

MOBILE APP STRESS MANAGEMENT & PUBLIC SCHOOL TEACHERS:
A FEASIBILITY STUDY

Doctor of Nursing Practice Project
Presented to the Faculty of MU
Graduate Studies
University of Missouri

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Nursing Practice
by
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MAY 2024

Public school teachers are critical figures who impact and enrich the lives of U.S. children. Currently, the well-being of public school teachers is of national concern. Teachers experience frequent job-related stress at a rate of almost two times that of the general population of U.S. workers (58% compared to 33%) (Doan et al., 2023). Teacher well-being plays an important role in student educational success (Dreer, 2023). Therefore, interventions must be made available to help teachers manage stress and improve well-being. There is robust literature establishing the benefits of mindfulness-based stress reduction (MBSR) among teachers (Bonde et al., 2022; Paudel et al., 2022). Furthermore, evidence suggests that mindfulness mobile applications can decrease stress and increase well-being among teachers (Hirshberg et al., 2022).

Most evidence on the mental health benefits associated with mindfulness mobile apps is based on research from commercial apps like Headspace. Headspace is one of the most widely researched mindfulness apps, is free to teachers, and includes guided meditations among other features. Among individuals with moderate to severe perceived stress, Headspace reduced perceived stress by 23.52% (Callahan et al., 2024).

Purpose Statement and Aims

The purpose of this scholarly project was to determine the feasibility and acceptability of using a widely available commercial meditation app, Headspace, to promote well-being among teachers at Springfield Public Schools (SPS) (primary outcome). A secondary outcome was to explore the impact of meditation on teacher stress and well-being. **Project aims** were: 1) Determine the feasibility and acceptability of implementing and evaluating a 4-week meditation mobile app intervention among public school teachers; and 2) Explore clinically meaningful changes in participants' scores for perceived stress, depression, anxiety, sleep, and life satisfaction from baseline to post-intervention.

Review of Literature

An extensive literature review revealed how stress among teachers is affected by mindfulness interventions. Although mindfulness and meditation are two different techniques, both were included in this review, as there can be some overlap when initiating a meditation practice.

Stress Reduction Interventions

Current literature evaluating well-being provides a wide range of interventions, duration, and measurement approaches; however, few articles focus on well-being interventions for teachers. Paudel et al. (2022) reviewed 26 studies and found moderate quality of evidence supporting meditation as a stress reduction intervention for teachers, compared to other interventions. Few technology-based interventions among teachers have been studied, a majority are in-person programs, online, or blended (Dreer & Gouasé, 2022). In a randomized controlled trial, Hirshberg et al. (2022) evaluated the use of a mindfulness app, establishing that self-guided meditation-based training is acceptable to educators with immediate moderate benefits on psychological distress ($p < .001$), and improvement in well-being post-implementation ($d = .42$).

Health Outcomes

Job stress can influence a broad spectrum of health variables including sleep, overall well-being, and vice versa. Conversely, teacher well-being can impact classroom outcomes. In a systematic review of 44 studies, nearly every study included the potential positive and/or negative implications of teacher well-being including job engagement, quality of instruction, and student well-being (Dreer, 2023). Braun et al. (2019) indicated that higher mindfulness skills are significantly related to lower levels of job stress, burnout, and fewer depressive and anxiety symptoms ($r = .30 - .57$), and recommended providing support for teacher stress to improve

teacher-student interactions in the classroom. An overwhelming theme of this literature review was the success of mindfulness intervention on teachers' stress and well-being.

Methods

Sample

This feasibility pilot study utilized a single group with pre-and post-test design and was approved by the University of Missouri Institutional Review Board (#2096339). This project was implemented in August 2023 using the SPS district in Springfield, MO as the setting. Consent was obtained with a waiver of documentation. SPS is the largest school district in the state of Missouri with 52 school sites and over 1,800 teachers (National Center for Education Statistics, n.d.). The target population for this project was a convenience sample of certified teachers. Inclusion criteria: certified teachers in the SPS district, with access to mobile apps, and able to provide informed consent. Because the focus of this study was feasibility, a power analysis to calculate sample size for the exploratory outcomes was not indicated.

