



# HerbClip™

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**File: ■ Lavender (*Lavandula* spp., Lamiaceae)  
■ Peppermint (*Mentha × piperita*, Lamiaceae)  
■ Sleep Quality**

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**RE: Lavender and Peppermint Essential Oils Improve Sleep Quality in Cancer Patients**

Hamzeh S, Safari-Faramani R, Khatony A. Effects of aromatherapy with lavender and peppermint essential oils on the sleep quality of cancer patients: a randomized controlled trial. *Evid Based Complement Alternat Med*. March 25, 2020;2020:7480204. doi: 10.1155/2020/7480204.

Cancer affects many aspects of life, including sleep. One-third of patients with cancer suffer from sleep disorders and have poor sleep quality. Nearly half of cancer patients' prescription medicines include sleep aids, and about one-third of patients use these medications. Benzodiazepines, commonly prescribed for sleep disorders, are effective but may cause dependency and tolerance. Among alternative treatments, aromatherapy with plant essential oils (EOs) is low-risk, cost-effective, and simple. Lavender (*Lavandula* spp., Lamiaceae) and peppermint (*Mentha × piperita*, Lamiaceae) EOs are widely used in aromatherapy.

Lavender contains linalool and linalyl acetate, both with antinociceptive, sedative, and antispasmodic effects mediated by the parasympathetic nervous system. Peppermint's menthol affects  $\kappa$ -opioid receptors, blocking transmission of pain signals. Peppermint also affects the hypothalamus, stimulating olfactory pathways and reducing corticotropin-releasing hormone, thus reducing cortisol secretion from adrenal glands and calming anxiety. Studies of lavender aromatherapy and sleep report mixed results, while the few using peppermint report positive effects. A 2016 systematic review (SR) pointed out the low quality of many studies of aromatherapy benefits for patients with cancer.

The authors compared sleep effects of lavender and peppermint EOs (LEO, PEO) in a three-armed, randomized, placebo-controlled clinical trial (RCT). With a sample size of 111 calculated for 93.3% power and an anticipated  $\leq 10\%$  dropout rate, 120 patients in the oncology ward of Taleghani Hospital (Kermanshah, Iran [IR]) were recruited and randomized to three groups of 40 each. Among inclusion criteria were positive olfactory response and no sinusitis or nasal problems, no history of respiratory problems, no use of caffeine in the hour before bedtime, and no drug, alcohol, or tobacco (*Nicotiana tabacum*, Solanaceae) addiction. Qualified participants had Pittsburgh Sleep Quality Inventory (PSQI) scores  $\geq 5$  and were not taking sleep medications. Convenience

sampling was used until the cohort was complete. Measures used were the PSQI and a demographic questionnaire, completed by all participants before the intervention.

For seven consecutive nights at 21:00, aromatherapy was administered via cotton balls attached to each patient's collar for 20 minutes. LEO and PEO groups received three drops of their respective EO (both from Zardband Company; Tehran, IR) on a cotton ball; the placebo group, three drops of distilled water with 1% LEO. On the eighth morning, patients again completed the PSQI. All patients completed the RCT. Repeated measure one-way analysis of variance was used to assess effects of aromatherapy and interactions of time and group. Statistical significance was set at  $P < 0.05$ .

Mean age of participants was  $49.47 \pm 14.52$  years. Most were women ( $n = 68$ ; 56.67%), married (95; 79.17%), housewives (53; 42.2%), and had high school diplomas (102; 85.0%). One-third were diagnosed with leukemia ( $n = 40$ ). Groups were almost equal in demographic characteristics and baseline PSQI scores. All participants had undesirable sleep quality at baseline (mean PSQI 12.62; standard deviation [SD] 2.69). After lavender or peppermint aromatherapy, 90% ( $n = 36$  in each of the LEO and PEO groups) still had undesirable sleep quality; in the placebo group, 95% ( $n = 38$ ). Mean scores improved after the intervention in all three groups, but the trend was slight in the placebo group. There was a nonsignificant effect of group ( $P = 0.375$ ) but significant effects for time ( $P < 0.0001$ ) and group  $\times$  time ( $P < 0.001$ ). Pairwise comparisons showed a mean difference in PSQI scores for PEO vs. LEO groups as  $-0.15$  ( $P = 0.817$ ); PEO vs. control,  $-0.85$  ( $P = 0.190$ ); and for LEO vs. control  $-0.70$  ( $P = 0.280$ ).

Along with a few other studies in patients with cancer of inhalation aromatherapy and its effects on pain, quality of life, vital signs, anxiety, depression, and fatigue, these results tend to confirm the benefits of both LEO and PEO. Sleep improvement in the placebo (and intervention) groups may have been due to psychological, physiological, or environmental factors. Different medications used by patients and inclusion of patients with all types and at all stages of cancer may have affected results. One study also reported benefits for chamomile (*Matricaria chamomilla* syn. *Chamomilla recutita*, Asteraceae) EO. A lack of benefits in a study using orange (*Citrus  $\times$  sinensis*, Rutaceae) and ylang-ylang (*Cananga odorata*, Lamiaceae) EOs and LEO was likely due to its short duration (one night before morning surgery). Lack of benefits in another may have been due to different sleep diagnosis tools used and other factors. The short duration of this RCT, with its significant effect for group  $\times$  time, suggests that longer trials should be undertaken, controlling for these limitations, and taking note of any observed tolerance.

—Mariann Garner-Wizard

Referenced article can be accessed at <https://www.hindawi.com/journals/ecam/2020/7480204/>.

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