

Lavender Aromatherapy Decreases Preoperative Anxiousness for Surgical Oncology Patients

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Surgical Oncology Patients Experience Heightened Anxiousness

Patients may experience many different emotions while obtaining medical care. Specifically, preoperative anxiety is a common problem that negatively impacts patient satisfaction, postoperative recovery, and surgical outcomes.^{1,2,3} For oncology patients, these feelings can be heightened, especially when facing a surgical procedure. Moreover, patients regularly taking prescribed medications for anxiety who are instructed to refrain from taking these medications may experience intensified feelings of anxiety on the day of surgery.

Aromatherapy Satisfies Multiple Needs

Given these challenges, there is a need for simple, cost-effective, nonpharmacological approaches to assist with the management of preoperative anxiousness. Studies have shown that utilization of aromatherapy preoperatively is a simple and cost-effective alternative approach to mitigate preoperative anxiety.^{4,5,6}

Clinical Practice Improvement Project Utilizing Lavender Aromatherapy

Objectives

A Chamberlain College of Nursing - Doctor of Nursing Practice (DNP) project was conducted at a small, private, non-profit hospital in New York during May and June 2022. The objective of the project was to evaluate the effects of lavender aromatherapy on preoperative anxiousness in the surgical oncology population and to assess if aromatherapy could contribute to a calm and comforting preoperative environment in this patient population.

Methods

Adult surgical oncology patients were offered lavender aromatherapy in the form of Elequil Aromatabs[®] aromatherapy (Beekley Medical[®], Bristol, CT) to use on the day of their surgery (Figure 1).



Figure 1.
Elequil Aromatabs
Aromatherapy

Key Benefits Achieved

Lavender aromatherapy had positive effects on preoperative anxiousness:

- 85% of surgical oncology patients experienced a decrease in their anxiousness score
- 85% of surgical oncology patients said Elequil Aromatabs[®] aromatherapy contributed to helping them feel more relaxed

The project implementation period was a total of eight weeks, starting May 2, 2022, and concluding June 26, 2022. Thirteen patients participated in the project.

Participants were instructed how to apply the aromatherapy to their clothing and advised to transfer the aromatherapy from their clothing to their hospital gown once in the preoperative area.

Baseline anxiousness was documented on the day of surgery prior to the use of the aromatherapy by filling out a simple stress level survey using a Visual Facial Anxiety Scale (VFAS)⁷ visual analog scale (Figure 2).

Project participants then filled out the same survey at the completion of their surgery. Each survey was provided to the participants in paper form and took less than five minutes to complete.







| | 0 | 1 | 2 | 3 | 4 | 5 |
|--------------------------|---|---|---|--|---|---|
| Anxiousness Level | None | Mild | Mild-Moderate | Moderate | Moderate-High | Highest |
| Faces |  |  |  |  |  |  |

Figure 2. Visual Facial Anxiety Scale (VFAS)

Results

A notable change in the anxiety scores following the aromatherapy intervention was indicated by a decrease in VFAS scores for 11 of the 13 patients (85%). The remaining two patients noted no change in their score pre vs. post intervention (Figure 3).

The mean anxiousness score decreased from an average of 3.0 prior to aromatherapy to an average of 1.15 following aromatherapy (Figure 4).

