RESEARCH

Nursing & Health Sciences Research Journal

Journal Access: https://scholarlycommons.baptisthealth.net/nhsrj/

Nurses - Tab Down Your Stress Level: A Pilot Study on the Use of Aromatherapy to Decrease Stress Levels

Judith E. Bowling, PhD, RN; Ashley Garbutt, BSN, ADN, RN; Theresa Worden, BSN, RN; Julie Erickson, MSN, RN, AMB-BC; Nicole Rowney, BSN, RN, CMSRN

ABSTRACT

Introduction: The average day-to-day nursing profession is a stressful one. The job often requires dealing with patients enduring some of the worst times of their lives, as well as contending with patients' emotional family members. This stressful environment is heightened even more for nurses employed in critical access hospitals (CAHs) due to the limited resources usually associated with these smaller facilities.

Methods: Research and Evidence-Based Practice Council members at one CAH explored how to help nurses deal with the elevated work stress level. Aromatherapy tabs were used as an intervention to reduce nurses' stress. The nurses who participated in this pilot study took a short survey before starting their shifts, indicating their stress levels. Following the survey, scented aromatherapy tabs were attached to the nurses' uniforms and worn for the entirety of their shifts. At the end of their shifts, the participating nurses completed the same stress survey.

Results: Twenty-five nurses participated in the pilot study. Nurses who did not wear the aromatherapy tab reported higher stress levels at the end of the shift than at the start, with a 3% overall average increase. Nurses who wore the aromatherapy tab reported lower stress levels at the end of the shift with a 12% overall average decrease.

Discussion: Using aromatherapy tabs positively impacted nurses' reported stress levels, indicating that aromatherapy tabs can be a tool for nurses to utilize within the workplace, supporting the need for further research.

***Keywords*:** Aromatherapy, stress, critical access hospital

INTRODUCTION

Nursing is more than a job; it is a calling that consists of taking care of people and helping individuals, families, and communities. Nursing is meaningful work that offers satisfaction and the ability to make a difference in someone's life. According to the 2023 American Association of Colleges of Nursing fact sheet, there are over 4.1 million registered nurses in the United States; nurses are the largest healthcare profession in the nation and one of the largest workforces. The nursing profession demands a high level of stress. Data collected by the American Nurses Association (2023) noted that 62.8% of nurses indicated they felt "at significant risk for workplace stress" (p. 40).

According to the World Health Organization, work-related stress is "the response people may have when presented with work demands and pressures that are not matched to their knowledge and abilities and which challenge their ability to cope" (p. 1). This high-demand,

trusted profession requires interventions to address workplace stress. Within this high-stress profession, critical access hospitals (CAHs) have unique factors that increase nurses' workplace stress to even higher levels.

BACKGROUND

Critical access hospitals are small hospitals—with 25 or fewer inpatient beds—located in rural areas with limited access to preventative and emergency healthcare services (Rural Health Information Hub, 2021). Workforce challenges for CAHs include staff recruitment and retention, a safe patient ratio for a highly fluctuating census, continuing education opportunities, professional development resources, and the availability of personal resources (Slonim et al., 2020).

Increased pressure is placed on CAH nurses to fulfill multiple roles that require multispecialty knowledge. During one shift, a single nurse may care for geriatric, surgical, pediatric, and psychiatric patients (Nelson-Brantley et al., 2018). The patient care supervisors and intensive care unit nurses are responsible for responding to emergencies throughout the hospital, such as heart attacks and stroke alerts. A nurse may start the shift in outpatient and surgical services, then float to the telemetry unit, and later float to the emergency department to assist with a code blue. The demands placed on CAH nurses require flexibility, self-confidence, and multispecialty knowledge. Floating to unfamiliar areas requires skills not used regularly (Nelson-Brantley et al., 2018). The demands of caring for a diverse patient population, coupled with meeting the demands of the hospital in numerous departments within the same shift, contribute to the CAH nurses' stress level.

Work-related stress among nurses leads to adverse outcomes for nurses, including anxiety, nervousness, emotional exhaustion, frustration, depression, fatigue, burnout, and staff turnover (Hung et al., 2023). These damaging effects on nurses can also adversely impact patient outcomes and hospital costs. Increased medication errors, hospital-acquired infections, less desirable patient outcomes, and decreased patient satisfaction scores are directly related to increased work-related stress levels among nurses (Pagador et al., 2022). Literature on nurses working in CAHs is scarce, with even less information on nurses' stress levels and coping skills within these facilities. The many unique challenges CAH nurses encounter daily may further contribute to the work-related stress experienced by nurses nationwide.

