment while facilitating interconnections between the spirit, mind, and body (Lama & Cutler, 2009; Gause & Coholic, 2010; O'Driscoll et al., 2017). Over the years, mindfulness practices outside of spiritual and meditative spaces have increased in nontraditional settings, with academic institutions being no exception. While implementing mindfulness practices in K-12 schools is well documented (Semple, 2017), studies specific to higher education are limited (Beer et al., 2015; O'Driscoll et al., 2017). College students' stressors are amplified due to their commitment to academia and multiple life responsibilities (Kerrigan et al., 2017; Turner & McCarthy, 2015; Yusufov et al., 2019; Spadaro & Hunker, 2016). The implementation of classroom-based mindfulness strategies (CMS) is one way to support the well-being of busy adult learners. The benefits of mindful inquiry practices include, but are not limited to, reducing stress (O'Driscoll et al., 2017), reduction of chronic pain and gastrointestinal difficulties, and improved sleep and cardiovascular health (Cherpak, 2019; Lopez, 2018). Research confirms mindfulness increases dopamine, serotonin, and oxytocin levels, contributing to stress reduction and well-being (Dlvya et al., 2015). Thus, this quality improvement (QI) pilot project was designed to evaluate the impact of short, focused breathing sessions and the use of a Nursing Process Self-Care Plan (NPSCP) Booklet on students' perceived stress levels.

Background and Significance

Students' enrollment and retention are critical to meeting the needs of a highly competitive and rapidly evolving workforce. The National Center for Education Statistics (2020) notes that two-year college enrollment rates dropped from 13 to 10 percent from 2010 to 2018. The project’s college campus experienced the above trend. In 2015, retention rates for first-time
students fell and part-time students transitioning from fall to spring semesters were 59% and 43%, respectively (Minnesota Office of Higher Education, 2017). By the fall of 2020, higher education institutions experienced an overall 2.5% enrollment decline (The National Student Clearinghouse Research Center, 2020). One solution to student enrollment and retention may stem from investing in the well-being of adult learners. At the heart of students' academic performance, retention, and graduation rates are students' physical, emotional, and cognitive well-being (Boynton Health, 2018).

O'Driscoll et al. (2017) found that undergraduate students in the health and social care disciplines report high stress levels associated with course work, contributing to increasing student attrition rates (Crary, 2013; Dudas et al., 2016; Turner & McCarthy, 2015). Generally speaking, the United States’ mental health issues are higher than in other countries (Boynton Health, 2018). For Americans aged 18 to 25, 22.1% have a mental health diagnosis classified in the Diagnostic and Statistical Manual of Mental Disorders-V, and only one in eight students receive mental health therapy (Boynton Health, 2018). Specifically, at this project's community college, students reported a mental health diagnosis for anxiety (44.9%), depression (44.0%), and stress (36.7%), with 41.0% admitting their inability to manage mental health issues (Boynton Health, 2018). The above statistics inspired a needs assessment specific to nursing students and stress reduction.

**Needs Assessment**

A substantial portion of the literature involves mindful inquiry with adult learners needing to attend off-campus sessions facilitated by a Mindfulness Based Stress Reduction (MBSR) program certified instructor (Kerrigan et al., 2017; O'Driscoll et al., 2017; Yusufov et al., 2019). Limited evidence exists regarding a formal evaluation of CMS facilitated by non-
certified mindful-inquiry instructors. Offering CMS by a non-certified mindfulness instructor is an economical way to help college students reduce stress levels (Kerrigan et al., 2017; Lynch et al., 2018). Thus, the potential of holistically support students’ well-being inspired the DNP project practice problem.

**Problem Statement**

Several factors contributed to, and were the impetus for, choosing this project focus. The primary factor was students' unsolicited reports of high-stress levels during their four nursing semesters. The limited published literature exists with adult learners in higher education offering mindful inquiry sessions outside of the classroom setting by qualified instructors (Kerrigan et al., 2017; O'Driscoll et al., 2017; Yusufov et al., 2019). The time factor to attend sessions outside of a classroom disadvantages a student trying to balance work, academia, and family life (Dudas et al., 2016; Inside Higher Ed, 2020). Additionally, for instructors, the time to become a qualified mindfulness instructor is time-consuming and costly. For the past five years, as a non-certified mindful inquiry instructor, the project leader has been offering CMS, increasing the prospect for all students benefiting from mindful inquiry interventions.

During the 2020 spring semester, when the Coronavirus pandemic amplified student stress, the project leader revised the curriculum to incorporate a reflective journaling booklet designed around the nursing process. Overall, students unofficially shared that the focused breathing sessions helped reduce their stress levels and supported learning the theory content. Simultaneously, journaling in the *NPSCP Booklet* offered a structured time to destress and reflect on their self-care needs. Thus, this DNP Project offered the DNP project leader an opportunity to evaluate a practice-based evidence QI initiative that centers around social justice implications and other ethical considerations.
Social Justice Implications and Ethical Considerations

A DNP student's vital responsibility is social justice advocacy, which involves applying equity principles or just and fairness to all aspects of life (Matwich & Woodgate, 2016). Adult learners' multiple responsibilities preclude their participation in extracurricular activities. For some students, responsibilities are complicated by issues such as housing and food insecurity. Additionally, race and education are associated with social determinants of health, such as a person's health, employment, and housing, which negatively impacts students' leisure time and finances (Inside Higher Ed, 2020). Thus, educators play a vital role in assessing, implementing, and evaluating classroom techniques that support health equity. Integrating CMS as part of a nursing curriculum may decrease high attrition rates, increase student retention and graduation rates, and support new graduates with a better nursing work-life balance (Dudas et al., 2016). This pilot project's outcomes hold the potential to encourage educators to implement in-class focused breathing sessions and reflective journaling as a holistic way of supporting students' well-being. In addition to social justice implications, several other ethical considerations were emphasized during all project phases.

Beneficence, autonomy, and non-maleficence are critical ethical principles. To maintain the above three ethical values, the project leader conceptualized and designed a project that maintained an ethical and moral obligation to goodness for all by offering mindfulness practices within a classroom setting. Informed consent was obtained by maintaining a decision-making process free of overt and implicit coercion. However, inherent in all projects is some degree of risk. In seeking non-maleficence, intentional and unintentional harm to students was curtailed by offering guidance and support to students at no cost through the campus's healthcare clinic. The project leader’s dual role as a theory instructor and DNP student was to minimize coercion and
safeguard participants' confidentiality. Consequently, all data collected were anonymized. Thus, by keeping these ethical principles in mind, the project's goals and objectives were established.

**Project Goals**

- October 2020, baseline evaluations for each cohort of the first-semester nursing students were completed before implementing CMS (guided focused breathing sessions and reflective journaling using an *NPSCP Booklet*).
- October 2020, in an online Zoom classroom, the above two mindfulness interventions were implemented as part of bi-monthly classroom practice for the two cohorts of the first-semester nursing students.
- November 2020 and December 2020, before attending class, the post-*Perceived Stress Scale (PSS)* and *Digital Narrative Questionnaire (DNQ)* evaluations were completed by each of the first-semester cohorts for consented nursing students.
- February 2021, data analysis was completed.

**Project Objectives**

- Assess nursing students' stress levels using the pre-and-post *PSS* surveys and *DNQs*.
- Implement mindfulness interventions (guided focused breathing sessions and reflective journaling using the *NPSCP Booklet*) as part of bi-monthly classroom practice for first-semester nursing students.
- Evaluate the impact of 10-minutes of classroom-based focused breathing sessions using pre- and post-test *PSS* surveys. Additionally, appraise the narrative data regarding the students' use of the *NPSCP Booklet*.
- Disseminate the project findings for interested educators and members of the DNP Project lead’s leadership team.
Notably, all of the project stages were grounded in the principle of equity for all and framed within Jean Watson's *Transpersonal Caring Theory*.

**Theoretical Framework**

This DNP Project was guided by Jean Watson's *Transpersonal Caring Theory* (TCT) which holistically incorporates nursing practice involving the arts, science, and spiritual aspects of the nursing practice. Watson's (2005) theory centers around the Greek word caritas, meaning to cherish and appreciate. The inclusion of caritas (cherish and appreciate) brings together the concepts of love and caring grounded in mindful inquiry practices. Love and caring serve to deepen transpersonal interconnections of a caring relationship between an educator and students. Watson's (2005) caritas processes have influenced several nursing practice environments, including, but not limited to, academia (Costello & Barron, 2017; Watson et al., 2018). Thus, TCT ideally can guide mindfulness-based practice projects. The proceeding discussion examines the reason for selecting TCT and the implications to the project's practice problem.