Recruitment

Teachers were recruited through flyers, and email notification about the study from the primary investigator and school leaders with a link to the eligibility survey. To incentivize participation, participants received a gift card of up to \$25 prorated based on study completion. Adjustment to the recruitment strategy occurred after nine weeks because only one feeder pattern had resulted in 12 enrollees. Thus, recruitment was then expanded to the entire school district.

Procedures

After verifying eligibility, participants completed the pre-intervention survey (i.e., baseline) for sociodemographic information and self-report measures (See Appendix A). See Appendix B for a timeline of assessments. After completion of the baseline survey, participants were provided instructions for downloading and using the Headspace app. Participants were asked to select and practice a Headspace app meditation three times per week for four weeks. At four weeks from baseline (i.e., post-intervention), participants repeated the baseline survey and provided narrative feedback. At four weeks post-intervention (eight weeks from baseline), participants reported intervention adherence. Qualtrics and Excel databases were used for data management and assessment. Identifying information and survey data were de-identified. Sigma, Alpha Iota Chapter partially funded this project for \$250 which was used to cover participants' incentives.

Measures

Demographic

Information collected included: age, race, ethnicity, sex, level of education, years of experience, grade(s) currently teaching, classroom setting, meditation practice history, and mental health clinical history.

Primary Outcomes

The primary outcome variables were feasibility measures: acceptability, demand, implementation, and practicality. Feasibility was measured by asking participants about their experience participating in the study post-intervention. Feasibility benchmarks were used for the analysis of feasibility outcome measures based on criteria from Bowen et al. (2009) (see Appendix C). Descriptive data measuring acceptability via nominal measurements, as well as narrative comments with perspectives about the study, were obtained post-intervention. Narrative feedback was analyzed for common themes.

Secondary Outcome Measures

Quantitative. Quantitative data included the Perceived Stress Scale (PSS) and PROMIS™ measures. Hirshberg et al. (2022) utilized PROMIS-57 and PSS as tools for evaluation, strengthening the reliability of these scales in the target population. The PSS is a free, readily available, 10-item questionnaire with a five-point Likert scale measuring general perceived stress over the past month. The PSS has high construct validity ($r = .83$) (Cohen et al., 1983) and high reliability (Cronbach's $\alpha = .86$) (Bormann et al., 2006). Scores range from zero to 40 with higher scores indicating more perceived stress (Cohen et al., 1983). The PROMIS™ Profiles are free, readily available questionnaires. This project examined four domains of interest: depression, anxiety, sleep disturbance, and general life satisfaction. Raw scores are converted and reported as T-scores in which a score of 50 is average for the United States general population with a standard deviation of 10. The PROMIS™ profile has high reliability, furthermore, for all scales, $r \geq 0.95$ indicating acceptable construct validity (Cella et al., 2010).

Qualitative. Narrative feedback was obtained post-intervention. Participants were asked for general feedback about the study, study likes and dislikes, perceived benefits of participation, if they would recommend participating to other teachers, and barriers to participation.

Data Analysis

Descriptive statistics were utilized to provide an overview of the sample. IBM SPSS version 29 was used for statistical analysis. Statistical significance was defined as $p \leq .05$. Raw scores from the PSS and PROMIS™ measures were analyzed using descriptive statistics and the paired *t*-test. A percent change approach was used to evaluate the PSS and PROMIS™ measures at post-intervention where 10-29% from baseline is considered minimal clinically meaningful improvement, 30-49% moderate, and $\geq 50\%$ substantial (Dworkin et al., 2008). Qualitative data derived from narrative feedback were coded and analyzed for common themes.

Results

Sample Characteristics

As shown in **Table 1**, the sample included 21 teachers. In a 10-week recruitment period, 39 individuals expressed interest in participating and 21 teachers fully participated. Participants' ages were a majority 30-39 years old (35.7%), White (92.8%), and female (89.2%).