The literature review revealed that many hospital leaders actively sought relief for nurses during the COVID-19 pandemic. Within one hospital, renewal rooms were developed where nurses could take uninterrupted breaks. The rooms had a massage chair, music, aromatherapy, yoga, inspirational books, and journals. Similarly, serenity rooms or lavender lounges were created in other facilities to help nurses deal with stress (Smith et al., 2023). Aromatherapy was discussed as a possible tool to assist the nurses in decreasing stress levels.

The evidence in the literature presented aromatherapy as a holistic healing treatment that used plant extracts to enhance physical and mental health (Allard & Katseres, 2018). Aromatherapy has been utilized for thousands of years to help reduce stress among patients, employees, and other populations (Cooksley, 2020).

Several studies have been conducted to investigate the effectiveness of aromatherapy. One study revealed no statistically significant effect of aromatherapy interventions on work-related stress levels (Reynolds et al., 2021). However, Farsi et al. (2021) found that occupational stress scores among nurses decreased significantly following aromatherapy intervention, and nurses who participated in the intervention had lower stress scores than those in the control

https://scholarlycommons.baptisthealth.net/nhsrj/vol6/iss1/9
DOI: 10.55481/2578-3750.1155

group. Furthermore, Kerr et al. (2021) found significant improvements in stress levels and mood among nurses after using essential oil diffusion.

In August 2020, members of the Research and Evidence-Based Practice Council (REBPC) from a CAH in Southeast Florida reconvened after the pandemic to discuss issues within the hospital. The council noted that while caring for COVID-19 patients, nurses faced heightened challenges and increased stress. Nurses and other staff throughout the hospital openly verbalized feelings of distress. The council voted to accept the challenge to explore ways to help nurses deal with the high-stress levels experienced at the time.

After reading about the renewal room, the REBPC team created a comfort room for nurses. The room would have dim lighting, aromatherapy, a massage chair, and water bottles. This area would allow nurses to relax uninterrupted for a limited time, provide a safe place to take off their masks, sit in a comfortable chair, and drink a bottle of water. As the team searched for areas that could be turned into comfort rooms, the hospital experienced another surge in COVID-19 patients. With the surge, there were no areas to set up as a comfort room, as all rooms were occupied. Therefore, the team focused on providing comfort to the nurses where they worked. The aim of this pilot study was to investigate the influence of aromatherapy on work-related stress among nurses in a CAH.

METHODS

Design, Ethics, and Recruitment

This pre–post interventional pilot study was conducted at a CAH facility in Southeast Florida from November 2022 to March 2023. Following Institutional Review Board approval, nurses throughout the facility were recruited by sending emails and posting flyers containing information on the research study. A quick response (QR) code was placed in the emails and flyers, which nurses interested in participating could scan with their phones. Once the nurse scanned the code, a document opened on their phone that provided study details—the name and purpose of the study, instructions on wearing the aromatherapy tab, and the process for survey completion at the beginning and end of the shift. If the nurse was interested in participating, they were instructed to attend one of the in-person recruitment/enrollment sessions held at various times and locations throughout the facility, such as in the nursing units, outside the cafeteria, and in the conference room. The principal investigator's contact information and the names of the other research team members were provided to facilitate addressing potential questions about the study.

Inclusion Criteria

Inclusion criteria were registered nurses who were employed by the hospital, at least 18 years of age, able to give consent, and did not have known allergies to aromatherapy ingredients. Participants who were pregnant or breastfeeding and/or had physical limitations, such as the inability to smell and allergy to lavender-sandalwood essential oil, were excluded from the study.

Participation was voluntary, and participants could withdraw from the pilot study at any time without penalty. All survey data were collected via electronic devices (computer, smartphone, and tablet) and stored in a secure database to which only research team members had access. The aromatherapy tabs used in the study were provided through a grant from the entity's Center for Excellence in Nursing.

Sample & Setting

Convenience sampling was used to recruit direct and non-direct care nurses throughout the CAH, including the emergency department, inpatient care, ambulatory care services, oncology services, surgical services, and hyperbaric medicine. The goal for this pilot study was

for 25 nurses to participate with at least 75 matching pre- and post-shift stress level surveys.

Intervention

At the time of enrollment, participants were given a packet by a research team member. The packet included the informed consent, participant instructions with a code to a demographic survey, a "badge buddy" with a code to use when completing the stress level survey, and three aromatherapy tabs.

