

Relax with lavender

By Martha J. Greenberg, PhD, RN, and Anesha Narain, BSN, RN

Learn how lavender can reduce anxiety and improve sleep.

WE ALL EXPERIENCE a certain amount of stress and anxiety, and in small doses it may even enhance school or job performance. But chronic stress and anxiety can put you at risk for stress-related illnesses and threaten work-life balance. One byproduct of stress and anxiety is inadequate sleep and sometimes insomnia. If you have insomnia, you may have difficulty falling asleep or staying asleep, wake up too early, experience low energy and difficulty concentrating, and suffer from irritability. This in turn may lead to problems in relationships with family, friends, and coworkers. To deal with the triad of chronic stress, anxiety, and insomnia, we sometimes turn to over-the-counter or prescription drugs, which may lead to abuse.

An alternative to pharmacological treatment is aromatherapy, an integrative therapy that includes smelling pleasant oils or massaging them into the skin. Lavender essential oil, for example, helps decrease anxiety and improve sleep with few to no adverse reactions. Lavender can be administered through the skin (massage or dermal patch), inhaled (by electronic diffuser, aromatherapy inhaler, or cotton balls infused with oil), and orally (pill or tea). In the United States, cutaneous and inhaled

lavender aromatherapy are most common. An orally administered formulation has been clinically tested and is prescribed for generalized anxiety syndrome in Europe. Since 2009, it's been licensed in Germany to treat sub-syndromal anxiety and tension.

Lavender in action

Lavender essential oil is produced by steam-distillation of the flowering heads and leaves of the plant. Linalyl acetate and linalool are the two key active constituents.

The true mode of action of fragrance aromatherapy remains speculative; effects have been attributed to physiologic (with the site of action in the amygdala) and psychologic (associations to an aroma) responses. Animal studies report a possible sedative effect as linalool acts on gamma aminobutyric acid (GABA) receptors, inhibiting binding of GABA and the presynaptic calcium channels and exerting a depressant effect on neurotransmission. In laboratory studies using mice, minute doses of lavender oil worked similarly to pregabalin, inhibiting voltage-dependent calcium channels in the hippocampus, a region of the brain that's significant for anxiety disorders. Depending on the reason for using lavender, it may have both hypnotic and anxiolytic effects.

Lavender to reduce anxiety and improve sleep

Have you returned to school for your bachelors in nursing or a graduate degree? Perhaps you're feeling test anxiety or losing sleep as you try to juggle work, life, and assignments. Performance or test anxiety can be incapacitating to any student, but nursing students have higher levels of debilitating anxiety than the general student population.

Several nurse educators found that using lavender inhalers before and during high-stakes testing significantly reduced test anxiety for students. Studies using only lavender essential oil, rather than a mix of oils, demonstrated that lavender acted as an effective anxiolytic in reducing the stress of test taking. In the oral form, lavender has established benefits in controlling



Lavender, nursing students, and anxiety

Our research on lavender studied freshman student nurses using lavender essential oil infused nasal inhalers. We chose Elizabeth Van Buren, Inc. Lavandula because it's used with patients in two of our area hospitals.

The students used the inhalers for 6 weeks (from midterms through final exams), a minimum of three times a week, and before performance appraisals. The nonrandomized convenience sample started with 27 freshman nursing students over age 18; eight completed the study.

Participants were instructed to

“place the inhaler in one nostril, inhale slowly and deeply over 5 seconds, and repeat with the opposite nostril.” The Westside Test Anxiety Scale (WAS) and the Pittsburgh Sleep Quality Inventory (PSQI) were administered to the participants before starting the study and after its completion.

Adherence to the intervention and subjective feelings were measured weekly through a self-report survey. Students' comments included:

- “Smells good, helps calm you down so you can sleep.”
- “My anxiety level when writing my

papers was high, but by breathing and using the inhaler I was calmer.”

- “I still smell/feel the lavender after I inhale it.”
- “I was at ease taking the exams.”

We saw a decrease in PSQI scores, with seven of the eight participants reporting improved sleep quality scores, although the difference wasn't statistically significant. The WAS showed a statistically significant decrease in scores after the intervention, indicating that lavender nasal aromatherapy could have an anxiolytic effect on test anxiety.

Common adverse effects of lavender

Adverse effects of lavender use are rare. This table notes some of the effects seen in different systems.

System	Effect
Dermatologic	Dermatitis and skin pigmentation changes with use of topical products
Neurologic	Central nervous system (CNS) depression has rarely been reported with aromatherapy, but additive narcotic effects have been noted in rats when taken concomitantly with barbiturates or chloral hydrate. Lavender may further exacerbate sedation in patients taking CNS suppressants. One reported case of difficult anesthesia induction in a woman taking long-term oral Silexan
Hematologic	Neutropenia with high doses of perillyl alcohol (POH), a monoterpene constituent of lavender. Usually occurs in patients with terminal malignancies receiving numerous chemotherapy treatments.
GI	Anorexia, nausea, and vomiting after oral doses of lavender > 5 g/day and after large doses of POH
Reproductive	Oral use not recommended in pregnant or lactating women due to insufficient data. In 2007, case reports of prepubertal gynecomastia linked to repeated topical use of one or more over-the-counter products containing lavender oil or lavender and tea tree oil.

anxiety as effectively as paroxetine or lorazepam. Several other studies showed that lavender also appears to help with sleep, without the adverse effects of commonly used drugs.