Primary Outcome: Feasibility

Acceptability and Demand

Acceptability was established based on how participants reacted to the intervention. The majority of those who inquired about the study completed the eligibility survey (92.3%), indicating a high degree of interest (loss of $n = 3$). 21 teachers (75%) were still participating after the study (loss of $n = 7$). All participants (100%) reported satisfaction with the intervention and said they would recommend it to others. Teachers enjoyed learning about meditation and appreciated having a new tool to assist with stress and sleep. Comments included: "I liked how it focused on mental health," "I needed this," "I felt better every time I used the app."

Demand was established based on use of the intervention, and adherence rates to the project procedures and intervention. Self-reported adherence rates were 81.8-50% weekly, with the average number of meditations performed 2.68-3.73 each week. Narrative feedback provided insights into factors affecting use of the intervention. Themes from the data suggest that potential barriers to use included forgetting to use the app, distractions/interruptions, lack of time, and life events/illness. App use continued post-intervention (76%) indicating that most participants liked the app and found it helpful. One participant stated, "The other day I felt overwhelmed... it helped me calm my thoughts. I might not use it regularly, however, having this in my pocket to pull out whenever needed is a really great tool. I am very thankful it is free to educators!"

Implementation

Implementation was established based on the extent and way the intervention was implemented. Openness for collaboration and enthusiasm from SPS made it feasible to implement and facilitate the study. Recruitment was championed by the principals, counselors, and nurses within the district. Collaboration between the primary investigator and the participants was critical for data collection. With the small sample size, the investigative team could provide reminders and communicate with participants, as needed.

Practicality

Practicality was established based on whether the intervention could be completed reasonably by teachers. Although many teachers found the app helpful, some reported needing more reminders, due to forgetting to use the app. Some participants reported that they enjoyed meditating but wanted to use other methods, such as yoga. Comments included: “Great, easy to complete, app easy to navigate,” “Remembering to do it was hard.”

Secondary Outcomes

PSS and Psychological Variables

Table 2 displays the means and standard deviations for perceived stress, and psychological variables at baseline and 4-weeks from baseline (i.e., post-intervention). Trends in the data demonstrated decreases in anxiety, depression, sleep, and improvement in life satisfaction. Notably, perceived stress was moderate at baseline ($m = 19.7$; $SD = 6.7$) and improved at post-intervention ($m = 15.7$; $SD = 5.9$) resulting in a 20.3% decrease ($p = .008$). Sleep disturbance was reduced by 13.3% from baseline to post-intervention ($p < .001$). Based on Dworkin (2008), these changes are considered minimal clinical improvements; however, clinical relevance should be considered based on improvement in the short duration of this study.

Conclusions

The feasibility of implementing a meditation mobile app among public school teachers was established. Moreover, the results of this study provide preliminary data on how meditation interventions via mobile apps work in the public school setting among teachers. This study offers proof of concept that meditation using a mobile app is feasible among public school teachers, and that nurses and school-based clinicians can guide the implementation of mental health interventions. Data suggests that teachers desire and enjoy the opportunity to learn about well-being interventions and benefit from meditation practice.

Limitations

The feasibility study design limits statistical analyses and conclusions. Sample composition likely differs from school settings in more ethnically diverse areas. Results cannot be generalized externally. More data and a larger sample are required to further examine our findings. Although valid and reliable instruments were used, self-reported data are still subject to reporting bias.

Recommendations

Teacher well-being is a multifaceted problem with a broad spectrum of contributing factors that are beyond the limits of this project. Future research should investigate the spectrum of effects in more detail. A follow-up study with a comparison group and randomization is indicated to better evaluate the potential effects of meditation using a mobile app on teachers' well-being. Future studies could implement additional recruitment techniques and expand inclusion criteria to include all school staff. A strength of this project is the findings and feedback exhibited for the primary and secondary outcomes. SPS could query teachers and staff for interest in yoga classes provided by the organization, or other mental health interventions.