Participants were also given a reiteration of the study details using the script developed by the research team members to explain the study. Once the nurse agreed to participate, they were asked to remove the Informed Consent from their packet. They were given time to read the document and provided an opportunity to ask any questions before they signed. Research team members retained the signed document and placed the consent in a locked file box located in the office of a research team member, which was locked when no one was present.

Upon giving consent, participants were prompted to remove the Participant Instructions document from their packet. This document provided details on the study procedure, directions for accessing and completing the Stress Level Survey, and directions for using the aromatherapy tab. The participants were asked to complete the demographic survey using their personal devices. The badge buddy displayed reminder instructions, the QR code to the Stress Level Survey, contact information for the Principal Investigator, and a randomly generated number. This number was used for identification to allow the matching of before-shift and end-of-shift surveys.

The participants were given three packaged lavender-sandalwood-scented aromatherapy tabs with instructions on how to use them. A new aromatherapy tab was opened and worn at the start of the shift and discarded at the end. Instructions for the aromatherapy tab included tearing the aromatherapy tab at either the "Min Scent" or "Max Scent" line. The plastic encasing had corresponding tear notches, which could be easily opened according to the user's preference. The recommendation was to start with the pouch at the "Min Scent" level to determine the strength and fragrance of the aromatherapy tab preferred by the participant and prevent waste. The user could adjust to the desired scent strength after that. The aromatherapy tab could be worn at collar height, on the inside or outside of the participant's upper clothing, or on the back of the employee identification badge. If close contact with the patient was required, the aromatherapy tab was removed from the nurses' clothing or badge and placed in a pocket, then replaced in the original location after patient contact. The lavender-sandalwood-scented aromatherapy tab lasted for more than the eight-hour and 12-hour shifts the nurses worked and was disposed of at the end of each shift. Throughout the data collection period, general emails were sent to all nursing staff once per week to remind those participating to complete their surveys.

Data Collection

An broad literature search was performed, seeking an instrument to measure the nurses' stress levels. An appropriate, affordable instrument was not located. Therefore, a scale was developed specifically for this pilot study. The research team developed the Stress Level Survey (Appendix) based on a 10-point visual analog scale. The Stress Level Survey used a scoring method of zero (indicating no stress) to 10 (indicating the worst stress level imaginable). A panel of five expert nurses, including one PhD nurse, one MSN nurse, two BSN nurses, and one ADN nurse, were asked to review the questions. Upon their recommendation, revisions were made to two questions. The survey was then given to 10 nurses with similar characteristics to

https://scholarlycommons.baptisthealth.net/nhsrj/vol6/iss1/9
DOI: 10.55481/2578-3750.1155

the anticipated study participants who worked at the CAH facility, were over age 18, could give consent, and were not allergic to aromatherapy products or smells. After taking the survey, the participants provided no recommendations for change.

At the beginning and end of their work shifts, participants were instructed to scan the QR code on the badge buddy using their personal electronic device, such as a mobile phone, to complete the Stress Level Survey. The survey responses were stored on a secure Health Insurance Portability and Accountability Act (HIPAA) compliant database. Survey data from the start of the shift was used as a baseline stress level. Survey data from the end of the shift was used for comparison.

Data Analysis

Data analysis consisted of descriptive analysis using Excel. Descriptive statistics were used for demographic information. As a pilot study, the sample size was small, therefore inferential statistical analyses were not conducted.

RESULTS

Twenty-five nurses participated in the pilot study, with 131 surveys completed. Most respondents were direct care nurses who worked 8-, 10- or 12-hour shifts. The largest number of participants reported working the day shift and had work experience of 10 years or more. The hospital lost many nurses during the COVID-19 pandemic, and the participants in the study reflected the staff percentages with almost equal numbers of full-time and part-time subjects (Table 1).

Table 1

Demographic Table

Description	Number of Participants *n* = 25	Percentage
Work area		
Direct care nurses	21	84%
Non-direct care nurses	4	16%
Employment status		
Full-time	14	56%
Part-time	10	40%
Per diem	0	0%
Traveler	1	4%
Time working as a registered nurse in the hospital		
0-2 years	1	4%
3-5 years	0	0%
6-9 years	1	4%
10 years or more	23	92%
Primary Shift		
Day shift	24	96%
Night shift	1	4%
Typical length of shift		
8 hours	11	44%
10 hours	9	36%
12 hours	5	20%

Nurses who did not wear the aromatherapy tab reported an average level of stress that was higher at the end of the shift compared to the start of the shift (See Figure 1). Those who wore the aromatherapy tab reported decreased average stress levels at the end of the shift (See Figure 2).

