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## Relaxation therapy with guided imagery for pain intensity and pain interference in patients with lung cancer: A case study

Miftah Nur Affandi, Fahrur Nur Rosyid\*

Fakultas Ilmu Kesehatan, Universitas Muhammadiyah Surakarta

Corresponding author: \*E-mail: [fnr100@ums.ac.id](mailto:fnr100@ums.ac.id)

### Abstract

**Background:** Lung cancer is a malignant tumor originating from the bronchial epithelium or bronchial carcinoma which includes malignancy from the lungs themselves (primary) and malignancy from outside the lungs (metastasis) caused by several factors such as exposure or inhalation of a carcinogenic substance such as cigarettes over a long period of time. One of the clinical symptoms felt by lung cancer patients is chest pain with 50-70% of cancer patients experiencing pain dominated by neuropathic, psychological, social and spiritual pain, associated with nociceptive pain that is felt continuously so that it can reduce quality of life, physical function, increase fatigue levels, and interfere with daily activities. Efforts to reduce pain in lung cancer patients require appropriate, efficient and economical interventions, so that they can improve the patient's quality of life. One of the non-pharmacological nursing interventions that can be applied to lung cancer patients is guided imagery.

**Purpose:** To prove the relaxation therapy with guided imagery for pain intensity and pain interference in patients with lung cancer.

**Method:** The case report study used a nursing care approach by implementing evidence-based nursing practices in 5 lung cancer patients treated in the Flamboyan ward Dr. Moewardi Hospital. The instrument used in this nursing care report is a numeric scale to measure the intensity of patient pain with an interval of 0-10. A value of 0 indicates no pain, while 1-3 indicates mild pain, 4-6 indicates moderate pain and 7-10 indicates severe pain.

**Results:** There was a significant change in the patient's pain scale after relaxation therapy with guided imagery for pain intensity and pain interference.

**Conclusion:** Relaxation therapy with guided imagery can help reduce pain in lung cancer patients. In addition, it is considered a more efficient and economical therapeutic nursing intervention and does not cause complications.

**Suggestion:** It is hoped that further researchers can apply it to other medical diagnoses to determine whether guided imagery has the same benefits or not in reducing pain felt by patients other than a medical diagnosis of lung cancer.

**Keywords:** Guide Imagery; Lung Cancer; Pain; Relaxation Therapy.

### INTRODUCTION

Lung cancer is caused by malignant tumors originating from the bronchial epithelium or bronchial carcinoma, either malignancy originating from the lungs themselves (primary) or malignancy originating from outside the lungs (metastasis). This condition is caused by several factors, one of which is exposure

or inhalation of carcinogenic substances such as cigarettes over a long period of time (Raniszevska, Kwiecień, Rutkowska, Rzepecki, & Domagała-Kulawik, 2021; Joseph & Rotty, 2020). Other causes that can increase the incidence of lung cancer are irritation from radioactive radon materials, exposure

to nickel carbonyl from arsenic, air pollution, genetics, and low consumption of beta-carotene, selenium, and vitamin A (Dawe, 2018).

Currently, lung cancer is still the leading cause of death, reaching 13% worldwide with the incidence of lung cancer in men at 14% and women at 13% (Ananda, Ermayanti, & Abdiana, 2018). One of the clinical symptoms felt by lung cancer sufferers is chest pain with 50-70% of cancer patients experiencing pain that is dominated by neuropathic, psychological, social and spiritual, associated with nociceptive pain that is felt continuously so that it can reduce the quality of life, physical function, increase fatigue levels, and interfere with daily activities (Nurmalisa, 2020; Merlo, Carlson, Espey, Williams, Balakrishnan, Chen, & Mody, 2022). According to the International Association for the Study of Pain, the occurrence of pain is influenced by various factors, namely biological, psychological, and social (Hoag, Karst, Bingen, Palou-Torres, & Yan, 2022). The importance of pain management as part of routine cancer care has been firmly stated by the World Health Organization (WHO) to improve the quality of life of cancer sufferers (Husen, Suharti, & Hardian, 2016; Cuomo, Cascella, Forte, Bimonte, Esposito, De Santis, & Crispo, 2020).

One of the pain treatments is guided imagery which utilizes the power of the mind to heal itself and maintain health or well-being through communication within the body (Isti, 2022). In addition, guided imagery is a mental function that expresses itself as a dynamic psychophysiological process and involves all the senses to bring about changes in physiological responses (Menzies & Jallo, 2011; Wulandari, Rosyid, Handayani, & Mulyadi, 2023).

The guided imagery technique usually begins with a relaxation process such as asking the patient to close their eyes slowly and asking the patient to take a deep breath and then exhale slowly (Toussaint, Nguyen, Roettger, Dixon, Offenbacher,

Kohls, & Sirois, 2021). Then the patient is advised to empty their mind and ask the patient to think about things or something that makes the patient comfortable and calm (Milenia & Retnaningsih, 2022). Based on previous research, the application of guided imagery to 29 respondents with lung cancer gave positive results with an average reduction in pain of 78.2% with a p value = 0.000. This technique is considered to be able to help reduce pain and discomfort in patients easily and economically (Nurmalisa, 2020).

