

## **Abstract**

### **Purpose:**

The purpose of this study is to evaluate the effectiveness of a combination of lavender, sweet marjoram, and pink grapefruit oils on a patient's perception of pain, and the ability to reduce the use of opioids in an emergency department setting. In the midst of the current opioid epidemic, there is much discussion on the multi-modal approach to the treatment of pain. One potential source of analgesics that can be utilized in this approach to pain control is aromatherapy with essential oils.

### **Design:**

The study design is a randomized single-blinded study.

### **Setting:**

The study takes place in a suburban/rural free-standing emergency department that sees approximately 32,000 patients annually.

### **Subjects:**

The participants are adult patients, ages 18-75 who present to the emergency department with a complaint of pain. The participant must have a systolic blood pressure greater than 90 and no history of reactive airway diseases.

### **Method:**

Patients that present with pain to the emergency department and meet the inclusion criteria will be enrolled in the study. Patients will be consented for their participation which will include the risks and benefits. A sealed envelope will contain the group designation that the patient will be assigned to. The patient will be provided an essential oil inhaler that will be labeled with A or B. The patient will be instructed to inhale the aroma frequently during the length of stay. If the patient is assigned to group C, then they will be advised they are in the control group and only their electronic medical record will be accessed to obtain the data points. The nurse will re-assess the pain no sooner than 30 minutes from administration. Pain must be re-assessed prior to the administration of other analgesic treatment. The nurse will record the pain assessment on the provided research form and this data will be entered into a spreadsheet for review. All information will be de-identified, noting a sequential patient number for data entry.

### **Results:**

Thus far, a total of 84 patients, 59 females and 25 males were enrolled in this study with an average age of 42. 82 of these patients presented with acute pain and 2 with chronic pain. The mean initial pain score was 7. The mean pain score post-treatment with an aromatherapy inhaler was 6. Of those who received the therapeutic agent, an average reduction in pain of 1.04 points on the pain scale was reported, while the placebo group averaged 0.38 and the control group 0.23. Of the patients enrolled in the study, 13 received narcotic pain medication during their visit. Out

of these, the therapeutic group averaged a total of 2.67 morphine milligram equivalents (MME's) for their visit compared to 3.63 in the placebo group and 4.36 in the control group.

**Implications:** These results only contain preliminary data, but thus far show a reduction in pain and a reduction in the amount of opioids prescribed in those who received the therapeutic agent. This indicates that aromatherapy should be considered as another approach in the treatment for pain.