DISCUSSION

This results of this pilot study support the need for future rigorous research

Figure 1

Average Stress Level Without Aromatherapy Tab

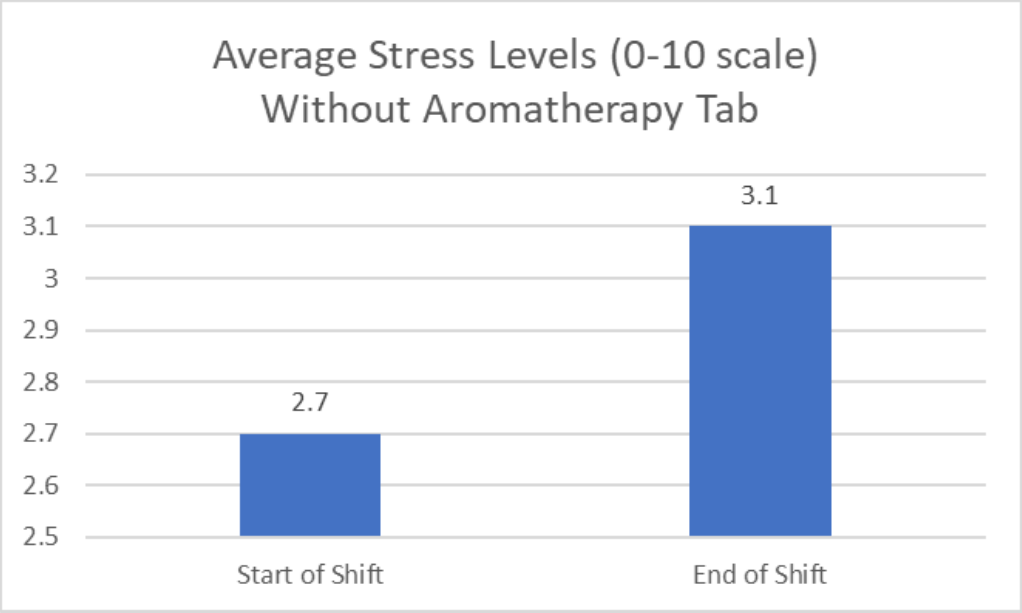
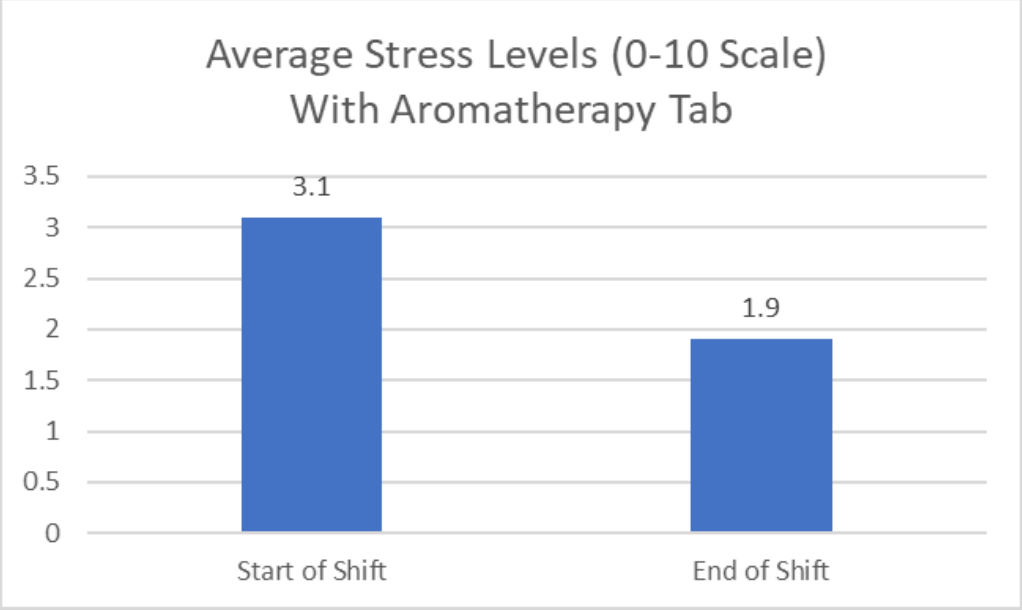


