

5-2021

Complementary and Alternative Medicine: The Effects of Aromatherapy on New and Expectant Mothers

Heather Tran

Dominican University of California

<https://doi.org/10.33015/dominican.edu/2021.NURS.ST.10>

Survey: Let us know how this paper benefits you.

Recommended Citation

Tran, Heather, "Complementary and Alternative Medicine: The Effects of Aromatherapy on New and Expectant Mothers" (2021). *Nursing | Senior Theses*. 31.
<https://doi.org/10.33015/dominican.edu/2021.NURS.ST.10>

This Senior Thesis is brought to you for free and open access by the Department of Nursing at Dominican Scholar. It has been accepted for inclusion in Nursing | Senior Theses by an authorized administrator of Dominican Scholar. For more information, please contact michael.pujals@dominican.edu.

Running Head: CAM: THE EFFECTS OF AROMATHERAPY ON NEW AND EXPECTANT
MOTHERS

Complementary and Alternative Medicine:
The Effects of Aromatherapy on New and Expectant Mothers

Heather Thi Tran

Dominican University

Fall 2020

Abstract

Complementary and alternative medicine (CAM) is vastly expanding and is now being used in the clinical setting as an effective management of various symptoms. Pregnancy, labor, and the postpartum period can be beautiful yet overwhelming moments in a woman's life. The symptoms that are usually accompanied along this journey include nausea, vomiting, anxiety, pain, fatigue, stress and more. Aromatherapy has been proven to be a safe and natural, non-pharmacological method in reducing these symptoms that may make it harder for the mother to enjoy her pregnancy. This holistic approach to treatment is inexpensive, noninvasive, does not require a prescription from a medical doctor nor does it create detrimental side effects on the mother and the baby. Aromatherapy use among expectant and new mothers has demonstrated significant results in improving patient outcomes while enhancing quality of life. With careful evaluation, CAM therapies can change the perspective that people have towards healing. This thesis provides a review of the research literature and a proposal for further study.

Acknowledgments

I would like to thank my Senior Nursing Research Professor, Dr. Harris, for providing her time and wisdom in helping all of her students formulate a well-written senior thesis. She has worked with each of her students individually as we went through the steps it took to create the senior thesis of our interest. Her wisdom and patience has allowed me to grow my knowledge and foundation in nursing research, which is vital to my nursing education and career. Without her help, I would not have been able to compose a senior level nursing research thesis paper entirely on my own. Dr. Harris is truly a devoted and caring professor who wants the best for her students to succeed and thrive. Through the completion of my thesis, I have an increased spark of interest in this particular specialty of nursing which I hope to pursue in the near future.

Table of Contents

Abstract.....1

Acknowledgements.....2

Introduction to Problem Statement4

Literature Review.....5

 Use of Essential Oils in Pregnancy and Labor.....6

 Aromatherapy in the Postpartum Period.....9

Overall Discussion of Literature Review.....13

Theoretical Framework.....14

Proposal for Further Study.....15

 Primary Research Questions.....16

 Ethical Considerations.....16

 Research Method.....17

 Data Analysis.....18

Thesis Conclusion.....19

Reference List.....21

Appendix.....23

Introduction to Problem Statement

Pregnant women experience emotional and physical changes as they adjust to the transition into giving birth to their newborn child. As time passes in which the woman is approaching labor, the physical pain can increase during labor and become almost unbearable to endure. Pharmaceutical interventions, such as medications, are almost always the initial form of treatment. However, medications to treat pain have side effects that prove to be harmful to the mother or newborn baby, such as reduced respiratory rate with narcotics. Therefore, a key question to ask is: By understanding that there are potential side effects associated with medications, what are the non-pharmacological benefits in using aromatherapy with essential oils as an alternative form of treatment?

The usage of complementary and alternative medicine has the potential to drastically improve quality of life while also relieving symptoms caused by pregnancy. Pain can be closely correlated with anxiety, which is known as one of the most common psychological responses in women during labor. When an individual endures any form of physical pain, this can increase the patient's stress levels and escalate anxiety. Symptoms that arise in pregnancy, such as anxiety, painful contractions, nausea, and vomiting can take a mental and physical toll on the overall health of the new mother. By introducing the benefits of aromatherapy, this alternative form of treatment may have the capacity to naturally reduce symptoms while effectively alleviating uncomfortable symptoms of pregnancy. Ultimately, non-pharmacological treatments can be utilized in many clinical settings and practice.

Aromatherapy has been recognized as a treatment for a variety of physical and medical conditions among different patient populations. It is also inexpensive, noninvasive, and offered in a variety of scents that can be inhaled (Namazi, 2014). This treatment is valuable, especially

among mothers, because it does not cause significant harm among patients when used correctly. On rare occasions, patients have reported headaches or exhibited allergic reactions (*Aromatherapy: Uses and Benefits*, healthline.com, N.D.). Therefore, patients will still need to be monitored carefully as they are when provided with medications. However, this adjunct to healing often can aid in avoiding the consumption of unnecessary medications and reduce the risk of harmful side effects. By choosing this natural, non-pharmacological intervention before pharmaceutical medicine, aromatherapy with the use of essential oils has the potential to demonstrate important benefits without detriment.