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Table 1*Sample Characteristics at Baseline (N = 28)*

| Characteristic | <i>n</i> | (%) |
|-----------------------------------|----------|-------|
| Age: | | |
| 18 – 29 years | 4 | 14.3 |
| 30 – 39 years | 10 | 35.7 |
| 40 – 49 years | 9 | 32.1 |
| 50 – 59 years | 5 | 17.9 |
| Race: | | |
| Black or African American & White | 1 | 3.6 |
| White | 26 | 92.8 |
| Unknown | 1 | 3.6 |
| Ethnicity: | | |
| Hispanic or Latino | 28 | 100 |
| Not Hispanic or Latino | 0 | 0 |
| Gender Identity: | | |
| Female | 25 | 89.2 |
| Male | 3 | 10.7 |
| Level of Education: | | |
| Bachelor's | 7 | 25 |
| Master's | 17 | 60.7 |
| Professional degree (Specialist) | 3 | 10.7 |
| Doctorate | 1 | 3.57 |
| Years of Experience: | | |
| 0 – 3 years | 4 | 14.29 |
| 4 – 7 years | 3 | 10.71 |
| 8 – 11 years | 5 | 17.86 |
| 12 – 15 years | 7 | 25 |

| | | |
|---|----|-------|
| 16 – 19 years | 3 | 10.71 |
| 20 – 29 years | 5 | 17.86 |
| 30+ years | 1 | 3.57 |
| Grade level(s) currently teaching: | | |
| Pre-K – 5 th | 2 | 7.1 |
| Pre-K – 1 st | 3 | 10.7 |
| 2 nd – 5 th | 6 | 21.4 |
| 6 th – 8 th | 9 | 32.1 |
| 9 th – 12 th | 8 | 28.6 |
| Attempted practicing meditation in the past: | | |
| Yes | 12 | 42.8 |
| No | 16 | 57.1 |
| Previous diagnosis of anxiety, depression, chronic fatigue and/or sleep disorder: | | |
| Yes | 15 | 53.57 |
| No | 13 | 46.42 |

Table 2*Changes in Psychological Variables: Baseline to 4 Weeks Post-Baseline*

| Variables | Baseline | 4 Weeks Post-Baseline | <i>P</i> ^a | % change |
|-----------------------------|---------------|-----------------------|-----------------------|-------------|
| (N=21) | Time 1 | Time 2 | | |
| | <i>M (SD)</i> | <i>M (SD)</i> | | |
| Perceived Stress | 19.7 (6.7) | 15.7 (5.9) | *.008 | 20.3 |
| Anxiety | 60.7 (5.5) | 56.7 (5.1) | *.002 | 6.6 |
| Depression | 57.5 (7) | 52.5 (7.5) | *.01 | 8.7 |
| Sleep Disturbance | 57.2 (9.3) | 49.6 (7.1) | *< .001 | 13.3 |
| Life Satisfaction (N=20) | 50.5 (7.2) | 51.7 (6.6) | .389 | 2.2 |

**P* < .05

^a Probability values reflect changes for all participants from Time 1 to Time 2 using paired T-tests.

Appendix A. Qualtrics Surveys

Start of Block: Eligibility Screening

Q1 This survey will help determine if you are eligible to participate in the study.

A response to all of the questions is required.

If you have questions, please contact:

Alexa Snodgrass at alexasresearch@gmail.com or (417) 319-4143

Or, Dr. Jennifer Hulett at hulettjm@missouri.edu or (573) 819-3305

We appreciate your consideration to participate in our study.

Are you currently employed by Springfield Public Schools as a certified teacher?

Yes

No

Q2 Are you a teacher at a school in the Parkview feeder pattern?

Yes

No

Q3 Are you able to understand written and spoken English?

Yes

No

Q4 Do you have reliable access to mobile apps on your cell phone?

Yes

No

Q5 Do you currently practice meditation daily?

Yes

No

Q6 Are you an administrator (principal, assistant principal, CSI, community liaison, etc.)?

- Yes
 No

Q7 Are you a counselor?

- Yes
 No

Q8 Are you a paraprofessional?

- Yes
 No

Q43 Email address that you would like to be contacted at for communication regarding this study

End of Block: Eligibility Screening

Start of Block: Consent

Q10 Please review this consent document
--- CONSENT DOCUMENT ---

End of Block: Consent

Start of Block: Initial Survey

Q11 This survey is to be completed prior to beginning app use.
This survey will collect demographic data and information about your thoughts and feelings. Remember that you can choose to not answer any question.