**Transpersonal Caring Theory and Implications to the Practice Problem**

Watson's TCT genuinely complements the project leader’s teaching philosophies and the project's practice problem which focused on bringing caring modalities into college classrooms. The nursing profession embodies multiple ways of knowing, including emancipatory, ethical, personal, aesthetic, and empiric (Chinn & Kramer, 2018). The DNP project leader believes humans form meaningful relationships with individuals in their daily environments. Watson's theory centers the project within a caring paradigm allowing an authentic evolution of CMS.

The DNP project leader’s intentions for implementing the above mindful inquiry practices were to bring heart (love-caring-healing) into the classroom, with hopes of potentially decreasing student stress levels. Additionally, the DNP student hoped to encourage other college
educators to be inspired to transform their classrooms into learning spaces grounded in love, caring, and healing, as well as provide an innovative solution in these times of educational budget restrictions.

In summary, caring is an essential aspect of the holistic health and well-being of humans. The evaluation of implementing mindful inquiry practices into college classrooms guided by TCT (love-caring-healing) may confirm immeasurable cost-effective benefits to students’ stress levels that could positively influence student attrition and retention rates (Albrecht, 2012).

**Literature Review**

A review of the literature centered around a detailed PICO question. A defined search process directed the article selection which informed the study’s literature review appraisal, synthesis, and recommendations.

**The PICO Question, Search Process and Selection**

The search strategy was informed by the study’s PICO question, which was for nursing students, what are the effects of short mindfulness-based classroom practices on stress-related symptoms? A complete database search using the Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Education Resources Information Center (ERIC). A Boolean search strategy was conducted with the following keywords: mindfulness-based stress reduction; (mindfulness-based stress reduction) AND (college students), (mindfulness-based stress reduction) AND (college students) OR (university students or undergraduate students), (mindfulness-based stress reduction) AND (nursing students). Limiters were employed, including full text, English, scholarly academic journals, peer-reviewed articles, and restriction from 2013 to 2020.
Appraisal of the Literature

A detailed article review was explicitly conducted to the study's purpose, method, and the validity and reliability of the measurement tools. The studies initially selected were based on the participants' characteristics and an appraisal of each study's evidence level. The selected articles' population of interest involve undergraduate and graduate nursing students or allied healthcare students. The Johns Hopkins Nursing Evidence-Based Practice Research Evidence Appraisal Tool was used to synthesize the articles' details and appraise the level of evidence to yield the highest quality research articles. The Systematic Reviews and Meta-Analysis (PRISMA) algorithm guided the selection of systematic and meta-analysis studies. See Appendix A for the Literature Search Strategy. All of the studies noted in the reference list served to support a synthesis of the literature.

Synthesis

The literature review suggests that mindfulness-based practices may help students improve their resiliency to stress (Crary, 2013; Khoury et al., 2015; Spadaro & Hunker, 2016, Turner & McCarthy, 2015; Yusufov et al., 2019). To date, studies with undergraduate and graduate students indicate positive associations of mindful inquiry strategies with students' perceived stress levels (Crary, 2013; Spadaro & Hunker, 2016; Turner & McCarthy, 2015; Yusufov et al., 2019). Specifically, strategies such as meditation, deep breathing techniques, autogenetic relaxation, reflective practice, walking meditations, aromatherapy, and art therapy have been shown to reduce students’ stress (Crary, 2013; Spadaro & Hunker, 2016, Turner & McCarthy 2015). The research shows the benefit of mindful inquiry on students' psychological and emotional health, coping abilities, self-awareness, self-care, and academic performance (Crary, 2013; Lynch et al., 2018; Kerrigan et al., 2017; Turner & McCarthy 2015; Yusufov et al.,
Focused studies have been conducted related to Jon Kabat-Zinn’s Mindfulness-Based Stress Reduction (MBSR) program (Dudas et al., 2016; Hazlett-Stevens & Oren, 2016; Lynch et al., 2018; Khoury et al., 2015; O'Driscoll et al., 2017; Spadaro & Hunker, 2016; Turner & McCarthy, 2015; Yusufov et al., 2019).

Jon Kabat-Zinn created the MBSR program to reduce chronic stress for clients in clinical settings (Hazlett-Stevens & Oren, 2016; Khoury et al., 2015). The MBSR sessions encourage individuals to use breathing techniques to be present and focused on each moment without judgment (Dudas et al., 2016; Hazlett-Stevens & Oren, 2016; Khoury et al., 2015; O'Driscoll et al., 2017; Spadaro & Hunker, 2016). MBSR sessions are facilitated by trained instructors over eight sessions once a week, with each session lasting 2.5 to 3 hours (Hazlett-Stevens & Oren, 2016; Khoury et al., 2015). The full MBSR program has proven effective at decreasing post-secondary students’ stress levels (Kerrigan et al., 2017; Khoury et al., 2015; Spadaro & Hunker, 2016; Turner & McCarthy, 2015).

A modified version of the MBSR program focuses on learning and academic work, personal health and well-being, communication, relationships, and managing stress (Khoury et al., 2015; Lynch et al., 2018). The modified MBSR program format includes fewer class sessions that are shorter in length are associated with positive short-term stress reduction in undergraduate students (Khoury et al., 2015; Lynch et al., 2018; O'Driscoll et al., 2017). Additional research on the modified MBSR program is warranted because uncertainty exists regarding the number and length of MBSR sessions required to substantiate students' stress reduction (Khoury et al., 2015, Lynch et al., 2018; O'Driscoll et al., 2017). However, whereas Khoury et al.'s (2015) findings show the full MBSR's program as having substantial effects on reducing students' stress, Yusufov et al. (2019) findings indicate minimal impact.
Yusufov et al. (2019) conducted a meta-analysis of 43 studies randomized control trials published between 1980 to 2015. The meta-analysis investigates mindful inquiry interventions' efficacy (i.e., cognitive-behavioral theory, coping skills training, MBSR, relaxation training, psychoeducation, and social support) on reducing undergraduate and graduate students' perceived stress based on the type of intervention, length, and duration. The authors concluded that to varying degrees, all of the above interventions reduce students' perceived stress levels. Yusufov et al. (2019) expressly indicated that for stress, interventions lasting greater than eight weeks were no more effective for students compared to interventions lasting less than eight weeks. Additionally, short interventions versus long interventions (duration for each session over the number of weeks) were associated with higher compliance rates for completing mindful inquiry sessions (Yusufov et al., 2019). Further investigation is warranted for mindful inquiry in post-secondary academic institutions focusing on online delivery (Kerrigan et al., 2017; Lynch et al., 2018, O'Driscoll et al., 2017; Spadaro & Hunker, 2016). More recent studies focusing on mindful inquiry adapted to fit short classroom time frames have positive outcomes on students' perceived stress levels (Hazlett-Stevens, 2016; Lynch et al., 2018; Spadaro & Hunker, 2016). A curriculum that focuses on CMS may support efforts to reduce students' stress, decrease high attrition rates, and increase graduation rates (Turner et al., 2015).

Offering non-traditional student populations mindfulness-based practices outside of a classroom is not appealing to students challenged by multiple responsibilities. Viable option is to integrate mindful inquiry sessions as part of the classroom's structure. Thus, this DNP project aimed to evaluate short in-class mindful inquiry strategies on nursing students' perceived stress levels.
Project Design

This pilot project centered on the evaluation of the following question: “For first-year nursing students, what are the outcomes of focused breathing sessions and the use of a Nursing Process Self-Care Plan (NPSCP) Booklet on nursing students’ perceived stress levels?” The two classroom mindfulness-based strategies (CMS) included: 1) ten minutes focused breathing sessions bi-monthly from October to December 2020, and 2) reflective journaling. To support the course's learning outcomes and students' better understanding of themselves, the project leader designed an NPSCP Booklet, used for bi-monthly reflective journaling. Quantitative and qualitative data sets were collected using a pre-and post-test design. The Perceived Stress Scale (PSS) collected quantitative data sets while students’ perspectives regarding their stress management strategies were captured on a digital narrative questionnaire (DNQ). This section examines the quality improvement (QI) methods using the Plan and Do phases of the Plan Do Study Act (PDSA) cycle.