Literature Review

The research in this literature review was collected using databases found through the Dominican University of California library, such as PubMed, PubMed Central, and ScienceDirect. Six different research articles were explored and included to portray the effectiveness of complementary and alternative medicine, specifically aromatherapy, on expectant mothers. Keywords that were used in the search for these articles were: aromatherapy, pain, anxiety, labor pain, nausea, vomiting, postpartum symptoms, essential oils, cesarean section, rose, lavender, and pregnant women.

The literature review of this paper will be separated into two sections. The first section will consist of articles demonstrating the effectiveness of aromatherapy during labor and pregnancy, and the second section will include articles demonstrating the effectiveness of aromatherapy on mothers in the postpartum period and those experiencing postoperative pain.

Use of Essential Oils in Pregnancy and Labor

Pasha, Behmanesh, Mohsenzadeh, Hajahmadi, and Moghadamnia (2012) aimed to evaluate the effectiveness of mint oil on nausea and vomiting that may occur during pregnancy. The researchers used a quantitative, double blind clinical trial on 60 women who were experiencing gestational nausea and vomiting. Inclusion criteria consisted of being in the first trimester of pregnancy, having a singleton gestation, and being between 14-35 years of age. Exclusion criteria included multiple gestations, hydatidiform mole, those using other medications for nausea and vomiting, those with underlying psychological or physical problems, early fetal death, and presence of malformation. The participants were split into two groups, consisting of thirty women in the mint oil group and thirty women in the normal saline group. The aromatherapy group was asked to place a bowl of water with four drops of mint oil on the floor by the participants' beds for four consecutive nights to decrease symptoms of morning sickness. The placebo group was asked to perform the same approach, but instead of mint oil, normal saline was used with very little mint oil only on the lid of the container so that mothers in that group would not distinguish that they were a part of that group. The visual analogue scale was used to assess the severity of nausea experienced along with the nausea-intensity recording visual scale for self-report. The frequency and amount of vomiting was counted and measured as well. Lastly, statistical analysis was done through the use of the t-test, Chi Square, and repeated measurement of before, during, and after the intervention (Pasha, et al. 2012).

The researchers found that from the first day to the fourth day of using the intervention, there was a significant decrease in nausea, especially among the mint group. They were also able to see the effects last until seven days post-intervention, however it did not last as long in the placebo group. Based on this study, the researchers were able to conclude that mint oil

aromatherapy is not effective in eliminating feelings of nausea and vomiting in pregnancy, rather it demonstrated a decline in the intensity of nausea. Their findings conveyed that the mint group felt the intervention benefited them the most from the aromatherapy on the fourth night. A limitation to this study was that the estrogen, progesterone, and human chorionic gonadotropin hormone levels were not measured. This acts as a constraint because all three play a role in how the brain controls gestational nausea and vomiting. Other limitations of this study include the smaller sample size along with the participants' response to the oil, for example it may be enjoyable to some but repulsive to others (Pasha, et al. 2012).

Researching mothers giving birth, Yazdkhasti and Pirak (2016) aimed to study the effects of lavender aromatherapy on pain experienced during labor. They used a single blind randomized clinical trial on 160 primiparous pregnant women who were then split into two groups. This study took place from September 2011 to January 2012, and was performed at a hospital in Iran. Inclusion criteria included women whose baby was in the cephalic presentation, women receiving no form of analgesia throughout labor, cervical dilation at least three to four centimeters, and nulliparous pregnant women who are over thirty-seven weeks with a singleton pregnancy. Exclusion criteria includes a history of allergy to herbs, emergency cesarean due to any underlying diseases, subject's withdrawal from the trial, and cephalopelvic disproportion. Pure lavender essence was diluted in distilled water and two drops were placed in the experimental group's hands. They were asked to rub their hands together and inhale for three minutes with their hands 2.5-5 centimeters (cm) away from the nose. These participants were asked to inhale the lavender essence at three different stages, 4-5cm, 6-7cm, and 8-9cm of cervical dilation. Pain was measured before and 30 minutes after each intervention using the visual analogue scale and the numerical pain rating scale. The control group was asked to do the

same except they had distilled water as a placebo. Data was also gathered based on age, occupation, education, Apgar scores of the neonates in the first and fifth minutes, the length of the active phase, and the length of the second stage of labor (Yazdkhasti, Pirak 2016).

The findings indicate that aromatic compounds have created a positive impact and have also been tested in multiple other research studies. Lavender essence is noninvasive, inexpensive, easy to use, and acts as an effective intervention in reducing labor pain. Comparing the groups, the pre-intervention and intervention done at 3-4 cm showed no difference in pain levels, but there was a significant decrease in pain among the experimental group when they inhaled the lavender at 5-10cm of dilation. The control group felt no difference before and after the intervention. The strengths of this study include the validity of the pain rating tools and no conflict of interest being present. A limitation of the study that could have strengthened the results was the lack of objective data, such as collecting vital signs before and after the intervention for analysis. By using aromatherapy with essential oils, the birthing process can become a more enjoyable and accepting experience while decreasing the mother's urge to go through with a cesarean delivery (Yazdkhasti, Pirak 2016).