Name (will only be available to the primary investigator and will be given a code number for confidentiality)

Q12 Email address

Q13 Do you currently practice meditation daily?

- Yes
- No

Q14 What is your age?

- 81 years and older
- 70 to 80 years
- 60 to 69 years
- 50 to 59 years
- 40 to 49 years
- 30 to 39 years
- 18 to 29 years

Q15 Please select your race (Select all that apply)

- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or Other Pacific Islander
- White

Q16 Please select your ethnicity

- Hispanic or Latino
- Not Hispanic or Latino

Q17 Please select your gender identity

- Woman
- Man
- Transgender
- Non-binary
- Identity not listed _____

Q18 Please select your level of education

- Associates degree
- Bachelor's
- Master's
- Professional degree (ex. Specialist)
- Doctorate

Q19 Please select your years of experience as a teacher

- 0 - 3
- 4 - 7
- 8 - 11
- 12 - 15
- 16 - 19
- 20+

Q20 Please select the grade(s) you are currently teaching

- Pre-K - 1st
- 2nd - 5th
- 6th - 8th
- 9th - 12th

Q21 Which of the following best describes your classroom setting? (Select all that apply)

- Elementary classroom and/or homeroom
- Special education
- Reading, English/communication arts, world languages, speech & debate
- Math
- Social studies
- Science, health
- Art, band, orchestra, vocal music, drama/theatre arts
- Physical education
- Computers/technology, business, industrial technology
- Family & consumer sciences
- Library
- Other _____

Q22 Have you ever tried practicing meditation before?

- Yes
- No

Q23 Have you been diagnosed by a medical provider with any of the following? (Select all that apply)

- Anxiety
- Depression
- Sleep disorder
- Chronic Fatigue
- None of the above

End of Block: Initial Survey

Start of Block: Perceived Stress Scale

Q24 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 by marking how often you felt or thought a certain way.

| | Never | Almost Never | Sometimes | Fairly Often | Very Often |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| In the last month, how often have you been upset because of something that happened unexpectedly? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In the last month, how often have you felt that you were unable to control the important things in your life? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In the last month, how often have you felt nervous and “stressed”? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In the last month, how often have you felt confident about your ability to handle your personal problems? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In the last month, how often have you felt that things were going your way? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

In the last month, how often have you found that you could not cope with all the things that you had to do?

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

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

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

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

End of Block: Perceived Stress Scale

Start of Block: PROMIS Emotional Distress - Anxiety - Short Form 7a

Q45 Please respond to each item by marking one box per row.
In the past 7 days...

| | Never | Rarely | Sometimes | Often | Always |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I felt fearful... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt anxious... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt worried... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I found it hard to focus on anything other than my anxiety... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt nervous... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt uneasy... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt tense... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

End of Block: PROMIS Emotional Distress - Anxiety - Short Form 7a

Start of Block: PROMIS Depression - Short Form 6a

Q46 Help is available. If you are thinking about suicide or would like emotional support, the Suicide & Crisis Lifeline is available 24/7. Call or text 988 for free and confidential support.

Please respond to each item by marking one box per row.
In the past 7 days...

| | Never | Rarely | Sometimes | Often | Always |
|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I felt worthless... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt helpless... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt depressed... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt hopeless... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt like a failure... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt unhappy... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

End of Block: PROMIS Depression - Short Form 6a

Start of Block: PROMIS Sleep Disturbance - Short Form 8a

Q47 Please respond to each item by marking one box per row.
In the past 7 days...

| | Very poor | Poor | Fair | Good | Very good |
|-------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| My sleep quality was... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q48 Please respond to each item by marking one box per row.
In the past 7 days...

| | Not at all | A little bit | Somewhat | Quite a bit | Very much |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| My sleep was refreshing... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I had a problem with my sleep... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I had difficulty falling asleep... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My sleep was restless... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I tried hard to get to sleep... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I worried about not being able to fall asleep... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I was satisfied with my sleep... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

End of Block: PROMIS Sleep Disturbance - Short Form 8a

Start of Block: PROMIS General Life Satisfaction - Short Form 5a

Q49 Please respond to each item by marking one box per row.
 In the past 7 days...

| | Strongly disagree | Disagree | Slightly disagree | Neither agree nor disagree | Slightly agree |
|--|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|
| In most ways, my life is close to perfect... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| If I could live my life over, I would change almost nothing... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am satisfied with my life... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| So far I have gotten the important things I want in life... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My life situation is excellent... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

End of Block: PROMIS General Life Satisfaction - Short Form 5a

Start of Block: Weekly Report Survey

Q50 Please complete this survey to track your app use.
This survey is sent weekly on Sundays.
Thank you for your time.