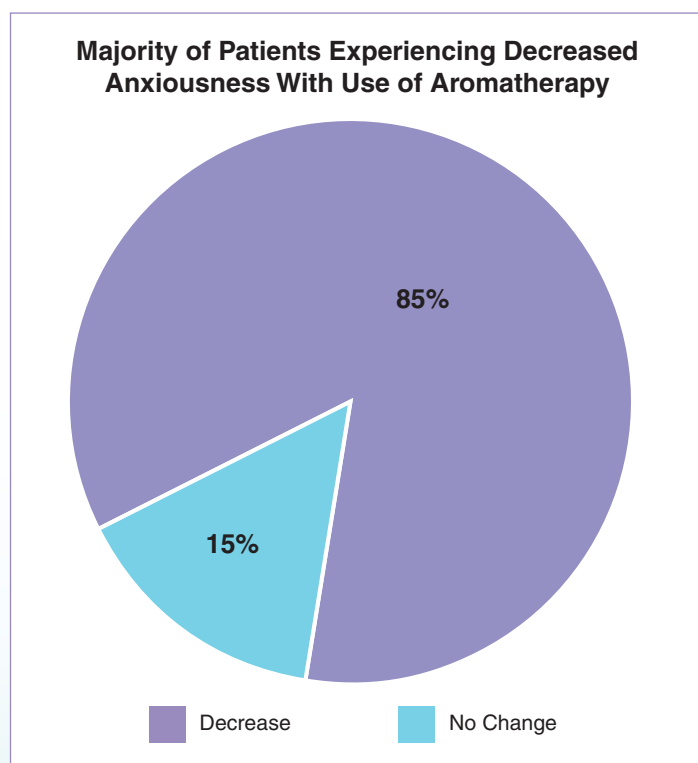


Figure 3. Percentage of Patients Reporting Decreased Anxiousness Scores

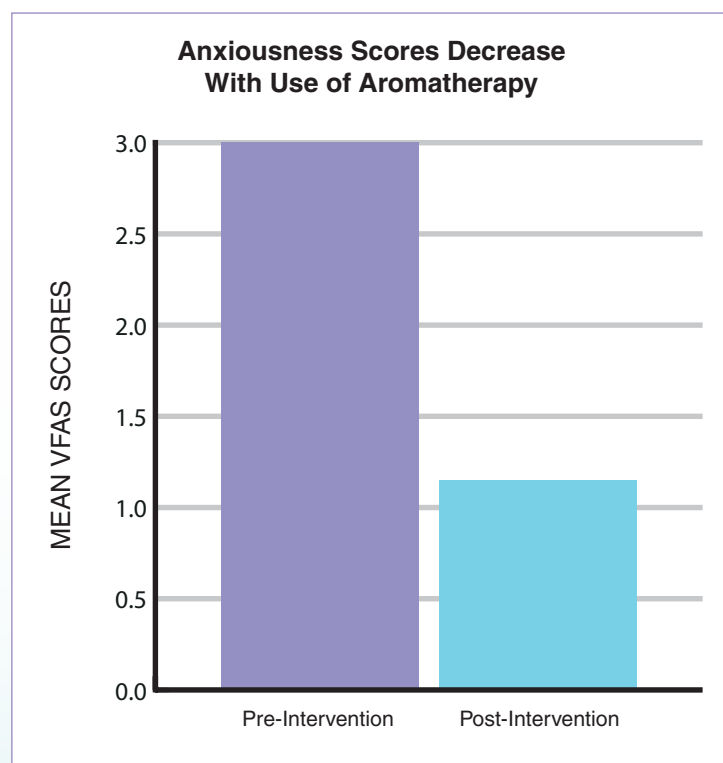


Figure 4. Pre- and Post-Aromatherapy Mean VFAS Scores

There were no participants who selected a 0 level of anxiousness prior to the aromatherapy; equal numbers of participants selected 2, 3, and 4, corresponding to mild-moderate, moderate, and moderate-high anxiousness. Following the aromatherapy, four participants selected 0 (no anxiousness), and the same number of participants selected 1 and 2 (mild and mild-moderate anxiousness). Only one participant chose a 3, indicating a moderate level of anxiousness (Figure 5).

| Time | 0 (None) | | 1 (Mild) | | 2 (Mild-Moderate) | | 3 (Moderate) | | 4 (Moderate-High) | | 5 (Highest) | |
|-------------------|----------|---------|----------|---------|-------------------|---------|--------------|---------|-------------------|---------|-------------|---------|
| | Count | Percent | Count | Percent | Count | Percent | Count | Percent | Count | Percent | Count | Percent |
| Pre-Intervention | 0 | 0.0% | 2 | 15.4% | 3 | 23.1% | 3 | 23.1% | 3 | 23.1% | 2 | 15.4% |
| Post-Intervention | 4 | 30.8% | 4 | 30.8% | 4 | 30.8% | 1 | 7.7% | 0 | 0.0% | 0 | 0.0% |

Figure 5. Frequency Distribution of VFAS Scores of Patients, Pre- and Post-Aromatherapy

Elequil Aromatabs® Aromatherapy Contributes to Patient Relaxation

The survey also posed the question “Do you feel Elequil Aromatabs contributed to helping you feel more relaxed?” with response choices of Yes, No, or Unsure. Eleven of the 13 participants selected “Yes” and two selected “Unsure.” The two participants selecting “Unsure” were the same two participants who reported no decrease in their anxiousness score (Figure 6).