The study "*Effects of aromatherapy with Rosa damascena on nulliparous women's pain and anxiety of labor during the first stage of labor*" by Hamdamian, Nazarpour, Simbar, et al. (2018) aimed to study the effectiveness of aromatherapy on new mothers experiencing pain and anxiety. In maternity care and nursing, it is a priority to ensure that the mother is comfortable and ready to go on with this life-changing experience. The design of this study was a quantitative, single-blinded clinical trial that took place at a Iranian maternity hospital and included 110 pregnant women giving birth for the first time. The participants were randomly assigned into two groups of 55 through Microsoft Excel. The participants were asked to inhale

0.08 milliliters (mL) of Rosa damascena essence every 30 minutes and the control group performed the same approach, but instead of the essential oil, they were given normal saline. Anxiety was measured twice, at 4-7cm and 8-10cm of cervical dilation, and pain was measured at three different times, 4-5cm, 6-7cm, and 8-10cm of cervical dilation. Data collection was performed through a fertility questionnaire, Spielberger anxiety questionnaire, an observational checklist, the numerical pain rating scale, and a demographic and obstetric questionnaire. As for data analysis, the t-test, Chi-square test, and Mann-Whitney U test were utilized (Hamdamian, et al. 2018).

Results from this study revealed that the aromatherapy group receiving R. damascena experienced less pain compared to the control group throughout every pain assessment. Secondary outcome measures were also used and consisted of a Bishop score (also known as the pelvic score or cervix score), Apgar scores, different methods of delivery, information on fertility, number of contractions occurring, and the duration of contractions in the second stage of labor. Anxiety levels also demonstrated a significant decrease during both times of measurement. Once again, aromatherapy is found to be a convenient intervention for mothers experiencing normal side effects of pregnancy and labor (Hamdamian, et al. 2018). For strengths and limitations of this study, please see the Appendix.

Aromatherapy in the Postpartum Period

Women can experience a variety of physical and psychological symptoms not only during pregnancy, but in the postpartum period as well. These include pain, stress, fatigue, impaired sleep, depression, anxiety, irritability, headache, and more. Neonates are often given more attention and care while the mothers are usually less evaluated and given little time to

recover. It is necessary to take action and provide proper care to new mothers alongside the infant to eliminate and prevent any complications that may arise.

Rezaie-Keikhaie, Hastings-Tolsma, Shad, et al. (2019) had a goal to determine whether or not aromatherapy played a positive role in relieving common postpartum symptoms. This quantitative, systematic review or meta-analysis contains seventeen different studies that have been examined, including a total of 1400 postpartum mothers. Four individual databases were used such as PubMed, Google Scholar, Web of Science, and Scopus, in order to identify these full-length, published review studies. The interventions that were included in these several articles were inhalation aromatherapy, aromatherapy massage, bathing with essential oils, and the ingestion of aromatherapy through beverages. The different aromas used included rose, orange, and lavender. Studies that focused on inhaling aromatherapy consisted of three to eight drops that were inhaled up to three times a day, from one week to four months, for about two to five minutes each time. As for bathing, participants added 5mL of lavender essence to warm water and were asked to bathe for ten days, twice a day. For the aromatherapy massage, about three to ten drops were used to massage through a time period of one day up until six weeks. Lastly, participants were to add ten drops of orange aroma in a glass of water and were instructed to drink for eight weeks, three times a day (Rezaie-Keikhaie, et al. 2019).

The results concluded that this natural and fast acting approach can provide great benefits to mothers while replacing the amount of medications that would usually be prescribed, which can alter the quality of life of the mother and infant. Lavender was found to be the most commonly used oil, and this is likely because it contains several components that are known to depress the central nervous system. It carries out similar actions that narcotics do which can elevate the mothers' sense of well-being. The different interventions found that aromatherapy

had a positive impact in diminishing or providing relief in regards to stress, episiotomy ulcers, sleep quality, c-section pain, nausea, anxiety, mood, feelings toward the baby, maternity blues, maternal-infant bonding, and postpartum healing. Out of the seventeen studies used, there were three that demonstrated no effect on depression, anxiety, fatigue, and pain, but with further investigation, the researchers were able to find that the combination of citron and sweet orange oils used in massage created significant feelings of relaxation while lessening feelings of fatigue. A limitation of this study is that both nulligravid and multi-gravid women participated which can alter the severity of postpartum symptoms experienced. Another limitation present was that women who had both vaginal and cesarean deliveries were included, which once again can alter the postpartum symptoms experienced by the mother (Rezaie-Keikhaie, et al. 2019). For other limitations and strengths on this study, please refer to the Appendix.