## RESEARCH METHOD

This case study uses a nursing care approach by implementing evidence-based nursing practices in 5 lung cancer patients with GCS 14-15 who complained of pain, treated in the Flamboyan ward Dr. Moewardi Hospital. The instrument used in this nursing care report is a numeric scale to measure the intensity of patient pain with an interval of 0-10. A value of 0 indicates no pain, while 1-3 indicates mild pain, 4-6 indicates moderate pain and 7-10 indicates severe pain.

The guided imagery intervention in this study began with signing an informed consent, then assessing the participant's pain complaints and scheduling therapy according to the agreement between the nurse and the participant. During the implementation process, participants were given an audio track according to their choice, namely calming or pleasant. Participants were guided to use headphones for 5 to 10 minutes for three days, while the audio track was playing, participants closed their eyes, took a deep breath, and relaxed their muscles to stay calm. Then, participants were guided to focus their thoughts and imagination on things that made them calm. After the intervention was completed, the pain scale experienced by the participants was re-measured.

**Miftah Nur Affandi, Fahrur Nur Rosyid\***

Fakultas Ilmu Kesehatan, Universitas Muhammadiyah Surakarta  
Corresponding author: \*E-mail: fnr100@ums.ac.id

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## RESEARCH RESULTS

Table Pain Intensity After Relaxation Therapy with Guided Imagery

Variables	Day	Pain Scale	
		Pre-Test	Post-Test
Patient (1)	First	7	5
	Second	5	4
	Third	4	3
Patient (2)	First	5	4
	Second	4	3
	Third	3	2
Patient (3)	First	6	5
	Second	5	4
	Third	4	3
Patient (4)	First	6	5
	Second	5	4
	Third	3	2
Patient (5)	First	5	4
	Second	4	3
	Third	3	2

Based on the table above, Patient (1) is a 45-year-old man with a medical diagnosis of pneumonia and lung cancer, the patient was admitted to the hospital with complaints of coughing and shortness of breath for more than 1 month. The patient has no history of any disease and has never taken medication, the patient is an active smoker. On physical examination, breath sounds were heard in the right and left upper lobes, RR 28 times/minute, BP 101/80 mmHg, Pulse: 98 times/minute, temperature 37C°, SpO 100%, the patient appeared to have nasal obstruction. A 3 lpm cannula was installed with composition awareness. While in the hospital, the patient often complained of chest pain on a scale of 7 like being stabbed by a blunt object that was felt continuously. However, post the intervention, the intensity of the pain felt decreased on a scale of 3 on the third day.

Patient (2) is a 37-year-old woman with a medical diagnosis of TB with lung cancer, the patient was hospitalized with complaints of dizziness, nausea, weight loss, cough and shortness of breath for more than 1 month. The patient has a history of TB 3 years ago but stopped taking medication in the first year. The patient is a food factory worker, on physical examination breath sounds were heard throughout the chest area, RR 29 times/minute, BP

140/90 mmHg, Pulse: 100 times / minute, temperature 37C°, SpO 100%, the patient appeared to have a 3 lpm nasal cannula installed with composition awareness. During hospitalization, she often complained of chest pain on a scale of 5 like being pressed, Post intervention the intensity of pain was on a scale of 2 on the third day.

Patient (3) is a 60-year-old male patient with a medical diagnosis of lung cancer, admitted to the hospital with complaints of dizziness, nausea, weight loss, cough, and shortness of breath for more than 1 month, and experiencing chest pain. The patient has a history of bronchitis 5 years ago, a retired employee on physical examination breath sounds were heard throughout the chest area, RR 29 times/minute, BP 145/98 mmHg, Pulse: 100 times / minute, temperature 37C°, SpO 100%, the patient appeared to be fitted with a 3 lpm nasal cannula with compositional consciousness. During his stay in the hospital, he often complained of chest pain with a scale of 6 as if being pressed, but post-intervention the pain scale became 3 on the third day.

Patient (4) is a 64-year-old male patient with a medical diagnosis of lung cancer, admitted to the hospital with complaints of dizziness, nausea, weight loss, cough, and shortness of breath accompanied by chest pain for more than 1 month. The patient has

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no history of illness and is also an active smoker. During a physical examination, breath sounds were heard throughout the chest area, RR 27 times/minute, BP 130/90 mmHg, Pulse: 100 times/minute, temperature 37°C, SpO 100%, the patient appeared to have a 3 lpm nasal cannula installed with composition awareness. During his stay in the hospital, he often complained of chest pain on a scale of 6 like being pressed, post-intervention on the third day it dropped to a scale of 2.

Patient 5 is a 50-year-old male patient with a medical diagnosis of lung cancer, admitted to the hospital with complaints of dizziness, nausea, weight loss, cough, and shortness of breath for more than 1 month, chest pain. The patient has a history of COPD 2 years ago and is an active smoker. During physical examination, breath sounds were found throughout the chest area, RR 29 times/minute, BP 155/98 mmHg, Pulse: 100 times/minute, temperature 37°C, SpO 100%, the patient appeared to have a nasal cannula of 3 lpm, compositional consciousness. During hospitalization, the patient often complained of chest pain on a scale of 5 like being pressed and post-intervention changed to 2.