QI Method - PDSA

The continuous improvement PDSA cycle was the systematic approach used to evaluate the project’s outcomes:

- The Plan phase is a detailed map of the practice change, the evaluation of focused breathing sessions, and the NPSCP Booklet on students’ perceived stress levels.

- The Do phase is the implementation and data collection related to classroom-based breathing sessions and student reflections regarding their journal entries in the NPSCP Booklet.

- The Study phase is the analysis of the data collected from the PSS and the students’ responses to the questions on the DNQs related to the focused breathing sessions and the NPSCP Booklet.
The Act phase decides whether to adopt, adapt, or abandon the practice as part of the nursing program’s first-semester curriculum.

Before designing the project, the DNP project leader completed the following steps: a detailed outcome evaluation plan to address the project’s overview, six honest friends’ evaluations, SMART goals, and a stakeholder analysis. The stakeholder analysis included conversations with several college leadership members to facilitate a collaborative process. Additionally, a logic model was used to outline the project’s inputs, outputs, and impact outcomes. The plan portion of the PDSA also addresses the project evaluation tools, including the PSS and DNQ.

**Evaluation Tools.** The PSS assessed students’ perceived stress levels and the DNQ captured students’ self-awareness regarding their stressors, management styles, and the outcomes of using the NPSCP Booklet.

**Perceived Stress Scale.** Cohen and Deverts’s (2012) PSS collected quantitative data for the pretest and posttest study design. The PSS was used to measure the degree to which situations over the past month are perceived by a student as stressful. The screening tool does not evaluate particular situations. The PSS is composed of 10 Likert scale questions with a ranking system of 0 (never), 1 (almost never), 2 (sometimes), 3 (fairly often), and 4 (very often). Students’ responses to the 10 questions are scored according to the scale’s established criterion. Higher scores are associated with more significant psychological stress. Globally, the PSS is the most widely used and reliable survey tool that measures an individuals’ perceived stress (Cohen & Deverts, 2012). The survey’s validity is especially strong amongst diverse races, ethnicities, and age groups (Andreou et al., 2011; Cohen, 1994; Cohen & Williamson, 1988; Lui et al., 2020; Manzar et al., 2019; & Perera et al., 2017). Additionally, the PSS is readily available to students.
for academic purposes without permission, administration time is only a few minutes, and the scoring system is easy (Cohen & Williamson, 1988). Please see Appendix B for the Pre-and Post-Test PSS.

**Digital Narrative Questionnaire.** Narrative data sets were collected using the pre and post-test DNQ developed by the project leader. The DNQs allowed for a deeper understanding of students’ insights regarding the focused breathing sessions and the NPSCP Booklet. The DNP project leader also conceptualized, designed, and developed the NPSCP Booklet as part of a formative classroom assessment tool centered around the nursing process. The booklet supports students understanding of the nursing process by self-actualizing the steps of the nursing process. As the instructor, the project leader offered students constructive feedback regarding their self-care plans specific to objective and subjective data points, formatting a NANDA International nursing diagnosis, SMART goals, interventions, and an evaluation. Excluded from the data collection and analysis was the NPSCP Booklet's content. However, the post-DNQ asked students to reflect on the content they wrote in their NPSCP Booklet. After that, students offered insights, and then the project leader analyzed students’ insights. Please see Appendix C and D for the Pre-and Post-Test DNQ. The project leader applied a reflective process using a holistic caring lens that embraced the essence of Jean Watson’s *Transpersonal Caring Theory (TCT).* The proceeding is a concise summary of the narrative data analysis steps used by the project leader:

- Setting aside bias and preconceived notions
- Holistically reading the data sets using a TCT lens (love-caring-healing)
- Engaging in line-by-line readings while merging data sets based on well-defined definitions
- Assessing for patterns by comparing, contrasting, and collapsing data into categories
Holistically concluding individual data sets and the collective whole

The pre-test DNQ was used to gain insights into students’ emotional, spiritual, and physical well-being and their responses to life stressors. Additionally, the pre-test DNQ captured the students’ stress management strategies before beginning the nursing program. While the post-test DNQ addressed:

1. The impact of focused breathing sessions on students’ perceived stress levels.
2. Recommendations to improve in-class focused breathing sessions.
3. Students’ assessment of the NPSCP Booklet on supporting or not supporting stress reduction outside the classroom setting.
4. Recommendations for improvements to the NPSCP Booklet.

A critical component of the planning stages of a DNP Project is obtaining approval from Intuitional Review Board (IRB). The project was reviewed and approved as a QI project by St. Catherine University’s IRB. Please see Appendix E and F for the Site Approval Letter and IRB Approval Letter.

The Do phase or the implementation phase describes the project setting, population, and interventions.

**Project Site, Target Population, and Interventions.** A total of 54 students from a Midwest State two-year college nursing program were invited to participate in the QI project. Students had to read and write in English and be enrolled in the nursing program’s first semester. In an online Zoom theory class on a bi-monthly basis, students engaged in 10-minutes of focused breathing sessions and reflective journaling in the NPSCP Booklet. Before implementing the project’s interventions as a baseline, students completed the pre PSS and DNQ. Once again, before attending the last class of the semester, students completed post-surveys which assessed
the interventions' impact on students' stress levels.

**Format of First Semester Nursing Theory.** For first-semester nursing students, the content for the curriculum was shared between two instructors in two separate online Zoom classrooms. Only the DNP Project leader implemented CMS. For example, during week one of the fall 2020 semester:

- Approximately half of the students (X) met with instructor XX in a Zoom classroom where class commenced with a focused breathing session and continued with nursing content XXX. Each class ended with students journaling in their *NPSCP Booklets*.
- The remainder of the students (Y) met with instructor YY in another Zoom classroom and were taught nursing content YYY.

During week #2 of the fall semester:

- Students (Y) met with instructor XX where class commenced with a focused breathing session and continued with nursing content XXX. Each class ended with students journaling in their *NPSCP Booklets*.
- Students (X) met with instructor YY and were taught nursing content YYY.
- The above pattern was repeated throughout the entire semester until 100% of the students covered 100% of the nursing content for the fall 2020 semester.

**Project Overview: Data Collection Timeline.** After IRB approval, students received an invitation letter. The letter requested students to watch the *DNP Project Overview* using a Kaltura link and to read the *Informed Consent Form*. Please see Appendix G, H, I, and J. The invitation letter also requested students with outstanding consent and or project-related questions to contact the project leader or the DNP student’s project mentor. All appointments and class sessions occurred using an online format (Zoom).
Before the first theory class, all students enrolled in the course received the Qualtrics link. The students had another opportunity to review, sign or not sign the consent form and complete or not complete the pre-PSS and pre- DNQ. See Appendix K for the Qualtrics Welcome Page.

**Theory Class.**

- At the beginning of class, all students completed a one-minute self-check-in (each Monday throughout the semester) in their *NPSCP Booklets*.
- Thereafter, a 10-minutes focused breathing session was offered and a one-minute self-check-out occurred using the *NPSCP Booklets*.
- Theory day continued with interactive discussions and activities based on the day’s theory concepts.
- Classes concluded with a one-minute self-check-out over the past 30 days followed by 15 minutes dedicated to students journaling in their *NPSCP Booklets* with at least one nursing diagnosis, a SMART goal, and a minimum of two nursing interventions.

**Subsequent Theory Classes.**

- All of the students completed a one-minute nursing process self-check-in (each Monday throughout the semester); 10-minutes focused breathing sessions; and a one-minute self-check-out.
- Theory day continued with interactive discussions and activities based on the day’s theory concepts.
- Theory classes ended with a one-minute self-checkout about stress levels over the past 30 days with 15 minutes dedicated to students first evaluating their prior week’s SMART goal and reassessing their nursing diagnosis and nursing interventions before
proceeding with a week’s self-care plan.

**Last Theory Class with post-test PSS and DNQ.**

- The last class commenced according to the established classroom format, as outlined above. However, before attending the last class, consented students completed the post-test PSS and DNQ using a Qualtrics link. See Appendix J.