Kianpour, Moshirenia, Kheirabadi, et al. (2018) conducted a quantitative, double blinded, three stage clinical trial to explore the effects of aromatherapy on those who suffer from postpartum depression. Also referred to as maternity blues, postpartum depression is a prevalent issue around the world, and when the mother's role is negatively impacted, the entire family unit may be threatened as well. The sample size for this study was 105 pregnant women who were 35-37 weeks pregnant, and they were split into three groups, intervention, placebo, and control. Seven drops of lavender oil along with 1 cc of rose water was added to a special cloth, and the participants were asked to take ten deep breaths with the cloth covering their mouths and then to place the cloths on their pillows as they slept. The placebo group received seven drops of sesame seed oil and with 1cc of must willow scent and performed the same approach while the control group received routine care. This intervention took place at the 38th week of pregnancy until six

weeks postpartum. The tools used for data collection was the Edinburgh postpartum depression scale and the Hospital Anxiety-Depression Score questionnaire (Kianpour, et al. 2018).

Unfortunately, a few women were excluded due to lack of cooperation and unavailability at the first and second stages of the study. This left the researchers with 34 participants in the intervention group, 31 in the placebo group, and 34 in the control group. The results found that that the depression score did not show a significant difference between the intervention, control, and placebo groups at 35-37 weeks gestation, however, the intervention group had a notable reduction compared to the others groups at 2 weeks and at 6 weeks postpartum. There are several factors that could have affected the results of this study, therefore, a key limitation was that the researchers should have taken into account if the mother was satisfied with the sex of the baby, history of stillbirth and abortion, employment status, how many pregnancies they have had, and any personal factors going on in their lives. It is also important to note that postpartum depression may be temporary and is different from diagnosed anxiety and depression. While this study exemplified the effectiveness for maternity blues, further investigation would benefit readers on understanding how it creates antidepressant- like effects (Kianpour, et al. 2018).

In the research article, “*The Effect of Inhalation of Aromatherapy Blend Containing Lavender Essential Oil on Cesarean Postoperative Pain,*” Olapour et al. (2013) made it their goal to understand how to reduce postoperative pain without the use of medications such as opioids and non-steroidal anti-inflammatory drugs. These drugs often have unwanted “side effects” such as respiratory distress, nausea, itching, and gastrointestinal bleeding. This can cause a delay in when the mother and baby are discharged from the hospital. In this triple-blind, randomized-placebo controlled trial, 60 pregnant women undergoing a cesarean section were divided into two groups. Women who experienced nausea, vomiting, dissatisfaction, and any

sensitivity after receiving the first dose of the lavender aromatherapy were excluded. Once the subjects were in the operating room and prepping for surgery, they were monitored through an electrocardiogram, noninvasive blood pressure machine, and pulse oximetry. For anesthesia, the women were given 60 milligrams (mg) of Lidocaine 5% and they were also hydrated with 500cc of lactated ringers. The intervention group inhaled cotton which had three drops of lavender essence on it. The control group did the same with a placebo blend of aromatherapy without the lavender essence. They were asked to inhale for five minutes at a distance of ten centimeters from the nose. Pain was assessed using the visual analogue scale at four, eight, and twelve hours post-intervention. Those who experienced a pain score of greater than three were given analgesia per protocol, Diclofenac sodium 75 mg intramuscular and Diclofenac suppositories 100 mg if pain persisted. A questionnaire was also used to assess the subject's nausea, vomiting, dizziness, blood pressure, heart rate, and satisfaction (Olapour, et al. 2013).

The new mothers in the lavender group showed a significant difference in the VAS score when compared to the placebo group. At all three time periods when pain was measured, the women in the lavender group reported a reduction in pain. They also reported 90% satisfaction of the intervention while the level of satisfaction of the other group was 50%, and for the completion of pain management, the lavender group used 30% less of the suppositories between the two groups. In terms of blood pressure, there were no notable differences, and there was also no presence of vomiting and dizziness. Only one patient in the placebo group experienced feelings of nausea. The researchers concluded that inhaling lavender may be beneficial in the reduction of pain from a c-section as a component of a multidisciplinary approach, however, it may not be as effective if utilized as the sole treatment (Olapour, et al. 2013).

Overall Discussion of Literature Review

Based on the evidence collected in this literature review, the use of complementary and alternative medicine, specifically aromatherapy, is supported and has been shown to have various positive effects towards mothers during and after their pregnancy. Aromatherapy is an example of one many alternative treatments that is easily implemented both, inside and outside, of the clinical setting. It is inexpensive and offers a new approach for patients' symptom control as opposed to pharmaceutical treatments, such as using medications. The therapeutic effects of essential oils have been researched in multiple settings, and the validity and reliability of the tools have been used to collect data demonstrates that this non-pharmaceutical resource may be growing in popularity. No adverse effects or reactions were reported in the studies that were reviewed, and these studies provided strong evidence that this form of holistic healing can improve the mind, body, and spirit, thus enhancing the quality of life.

Theoretical Framework

Florence Nightingale was the first nursing theorist who was most known for modifying the patient's environment in order to improve his or her health. She believed that external factors may contribute to disease or death. Some examples of the environmental factors that may affect one's health is ventilation, light, warmth, noise, sufficient food supplies, fresh water, and much more. The Environmental Theory focuses primarily on the patient and ways in which the nurse can alter the environment in order to facilitate proper healing and for recovery to take place. Nightingale's theory is associated with my topic of research because the use of scents in the air is a way of altering and enhancing the patient's healing environment. The use of aromatherapy amongst new mothers is appropriate because during and after women experience the complex process of giving birth and becoming a mother figure, they enter a phase of recovery. Depending

on the patient's situation, the mother can be vulnerable both, emotionally and mentally. Her body is also going through numerous physiological changes as she adapts to motherhood. Therefore, it is essential to provide the correct atmosphere to establish the best patient outcomes.