How many times did you complete a meditation on the Headspace app this past week (Sunday through Saturday)?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7+

Q51 What was the approximate length of the individual meditation(s) you completed?

- 1 minute
- 2 - 5 minutes
- 6+ minutes

Q52 If you did not complete 3 meditations this week, please share why. (Select all that apply)

- I did not have time
- I didn't feel like meditating
- I don't like the meditations on the app
- Other _____

End of Block: Weekly Report Survey

Start of Block: Week 4 Post-Intervention Survey

Q53 This survey will ask questions similar to the first survey that you completed, as well as some additional questions about your experience in the study.

Remember that you can choose to not answer any question.

Thank you for your time and participation in our study.

You will be sent a follow-up questionnaire in 4 weeks.

Since the beginning of the study, have you been diagnosed by a medical provider with any of the following:

- Anxiety
- Depression
- Sleep disorder
- Chronic fatigue
- None of the above

End of Block: Week 4 Post-Intervention Survey

Start of Block: Perceived Stress Scale Post-Intervention

Q63 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 by marking how often you felt or thought a certain way.

| | Never | Almost Never | Sometimes | Fairly Often | Very Often |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| In the last month, how often have you been upset because of something that happened unexpectedly? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In the last month, how often have you felt that you were unable to control the important things in your life? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In the last month, how often have you felt nervous and "stressed"? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In the last month, how often have you felt confident about your ability to handle your personal problems? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In the last month, how often have you felt that things were going your way? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

In the last month, how often have you found that you could not cope with all the things that you had to do?

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

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

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

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

End of Block: Perceived Stress Scale Post-Intervention

Start of Block: PROMIS Emotional Distress - Anxiety - Short Form 7a Post-Intervention

Q64 Please respond to each item by marking one box per row.

In the past 7 days...

| | Never | Rarely | Sometimes | Often | Always |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I felt fearful... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt anxious... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt worried... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I found it hard to focus on anything other than my anxiety... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt nervous... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt uneasy... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt tense... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

End of Block: PROMIS Emotional Distress - Anxiety - Short Form 7a Post-Intervention

Start of Block: PROMIS Depression - Short Form 6a Post-Intervention

Q65. Help is available. If you are thinking about suicide or would like emotional support, the Suicide & Crisis Lifeline is available 24/7. Call or text 988 for free and confidential support.

Please respond to each item by marking one box per row.

In the past 7 days...

| | Never | Rarely | Sometimes | Often | Always |
|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I felt worthless... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt helpless... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt depressed... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt hopeless... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt like a failure... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I felt unhappy... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

End of Block: PROMIS Depression - Short Form 6a Post-Intervention

Start of Block: PROMIS Sleep Disturbance - Short Form 8a Post-Intervention

Q66 Please respond to each item by marking one box per row.

In the past 7 days...

| | Very poor | Poor | Fair | Good | Very good |
|-------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| My sleep quality was... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q67 Please respond to each item by marking one box per row.
 In the past 7 days...

| | Not at all | A little bit | Somewhat | Quite a bit | Very much |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| My sleep was refreshing... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I had a problem with my sleep... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I had difficulty falling asleep... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My sleep was restless... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I tried hard to get to sleep... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I worried about not being able to fall asleep... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I was satisfied with my sleep... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

End of Block: PROMIS Sleep Disturbance - Short Form 8a Post-Intervention

Start of Block: PROMIS General Life Satisfaction - Short Form 5a Post-Intervention

Q68 Please respond to each item by marking one box per row.
In the past 7 days...

| | Strongly disagree | Disagree | Slightly disagree | Neither agree nor disagree | Slightly agree |
|--|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|
| In most ways, my life is close to perfect... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| If I could live my life over, I would change almost nothing... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am satisfied with my life... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| So far I have gotten the important things I want in life... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My life situation is excellent... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

End of Block: PROMIS General Life Satisfaction - Short Form 5a Post-Intervention

Start of Block: Descriptive Questions

Q63 Did you use any other features on the Headspace app during the study?