**Project Outcomes**

Based on past unofficial student feedback, the project leader anticipated the following project outcomes:

1) Collectively, in-class focused breathing sessions and the *NPSCP Booklet* use would reduce students’ perceived stress levels.

2) The use of the *NPSCP Booklet* would aid students’ stress management outside of the classroom setting and assist students better to understand their own self-care needs and the nursing process.

In summary, the Plan Do Study Act (PDSA) model guided this DNP QI project designed to evaluate the outcomes of focused breathing sessions and the use of a *Nursing Process Self-Care Plan Booklet* on nursing students’ perceived stress levels. Data collection tools included the *Perceived Stress Scale* and a digital narrative questionnaire. Descriptive statistics were used to analyze quantitative data sets, while narrative data sets were assessed using a holistic lens of Jean Watson’s *Transpersonal Caring Theory*. Ethical principles informed all phases of the project.

**Findings**

The *Study* phase of the Plan Do Study Act (PDSA) cycle consists of analyzing the data. This section commences with a description of the project’s population - followed by the pre-and post-test *Perceived Stress Scale (PSS)* results. The discussion concludes with the findings.
regarding the pre-and post-test digital narrative questionnaires (*DNQ*). Due to the project's anonymous nature of the data collection phase, the project's data sets were treated as two separate data sets.

**The Study Population**

Fourteen out of 54 first-semester nursing students consented to participate. Although the students were from diverse backgrounds, the IRB declined the DNP project leader’s request to capture participants’ demographic data due to the dual role as investigator and instructor. Thus, no student demographic data was collected. Nevertheless, the pre-survey phase accounted for a 26% response rate. For the post-survey phase, 100% of student participants responded to the *PSS* and *DNQ*. The project’s data collection period was between October 2020 to December 2020.

**Findings: Pre and Post-Test PSS**

Descriptive analysis, entailing means and standard deviations were used to analyze 14 student responses to 10 Likert scale questions on the pre-and post-test *PSS*. Comparing the pre- and post-test *PSS* results, as seen in Table 1, the overall trend was a reduction in students' perceived stress levels. For questions (QID) 1 to 2 and QID 5 to 9, the *lower score* denotes students’ perceptions of a reduced frequency specific to stressors. For QID 3 and 4, a *higher score* is associated with an improvement. Subsequently, students reported scores reflecting an increase in their confidence in handling problems and perceiving things were going their way. See Table 1: Pre-and Post-Test *PSS* Results for a synthesis of the pre-and post-test descriptive analysis and Appendix B for the pre-and post-test *PSS* questions. Table 1 illustrates students’ average stress for each question.

Inferential statistics using the t-test were selected to analyze further if any differences between the two sets of data collected (pre-test data and post-test data) were statistically
significant (Gordis, 2014). As indicated in Table 1 the analysis identified three statistically significant outcomes. The statistically significant differences were found in questions QID 2, 8, and 9. The probability value or P-value was set at <0.05 or 5%. Thus, there is less than a 5% chance that the data is random and greater than a 95% chance that the data is significant (Gordis, 2014). See Appendix B for questions for QID 2, 8, and 9.

Strata, a statistical software program was used to generate pre-and post-test histograms for each PSS question. Each histogram displays the changes in the distribution of the responses (Gordis, 2014). The histogram depicts how many of each response (i.e., 0, 1, 2, 3, 4) in the pre-test versus the post-test changed. See Appendix L for the histograms associated with each significant finding on the pre-and post-test PSS. Overall, both the descriptive and inferential statistics show a reduction in students’ perceived stress levels between the pre-test and post-test period (October 2020 to December 2020)

**Findings: Pre and Post-Test DNQ**

The project’s narrative data sets were collected using pre-and post-test DNQs. The responses on the pre-test DNQ reflected insights into students’ overall well-being and captured the students’ stress management strategies before beginning the nursing program. Whereas the post-test DNQ addressed: a) The helpfulness of in-class focused breathing sessions on students’ perceived stress levels, b) Students’ recommendations to improve in-class focused breathing sessions, c) Students’ assessment of the Nursing Process Self-Care Plan (NPSCP) Booklet on supporting or not supporting stress reduction outside of the classroom setting, d) Students’ recommendations for improvements to the NPSCP Booklet.

**Pre-Test DNQ.** The Transpersonal Caring Theory (Clark, 2016; Watson, 2005, 2013) served to inform the analysis of the pre-test DNQ with insights gained into students’ emotional, spiritual,
and physical well-being and responses to life stressors. The analysis proceeded with the development of definitions for emotional, spiritual, and physical distress. Students’ narratives were categorized based on students explicitly labeling their feelings using the words *emotionally*, *spiritually*, or *physically*. The definitions that guided analysis of the narrative data sets were:

(a) Emotional distress - a sense of hopelessness, withdrawal, agitation, personality changes, and or indication of a mind and body disconnect; (b) Spiritual distress - a disconnect with self and or a disconnect with one’s life meaning and purpose; and (c) Physical distress - signs and symptoms indicative of physical discomfort such as aches and pains, a sense of malaise.

**1. Emotional, spiritual, and physical feelings when stressed**

**Emotional.** When under stress, students described their emotional states using words such as *lost, helpless, and don’t know where to start*. Students also reported feeling *drained, exhausted, overwhelmed, disengaged, and emotionally stressed*. About fifty percent of the students shared feeling *sad, frustrated, irritated, very angry*, and or having the need to *cry aloud*. When expressing emotional states, one student shared, “*I feel like there is a battle in my mind between ‘the nay-sayer’ and ‘the cheerleader’*” (10).

**Spiritual.** Twenty-nine percent of the students specifically labeled their spiritual distress with the word *spiritually* and used phrases such as *uninterested in the thing I need to do,*

| Table 1: Pre-and Post-Test PSS Result *Indicates statistically significant findings |
|-------------------------------|---------------|---------------|---------------|----------------|
| PSS Question | Pre-Test Mean | Pre-Test SD | Post-Test Mean | Post-Test SD | Difference |
| QID 1 | 2.21 | 0.8 | 1.86 | 0.66 | (-0.36) |
| QID 1 | 2.21 | 0.8 | 1.93 | 0.92 | (-0.29) |
| QID 3 | 3.21 | 0.89 | 2.5 | 0.94 | (-0.71)* |
| QID 4 | 2.21 | 0.8 | 2.57 | 0.65 | +0.36 |
| QID 5 | 2.21 | 0.58 | 2.71 | 0.83 | +0.5 |
| QID 6 | 2.36 | 0.74 | 2 | 0.88 | (-0.36) |
| QID 7 | 2.36 | 0.63 | 2.71 | 0.61 | -0.36 |
| QID 8 | 1.86 | 0.77 | 2.43 | 0.76 | -0.57 |
| QID 9 | 2.79 | 0.89 | 1.71 | 0.99 | (-1.07)** |
| QID 10 | 2.57 | 0.65 | 1.5 | 1.16 | (-1.7)** |
| N | 14 | 14 |
and seeking for understanding. One student summarized their spiritual distress as “I feel as though I am a letdown/disappointment to myself and others in my life” (14).

Physical. To illustrate physical ailments of distress, students labeled their experience as physical and used terms such as tired, stress, and drained. Students described their physical symptoms like “my whole upper back hurts, and I have a headache” (6) and “my chest tightens, and I truly do believe it is because I forget to calmly breathe” (12).

2. Daily Stress Management Strategies

Stress management strategies were defined as techniques students engaged in to reduce their stress levels. Noted below are working definitions and the four significant clusters that emerged: a) Mindful Inquiry - better understanding of oneself through writing, meditation, and gratitude, b) Movement Breaks - physically moving the body, c) Passive Pauses – participating in events or interests without exerting kinetic energy, and d) Cognitive Events - requires decision-making, seeking knowledge, and or problem-solving.

Mindful Inquiry. Several students (43%) acknowledged routinely engaging in mindful inquiry practices such as I… “listen to spiritual mantra” (2) and “I do my best to meditate before sleeping …” (11).