In my study, I aim to research how women of different ethnicities might find aromatherapy beneficial to their healing process after labor. Along with complementary and alternative medicine, carrying out this theoretical framework will maintain the wellbeing and health of mothers through control of the environment. Through Nightingale's personal experience of working in filthy facilities during the Crimean War, she emphasized the need for safe and clean clinical settings that are also altered to the patient's preferences so they may feel comfortable in their quality of care. Using aromatherapy as a means of enhancing the environment and increasing the woman's comfort is applicable. Her vision has greatly impacted the field of nursing and the quality of care provided for people all over the world today

Proposal for Further Study

Based on the various research studies conducted on aromatherapy used by expecting and new mothers, this complementary and alternative approach to treatment can play a significant role in a woman's overall pregnancy experience. After I performed my literature review, I identified that the studies lacked ethnic diversity, which is vital to my investigation of managing the symptoms that accompany pregnancy with aromatherapy. More than half of the studies that I researched were performed in Iran, and few in the United States of America. Other ethnic groups may have more optimal methods of coping with the unwanted symptoms every mother must experience. As a future healthcare professional who lives in this country, I believe that it is essential to understand how women in America are primarily affected by the benefits of essential oils. The millions of people in the United States come from different cultures and backgrounds

which makes our population so diverse. The symptoms that accompany pregnancy may increase in severity based on the individual's experience. Therefore, conducting further research on aromatherapy during the perinatal period with mothers in the United States may potentially aid in alleviation of anxiety and pain, reduction in pharmacological interventions, and prevention of complications.

Primary Research Aims

- Which ethnicity is more likely to benefit from essential oils compared to the specific groups of women chosen in the six research studies?
- Are there specific aromas that can decrease the severity of postpartum pain based upon the participant's cultural background?

Ethical Considerations

There are multiple ethical considerations that should be further examined in this study due to the vulnerability of the population. Mothers and infants are considered to be vulnerable because of the many complex risks involved for the mother who carries the developing fetus and then cares for the newborn, and for the baby who needs to quickly adapt to extrauterine life. One of the ethical considerations is the need to obtain informed consent to ensure that anyone who will be participating in this study is fully aware of the information they need to understand and for what they are volunteering. The participants may voice their concerns and will be free to discontinue their participation at any time. The information gathered from this study will remain confidential to protect the patients' identities. Lastly, cultural differences and preferences in medical care will be taken into consideration.

Research Method

This study will be identified as a cross-sectional, quantitative study with the sample size of 100 nulliparous, postpartum women. The sample intends to represent the population of women of different ethnicities who are currently residing in the United States of America. The participants will be split into four groups, each smelling a different scent, and will all be assessed prior to and post-intervention to measure their severity of postpartum pain. The participants will constitute a convenience sample, and will be recruited from women who were admitted to hospitals and who gave birth to babies in the San Francisco Bay Area. An effort will be made to recruit equal numbers of women who identify as African, Pacific Islander, Asian, Caucasian, Indigenous or other backgrounds, and also having Hispanic or non-Hispanic heritage.

In order to properly execute this study, there will close contact with five different hospitals and birthing centers in the San Francisco Bay Area, so that women of different cultural backgrounds can play a role in the assessment of aromatherapy with essential oils for postpartum pain. The women will be provided with information about the study, the physiological ways that their body changes due to birth, and the long-lasting effects that could occur if symptoms, such as pain, are left untreated. It is important to educate and create a stable foundation for the participants so that they understand their role and the importance of their participation in the study.

Prior to splitting the women in groups, each will be asked to fill out a screening survey. I plan to utilize a survey to ask the mothers about their cultural and ethnic backgrounds, if they had prior experience with aromatherapy, and questions about their birthing experience. Once the survey is filled out, the participants will be divided according to ethnic groups as much as possible. After that division, participants will be split up again into four groups for each of four

scents, including lavender, rosa damascena, mint, and orange. Each of the four groups, distinguished by the scent the participants will receive, will contain 25 women. The women will be chosen from the different ethnic/cultural groups, so that each of the four intervention groups will represent women who come from a variety of ethnicities and cultures. The visual analogue scale, which is a standard tool that resembles a 10 cm ruler including numbers from zero (indicating no pain) to ten (indicating severe pain) will be used to document the patients' pain level before and after the aromatherapy intervention. The results from this part of the assessment will provide subjective data. The patients will also be monitored and measured before, during, and after the intervention with an electrocardiogram for heart rate, noninvasive blood pressure, and pulse oximetry for objective data. The women will not be told which scent they will receive for aromatherapy. For the intervention, participants will be asked to inhale the scent for five minutes at a 10-centimeter distance from their noses.