- Yes
- No

Display This Question:
If Did you use any other features on the Headspace app during the study? = Yes

Q69 If so, which feature(s)?

- Sleep sounds
- Yoga
- Mindful activity
- Other _____

Q64 What is your overall impression of your experience in this study?

Q65 What did you like about the study?

Q66 What did you not like about the study?

Q67 Were you able to complete a meditation three times each week?

- Yes
- No

Display This Question:

If Were you able to complete a meditation three times each week? = No

Q68 If not, why?

- It took too much time
- I didn't like meditating
- I forgot to do it
- Other _____

Q70 Would you recommend participating in this study to other teachers?

- Yes
- No

Q71 Would you recommend that other teachers try using the Headspace app?

- Yes
- No

Q73 Would you recommend that other teacher try practicing meditation?

- Yes
- No

Q74 Do you feel that participating in this study was beneficial to you?

- Yes
- No

Q72 Do you have any other feedback you would like to share?

End of Block: Descriptive Questions

Start of Block: Week 4 Follow-Up Survey

Q75 This is the final survey for this study.

You will be contacted via email regarding your e-gift card amount.

Thank you for your time and participation in this study.

Have you used the Headspace app since completion of the study?

- Yes
- No

Display This Question:

If This is the final survey for this study. You will be contacted via email regarding your e-gift ca... = Yes

Q76 For meditation?

- Yes
 - No
-

Display This Question:

If This is the final survey for this study. You will be contacted via email regarding your e-gift ca... = Yes

Q77 What features of the app have you used?

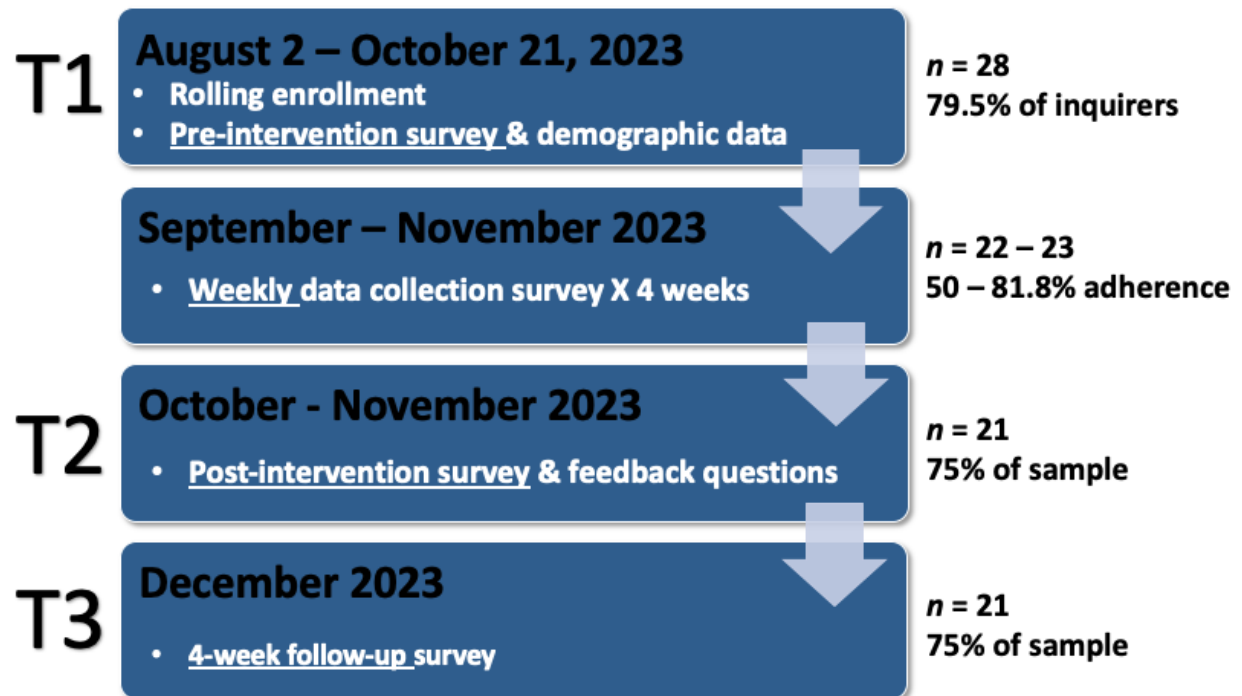
- Sleep sounds
- Yoga
- Mindful activities
- Other _____