Movement Breaks. Students (64%) acknowledged stress management strategies included movement breaks, which involved walking, running, strength training, playing sports, and house cleaning. One student explained, “I like to leave my phone inside and take my dogs to the dog park at my apartment to play fetch with them” (10). A second recognized that there is a need to set time limits in the following statement, “I like to exercise, going for walks, ... or cleaning my apartment! That really helps me, but it’s bad because I end up spending all my energy on cleaning instead of actually doing the things I need to do” (13).
Passive Pauses. Passive coping mechanisms for students (36%) included watching a show or movie and or listening to music or podcasts. Passive coping styles involved actions such as “I just … watch some golf games, talk with family, I mainly try to divert my mind” (5).

Cognitive Events. A smaller percentage of students (21%) described cognitive events as part of their daily stress reduction strategies, which includes writing things down (3). As a stress management style, one student noted this involved, “staying organized and minimizing my work schedule” (14).

In summary, sixty-four percent of students’ narratives depicted using more than one stress management strategy. Multiple ways of coping were illustrated in statements such as, “walking, listening to Podcasts, strength training, watching a movie …” (9) and “meditation and walk around nature” (8).

3. The Use of a Self-Care Plan Booklet

In response to the pre-test DNQ’s question regarding if a self-care plan booklet would be helpful or not helpful at reducing stress, the vast majority (86%) of students indicated they were “not sure.” The high rate of uncertainty centered around the fact that … “it depends on the type of booklet and if I feel like I can incorporate it into my daily life” (3) and a second student responded, “I am willing to try, because writing a care plan for myself will allow me to concretely form a plan of action to improve and take control over certain stresses. I have never written my own down for self-review before” (12). Another student said “yes … it would be helpful to have a guide, it would be like having a mentor in a way” (11). However, one student responded negatively by stating “I feel like it would just be another thing on my “to do” list” (7).

Post-Test DNQ. The essence of the Transpersonal Caring Theory (Clark, 2016; Watson, 2005, 2013) also informed the post-test DNQs. The questions on the post-test DNQ centered on the
focused breathing sessions and the *NPSCP Booklet*. Students’ responses to if in-class focused breathing sessions were helpful or not helpful at reducing stress levels included *yes useful, yes sometimes beneficial, and uncertain.*

**Focused Breathing**

*Useful to Uncertain.* One out 14 students did not respond to the helpfulness or not-helpfulness of in-class focused breathing sessions. Twelve out of 14 (85%) students indicated that in-class focused breathing sessions were in some way useful at reducing stress levels and they turned out to be “*a blessing in disguise*” (10). While another student shared the focused breathing sessions were “sometimes” useful. The general essence of the usefulness of in-class focused breathing on students’ stress levels was categorized as school, work, overall well-being, and contemplation.

**School.** Students written words conveyed the benefits of focused breathing sessions. One student shared, “*The in-class breathing exercises helped me because it cleared my mind and calmed me before learning. Often, you begin class with a life stressor that makes it hard to absorb new information, and the breathing exercise brings a stillness and resets the mind*” (7). Using breathing techniques was extended to writing exams and use in daily life, which is verified in the comment, “*They were helpful. After the first time, we did the breathing exercises, I actually started to use this technique before our exams on Monday mornings. In my day-to-day life, I have found myself using this technique when I start feeling myself getting irritated and it has actually helped me to think more rationally about what is causing the irritation and then to let it go*” (12).

**Work.** Students applied the skills of in-class focused breathing techniques to support focusing on work-related matters. One student explains, “*The focused breathing exercises I used when I was at work and when I felt like I was going to be overwhelmed with stuff. I would stand*
up and use the breathing exercises to help relax and focus on my problems (8).

**Overall Well-Being.** Several students attributed our short classroom-based focus breathing session to their overall well-being. One student addressed the experience of calmness from focused breathing as "... helpful in ways of calming stress levels down and allowing for time and space to gather my thoughts together. It felt as if the rest of the week, my mind was racing up to that moment where I could take a step back and embrace everything around me and set things straight. I would call it "traffic control" (6). A second student explained how in-class breathing "... helped me center myself when my head was chaotic, and it helped give me insight on how to get more in touch with myself in a healthy way, I always forget how much I can treat myself like a tyrant, and a very abusive inner voice, the meditations helped me have a better relationship with that voice, allowing me to use less energy in my mind and things around me would become easier. I enjoyed it so much that I have started incorporating breathing work and meditation into my everyday routine. It has allowed me to manage to even handle night shifts and school at the same time" (11). Lastly, some students indicated that the benefits were not immediate, but the benefits extended to experimenting with other mindful inquiry practices as expressed in the following statement "... They may not have been helpful at the time that we completed the exercises, but it did remind me of how important it is to relax and de-stress. I ended up doing other things outside of class that does relax me" (3).

**Contemplation.** While one student did not respond to the question, two students (15%) were unsure about the impact of the focused breathing sessions. One student who was uncertain if stress reduction was attained due to the focused breathing sessions explained, "It is nice to have breathing exercises because it helps bring awareness to self and bring one’s attention and focus on the present moment. I am not sure it reduces stress at this point as it is a fairly new
practices, and it seems like more of an adjustment is needed to see the real benefit” (4).

**Ways to Improve In-Class Focused Breathing**

The second DNQ question is “What are your suggestions for improving in-class focus breathing sessions?” elicited a number of suggestions. Students suggested to encourage *every instructor* (10) to implement in-class focused breathing sessions on a *weekly basis* (3), adding “ambient sounds” (7), and “incorporating different styles of breathing exercises” (8), and “inviting student to turn off cameras as an option during focused breathing sessions” (5). This student went on to respectfully share that instructors need to be cognizant that word choices are inclusive of all spiritual and religious beliefs in the statement “I don’t mind you expressing your spiritual/ religious beliefs but from what I understand namaste is an expression meaning to recognize others soul or heart chakra. I myself am an atheist and don’t believe in a soul, others may have their own beliefs and may feel conflicted engaging” (5). The remaining seven participants had no recommendations for changes with an overall sense that “I think it’s great as it is. It’s done a lot for me and I like it” (11).

**The Impact of the NPSCP Booklet**

The third post-test question began by asking students to reflect on their NPSCP Booklet entries for the entire semester. The majority of the students (86%) responded positively to the question, “How was the NPSCP Booklet helpful or not helpful in reducing your stress outside of the classroom setting?” The personal and academic benefits gained as a result of using the booklet is underscored in the following statement, “The self-care plan booklet was honestly one of my favorite parts of this semester. It really helped me to look at my life in a completely different way. Learning how to make a care plan is a hard concept to grasp but being able to practice this on myself really made it easier to process the material we were learning in class.
The booklet allowed me to sift through what I consider to be all of my problems and narrow down a focal point for the next two weeks. I am honestly so happy that I decided to participate in this, and I think I am just going to keep making care plans for myself. I have accomplished so much in such a short time. Thank you! (12).

Other students categorized the booklet as a stress management tool because “… I started incorporating the booklet into my daily routine. It helped me clear my mind when I need it and helped me to understand the way that stress cultivates itself in my life, as well as how to see it coming and how to forgive myself and ease myself into my responsibilities instead of whipping myself” (10) and "... served as a blueprint to improve myself and keep me be accountable for self-health tasks and goals I would set” (6).

Although, one student noted that the NPCP Booklet … was not helpful … if anything it added to my stress because it was another task that needed to be completed. I was more focus on that than actually utilizing the book in its purpose” (3).

Ways to Improve the NPSCP Booklet

The last post-test question asked students for suggestions for improving the NPSCP Booklet. Six students (43%) felt the booklet was good to go, which is reflected in statements such as “I found it pretty straight forward ... (6). Thirteen students (93%) offered recommendations regarding an earlier implementation, tweaks needed, and an addition of an interactive activity.

Tweaks. Tweaks ranged from frequency, editing, and digital issues. For example, one student thought “... it would be nice to have to use the booklet once a month. We are doing it every other week”(2). While a few students’ suggestions focused on clarifying a few questions and digital formatting issues. A student respectfully noted that “… Question four has two parts ... the second part said, "In this space note your relevant assessment points from self-check-ins 1, 2,
and 3." ... I wasn't sure if I should add relevant assessment points from my 30-day check-in or not. It wasn't very clear to me” (8). Lastly, digital formatting tweaks were identified including “In this box write your SMART goal” – just having that maybe separated to the side somehow. It sometimes would disappear, and then it would be hard to remember what goes in the box. I don’t know if that was a word issue or something. But that would be all!” A third student who thought the booklet is “... good as it is honestly” suggested increasing the booklet’s digital interactive capability by adding “at the end of the booklet ... YouTube links to different guided meditations or resources that help students utilize these techniques outside of every other Monday”(11).

