

Sigma's 30th International Nursing Research Congress

Effects of Aromatherapy on Stress Levels in BSN Students: A Pilot Study

Cynthia M. Pipkins, PhD, RN

JoAnne Gay Dishman School of Nursing, Lamar University, Beaumont, TX, USA

J. T. Seaman, MSN, RN, PMHMP-BC

Dishman School of Nursing, Lamar University, Beaumont, TX, USA

Purpose: The purpose of this cross-sectional pilot study was to determine the baseline stress level and evaluate the effectiveness of aromatherapy on physiological (heart rate/respiratory rate) and psychological factors (stress level) in nursing students. By exploring the integration of aromatherapy, the intention of the intervention was to "create a healing environment" conducive to learning (Watson, 2008, p. 129; Watson, 2018). The specific aims of this study were: (1) determine the baseline stress level (Perceived Stress Scale [PSS-10]) and (2) evaluate the effectiveness of aromatherapy (peppermint) on physiological factors/biophysical markers (heart rate, respiration rate) and psychological factors (Perceived Stress Levels [PSL]) of nursing students.

Methods: A convenience sample of baccalaureate nursing students (n=57) enrolled in the nursing course, attended class during data collection, and completed all components of the study were utilized. Once consented, the participants completed the demographics and PSS-10. The physiological factors/biophysical markers (HR and RR) and psychological factor (PSL) were collected and documented at four different timed intervals around aromatherapy diffusion (pre-intervention were Time 1, 2, and 3; post-intervention was Time 4). The aromatherapy intervention was diffused between Time 3 and Time 4.

Results: The PSS mean score ($M = 2.008$) revealed the students were "sometimes" stressed over the last month correlating to the PSL score ($M = 4.7$) as "moderately" stressed. No statistical significance was found between heart rates, respiratory rates and perceived stress levels, before peppermint oil was diffused compared to the respective means after the oil was diffused using t-test. However, a mean HR and RR was calculated pre-intervention ($M = 85.7$; $M = 17.1$, respectively) with post-intervention calculations ($M = 70.4$; $M = 14.4$, respectively) showing a marked decrease clinically. The pre-intervention PSL was ($M = 4.7$) "moderately" stressed with the post-intervention calculation ($M = 3.3$) "mildly" stressed.

Conclusion: The outcome of this pilot study provided preliminary data for the development of a stress management intervention for nursing students. Clinically significant decrease was measured in heart rates, respiratory rates and stress level after diffusing aromatherapy in nursing students. Further study using larger samples is needed, and could yield significant generalizable results.

Title:

Effects of Aromatherapy on Stress Levels in BSN Students: A Pilot Study

Keywords:

Aromatherapy, Nursing Students and Peppermint oil

References:

Hekmatpou, D., Pourandish, Y., Farahani, P. V., & Parvizrad, R. (2017). The effect of aromatherapy with orange essential oil on anxiety and pain in patients with fractured limbs admitted to an emergency ward: a randomized clinical trial. *Central European Journal of Nursing and Midwifery*, 8(4), 717-722. doi: 10.15452/CEJNM.2017.08.0024

Ilmberger, J., Heuberger, E., Mahrhofer, C., Dessovic, H., Kowarik, D., & Buchbauer, G. (2001). The influence of essential oils on human attention. I: alertness. *Chemical Senses*, 26(3), 239–245. <https://doi.org/10.1093/chemse/26.3.239>

Johnson, C. E. (2014). Effect of aromatherapy on cognitive test anxiety among nursing students. *Alternative and Complementary Therapies*, 2(2), 84-87. doi: 10.1089/act.2014.20207

Karvounides, D., Simpson, P.M., Davies, W.H., Khan, K.A., Weisman, S.J., & Hainsworth, K.R. (2016). Three studies supporting the initial validation of the stress numerical rating scale-11 (Stress NRS-11): A single item measure of momentary stress for adolescents and adults. *Pediatric Dimensions*, 1(4), 105-109. doi: 10.15761/PD.1000124

Krebs, E.E., Carey, T. S., & Weinberger, M. (2007). Accuracy of the pain numeric rating scale as a screening test in primary care. *Journal of General Internal Medicine*, 22(10), 1453-1458.

Miller, A. (2015). *Benefits of peppermint aromatherapy*. Retrieved from <http://www.livestrong.com/article/132829-benefits-peppermint-aromatherapy/>

Siqueira Reis, R., Ferreira Hino, H. H., & Rodriguez Añez, C. R. (2010). Perceived stress scale: Reliability and validity study in Brazil. *Journal of Health and Psychology*, 15(1), 107-114. doi: 10.1177/1359105309346343

Watson, J. (2008). *Nursing: The philosophy and science of caring*. Boulder, CO: University Press of Colorado.