Figure 2

Average Stress Level with Aromatherapy Tab



https://scholarlycommons.baptisthealth.net/nhsrj/vol6/iss1/9
DOI: 10.55481/2578-3750.1155

examining the high-stress levels experienced by CAH nurses. The literature review demonstrated the use of multiple tools to help nurses reduce their stress levels (Smith et al., 2023). Yasui (2021) advocated using aromatherapy to support nurses' well-being, especially during high-stress times like the COVID-19 pandemic. Zamanifar et al. (2020) found that the use of chamomile-lavender aromatherapy along with music therapy reduced nurses' anxiety significantly. While this project was a small pilot study with a small number of nurses, the participants at this CAH facility found that the additional aromatherapy resource helped decrease stress levels to a more manageable level.

Th study had several limitations. As a pilot study, the sample size was small and the participants were not randomized, therefore the findings are not generalizable. Another limitation was the consistency of the responses from the nurses. Responses at the beginning of the shift could not always be matched to end-of-shift surveys, which impeded the accuracy of matched comparisons.

Recommendations for Future Research

The results of this this pilot study provided valuable information to design a more robust research study. The activities and instructions for the participants must be simple and clear. Sometimes, participants completed a survey at the beginning of the work shift and failed to complete the end-of-shift survey and vice versa. Future research studies should include a design with a simplified process to fit nurses' busy routines and to explore ways to increase participation and the availability of aromatherapy interventions. Furthermore, adding a control group would lend greater power to the study.

Recruitment of adequate participants can be challenging in a CAH facility due to the often small size of the facilities. Inviting other CAH facilities to participate would improve the chances of a larger sample size. Another recommendation for future research is to include a designated research team member to remind participants to complete the survey at the beginning and end of the work shift.

CONCLUSION

The results of this pilot study showed that using aromatherapy tabs with lavender sandalwood scent influenced the stress levels of nurses. Aromatherapy tabs as a complementary therapy can be used as an independent nursing intervention to influence nurses' stress levels. This simple intervention may contribute to the resources available to nurses in high-stress environments, such as those experienced during a pandemic. Nurses work in a high -stress environment, impacting patient care delivery. Reducing the nurses' stress levels can potentially improve nurse retention and patient satisfaction.

DECLARATION OF INTEREST

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

AUTHORS

Judith E. Bowling, PhD, RN
Nurse Scientist, Baptist Health Academics, Miami, FL, US. Correspondence regarding this paper can be directed to: judithb@baptisthealth.net

Ashley Garbutt, BSN, ADN, RN
Clinical Nurse, Mariners Hospital, Tavernier, FL, US.

Theresa Worden, BSN, RN
Clinical Nurse, Mariners Hospital, Tavernier, FL, US.

Julie Erickson, MSN, RN, AMB-BC
Clinical Nurse, Mariners Hospital, Tavernier, FL, US.

Nicole Rowney, BSN, RN, CMSRN
Infection Prevention and Control Manager, Mariners Hospital, Tavernier, FL, US.

REFERENCES

Allard, M. E., & Katseres, J. (2018). Using essential oils to enhance nursing practice and for self-care. *The Nurse Practitioner*, *43*(5), 39–46. http://dx.doi.org/10.1097/01.npr.0000531915.69268.8f

American Association of Colleges of Nursing. (2023, July). *Nursing workforce fact sheet*. https://www.aacnnursing.org/news-data/fact-sheets/nursing-workforce-fact-sheet

American Nurses Association. (2023). Healthy nurse, healthy nation: The first 5 years. *American Nurse*, *18*(4), 31–41. http://dx.doi.org/10.51256/anj042332

Cooksley, V. (2020). Examining the evidence of aromatherapy practice in nursing and its most prevalent applications. *Beginnings, American Holistic Nurses Association 8*, 6–8.