Data Analysis

Once the data is collected, the participants' results from the surveys, vital signs, and self-report of pain will be further evaluated. The data will be examined in detail to determine the effectiveness of the aromatherapy as experienced by mothers of different ethnic groups. The data will be analyzed using an Analysis of Variance (ANOVA) and a Chi-Square test, statistical tools that can be used to compare the differences in the mother's subjective and objective responses to types of essential oils used for aromatherapy, and also to examine the differences in responses among the ethnic groups. Finally, these statistical tests will allow the researchers to determine whether or not there is a significant correlation between any observed variables and expected variables. Once the results of the data are processed through the screening tools and assessment,

the researchers will gain a better understanding of which ethnicities benefit most from which types of aromatherapy during pain management.

Thesis Conclusion

The use of essential oils and aromatherapy to reduce the symptoms that accompany pregnancy has been found effective. My original questions were answered because I learned that the use of this nonpharmacological intervention among new and expectant mothers does in fact improve pain relief and other symptoms such as nausea and vomiting. I learned that this approach to treatment is best used when incorporated within a multidisciplinary approach rather than alone. It is essential to provide medication if necessary, but also to alter the patient's environment by including their preferences in both their care and surroundings in order to give them a better birthing or recovery experience that makes them feel comfortable. From the information provided by these research articles, there are various ways that this knowledge can be applied to clinical practice. Different essential oils should be made more available and should be offered to mothers more frequently. Starting off with this initial treatment may reduce any unwanted side effects from medications and may reduce the amount medications being administered to these women. Patient education is also a key component in all aspects of nursing care. Therefore, learning about the different scents, benefits, and history of aromatherapy may encourage women to try this newer form of healing rather than traditional treatment. My proposed research aims to identify women of different ethnic and cultural backgrounds to analyze which women might benefit from essential oils more than others when it comes to postpartum pain management. Another aim of my study is to analyze which specific scents might work better for specific ethnicities as well. If this study is carried out efficiently, it will enable many people in the healthcare profession to be prepared for providing the care and various

interventions that are needed to manage patients' symptoms effectively. It is still essential that further investigation is done to explore the cause of effectiveness in some patients while there are no beneficial effects in other patients. Aromatherapy can be used either as an alternative treatment or as a complementary method in addition to other treatments. It is especially useful for patients who may have negative perspectives on drugs, chemicals, and visiting healthcare professionals too often. More importantly, it is an effective and convenient intervention that may prevent the progression of symptoms that could potentially create debilitating complications.

Reference List

- Aromatherapy: Uses and Benefits. (N.D.) Healthline. Retrieved Nov 30, 2020, from <https://www.healthline.com/health/what-is-aromatherapy>
- Hamdamian, S., Nazarpour, S., Simbar, M., Hajian, S., Mojab, F., & Talebi, A. (2018). Effects of aromatherapy with *Rosa damascena* on nulliparous women's pain and anxiety of labor during the first stage of labor. *Journal of integrative medicine*, *16*(2), 120–125. <https://doi.org/10.1016/j.joim.2018.02.005>
- Kianpour, M., Moshirenia, F., Kheirabadi, G., Asghari, G., Dehghani, A., & Dehghani-Tafti, A. (2018). The Effects of Inhalation Aromatherapy with Rose and Lavender at Week 38 and Postpartum Period on Postpartum Depression in High-risk Women Referred to Selected Health Centers of Yazd, Iran in 2015. *Iranian journal of nursing and midwifery research*, *23*(5), 395–401. https://doi.org/10.4103/ijnmr.IJNMR_116_16
- Namazi, M., Amir Ali Akbari, S., Mojab, F., Talebi, A., Alavi Majd, H., & Jannesari, S. (2014). Aromatherapy with citrus aurantium oil and anxiety during the first stage of labor. *Iranian Red Crescent medical journal*, *16*(6), e18371. <https://doi.org/10.5812/ircmj.18371>
- Pasha, H., Behmanesh, F., Mohsenzadeh, F., Hajahmadi, M., & Moghadamnia, A. A. (2012). Study of the effect of mint oil on nausea and vomiting during pregnancy. *Iranian Red Crescent medical journal*, *14*(11), 727–730. <https://doi.org/10.5812/ircmj.3477>
- Rezaie-Keikhaie, K., Hastings-Tolsma, M., Bouya, S., Shad, F. S., Sari, M., Shoorvazi, M., Barani, Z. Y., & Balouchi, A. (2019). Effect of aromatherapy on post-partum complications: A systematic review. *Complementary therapies in clinical practice*, *35*, 290–295. <https://doi.org/10.1016/j.ctcp.2019.03.010>
- Olapour, A., Behaen, K., Akhondzadeh, R., Soltani, F., Al Sadat Razavi, F., & Bekhradi, R.

