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File: ■ Lavender (*Lavandula hybrida*)

■ Rosemary (*Rosmarinus officinalis*)

■ Aromatherapy

■ Anxiety

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RE: Aromatherapy with Lavender and Rosemary Oils Reduces Anxiety from Tests

McCaffrey R, Thomas DJ, Kinzleman AO. The effects of lavender and rosemary essential oils on test-taking anxiety among graduate nursing students. *Holist Nurs Pract.* March/April 2009;23(2):88-93.

Test anxiety causes mental distraction, difficulty with memory recall, and physical symptoms such as nausea, diarrhea, increased blood pressure, and a quickened heart rate. Test anxiety can lead to poor performance that may jeopardize academic success. Effective interventions to decrease test anxiety may help students improve their performance. Lavender is traditionally used as a relaxant, and rosemary is believed to improve memory. Previous studies have shown that aromatherapy with lavender and rosemary essential oils can reduce anxiety and stress. The purpose of this study was to evaluate the effects of aromatherapy with lavender or rosemary on test anxiety in graduate nursing students.

This open-label pilot study was conducted at the College of Nursing at Florida Atlantic University in Boca Raton, Florida. Forty students in the nurse practitioner program were enrolled in the study. The students completed the 10-item Test Anxiety Scale to record their perceived stress and had their blood pressure and pulse measured before and after taking 3 regularly scheduled exams. No aromatherapy was used during the first exam, which served as the control period. For the second exam, students were given an inhaler containing a piece of cotton saturated with 3 drops of lavender (*Lavandula hybrida*) essential oil extracted by steam distillation. They were instructed to use the inhaler before starting the exam, to use it as often as desired during the exam, and to record the number of times they used the inhaler. For the third exam, students were given an inhaler containing a piece of cotton saturated with 3 drops of rosemary (*Rosmarinus officinalis*) essential oil with a camphor phenotype and given the same instructions about using the inhaler. The authors do not provide manufacturer information for either essential oil.

Students were instructed to avoid wearing perfume or using personal products with a scent, and the exams were completed in a classroom that had no competing odors. Following the second and third exams, the researchers met with the group of students and asked them to talk about their anxiety levels, relaxation, and concentration levels during the exam.

All 40 students completed the 3 study sessions. Mean scores on the Test Anxiety Scale decreased significantly from pre- to post-test after lavender aromatherapy ($P = 0.003$) and after rosemary aromatherapy ($P = 0.01$), indicating a decrease in test anxiety. Anxiety test scores decreased more after rosemary aromatherapy than lavender aromatherapy, but this difference was not statistically significant. There were no significant changes in blood pressure after lavender or rosemary aromatherapy. Mean pulse rates were significantly lower after lavender aromatherapy ($P < 0.001$) and after rosemary aromatherapy ($P = 0.033$).

In the group discussion following each aromatherapy session, the students stated that the smell of lavender was pleasant. However, some students felt it relaxed them too much, decreased their concentration, and caused them to fight to stay alert. The students liked the rosemary aroma and felt it increased their ability to concentrate and recall information for the tests. Overall, students believed that rosemary tended to clear their heads while lavender relaxed them but made their minds "fuzzy."

The authors conclude that the use of lavender and rosemary aromatherapy reduced test anxiety in graduate nursing students. They suggest that aromatherapy is an easy, inexpensive, and safe therapy for reducing test anxiety in the classroom setting. Helping nursing students manage their test anxiety through aromatherapy is an example of nurturing the students and improving the nursing educational environment.

The authors point out certain limitations in this pilot study. The sample size was small, and the study design did not control for the possibility that test anxiety might naturally decrease as the class progressed and critical tests were completed. Although the students were instructed to record the number of times they used the inhaler during the test period, the authors did not report the data or comment on usage of the inhalers. While the results of this study suggest that aromatherapy reduces the anxiety associated with test taking, the study did not evaluate performance on the tests, and it is not known if the reduction in anxiety was associated with improved test scores. Future studies should address this issue, particularly given the reports by the students that lavender aromatherapy reduced concentration and alertness.

—*Heather S. Oliff, PhD*

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