In summary, the results section presents the pre and post-test results. The Perceived Stress Scale indicates that the students' perceived stress levels were lowered. The pre-test digital narrative questionnaire (DNQ) highlights students' daily stress management strategies included mindful inquiry, movement breaks, passive pauses, and cognitive events. The post-test DNQ shows that 85% of the students felt that in-class focused breathing sessions reduced their stress levels in some way. Students' suggestions for improving in-class focused breathing sessions include:

- encouraging other educators to offer focused breathing sessions,
- increasing the frequency over the semester,
- incorporating different styles of breathing, and
- having Zoom cameras off during focused breathing sessions.

In addition, students identified the Nursing Process Self-Care Plan Booklet as a helpful stress reduction tool. Students' suggestions to improve the booklet were related to digital formatting issues and clarifying a booklet question.
Discussion

The discussion section focuses on the Act phase of the Plan Do Study Act (PDSA) cycle. This phase of the PDSA cycle concentrates on making links to this paper’s literature review and suggestions based on the project outcomes. The project evaluated the impact of classroom-based mindfulness strategies (CMS) on first-semester nursing students' perceived stress levels. The two CMS interventions used included: 1) short bi-monthly focused breathing sessions, and 2) reflective journaling.

In alignment with the literature, which shows mindful inquiry reduces students’ perceived stress (Crary, 2013; Spadaro & Hunker, 2016; Turner & McCarthy, 2015), this project’s pre and post-test Perceived Stress Scale (PSS) findings are suggestive that short in-class focused breathing sessions, with journaling in the NPSCP Booklet, benefited nursing students' perceived stress levels. Three out of ten (30%) of the PSS questions were statistically significant (QID 2, 8, and 9. See Appendix L. Student responses were associated with students' perceptions that they were in more control of stressful situations and better able to manage their stressors at the end than at the beginning of the semester. In fact, 85% of the nursing students perceived their stress levels were reduced when final exams were approaching. Students shared in-class, "... breathing exercises helped to reduce stress," which turned out to be "a blessing in disguise" and were "helpful to focus on theory." Students independently extended the use of focused breathing to other aspects of their studies and to their work settings. Notably, on the post-test Digital Narrative Questionnaire (DNQ), students shared they had implemented focused breathing throughout the semester before unit exams and at work to help themselves deescalate during stressful situations. An anecdotal finding, as a class of 54 students, exam grades showed that 20% of student grades improved from the beginning to the end of the semester.
The project findings support Turner and McCarthy’s (2015) literature review regarding positive affiliations between reflective practices and student perceived stress levels. Specific to the NPSCP Booklet, 86% of students noted that reflective journaling in the booklet helped students understand their life stressors outside of the classroom. Students also shared that the format of the NPCSP Booklet facilitated an understanding of the nursing process. Moreover, students incorporated the NPSCP Booklet into their "daily routine" and found that reflective journaling served as an excellent reminder to be "more kind" to themselves, highlighting students’ continued self-care external to the classroom. Thus, supporting positive correlations between focused breathing and reflective journaling with theory readiness, exam stress reduction, and well-being outside of the classroom environment.

This pilot project answers the call by Hazlett-Stevens (2016), Lynch et al., 2018, and Spadaro and Hunker’s (2016) studies focusing on mindful inquiry adapted to fit short classroom time frames. In contrast with Jon Kabat-Zinn’s Mindfulness-Based Stress Reduction (MBSR) program, CMSs were implemented during scheduled theory classes involving 10-minutes of focused breathing sessions facilitated by the DNP project lead who is a non-certified MBSR instructor. Theory classes ended with 15-minutes of reflective journaling using the NPSCP Booklet. The frequency of the bi-monthly sessions resulted in a total of five in-class sessions. During the spring of 2021, approximately 50% of the post classroom’s reflective journaling in the NPSCP Booklet became part of students’ post classroom learning.

The project findings potentially substantiate the findings of a meta-analysis of randomized controlled trials that interventions lasting greater than eight weeks were no more effective for students than interventions lasting less than eight weeks (Yusufov et al., 2019). Additionally, short interventions versus long interventions (duration for each session over the
number of weeks) were associated with higher compliance rates (Yusufov et al., 2019). Based on students' narratives in the post DNQ, students’ implementation of CMS interventions as part of their personal and work-life stress management tools indicates a higher compliance rate.

However, despite promising project outcomes, the findings have limitations.

**Limitations**

The study’s three most significant limitations involved: 1) the project leader’s novice use of Qualtrics related to setting up the pre-and post-test PSS and DNQs, 2) a group of motivated student participants but a small sample size, and 3) the project leader’s holistic wellness-based background. To maintain the anonymous nature of participation, the pre and post-test PSS and DNQs blocked participants' IP addresses which restricted the project leader’s ability to link individual students' pre and post-test responses. A review of consenting students' pre-test DNQs highlights a potential bias cohort of motivated nursing students who participated. The pre-test DNQ data sets verify that at least 64% of consented students previously engaged in at least two forms of stress management strategies. In addition, the small sample size limits generalizing the project findings to other classrooms. Although, the larger classroom cohort of students shared in their end-of-semester feedback favorable acknowledgments for CMS. A third limitation was that the DNP student project lead/CMS facilitator was not a certified MBSR instructor. However, mindful inquiry practices such as meditation are part of the project lead’s cultural practices, and in spring 2021 she will also be graduating with a Master of Arts in Holistic Health Science Degree.

**Recommendations**

Future CMS recommendations include:

1. use of the same identification number on the PSSs and DNQs forms while maintaining
anonymity.

2. initiatives to increase the project's sample size by inviting multidisciplinary educators who are already engaged in CMS.

3. the collection of demographic data including but not limited to ethnicity and gender identification

4. project evaluations focusing on CMS and academic outcomes.

5. implementation of CMS across all semesters of nursing.

The identification numbers would connect individual pre-and post-test surveys, which would support in-depth evaluations associated with ethnic groups and grade outcomes. More robust sample size would increase the generalizability of CMS findings across higher education and with disciplines other than nursing. Further projects focused on evaluating CMS and students’ academic outcomes across semesters are warranted.

**Future Implications**

In the future, nursing curriculums could focus on implementing CMS such as focused breathing sessions and reflective journaling using the *NPSCP Booklet* across all nursing semesters to support perceived stress reduction in nursing students. As a result of short CMS, higher education institutions may assess a decrease in high attrition rates, increase retention rates, and increase graduation rates. Offering non-traditional student populations, CMS may prove to be a cost-effective strategy to closing the widening academic equity gap across racial and socioeconomic groups.

**Conclusion**

For some students, responsibilities are complicated by social determinants of health, such as a person's health, employment, and housing (Kerrigan et al., 2017, Yusufov et al., 2019). The
two interventions outlined in this Doctor of Nursing Practice project concentrated on short in-class focused breathing sessions and reflective journaling as part of a curriculum. These approaches can support busy higher-education students' participation in mindful inquiry practices and offer cost-effective, holistic, and creative ways to decrease nursing students' stress levels while potentially addressing student attrition and retention rates. Along with the in-class breathing sessions, nursing educators could use the *Nursing Process Self-Care Plan Booklet* prepared for this project as an integral part of students’ learning the nursing process while supporting students’ prioritization of self-care needs. Perhaps nursing educators' role modeling mindful inquiry ways will facilitate students' compliance with these practices outside the classroom. Graduates may then naturally translate self-care practices into their healthcare work environments.
References


http://www.ohe.state.mn.us/sPages/GraduationRates.cfm


https://sophia.stkate.edu/cgi/viewcontent.cgi?article=1019&context=dnp_projects

http://dx.doi.org/10.1016/j.nedt.2016.02.006


Appendix A

Literature Search Strategy

Figure 1. Literature Search Strategy. Flow chart depicts search strategy.

Records identified through database searching (n = 56)
- CINAHL = 13
- ERIC = 43

Additional records identified through other sources (n = 126, 210)
- Goggle Scholar

Records after duplicates removed (n = 49)

Records after duplicates removed and screened for retrieval (n= 45)

Records excluded on the basis of the title, language, year published (n=4)
- Language: English
  - Abstracts assessed for
    - Study participants and settings: College/Undergraduate Students
    - Study objective: Evaluate mindfulness-based intervention in relation to students’ stress.