(2013). The Effect of Inhalation of Aromatherapy Blend containing Lavender Essential Oil on Cesarean Postoperative Pain. *Anesthesiology and pain medicine*, 3(1), 203–207. <https://doi.org/10.5812/aapm.9570>

Yazdkhasti, M., & Pirak, A. (2016). The effect of aromatherapy with lavender essence on severity of labor pain and duration of labor in primiparous women. *Complementary therapies in clinical practice*, 25, 81–86. <https://doi.org/10.1016/j.ctcp.2016.08.008>

Appendix

Authors/ Citation	Purpose/ Objective of the Study	Sample- Population of interest, sample size	Study Design	Study Methods	Major Finding(s)	Strengths	Limitations
<p>Hamdamian, S., Nazarpour, S., Simbar, M., Hajian, S., Mojab, F., & Talebi, A. (2018). Effects of aromatherapy with Rosa damascena on nulliparous women's pain and anxiety of labor during first stage of labor. <i>Journal of integrative medicine</i>, 16(2), 120–125. https://doi.org/10.1016/j.joim.2018.02.005</p>	<p>To evaluate the effectiveness of aromatherapy, specifically Rosa damascena, on pain and anxiety throughout the first stage of labor for women who have never given birth before.</p>	<p>Sample Size N= 110 nulliparous women, 55 patients per group</p>	<p>Quantitative Single-blinded clinical trial</p>	<p>Participants were randomly assigned through Microsoft Excel to two different groups, one intervention and one control. The tools used for data collection were a fertility questionnaire, Spielberger anxiety questionnaire, a numerical pain rating scale, and an observational checklist. Pain was measured at 3 different points, when the cervix was dilated at 4-5, 6-7, and 8-10cm. Anxiety was measured 10 minutes after inhalation and at two different points, when the cervix was dilated at 4-7 and 8-10cm.</p>	<p>Aromatherapy containing Rosa damascena may decrease anxiety during labor</p>	<p>Authors clearly described the procedures, data and analysis, making the study easy to understand for readers. Tools were reliable and valid, so the data gathered is coherent. It was also a random assignment, and innovative.</p>	<p>Pain tolerance is individual and varies for each person and may be difficult to compare, it also could not be turned into a double blinded study which increases the amount of bias in the results. Another limitation is the chaotic and exciting atmosphere of labor, which could have had the patients confused about when to report pain and anxiety during the procedure of the study.</p>

Authors/ Citation	Purpose/ Objective of the Study	Sample- Population of interest, sample size	Study Design	Study Methods	Major Finding(s)	Strengths	Limitations
<p>Kianpour, M., Moshirenia, F., Kheirabadi, G., Asghari, G., Dehghani, A., & Dehghani-Tafti, A. (2018). The Effects of Inhalation Aromatherapy with Rose and Lavender at Week 38 and Postpartum Period on Postpartum Depression in High-risk Women Referred to Selected Health Centers of Yazd, Iran in 2015. <i>Iranian journal of nursing and midwifery research</i>, 23(5), 395–401. https://doi.org/10.4103/ijnmr.IJNMR_116_16</p>	<p>To evaluate the effectiveness of aromatherapy on postpartum depression.</p>	<p>Sample Size N= 105 pregnant women, 35 patients per group</p>	<p>Quantitative Double blinded, three stage clinical trial</p>	<p>The participants were randomly assigned three different groups, one intervention and one placebo and one control. The tools used for data collection were the Edinburgh PPD scale and the HADS questionnaire. Seven drops of lavender oil and 1cc of rose water was dropped on a special cloth while seven drops of sesame oil and 1cc of sweat musk were placed on another cloth. Both groups were asked to put the clothes on their mouths, inhaling 10 deep breaths and then placed on the pillow next to them as they sleep until the morning. This lasted from the 38th week of pregnancy until 6 weeks postpartum.</p>	<p>Aromatherapy with lavender oil and rose water have a strong impact in reducing postpartum depression after delivery. The depression scores between 35-27 weeks pregnant and 2-6 weeks postpartum, showed a significant difference in the intervention group, but not the control and placebo.</p>	<p>The objective, and inclusion/exclusion criteria was specifically and clearly stated, strong study design, use of validated and reliable tools, considered women who have been diagnosed and at risk for PPD</p>	<p>The study did not take into consideration the following factors: if the mother was satisfied with the fetal sex, history of stillbirth and abortion, employment status, number of pregnancies, and personal and/or psychological factors.</p>

Authors/ Citation	Purpose/ Objective of the Study	Sample- Population of interest, sample size	Study Design	Study Methods	Major Finding(s)	Strengths	Limitations
<p>Pasha, H., Behmanesh, F., Mohsenzadeh, F., Hajahmadi, M., & Moghadamnia, A. A. (2012). Study of the effect of mint oil on nausea and vomiting during pregnancy. <i>Iranian Red Crescent medical journal</i>, 14(11), 727–730. https://doi.org/10.5812/ircmj.3477</p>	<p>To evaluate the effect of mint oil aromatherapy on nausea and vomiting during pregnancy.</p>	<p>Sample Size N= 60 pregnant women</p>	<p>Quantitative : Double Blind Clinical trial</p>	<p>The participants were split into two groups and one group was to place a bowl of water with 4 drops of mint oil on the floor near the bed for four consecutive nights before sleeping, the placebo group was given a container with normal saline and told to do the same. The tool used to collect data was the visual analog scale.</p>	<p>From the first to fourth day of the intervention, the level of nausea showed a decreasing trend, especially in the control group. The decreasing trend lasted for 7 days post- intervention in both groups, however lower in the control.</p>	<p>-Use of appropriate tools for measuring intensity of nausea</p>	<p>-Not measuring the estrogen, progesterone, and HCG hormone levels -small sample size</p>

