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**File: ■ Aromatherapy
■ Hospital Settings**

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RE: Aromatherapy May Be an Effective Health Management Tool in Acute Hospital Settings

Johnson JR, Rivard RL, Griffin KH, et al. The effectiveness of nurse-delivered aromatherapy in an acute care setting. *Complement Ther Med.* 2016;25:164-169.

Pharmacologic treatments used in hospital settings for the management of pain, anxiety, and nausea are often costly and contribute to adverse side effects. Clinical aromatherapy, the controlled and therapeutic use of essential oils in a clinical setting for specific measurable outcomes, has shown some promise. The aim of this retrospective, observational study was to examine the therapeutic use and effectiveness of using essential oils for pain, nausea, and anxiety in acute hospital settings across a large health care system.

This study was conducted at 10 of the 12 hospitals in the Allina health care system located throughout Minnesota and western Wisconsin. Allina Health, in collaboration with the Penny George Institute for Health and Healing, gave employed nurses the opportunity to receive online training in aromatherapy.

Inpatients who were 18 years or older and who received nurse-delivered aromatherapy (between February 1, 2012 and June 30, 2014) were retrospectively identified through electronic health records (EHRs). Outpatients in the hospital solely for observation were excluded from the study. Patient Visitor Safety Reports were submitted with any safety concerns. Demographic and admissions characteristics were obtained from EHRs. Data pertaining to each nurse-delivered aromatherapy session also were evaluated. The patients made the decision to accept or decline aromatherapy.

The essential oils, administered to patients by either inhalation, topical application, or both, included ginger (*Zingiber officinale*, Zingiberaceae), lavender (*Lavandula angustifolia*, Lamiaceae), mandarin (*Citrus reticulata*, Rutaceae), and sweet marjoram (*Origanum majorana*, Lamiaceae) (manufacturers unknown). The main outcomes evaluated in this study (change in patient-reported pain, anxiety, and nausea) were rated with a numeric rating scale (0-10) before and after receiving aromatherapy. Analysis of these effects controlled for additional nurse-delivered complementary and integrative health interventions, pain medications, and mode of aromatherapy administration.

A total of 18,436 nurse-delivered aromatherapy sessions were reported in this study. The mean age of these patients was 55.42 years (73.0% females, 91.8% Caucasian). Patients were treated at suburban (44.4%), urban (42.8%), and rural (12.8%) locations. Not all nurses reported which essential oils were used, which made it necessary to divide the patients into defined and undefined essential oil groups. There were significant differences between these groups with respect to length of stay ($P=0.008$), race ($P=0.037$), illness severity ($P<0.0001$), hospital location ($P<0.0001$), and clinical community ($P<0.0001$).

The majority of the aromatherapy sessions documented were administered through inhalation (77.6%), while others were delivered topically (19.0%) and through inhalation and topical modes (3.3%). Regardless of type of administration, lavender oil was the most frequently used essential oil (49.5%), followed by ginger (21.2%), sweet marjoram (12.3%), mandarin (9.4%), and combination oils (7.6%).

Aromatherapy with sweet marjoram essential oil resulted in the largest average pain change at -3.31 units (95% confidence interval [CI]: -4.28 , -2.33), whereas unspecified combinations of the 4 oils had an estimated pain change of -3.43 units (95% CI: -4.43 , -2.43). In terms of anxiety, both lavender and sweet marjoram essential oils had an average change of -2.73 units (95% CI: -3.91 , -1.55 and -3.93 , -1.53 , respectively). Ginger, not associated with the treatment of anxiety, had the least effect, but still produced a significant difference compared to 0 (-1.81 units; 95% CI: -2.99 , -0.62). For effects on nausea, aromatherapy with ginger essential oil showed the largest change with -2.02 units (95% CI: -2.55 , -1.49). Mandarin was the only other essential oil indicated for the treatment of nausea; the estimated average change was -1.77 units (95% CI: -2.37 , -1.17).

Although this is a retrospective study, the results consistently indicate that the essential oils had effects on several health outcomes. In particular, sweet marjoram essential oil showed the most pronounced effect, which suggests that it should be further evaluated for pain and anxiety management. Admitted limitations of this study include self-reported health scores and the lack of a control group. Due to these factors, which are common with these types of studies, future research may want to also include quantitative measurements (e.g., heartbeat rate, blood pressure) to further validate some of the reported health outcomes, especially for anxiety and pain.

—*Laura M. Bystrom, PhD*

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