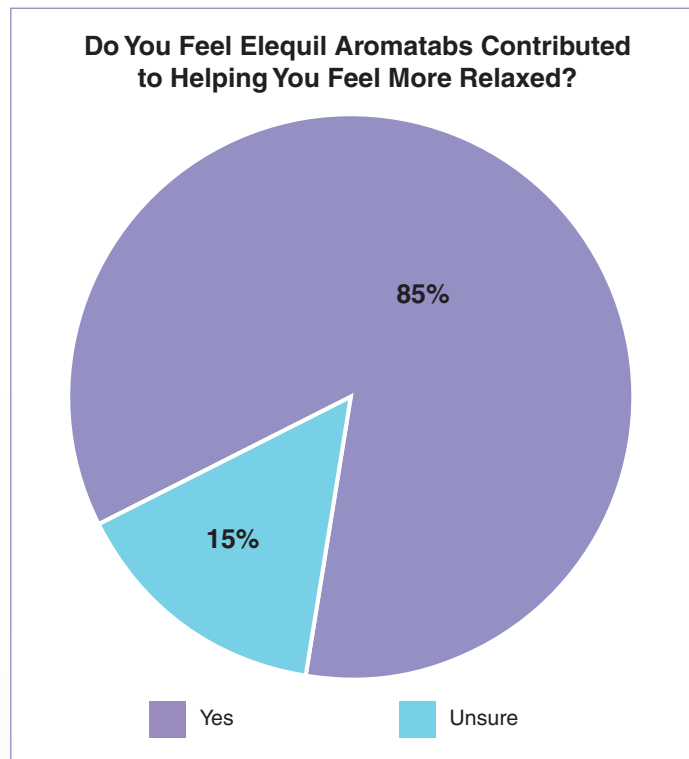


Figure 6. Percentage of Patients Reporting Increased Relaxation by Using Elequil Aromatabs Aromatherapy

Discussion

The results of this project are particularly important because the use of pharmacologic measures to control anxiety have the potential to cause multiple adverse side effects, especially among the surgical patient population. Of these side effects, the most common are restlessness, fatigue, and altered mental status.⁸ In addition, when used in combination with anesthesia, antianxiety medications can produce unfavorable reactions such as lethargy, respiratory depression, altered mental status, and arrhythmias.^{9,10,11,12}

These side effects and unfavorable reactions can cause a domino effect leading to higher hospital costs, delayed discharges, overuse of hospital staff, patient dissatisfaction, and poor patient outcomes.^{13,14,15}

Conversely, aromatherapy is a non-pharmacologic approach that is cost-efficient, easy to administer, and has low toxicity. These attributes contribute to a safe and more positive surgical experience when utilized in the surgical setting.

Additional research has shown that aromatherapy decreases anxiousness in the preoperative setting while limiting toxicities and improving the overall surgical process.^{16,17,18,19} Studies have also demonstrated the cost-effectiveness of aromatherapy compared to traditional pharmaceutical treatments alone.^{20,21,22,23} Furthermore, by utilizing aromatherapy, potential surgical side effects related to preoperative anxiety can be avoided, thus decreasing delayed discharges and overall hospital costs.^{24,25,26,27}

Conclusions: Elequil Aromatabs® Aromatherapy Decreased Preoperative Anxiousness and Helped Patients Relax

The two primary findings from this project were:

- The use of Elequil Aromatabs aromatherapy decreased patient preoperative anxiousness
- A majority (85%) of surgical oncology patients reported Elequil Aromatabs aromatherapy contributed to making them feel more relaxed

Lavender aromatherapy provides a comforting and calm environment to help reduce patient preoperative anxiousness. It can serve as a beneficial complementary alternative medicine and nursing intervention to assist patients with management of this prevalent emotion.

This clinical practice improvement project showed that Elequil Aromatabs aromatherapy provided staff with a safe, simple, cost-effective, and non-pharmacologic option to manage preoperative anxiousness. Notably, decreasing preoperative anxiety and promoting a calm, relaxing, non-stressful environment for the surgical patient has the potential to promote overall health of the patient and optimize positive patient outcomes.

Elequil Aromatabs® Aromatherapy

Elequil Aromatabs aromatherapy is a simple non-pharmacological intervention that uses 100% pure essential oils. Elequil Aromatabs aromatherapy has a unique controlled delivery system with easy hands-free application, adheres to the patient's gown or clothing, and allows minimum and maximum aroma exposure.