Authors/ Citation	Purpose/ Objective of the Study	Sample- Population of interest, sample size	Study Design	Study Methods	Major Finding(s)	Strengths	Limitations
<p>Rezaie-Keikhaie, K., Hastings-Tolsma, M., Bouya, S., Shad, F. S., Sari, M., Shoorvazi, M., Barani, Z. Y., & Balouchi, A. (2019). Effect of aromatherapy on post-partum complications: A systematic review. <i>Complementary therapies in clinical practice</i>, 35, 290–295. https://doi.org/10.1016/j.ctcp.2019.03.010</p>	<p>To evaluate the effectiveness of aromatherapy on common postpartum symptoms such as depression, fatigue, stress, anxiety, pain, sleep quality, nausea, and relaxation.</p>	<p>Sample Size N= 17 studies were examined that included 1400 postpartum women</p>	<p>Quantitative: systematic review or meta-analysis</p>	<p>Four databases were used, PubMed, Google Scholar, Web of Science and Scopus, to identify full length, published, peer-reviewed studies. The interventions included studies based in aroma ingestion, aromatherapy massage, bathing with aroma, and inhalation aromatherapy.</p>	<p>-Lavender was the most used essential oil which contains elements that can depress the CNS -aromatherapy had a positive effect on stress, episiotomy ulcers, sleep quality, c-section pain, nausea PPD, anxiety, mood, feelings toward the baby, maternity blues, maternal-infant bonding, and postpartum healing.</p>	<p>-the first systematic review that is exploring the effects of aromatherapy on postpartum difficulties -use of reliable data collection tools -multiple databases were searched</p>	<p>-different aromas were used at different doses, - several studies had small sample sizes who did not all report power calculations -both nulligravid and multigravida women participated which can be different for postpartum complications -women who had both a cesarean and normal delivery were included which can create bias</p>

Authors/ Citation	Purpose/ Objective of the Study	Sample- Population of interest, sample size	Study Design	Study Methods	Major Finding(s)	Strengths	Limitations
<p>Olapour, A., Behaen, K., Akhondzadeh, R., Soltani, F., Al Sadat Razavi, F., & Bekhradi, R. (2013). The Effect of Inhalation of Aromatherapy Blend containing Lavender Essential Oil on Cesarean Postoperative Pain. <i>Anesthesiology and pain medicine</i>, 3(1), 203–207. https://doi.org/10.5812/aapm.9570</p>	<p>To study the effect of lavender essential oil on c-section post-op pain</p>	<p>Sample Size N=60 pregnant women</p>	<p>Triple-blind randomized placebo-controlled trial</p>	<p>-Participants were split into two groups, The aromatherapy group inhaled 3 drops of 10% lavender oil placed on cotton, and were asked to inhale for 5 minutes at a 10 cm distance. The controlled group inhaled a placebo base of aromatherapy without the lavender essence. To measure the pain, the visual analog scale was used. Nausea, vomiting, heart rate (ECG), blood pressure (NIBP), dizziness, pulse oximetry, and patient satisfaction were also all recorded. Before the c-section, 500cc of ringer’s crystalloid fluid and regional block with spinal anesthesia was administered with 60mg of Lidocaine 5%. If the VAS was greater than 3, analgesia was given according to protocol, Diclofenac sodium 75mg IM and Diclofenac suppositories 100mg if it persisted.</p>	<p>-There was a decrease in the VAS score in the aromatherapy group and there were significant values 4, 8, and 12 hours after the intervention. The level of satisfaction in the lavender group was 90% compared to the placebo group which was 50%. There was also a significant decrease in heart rate compared to the placebo group, but no changes in blood pressure. Only one person from the placebo group experienced nausea and vomiting, other than that, none was present. Suppositories were also used more in the lavender group.</p>	<p>-The use of validated tools were used to measure pain including subjective, objective, and assessment tools.</p>	<p>-small sample size</p>

Authors/ Citation	Purpose/ Objective of the Study	Sample- Population of interest, sample size	Study Design	Study Methods	Major Finding(s)	Strengths	Limitations
<p>Yazdkhasti, M., & Pirak, A. (2016). The effect of aromatherapy with lavender essence on severity of labor pain and duration of labor in primiparous women. <i>Complementary therapies in clinical practice</i>, 25, 81–86. https://doi.org/10.1016/j.ctcp.2016.08.008</p>	<p>To evaluate the effect of lavender aromatherapy on pain during labor</p>	<p>Sample Size N= 120 primiparous pregnant women</p>	<p>Single - blind, randomized clinical trial</p>	<p>The experimental group received two drops of lavender to be inhaled at three different stages, 4-5, 6-7, 8-9 cm of cervical dilation. Pain was measured before and after the intervention. The other group received distilled water. The visual analog and numerical pain rating scale was used to assess intensity.</p>	<p>-The subjects in the experimental group felt less pain post intervention while the control group felt no difference before and after</p>	<p>-The author stated that there is no conflict of interest -validity of pain rating tools</p>	<p>-Use of objective data such as vital signs before and after intervention should have been a tool for data collection</p>