Full-text articles assessed for eligibility (n=42)

Full-text articles excluded, with reasons (n=27)
- Years of publication narrowed to 2013-2020
- Detailed article critique:
  - Study’s purpose, method, and validity, reliability, and applicability
  - Articles remaining (n=13)

The article selection from the above process that was included in the literature review of this scholarly paper is (n=10)
Appendix B

Pre and Post-Test Perceived Stress Scale (PSS)

by Cohen

INSTRUCTIONS:

The following 10 questions ask you about your feelings and thoughts during THE LAST MONTH or 30 days. In each case, please indicate your response by clicking in the number in the circle that represents HOW OFTEN you felt or thought a certain way.

- The number 0 means never.
- The number 1 means almost never
- The number 2 means sometimes
- The number 3 means fairly often
- The number 4 means very often

QID 1. In the last month, how often have you been upset because of something that happened unexpectedly? 0 1 2 3 4

QID 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

QID 3. In the last month, how often have you felt nervous and “stressed”? 0 1 2 3 4

QID 4. In the last month, how often have you felt confident about your ability to handle your personal problems? 0 1 2 3 4

QID 5. In the last month, how often have you felt that things were going your way? 0 1 2 3 4

QID 6. 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

QID 7. In the last month, how often have you been able to control irritations in your life? 0 1 2 3 4

QID 8. In the last month, how often have you felt that you were on top of things? 0 1 2 3 4

QID 9. In the last month, how often have you been angered because of things that were outside your control? 0 1 2 3 4

QID 10. 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 C

Pre-Test Digital Narrative Questionnaire (DNQ)

INSTRUCTIONS:

For the following questions, please reflect on your daily stress management strategies and respond based on your reflections.

1) When you are stressed how do you feel emotionally, physically, and spiritually?

Please type your response in this box:

2) What are your daily stress management strategies?

Please type your response in this box:

3) Would a self-care plan booklet be helpful or not helpful in reducing your stress?
   - Yes
   - No
   - Not sure

Use this space to explain your response to question number three:
Appendix D

Post-Test Digital Narrative Questionnaire (DNQ)

INSTRUCTIONS:
For the two questions below, please reflect on our in-class focused breathing sessions to answer the questions.

1) How were the focused breathing sessions helpful or not helpful in reducing your stress levels?

Please type your response in this box:

2) What are your suggestions for improving in-class focused breathing sessions?

Please type your response in this box:

INSTRUCTIONS:
For the two questions below, please reflect on your semester’s documentation in your Nursing Process Self-Care Plan Booklet and answer the questions based on the reflections you wrote in your booklet.

3) How was the Nursing Process Self-Care Plan Booklet helpful or not helpful in reducing your stress levels outside of the classroom setting?

Please type your response in this box:

4) What are your suggestions for improving the nursing process self-care plan booklet?

Please type your response in this box:
Appendix E

Site Approval Letter

Date: July 30, 2020
Kendra-Ann I. Seenandan-Sookdeo

Dear Kendra-Ann:

This letter confirms that the Office of Institutional Effectiveness at [College Name] has reviewed and approved your research project, “Evaluating the Impact of Mindfulness-Based Practices on Nursing Students’ Perceived Stress Level.” The project meets all requirements of [College Name] for human subjects’ research. You are cleared to proceed with the project starting this fall.

Please contact me with any additional questions. I wish you the best with this important research.

Sincerely,

Fernando

[Signature]
Appendix F

Institution Review Board: Approval Letter

To: Kendra-Ann Sookdeo  
From: David Chapman, IRB Co-Chair  
Subject: Protocol #1450  
Date: 09/09/2020

Thank you for submitting your research proposal to the St. Catherine University Institutional Review Board (IRB). The primary purpose of the IRB is to safeguard and respect the rights and welfare of human subjects in scientific research. In addition, IRB review serves to promote quality research and to protect the researcher, the advisor, and the university. By submitting an IRB application to the IRB Committee, you are agreeing to adhere to the St. Catherine University Research Involving Human Subjects Policy.

On behalf of the IRB, I am responding to your request for Exempt level approval to use human subjects in your research. The application #1450: Evaluating the Impact of Mindfulness-Based Practices on Nursing Students' Perceived Stress Levels has been verified by the St. Catherine University Institutional Review Board as Exempt according to 45CFR46.101(b)(1): (1) Educational Research on 09/09/2020. The project was approved as submitted. You may begin your research at any time.

Please note that changes to your protocol may affect its exempt status. You must request approval for any changes that will affect the risk to your subjects using the Amendment Request Form. You should not initiate these changes until you receive written IRB approval. Also, you should report any adverse events to the IRB using the Adverse Event Form. These documents are available at the Mentor IRB system homepage, which can be accessed through the St. Catherine University IRB homepage. When the project is complete, please submit a project completion form.

If you have any questions, feel free to contact me or email via the Mentor messaging system. We appreciate your attention to the appropriate treatment of research subjects. Thank you for working cooperatively with the IRB; best wishes in your research!

Sincerely,

David Chapman, PhD

Co-Chair, Institutional Review Board

dchapman@stkate.edu
Appendix G

Invitation Letter

[Insert date sent: xx/xx/2020]

Dear First Semester Nursing Students,

I am a St. Catherine University student pursuing a Doctor of Nursing Practice (DNP) degree. An important part of my program is a quality improvement DNP Project in the role of a DNP Project leader. As the project lead, I am involved in the conceptualization, design, data collector, analysis, and disseminator of the project’s findings.

As the Introduction to Health Concepts instructor of students at [Name of College], I have chosen to learn about using mindfulness-based practices (MBP) in a higher education classroom because the literature supports MBPs has the potential to reduce stress. I am working with my project mentor, Dr. Susan Hageness who is a faculty member at St. Catherine University. I am also working alongside one of our college’s leadership team members, [Name of Leadership Team Member] who is [College Name and Title].

The purpose of the project is to evaluate the outcomes of focused breathing sessions and the use of a Nursing Process Self-Care Plan Booklet on nursing students’ perceived stress levels.

I will be writing about the results that I get from this project, which includes quotes from data collected. However, none of my writings will include the name of this college, the names of any students, other staff members, or administration or any references that would make it possible to identify outcomes connected to a particular student. Only I and my project mentor, Dr. Hageness will have access to data collected. The data collected will be anonymized. In other words, no information that identifies you will be collected or known to anyone. I will not know if you participated or did not participate in the project.

The goal of sharing my final study report is to help other teachers who are also trying to reduce students’ stress and to improve the effectiveness of their classroom instruction.

In order to make sure that this project is both ethical and credible, each participant must be fully informed of the risks and benefits of the study, as well as of their rights as a participant. Please read the attached Informed Consent Form for this important information. For your review only, here is the Kaltura video link: https://mediaspace.minnstate.edu/media/DNP+Project+Overview/1_6bf2fr5w of the DNP Project Overview. If, after reviewing the Kaltura video and reading the Informed Consent Form, you have questions about the project, please contact me, Kendra-Ann @ KendraAnn.Sookdeo@xxxxxxxxxx.edu. Additionally, you also have the option to contact my project mentor, Dr. Susan Hageness @ smhageness@stkate.edu. Otherwise, before your first theory class with me, I will send you a Qualtrics link, for you to review the Informed Consent Form, complete the project’s surveys before attending your first theory class once again.

Once again, if you have any questions about the consent form or the DNP Project, please do not hesitate to discuss them with me or Dr. Hageness.

Thank you for considering supporting my DNP Project,

With appreciation,

Kendra-Ann I. Seenandan-Sookdeo
Kendra-Ann I. Seenandan-Sookdeo MN, BN, RN, CEIM, MAHS(c), DNP(c) e-mail: Kendra-Ann.Sookdeo@xxxxxxxxxx.edu
Appendix H

DNP Project Overview

Kaltura: DNP Project Overview

https://mediaspace.minnstate.edu/media/DNP+Project+Overview/1_6bf2fr5w
Appendix I

Informed Consent Form

DNP Project Title: Evaluating the Impact of Mindfulness-Based Practices on Nursing Students’ Perceived Stress Levels
Sponsor: None
Project Mentor: Dr. Susan Hageness

Dear First Semester Nursing Students,

I am a St. Catherine University student pursuing a Doctor of Nursing Practice (DNP) degree. An important part of my program is a quality improvement DNP Project in the role of a DNP Project student leader. As the project leader, I am involved in the conceptualization, design, data collector, analysis, and disseminator of the project’s findings.