Farsi, Z., Rajai, N., Teymouri, F., & GHolami, M. (2021). Effect of aromatherapy with rosa damascene essential oil on nurses' occupational stress in the emergency department: A randomized controlled trial. *Preventive Care in Nursing and Midwifery Journal*, *11*(3), 46–54. http://dx.doi.org/10.52547/pcnm.11.3.46

Hung, C. L., Lin, Y. L., Chou, C. M., & Wang, C. J. (2023). Efficacy of aromatherapy at relieving the work-related stress of nursing staff from various hospital departments during COVID-19. *Healthcare*, *11*(2), Article 157. http://dx.doi.org/10.3390/healthcare11020157

Kerr, D., Hegg, M., & Mohebbi, M. (2021). Effects of diffused essential oils for reducing stress and improving mood for clinical nurses: An interventional time series study. *Nursing Forum*, *56*(2), 305–312. https://doi.org/10.1111/nuf.12548

Nelson-Brantley, H. V., Ford, D. J., Miller, K. L., & Bott, M. J. (2018). Nurse executives leading change to improve critical access hospital outcomes: A literature review with research-informed recommendations. *Online Journal of Rural Nursing and Health Care*, *18*(1), 148–179. http://dx.doi.org/10.14574/ojrnhc.v18i1.510

Pagador, F., Barone, M., Manoukian, M., Xu, W., & Kim, L. (2022). Effective holistic approaches to reducing nurse stress and burnout during COVID-19. *American Journal of Nursing*, *122*(5), 40–47. http://dx.doi.org/10.1097/01.naj.0000830744.96819.dc

Reynolds, S. S., Hodges, E., Tang, J., Dahnke, D., & Thomesen, E. M. (2021). Impact of citrus essential oil diffusion on health care staff's stress levels. *Holistic Nursing Practice, 35*(2), 65–70. https://doi.org/10.1097/HNP.0000000000000433

Rueda, M., Cobo, B., & Perri, P. F. (2020). Randomized response estimation in multiple frame surveys. *International Journal of Computer Mathematics*, *97*(1-2), 189–206. http://dx.doi.org/10.1080/00207160.2018.1476856

Rural Health Information Hub. (2021). *Critical access hospitals*. https://www.ruralhealthinfo.org/topics/critical-access-hospitals

Smith, S., Kokoczka, L., & Cottrell, C. (2023). Utility of a "lavender lounge" to reduce stress among critical care registered nurses: A cross sectional study. *American Journal of Critical Care*, *32*(3), 198-204. http://dx.doi.org/10.4037/ajcc2023721

Slonim, A. D., See, H., & Slonim, S. (2020). Challenges confronting rural hospitals accentuated during COVID-19. *The Journal of Biomedical Research*, *34*(6), 397–409. http://dx.doi.org/10.7555/jbr.34.20200112

https://scholarlycommons.baptisthealth.net/nhsrj/vol6/iss1/9
DOI: 10.55481/2578-3750.1155

World Health Organization. (2020, October 19). *Occupational health: Stress at the workplace*. https://www.who.int/news-room/questions-and-answers/item/ccupational-health-stress-at-the-workplace

Yasui, T. (2021). Aromatherapy: A powerful gift from nature for nurse self-care during the COVID-19 pandemic. *Beginnings, American Holistic Nurses Association*, 22–23.

Zamanifar, S., Bagheri-Saveh, M. I., Nezakati, A., Mohammadi, R., & Seidi, J. (2020). The effect of music therapy and aromatherapy with chamomile-lavender essential oil on the anxiety of clinical nurses: A randomized and double-blind clinical trial. *Journal of Medicine and Life*, *13*(1), 87–93. http://dx.doi.org/10.25122/jml-2019-0105

APPENDIX

Stress Level Survey

Please complete the survey below. Your time and participation are appreciated! The information you provide will be kept confidential and available only to members of the research team.

Thank you!

1) Date (dd/mm/yyyy): _____
Time:_____

2) Did you wear the aromatherapy tab this shift? ○ Yes ○ No

3) Are you completing this survey at the beginning or end of your shift? ○ Beginning ○ End

4) If completing this survey at the end of the shift, did you experience a Code Blue or Code Rescue during your shift?
○ Yes- Code Blue
○ Yes- Code Rescue
○ No
○ Non-applicable (start of shift)

5) For the majority of your shift, to which level (minimum or maximum) did you have your aromatherapy tab open?
○ Minimum
○ Maximum
○ Non-applicable

6) Using the scale 0-10 rate your stress level at this time (Zero being no stress and 10 being the most stress you can imagine.)

○ 0		(No stress)
○ 1		
○ 2		(Mild stress)
○ 3		
○ 4		(Moderate)
○ 5		
○ 6		(Severe)
○ 7		
○ 8		(Very Severe)
○ 9		
○ 10		(Worst possible)

https://scholarlycommons.baptisthealth.net/nhsrj/vol6/iss1/9
DOI: 10.55481/2578-3750.1155