

# Lung Cancer– Related Dyspnea

## The effects of a handheld fan on management of symptoms

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**BACKGROUND:** The application of a handheld fan may reduce patients' shortness of breath and increase their activity tolerance by enabling cooling and air flow into the second and third branches of the trigeminal nerve.

**OBJECTIVES:** The aim of the study was to assess the effects of directing a handheld fan toward the face in the management of lung cancer–related dyspnea.

**METHODS:** Using a randomized controlled experimental design, 96 inpatients with lung cancer were evaluated, with the experimental group ( $n = 49$ ) using a handheld fan to manage dyspnea for 14 days. Dyspnea, respiration rate, oxygen saturation, heart rate, and quality of life were assessed for both groups.

**FINDINGS:** A statistically significant difference was found in dyspnea scores between groups on the first, seventh, and fourteenth days of fan application, and statistically significant differences were found between groups in dyspnea scores, respiration rates, oxygen saturation, heart rate, and quality of life on the fourteenth day of application.

### KEYWORDS

lung cancer; palliative care; fan therapy; dyspnea; quality of life

### DIGITAL OBJECT IDENTIFIER

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**D**YSPNEA IS A SYMPTOM THAT IS FREQUENTLY EXPERIENCED by patients with lung cancer, which can negatively affect well-being and prevent patients from performing activities of daily living, including personal care needs (Mendoza et al., 2020). The prevalence of dyspnea is higher (57%–90%) in patients receiving palliative care (Rogers et al., 2020). Although dyspnea can reduce the quality of life of patients receiving palliative care, early introduction of palliative care to patients with lung cancer is associated with improved quality of life and survival (Cope et al., 2018).

One nonpharmacologic approach that is used in dyspnea management is applying air to the face using a handheld fan. The application of a handheld fan may reduce patients' shortness of breath and increase their activity tolerance by enabling cooling and air flow into the second and third branches of the trigeminal nerve (Morélot-Panzini, 2017). It is believed that this result is achieved through the cooling of the nasal or airway mucosa or through the fanning of the facial skin. Another mechanism behind the effectiveness of the handheld fan is that it provides distraction and relaxation to reduce patients' dyspnea; as patients pay attention to the handheld fan, their perception of their dyspnea decreases (Lockett et al., 2017). A different perspective suggests that the handheld fan alters the brain's perception of signals coming from respiratory afferent nerves, supporting psychological and emotional management. This is also described as "fooling the brain" "to make it believe" that the respiratory system functions better than it actually does (Morélot-Panzini, 2017, p. 1).

The literature contains examinations of the short-term effects of handheld fans on dyspnea management in patients with lung cancer (Puspawati et al., 2017; Wong et al., 2017); however, the long-term effects of regular handheld fan application have not been determined. In a study by Booth et al. (2016), which was carried out with a mixed group of patients, fan application had a moderate clinical effect on patients with resting dyspnea, but this effect was not statistically significant. In Booth et al.'s (2016) study, the rate of patients whose dyspnea scores improved after fan application was 55% on a visual analog scale and 61% on a numeric rating scale. Another study by Swan et al. (2019) revealed that the use of a handheld fan supported a faster recovery in treating effort-related dyspnea. As an adjunct to standard of care, handheld fans were also effective in alleviating dyspnea among adult