In our research on lavender, test anxiety, and sleep, freshman student nurses used essential oil lavender-infused nasal inhalers. As the frequency of their lavender inhalation use decreased, their quality of sleep also decreased, leading us to conclude that lavender inhalation may improve sleep quality. (See *Lavender, nursing students, and anxiety*.)

Lavender application

Lavender is generally safe, with few serious adverse effects. However, note that some workplaces prohibit the use of any fragrance that might trigger a respiratory response. (See *Common adverse effects of lavender*.)

When using lavender, remember that fragrance preference is subjective and may be rooted in our psychological responses rather than pharmacological effects. Many species of lavender plants exist, so you may prefer different manufacturers' or distillers' products.

- Use pure, high-grade oils from reputable manufacturers. In our research, we asked massage and holistic therapist colleagues for their recommendations.
- To preserve the chemical



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composition of the oil, store it in glass bottles with tightly closed caps, in a dark, cool place.

- Sew lavender-infused eye masks or sachets to use at bedtime.
- Buy an electronic air diffuser for your bedroom. Usually, one drop of lavender essential oil will infuse a large room, and the scent lasts several days.
- Put an oil-infused cotton ball on your night table, about 16 inches from your nose, or under your pillow.
- Infuse a personal nasal inhaler or nonmedicated transdermal patch with lavender oil. We used just four drops of essential oil in our inhalers, and the scent remained pleasantly strong for 4 months. However, direct nasal inhalation is an intense route of delivery.
- Essential oils are flammable, so keep them away from direct flames and keep your room well ventilated.
- Visit the National Association for Holistic Aromatherapy website (naha.org) for more information about aromatherapy and essential oils.

Take care of yourself first

As a nurse, you work under high levels of stress and anxiety, whether on the job or in school. Aromatherapy with lavender essential oils provides a nonpharmacological method for relieving stress and insomnia. When you take care of yourself, you're better able to care for your patients. ★

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Selected references

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The advertisement features a large, golden trophy with a star on the front, set against a background of falling confetti. The text is arranged in a clean, professional layout. At the top left is the 'American Nurse Today' logo, with 'ANA' in a small box. At the top right is the 'ASHPE' logo, which includes the text 'AMERICAN SOCIETY OF HEALTHCARE PUBLISHERS/EDITORS'. The main headline is 'American Nurses Association's official journal receives 3 ASHPE awards'. Below this, a sub-headline reads 'We are honored to announce that American Nurse Today has received three ASHPE awards in 2017'. The awards are listed as follows: Silver Award for Best Cover: Photo Category How to help human trafficking victims (January 15, 2016); Silver Award for Best Cover: Computer-Generated Category: Carbon Monoxide Poisoning (September 15, 2016); Silver Award for Best How-To Article Category: How to recognize delirium in pediatric patients (May 15, 2016). A paragraph follows, stating the journal's long history of ASPHE awards and its commitment to high-quality clinical and practical editorial. A final paragraph notes that ANA members and subscribers can depend on the journal's award-winning graphics to inform and educate nurses across the country. A text box on the right side of the trophy contains the ASHPE mission statement: 'ASHPE is committed to: • fostering the highest ethical standards in management; • rewarding excellence in publications development and editorial performance; • and serving as an authority on evolving trends in the healthcare publishing sector.'

American Nurse Today Official Journal of ANA

American Nurses Association's official journal receives 3 ASHPE awards

ASHPE AMERICAN SOCIETY OF HEALTHCARE PUBLISHERS/EDITORS

We are honored to announce that American Nurse Today has received three ASHPE awards in 2017

Silver Award for Best Cover:
Photo Category How to help human trafficking victims (January 15, 2016)

Silver Award for Best Cover:
Computer-Generated Category:
Carbon Monoxide Poisoning (September 15, 2016)

Silver Award for Best How-To Article Category:
How to recognize delirium in pediatric patients (May 15, 2016)

The journal has a long history of ASPHE awards dating back to the launch of the *American Nurse Today* and we are thrilled that YOUR journal continues to be recognized by experts in the healthcare publishing field.

ANA members and subscribers can depend on the journal's high quality clinical and practical editorial combined with our award-winning graphics to continue to inform and educate nurses across the country.

ASHPE is committed to:
• fostering the highest ethical standards in management;
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• and serving as an authority on evolving trends in the healthcare publishing sector.