As the Introduction to Health Concepts instructor of students at [college name], I have chosen to learn about using mindfulness-based practices (MBP) in a higher education classroom because the literature supports MBPs has the potential to reduce stress. I am working with my project mentor, Dr. Susan Hageness who is a faculty member at St. Catherine University.

The purpose of the project is to evaluate the outcomes of focused breathing sessions and the use of a Nursing Process Self-Care Plan Booklet on nursing students’ perceived stress levels.

I will be writing about the results that I get from this project. None of my writings will include the names of any students, other staff members or administration, or any references that would make it possible to identify outcomes connected to a particular student. Only I and my project mentor, Dr. Hageness will have access to data collection that will be anonymous. The data collected will be anonymized. In other words, no information that identifies you will be collected or known to anyone. I will not know if you participated or did not participate in the project.

The goal of sharing my final study report is to help other teachers who are also trying to reduce students’ stress and to improve the effectiveness of their classroom instruction.

What are the risks (dangers or harms) to me if I am in this study?
Participation in this quality improvement project is optional. If you choose to participate you may find some of the questions are upsetting. Please know, you may stop participating in the study at any time. If you experience increased stress, at no cost to you, our healthcare counselors are available to meet with you. You can contact our college counselors and healthcare team members at:

- Student Support Services at https://www.xxxxxxxxx.edu/student-services/support-services
- Student Health Clinic at https://www.xxxxxxxxx.edu/student-services/student-health-clinic

Qualtrics is an online computer software platform that will be used for the signature stage of the informed consent process. Additionally, Qualtrics will be used to for the project’s data collection using a stress survey and short answer questions. I will disable the collection of students’ IP addresses (a label used to identify computer addresses) on Qualtrics. By disabling the collection of the IP addresses, your email address will not be collected. Therefore, your identity will not be known to anyone. However, despite efforts to keep students’ data secure, the data collection process’s online nature carries a minimal risk from hacking and data breaches.
If you participate in the project, your identity will not be known to me or anyone. Data collected for this project will be kept for future projects.

**What are the benefits (good things) that may happen if I am in this study?**
If you choose to participate benefits may include gaining a better understand of your stress levels and you may feel good about having an opportunity to contribute to mindfulness-based strategies in higher education.

**Will I be paid for my time?** No. Participation is voluntary.

**Procedures:**
If you decide to participate, you will be asked to complete a: 1) pre-stress survey and pre-short answer questionnaire, and 2) post-stress survey and post-short answer questionnaire. You will be sent a Qualtrics link to your school email to complete all project related information.

In October 2020, at the **beginning of the semester**, you will receive a Qualtrics link to:
1) Read and sign the Informed Consent Form via Qualtrics (7 minutes).
2) Complete a pretest stress survey which has 10 questions that you will rate from 0 to 4.
3) Complete a pretest short answer questionnaire which has 3 questions.

In December 2020, at the **end of the semester**, you will receive a Qualtrics link to:
1) Complete a posttest stress survey which has 10 questions that you will rate from 0 to 4.
2) Complete a posttest short answer questionnaire which has 4 questions.

**This study is voluntary.** You do not have to take part in the project.
- There is no penalty for not taking part in the project.
- **If you decide you want to participate and have your data** (pre and post surveys and digital questionnaires) included in my project, you need to check the appropriate box(es), sign this form, complete the Qualtrics surveys, and press submit **before** attending your **first theory class with Kendra-Ann** in October 2020.
- **If you decide you do not want to participate** do not sign the consent form and do not complete the information on the Qualtrics links that are emailed to you. Once you submit data to the Qualtrics link, I will be unable to remove your data from the project because the IP address is removed. In other words, the Qualtrics link is set-up so I do not know who is submitting or not submitting data. I do not know who is participating or not participating in the study.

**Opt Out:**
- If you decide you do not want to be a take part in the project:
  - do not sign the consent form
  - do not click submit on the Qualtrics link
  - do not complete the survey and or short answer questions
- If at any time during the fall 2020 semester you decide you do not want to participate in this study, you can opt-out by not completing the surveys.

If you have any questions, please feel free to contact Kendra-Ann at KendraAnn.Sookdeo@xxxxxxxxxx.edu. You can also ask my project mentor Dr. Susan Hageness at smhageness@stkate.edu who will be happy to answer your questions. If you have other questions or concerns regarding the project and would like to talk to someone other than myself or Dr. Susan Hageness, you may also contact Dr. John Schmitt, Chair of the St. Catherine University Institutional Review Board, at (651) 690-7739 or jsschmitt@stkate.edu.

You may keep a copy of this form for your records by downloading this form.

**Consent Statement:**

Choose one of the following:
- Yes, I consent
  “I have read and understand the consent form and agree to participate in this study”
  participants have given informed consent.”

- No, I do not consent
  “I have read and understand the consent form and I do NOT agree to participate in this study. You have NOT given consent.”
Appendix J

Thank You Letter

Dear Student,

Thank you for sharing your valuable time and insight. Your contribution to my DPN Project will inform the nursing curriculum and contribute to in-class mindfulness-based practices.

My sincere gratitude to you for sharing your insights with me.

With appreciation,

Kendra-Ann I. Seenandan-Sookdeo

Kendra-Ann I. Seenandan-Sookdeo MN, BN, RN, CEIM, MAHS(c), DNP(c)
Appendix K

Qualtrics Welcome Page

Greetings,

Thank you for considering participating in my DNP Project. The purpose of this project is to evaluate the outcomes of in-class focused breathing sessions and the use of a Nursing Process Self-Care Plan Booklet on nursing students’ perceived stress levels. The survey consists of ten Likert rating scale type questions and three short answer questions.

You can take as much time as you need to answer the questions, though I estimate it may take about 22 minutes to complete. You may only take the survey once. You must click “Submit” for your response to be recorded. By clicking “Submit,” you may no longer withdraw from the study. There are no right or wrong answers. I am interested in your honest responses.

With appreciate for your time and input,

Kendra-Ann Seenandan-Sookdeo

Kendra-Ann I. Seenandan-Sookdeo MN, BN, RN, CEIM, MAHS(c), DNP(c)
Appendix L

**Significant Quantitative Findings: Pre and Post-Test PSS Survey**

Note, each identification number (i.e., QID 2) is associated with the corresponding number on the *Perceived Stress Scale* which is in Appendix B. The Likert scale for the PSS is: the number 0 means never, 1 means almost never, 2 means sometimes, 3 means fairly often, and 4 means very often. Additionally, each histogram displays the changes in the distribution of the responses (Gordis, 2014). The histogram depicts how many of each response (i.e., 0, 1, 2, 3, 4) in the pre-test versus the post-test changed. For example, see the narrative below for QID 2’s histogram for how to read the histograms. QID 2 shows a statically significant outcome.

**QID 2.** In the last month, how often have you felt nervous and “stressed”?

![Histogram](image)

**For QID 2’s Pre-Test PSS.**

One student answered 1 (almost never), one student answered 2 (sometimes), six students answered 3 (fairly), and six students answered 4 (very often).

While on the post-test PSS one student answered 1 (almost never), one student answered 2 (sometimes), five students answered 3 (fairly), and two students answered 4 (very often).
The underlining darker purple is the overlap of the pre-test and post-test responders whose stress responses did not change.

Thus, when comparing participants responses on the pre and post-test PSS for QID 2, the histogram results show:

a) The number of students answering 4 (very often) fell by four. For this question, the result is trending in a direction that reflects two compared to six students at the end of the evaluation period perceived their stress as very often.

b. The number of students answering 3 (fairly) dropped by one out of six.

c. The number of students answering 2 (sometimes) dropped by four out of five. The number of participants answering 1 (almost never) dropped by one out of two.

In summary, for QID 2, the histogram illustrates there is a shift in the numbers related to the students’ perceived stress between October 3, 2021 to December 7, 2021.

QID 8. In the last month, how often have you been angered because of things that were outside your control?
**QID 9.** In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?