Watson, J. (2018). *Unitary caring science: the philosophy and praxis of nursing*. Boulder, CO: University Press of Colorado.

Zielinski, E. (2018). *The healing power of essential oils*. New York, NY: Harmony Books.

Hekmatpou, D., Pourandish, Y., Farahani, P. V., & Parvizrad, R. (2017). The effect of aromatherapy with orange essential oil on anxiety and pain in patients with fractured limbs admitted to an emergency ward: a randomized clinical trial. *Central European Journal of Nursing and Midwifery*, 8(4), 717-722. doi: 10.15452/CEJNM.2017.08.0024

Ilmberger, J., Heuberger, E., Mahrhofer, C., Dessovic, H., Kowarik, D., & Buchbauer, G. (2001). The influence of essential oils on human attention. I: alertness. *Chemical Senses*, 26(3), 239–245. <https://doi.org/10.1093/chemse/26.3.239>

Johnson, C. E. (2014). Effect of aromatherapy on cognitive test anxiety among nursing students. *Alternative and Complementary Therapies*, 2(2), 84-87. doi: 10.1089/act.2014.20207

Karvounides, D., Simpson, P.M., Davies, W.H., Khan, K.A., Weisman, S.J., & Hainsworth, K.R. (2016). Three studies supporting the initial validation of the stress numerical rating scale-11 (Stress NRS-11): A single item measure of momentary stress for adolescents and adults. *Pediatric Dimensions*, 1(4), 105-109. doi: 10.15761/PD.1000124

Krebs, E.E., Carey, T. S., & Weinberger, M. (2007). Accuracy of the pain numeric rating scale as a screening test in primary care. *Journal of General Internal Medicine*, 22(10), 1453-1458.

Miller, A. (2015). *Benefits of peppermint aromatherapy*. Retrieved from <http://www.livestrong.com/article/132829-benefits-peppermint-aromatherapy/>

Siqueira Reis, R., Ferreira Hino, H. H., & Rodriguez Añez, C. R. (2010). Perceived stress scale: Reliability and validity study in Brazil. *Journal of Health and Psychology, 15*(1), 107-114. doi: 10.1177/1359105309346343

Watson, J. (2008). *Nursing: The philosophy and science of caring*. Boulder, CO: University Press of Colorado.

Watson, J. (2018). *Unitary caring science: the philosophy and praxis of nursing*. Boulder, CO: University Press of Colorado.

Zielinski, E. (2018). *The healing power of essential oils*. New York, NY: Harmony Books.

Abstract Summary:

Aromatherapy may have positive effects of increased attention, performance and mental acuity through stimulating the conscious mind. Stress is a common psychological factor affecting physiological factors in nursing students. This study determined the baseline stress level and evaluated the effectiveness of aromatherapy on physiological and psychological factors in nursing students.

Content Outline:

Effects of Aromatherapy on Stress Levels in BSN Students: A Pilot Study

1. Art of Aromatherapy
 1. Mind-Body Connection
 2. Uses, Benefits of Peppermint
2. Nursing Students and Aromatherapy
 1. Research Study Development
 1. Gaps in Research
 2. Significance to Nursing Students
 2. Specific Aims
3. Methodology
 1. Data Collection
 2. Data Analysis
4. Conclusion
 1. Study Implications, Limitations, and Recommendations
 2. Clinical Significance vs. Statistical Significance

First Primary Presenting Author

Primary Presenting Author

Cynthia M. Pipkins, PhD, RN
Lamar University
JoAnne Gay Dishman School of Nursing
Assistant Professor
Beaumont TX
USA

Author Summary: In 2001, Dr. Pipkins sustained a work-related musculoskeletal injury with traditional medicine as the main focus for healthcare. Upon multiple recalls of medications she was receiving, the fear of side effects and longevity of medications sent her on the quest for Complementary and Alternative Therapies. Dr. Pipkins has been the project director for several student EBP projects and mentored research studies regarding expressive art, aromatherapy, and CAM.

Second Secondary Presenting Author

Corresponding Secondary Presenting Author

J. T. Seaman, MSN, RN, PMHMP-BC
Lamar University
Dishman School of Nursing
Nursing Instructor
Beamont TX
USA

Author Summary: JT Seaman is a psychiatric mental health nurse practitioner and a nursing instructor who has taken an interest in alternative treatment for various disorders for a more natural healing process. As an instructor, his interests have grown to include the anxiety and other symptomology experienced by students. His research includes simulation in nursing education, spirituality in nursing students, and aromatherapy use in the classroom.