Aromatherapy has long been purported to have healing qualities, even being noted as beneficial by Hippocrates in ancient Greece (Moore, 2013). It has been utilized to treat a wide variety of illnesses and conditions including ADHD, insomnia, nausea, pain, depression, and anxiety. The list of aromatic sources include oils extracted from the flowers, stems, and roots (Johnson, 2014) of a wide variety of plants, the most common of which are citrus, bergamot, lavender, sandalwood, and peppermint. (Ni, Hou, Kao, Chang, Yu, Wu, and Chen, 2013; Trambert, Kowalski, Wu, Mehta, and Friedman, 2017). Aromatherapy is currently being considered for its usefulness in treating anxiety. Traditionally, in modern medicine, anxiety is treated with medications noted to have numerous side effects and addictive qualities. These drugs include benzodiazepines, beta blockers, and tricyclic antidepressants among others. All of these have significant side effects include sedation, headache and ataxia that can make normal functioning at work or home difficult. Additionally, many can lead to addiction. Furthermore, these pharmacological interventions have considerable financial cost. Lee, Wu, Tsang, Leung, and Cheung (2011) estimated the costs to be 46.6 billion in direct and indirect costs annually in the United States. Alternative treatments that can avoid the undesirable side effects, addiction, and cost associated with traditional treatment of anxiety are of substantial benefit both to the individual and to society as a whole.

Aromatherapy presents an alternative therapeutic option for treating anxiety to pharmaceutical treatments that are low cost, safe, non-addictive and easily administered. Essential oils often suggested for the treatment of anxiety include lavender, bergamot, sandalwood, and citrus and a growing body of research is supporting the use of aromatherapy for this purpose. Ni et al (2013) examined the impact of aromatherapy on anxiety levels of pre-operative ambulatory surgery patients. The sample of adult patients (N=109), ranged in age from 18-65. Patients completed the State Trait Anxiety Inventory (STAI) and were then randomly assigned to either the treatment group (30 minutes of bergamot essential oil) or the control group (30 minutes of water vapor). Subjects then completed the STAI a second time before going to surgery. The treatment group demonstrated a significantly decreased level of anxiety when compared to the control group, indicating that bergamot aromatherapy has the potential to reduce preoperative anxiety.

Trambert et al (2017) investigated the use of aromatherapy in treating anxiety in women having breast biopsies. The 87 women were randomly assigned to one of two treatment groups (lavender and sandalwood, or orange and peppermint) or a placebo group. Anxiety was measured using the Spielberg State Trait Anxiety Scale. For all groups, the aromatherapy was administered using a felt tab applied to their hospital gown. While all three groups experienced a decrease in anxiety, the group receiving the lavender/sandalwood treatment demonstrated a statistically significant greater decrease than the other two groups.

In a study of test anxiety in nursing students, Johnson (2014) examined the potential impact of lemon essential oil. Sophomore nursing students (N=39), in a four-year college program were enrolled and randomly assigned to either the experimental or control group. Within 1 day following their first exam, they completed a Cognitive Test Anxiety Scale (CTAS) and they then completed it again the day after the second exam. The experimental group completed their second exam in a room infused with lemon essential for the duration of the exam while the control group completed their exam under normal conditions. Analysis of the data concluded that while groups were similar in their anxiety prior to the aromatherapy treatment, the experimental group demonstrated significantly lower test anxiety following
aromatherapy than their control group counterparts. This again demonstrated the potential for aromatherapy as an intervention for anxiety.

While orange essential oil has been less extensively studied for its utility in treating anxiety, it also has shown promise. Hekmatpou, Pourandish, Farahani, and Parvizrad (2017), investigated the use of orange essential oil on anxiety and pain in emergency department patients (N=60) with limb fractures. Patients were randomly assigned to either the treatment or control groups. Orange aromatherapy was administered by application of a pad infused with the essential oil that was attached to the neck of their gowns. Fresh pads were attached hourly. The patient’s anxiety was measured before and after the intervention and pain was measure hourly for six hours using the faces visual analog scale. They found decreases in both pain and anxiety in patients treated with orange aromatherapy.

Goes, Antunes, Alves, and Teixeira-Silva (2012) also looked at the ability of sweet orange aromatherapy to alleviate stress. Graduate students (N=40) were assigned to one of five groups. Three groups were given varying concentrations of orange aromatherapy and the remaining two groups were given either tea tree oil aromatherapy or a mock treatment with water. The participants were then placed in an anxiety-producing situation by having them take the Stroop Color-Word Test. Those in the control groups (tea tree oil and water) exhibited an increase in anxiety while those in the sweet orange aromatherapy groups demonstrated no significant increase in anxiety thus supporting the hypothesis that orange aromatherapy had an anxiolytic effect.

The literature indicates that a variety of essential oils may have the potential to be used in aromatherapy to help alleviate anxiety in a variety of populations and that orange essential oil specifically may be effective. This study will examine the effectiveness of orange essential oil aromatherapy in alleviating anxiety in a sample of college students, faculty and staff.