Lavender-Peppermint
Lavandula angustifolia-Mentha piperita
Lasts up to 8 hours

Lavender-Peppermint promotes relaxation during pain, helps comfort and calm anxiousness, and soothes queasiness



Lavender
Lavandula angustifolia
Lasts up to 8 hours



Lavender-Sandalwood
Lavandula angustifolia-Santalum album
Lasts up to 24 hours

Lavender and Lavender-Sandalwood promote relaxation during pain, help comfort and calm anxiousness



Orange-Peppermint
Citrus sinensis-Mentha piperita
Lasts up to 8 hours

Orange-Peppermint uplifts and can soothe queasiness



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References:

1. Guo, P., Li, P., Zhang, X., Liu, N., Wang, J., Yang, S., & Yu, L. (2020). The effectiveness of aromatherapy on preoperative anxiety in adults: A systematic review and meta-analysis of randomized controlled trials. *International Journal of Nursing Studies*, 111, 1-19. <https://doi.org/10.1016/j.ijnurstu.2020.103747>.
2. Trambert, R., Kowalski, M.O., Wu, B., Mehta, N., & Friedman, P. (2017). A randomized controlled trial provides evidence to support aromatherapy to minimize anxiety in women undergoing breast biopsy. *Worldviews on Evidence Based Practice*, 14(5), 394-402. <https://doi.org/10.1111/wvn.12229>.
3. Wotman, M., Levinger, J., Leung, L., Kallush, A., Mauer, E., & Kacker, A. (2017). The efficacy of lavender aromatherapy in reducing preoperative anxiety in ambulatory surgery patients undergoing procedures in general otolaryngology. *Laryngoscope Investigative Otolaryngology*, 2, 437-441. <https://pubmed.ncbi.nlm.nih.gov/29299520/>.
4. Guo, P., Li, P., Zhang, X., Liu, N., Wang, J., Yang, S., & Yu, L. (2020). The effectiveness of aromatherapy on preoperative anxiety in adults: A systematic review and meta-analysis of randomized controlled trials. *International Journal of Nursing Studies*, 111, 1-19. <https://doi.org/10.1016/j.ijnurstu.2020.103747>.
5. Trambert, R., Kowalski, M.O., Wu, B., Mehta, N., & Friedman, P. (2017). A randomized controlled trial provides evidence to support aromatherapy to minimize anxiety in women undergoing breast biopsy. *Worldviews on Evidence Based Practice*, 14(5), 394-402. <https://doi.org/10.1111/wvn.12229>.
6. Wotman, M., Levinger, J., Leung, L., Kallush, A., Mauer, E., & Kacker, A. (2017). The efficacy of lavender aromatherapy in reducing preoperative anxiety in ambulatory surgery patients undergoing procedures in general otolaryngology. *Laryngoscope Investigative Otolaryngology*, 2, 437-441. <https://pubmed.ncbi.nlm.nih.gov/29299520/>.
7. Cao X, Yumul R, Elvir Lazo OL, Friedman J, Durra O, Zhang X, White PF. A novel visual facial anxiety scale for assessing preoperative anxiety. *PLoS One*. 2017 Feb 14;12(2):e0171233. doi: 10.1371/journal.pone.0171233.
8. Wotman, M., Levinger, J., Leung, L., Kallush, A., Mauer, E., & Kacker, A. (2017). The efficacy of lavender aromatherapy in reducing preoperative anxiety in ambulatory surgery patients undergoing procedures in general otolaryngology. *Laryngoscope Investigative Otolaryngology*, 2, 437-441. <https://pubmed.ncbi.nlm.nih.gov/29299520/>.
9. Abate, S.M., Chekol, Y.A., & Basu, B. (2020). Global prevalence and determinants of preoperative anxiety among surgical patients: A systematic review and meta-analysis. *International Journal of Surgery Open*, 25, 6-16. <https://doi.org/10.1016/j.ijso.2020.05.010>.
10. Bedaso, A. & Ayalew, M. (2019). Preoperative anxiety among adult patients undergoing elective surgery: a prospective survey at a general hospital in Ethiopia. *Patient Safety in Surgery*, 13(18), 1-8. <https://doi.org/10.1186/s13037-019-0198-0>.
11. Franco, L., Blanck, T.J.J., Dugan, K., Kline, R., Shanmugam, G., Galotti, A., Granell, A.V.B., & Wajda, M. (2016). Both lavender fluer oil and unscented oil aromatherapy reduce postoperative anxiety in breast surgery patients: a randomized trial. *Journal of Clinical Anesthesia*, 33, 243-249. <http://dx.doi.org/10.1016/j.jclinane.2016.02.032>.