Q78 Have you tried practicing meditation without the use of Headspace since completion of the study?

- Yes
- No

End of Block: Week 4 Follow-Up Survey

Appendix B. Project Timeline



Appendix C. Feasibility Measures

| Outcome Measure | Definition | Benchmark for analysis |
|------------------------|--|--|
| Acceptability | How participants react to the intervention. | <ol style="list-style-type: none"> 1. Percent (%) of participants who inquired about the study and enrolled 2. % reporting satisfaction with the intervention and would recommend it to others 3. % study attrition |
| Demand | Estimated use of the intervention. | <ol style="list-style-type: none"> 1. % completing the intervention as instructed (adherence rate) reported via weekly surveys 2. % reporting continued app use post-intervention |
| Implementation | The extent and manner in which the intervention is implemented. | <ol style="list-style-type: none"> 1. % of the target sample size enrolled in the study 2. % of the target budget actually spent during the study |
| Practicality | The extent to which the intervention can be completed when time, and/or commitment is constrained in some way. | Post-intervention feedback from participants regarding positive and negative aspects of study participation, including ease of use. |

Appendix D. D1 DNP Residential Project Committee Appointment Request

DNP D1 Form



DNP Residential Project Committee Appointment Request

Student's Name: Alexa Snodgrass
Student's Number: 14332688
Date Submitted: 6/27/22

I request that the faculty members listed below be appointed to serve as my Residential Project committee.

Jennifer Hulett
Name of Chair*

Jennifer M Hulett
Signature, Chair of Committee

LeeAnne Sherwin
Member*

LeeAnne B. Sherwin
Signature, Member

Alison Roffers
Member*

Alison Roffers
Signature, Member

Member*

Signature, Member

Alexa Snodgrass
Signature of Student

Signature of Director of DNP Program, School of Nursing

*Please type or print

To be completed during the semester enrolled in:
N9080 Section 1 DNP Residency Project

Appendix E. D2 Approval of DNP Residency Project Proposal and the Institutional Review Board Protocol

DNP D-3 Form



Approval of DNP Residency Project Proposal and the Institutional Review Board Protocol

Candidate's name: Snodgrass, Alexa Mizzou ID number: 14332688
(Last Name, First Name)

Project Title: Mobile App Stress Management and Public School Teachers: A Feasibility Study

Signatures of review members

(Please sign full names legibly)

| | Acceptable | Unacceptable |
|---|-------------------------------------|--------------------------|
| Chair: <u>Dr. Jennifer Hulett</u> <u>Jennifer Hulett</u> <small>print & sign</small> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Member: <u>Dr. LeeAnne Sherwin</u> <u>LeeAnne B. Sherwin</u> <small>print & sign</small> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Member: <u>Dr. Alison Roffers</u> <u>Alison Roffers</u> <small>print & sign</small> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Member: _____ <small>print & sign</small> | <input type="checkbox"/> | <input type="checkbox"/> |

The clinical project is:

The Program Committee has explained the decision regarding the acceptability of my project proposal.

Alexa Snodgrass

Student Signature

May 2, 2023

Date

Miriam D. Butler, DNP, NP-C, FNP-BC

Digitally signed by Miriam D. Butler, DNP, NP-C, FNP-BC

Date: 2023.05.04 11:53:42 -05'00'

Director, DNP Program in Nursing

Date