To conduct this study, research subjects will be recruited from the students, faculty and staff of a small liberal arts university in North Carolina. The researchers anticipate recruiting approximately 30 participants for this convenience sample. Individuals must be at least 18 years of age, and must be able to speak English. Individuals with allergies to essential oils, orange essence or orange fragrance will be excluded from the study. Eligible subjects will, after giving informed consent, be randomly assigned to either the treatment or control group. Subjects will complete the Depression Anxiety and Stress Scale (DASS21) (Lovibond & Lovibond, 1995) and will then be taken to a quiet room for either aromatherapy or the control treatment. For subjects in the treatment group, the aromatherapy will consist of 4 drops of orange essential oil dropped onto a gauze pad that will attach to the collar area of the subject’s shirt. They will then sit for 15 minutes reading passages about the history of the university. Following the 15 minutes, the aromatherapy pad will be removed and subjects will be asked to again complete the DASS21. The control group will have exactly the same treatment except 4 drops of water will be placed on the gauze pads instead of essential oil. It is hypothesized that those participating in the aromatherapy will exhibit a decrease in anxiety following aromatherapy. Data will be analyzed to determine whether there were differences between the two groups at baseline and at post testing. Additionally, analysis will determine whether there were changes in anxiety between pre and post testing and whether the treatment group experienced a greater change than the control group.

Some limitations of this study must be acknowledged. The small sample size may make determination of changes and group differences difficult to detect. Additionally, a single episode of aromatherapy may not be sufficient to elicit changes in anxiety. Finally, the measure of anxiety may not be sensitive enough to detect changes in anxiety occurring over such a short time period.

Title:

Effect of Orange Aromatherapy on Anxiety of Students, Faculty, and Staff in an Academic Setting
Keywords:
Anxiety, Aromatherapy and Orange Essence

References:


Abstract Summary:

This study investigates orange essence aromatherapy in reducing anxiety levels of students and non-students. It utilizes a pre and post-test design with random assignment to either an experimental or control group in which the experimental group receives orange essence aromatherapy and the control group receives a comparable treatment using water

Content Outline:

Introduction to aromatherapy

Aromatherapy and Anxiety

Orange essential oils aromatherapy and anxiety

Purpose of Research
Research Methodology

Limitations of Research

First Primary Presenting Author

**Primary Presenting Author**

Kristina D. Everhart, SN
Pfeiffer University
Department of Nursing
Nursing Student
Misenheimer NC
USA

**Professional Experience:** Kristina Everhart is a junior nursing student in the Pfeiffer University Department of Nursing BSN program. She is an Honors Student and has been inducted into the Pfeiffer University Nursing Honor Society. Following her interest in Complementary and Integrative Health Care, she is conducting her honor’s research in Aromatherapy.

**Author Summary:** Kristina Everhart is a junior nursing student in the Pfeiffer University Department of Nursing BSN program. She is an Honors Student and has been inducted into the Pfeiffer University Nursing Honor Society. Following her interest in Complementary and Integrative Health Care, she is conducting her honor’s research in Aromatherapy.

Second Secondary Presenting Author

**Corresponding Secondary Presenting Author**

Martha Hains Bramlett, PhD, MSN, BSN, RN,
Pfeiffer University
Department of Nursing
Associate Professor
Misenheimer NC
USA

**Professional Experience:** I am an associate professor of nursing. In addition to teaching and research in nursing, I teach alternative and complementary medicine in an undergraduate seminar.

**Author Summary:** Martha H. Bramlett, PhD, RN is Associate Professor of Nursing at Pfeiffer University. Her expertise is in Gerontological Nursing and Nursing Theory and she also teaches courses in Complementary and Alternative medicine. She is currently conducting research exploring the attitudes of undergraduate students toward aging as well as a qualitative analysis of images of aging of undergraduate nursing students. Her previous research has focused on quality of life issues for older adults.

Third Secondary Presenting Author

**Corresponding Secondary Presenting Author**

Dana R. Martin, DNP, RN, CNE
Pfeiffer University
Department of Nursing
Associate Professor
Misenheimer NC
USA

**Professional Experience:** 2011-Present, Associate Professor, Department of Nursing, Pfeiffer University, Misenheimer, NC My MSN focused on a double concentration of community health nursing and nursing education. I have taught community health and population health since becoming a nursing professor in 2011. 2001-2011, Staff Nurse, Mecklenburg Medical Group, Carolinas Healthcare System, Charlotte, NC 1999-2001, Staff Nurse, Charlotte Pediatric Clinic, Carolinas Healthcare System, Charlotte, NC 1997-1999, Staff Nurse, Medical/Surgical Hospital Unit, Novant Health Matthews Medical Center, Matthews, NC Co-author of two peer-reviewed journals. First author for one of the articles. Author of a book chapter. Numerous presentations at local, state, national, and international research conventions. Member of local, state, national, and international nursing organizations.

**Author Summary:** Dana Martin, DNP, RN, CNE is Associate Professor of Nursing at Pfeiffer University and is Director of the Center for Clergy Health. She currently teaches Pharmacology and Community Health Nursing in Pfeiffer’s traditional BSN program and in the RN to BSN program. She has published a book chapter and journal articles and has presented at many local, national, and international nursing conferences.