12. Wotman, M., Levinger, J., Leung, L., Kallush, A., Mauer, E., & Kacker, A. (2017). The efficacy of lavender aromatherapy in reducing preoperative anxiety in ambulatory surgery patients undergoing procedures in general otolaryngology. *Laryngoscope Investigative Otolaryngology*, 2, 437-441. <https://pubmed.ncbi.nlm.nih.gov/29299520/>.
13. Guo, P., Li, P., Zhang, X., Liu, N., Wang, J., Yang, S., & Yu, L. (2020). The effectiveness of aromatherapy on preoperative anxiety in adults: A systematic review and meta-analysis of randomized controlled trials. *International Journal of Nursing Studies*, 111, 1-19. <https://doi.org/10.1016/j.ijnurstu.2020.103747>.
14. Trambert, R., Kowalski, M.O., Wu, B., Mehta, N., & Friedman, P. (2017). A randomized controlled trial provides evidence to support aromatherapy to minimize anxiety in women undergoing breast biopsy. *Worldviews on Evidence Based Practice*, 14(5), 394-402. <https://doi.org/10.1111/wvn.12229>.
15. Wotman, M., Levinger, J., Leung, L., Kallush, A., Mauer, E., & Kacker, A. (2017). The efficacy of lavender aromatherapy in reducing preoperative anxiety in ambulatory surgery patients undergoing procedures in general otolaryngology. *Laryngoscope Investigative Otolaryngology*, 2, 437-441. <https://pubmed.ncbi.nlm.nih.gov/29299520/>.
16. Abbaszadeh, R., Tabari, F., & Asadpour, A. (2020). The effect of lavender aroma on anxiety of patients having bone marrow biopsy. *Asian Pacific Journal of Cancer Prevention*, 21(3), 771-775. <https://doi.org/10.31557/APJCP.2020.21.3.771>.
17. Beyliklioglu, A. & Arslan, S. (2019). Effect of lavender oil on the anxiety of patients before breast surgery. *Journal of PeriAnesthesia Nursing*, 34(3), 587-593. <https://doi.org/10.1016/j.jopan.2018.10.002>.
18. Dilek, B. & Necmiye, C. (2020). Usage of aromatherapy in symptom management in cancer patients: A systematic review. *International Journal of Caring Sciences*, 13(1), 537-546.
19. Jaruzel, C.B., Gregoski, M., Mueller, M., Faircloth, A., & Kelechi, T. (2019). Aromatherapy for preoperative anxiety: A pilot study. *Journal of PeriAnesthesia Nursing*, 34(2), 259-264. <https://doi.org/10.1016/j.jopan.2018.05.007>.
20. Beyliklioglu, A. & Arslan, S. (2019). Effect of lavender oil on the anxiety of patients before breast surgery. *Journal of PeriAnesthesia Nursing*, 34(3), 587-593. <https://doi.org/10.1016/j.jopan.2018.10.002>.
21. Kemper, K.J. (2020). Special issue on aromatherapy: A low cost, low risk, complementary environmental therapy. *Complementary Therapies in Medicine*, 52, 1-2. <https://doi.org/10.1016/j.ctim.2020.102471>.
22. Shady, K., Nair, J.M., & Crannell, C. (2019). Lavender aromatherapy. Examining the effects of lavender oil patches on patients in the hematology-oncology setting. *Clinical Journal of Oncology Nursing*, 23(5), 502-508. <https://doi.org/10.1188/19.CJON.502-508>.
23. Trambert, R., Kowalski, M.O., Wu, B., Mehta, N., & Friedman, P. (2017). A randomized controlled trial provides evidence to support aromatherapy to minimize anxiety in women undergoing breast biopsy. *Worldviews on Evidence Based Practice*, 14(5), 394-402. <https://doi.org/10.1111/wvn.12229>.
24. Beyliklioglu, A. & Arslan, S. (2019). Effect of lavender oil on the anxiety of patients before breast surgery. *Journal of PeriAnesthesia Nursing*, 34(3), 587-593. <https://doi.org/10.1016/j.jopan.2018.10.002>.
25. Kemper, K.J. (2020). Special issue on aromatherapy: A low cost, low risk, complementary environmental therapy. *Complementary Therapies in Medicine*, 52, 1-2. <https://doi.org/10.1016/j.ctim.2020.102471>.
26. Trambert, R., Kowalski, M.O., Wu, B., Mehta, N., & Friedman, P. (2017). A randomized controlled trial provides evidence to support aromatherapy to minimize anxiety in women undergoing breast biopsy. *Worldviews on Evidence Based Practice*, 14(5), 394-402. <https://doi.org/10.1111/wvn.12229>.
27. Shady, K., Nair, J.M., & Crannell, C. (2019). Lavender aromatherapy. Examining the effects of lavender oil patches on patients in the hematology-oncology setting. *Clinical Journal of Oncology Nursing*, 23(5), 502-508. <https://doi.org/10.1188/19.CJON.502-508>.

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