## DISCUSSION

The results of this study indicate that guided imagery nursing intervention can reduce pain intensity in patients with a medical diagnosis of lung cancer. This is in line with previous studies that examined the effectiveness of guided imagery therapy in reducing pain in cancer patients using a systematic review and meta-analysis method by collecting data from 12 studies involving 1.462 cancer patients by comparing the effectiveness of guided imagery therapy with placebo or other interventions with the results of guided imagery therapy being effective in reducing pain in cancer patients, especially in chronic cancer patients with various types of cancer (King, 2010).

Pain in individuals with a medical diagnosis of lung cancer is caused by several factors including biological factors; type of cancer, stage of cancer, location of tumor, and side effects of treatment, psychological factors; anxiety, depression, and stress levels. Social factors; social support, economic status, and education. Environmental factors; conditions of the home and workplace

environment, while pain in lung cancer patients is divided into two types, namely acute pain, which is pain that appears suddenly and lasts for a short time. Acute pain in lung cancer patients can be caused by various factors, such as injury, surgery, or side effects of treatment, and chronic pain that lasts more than six months. Chronic pain in lung cancer patients can be caused by tumors, side effects of treatment, or complications of the disease (Vissers, Besse, Wagemans, Zuurmond, Giezeman, Lataster, & Huygen, 2011).

There are two types of lung cancer, namely small cell lung cancer (SCLC) is a type of lung cancer that grows and spreads quickly. SCLC usually occurs in the middle of the lung, close to the bronchus. SCLC is often diagnosed at an advanced stage, so the prognosis is worse than NSCLC and non-small cell lung cancer (NSCLC) is a type of lung cancer that grows and spreads more slowly than SCLC. NSCLC usually occurs in the edge of the lung, away from the bronchus. NSCLC can be divided into three main types, namely adenocarcinoma, carcinoma, and large cell carcinoma (Maharina, Sutanto, Widiastuti, Kusumaningrum, Prabata, & Wujoso, 2021; Kriegsmann, Haag, Weis, Steinbuss, Warth, Zgorzelski, & Kriegsmann, 2020).

Comorbidities that are risk factors for lung cancer include cardiovascular disease, diabetes, chronic obstructive pulmonary disease (COPD), bone disease, kidney disease, and liver disease (Grønberg, Sundstrøm, Kaasa, Bremnes, Fløtten, Amundsen, & Jordhøy, 2010). Common symptoms experienced by sufferers are coughing up blood, shortness of breath that worsens over time, chest pain, weight loss, digestive disorders such as nausea, vomiting, and diarrhea, and nerve disorders such as headaches and paralysis (Maharina et al, 2021).

Guided imagery can reduce pain because it is a therapy that helps patients divert attention from pain and stress responses or as a distraction (King, 2010). The management of guided imagery interventions in this study refers to previous studies that explain the goals and benefits of guided imagery nursing interventions, patients who receive guided imagery interventions first sign informed consent, then assess the patient's pain complaints and schedule therapy according to the agreement between the nurse and the patient, during the

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implementation process the patient is given an audio track according to the patient's choice, namely one that is calming or the patient should be guided using headphones for 5 to 10 minutes. When the audio track is played, the patient is guided to close their eyes, take a deep breath, and relax their muscles to stay calm. Then, the patient is guided to focus their thoughts and imagination on things that make them calm. After the intervention is complete, the patient re-measures the pain scale using a numeric rating scale and documents it (Parizad, Goli, Faraji, Mam-Qaderi, Mirzaee, Gharebaghi, & Haghghi, 2021).

The mechanism of pain reduction using guided imagery works by reducing the activity of the sympathetic nervous system, changing the perception of pain, and increasing self-control. The sympathetic nervous system is the nervous system that is responsible for the body's response to stress. When the sympathetic nervous system is activated, it can release hormones that can increase pain. Guided imagery can help reduce the activity of the sympathetic nervous system which can ultimately reduce pain. Guided imagery can also change the perception of pain, when someone imagines things that are pleasant or calming, their attention will be diverted from the pain. This can make the pain feel less intense or even disappear altogether. In addition, guided imagery can increase a person's self-control over the pain they are experiencing. When someone can control their thoughts and imagination, they will be better able to control the pain they are experiencing (Lewandowski, Jacobson, Palmieri, Alexander, & Zeller, 2011).

## CONCLUSION

Based on the results of this case study analysis, it can be concluded that providing guided imagery intervention can help reduce pain in patients with lung cancer through perception of distraction. Apart from that, guided imagery intervention is considered a therapeutic nursing intervention that is more efficient and economical and does not cause complications. It is hoped that future researchers can implement it in other medical diagnoses to see whether guided imagery has the same benefits for reducing the pain felt by patients other than medical diagnoses of lung cancer.

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## SUGGESTION

It is hoped that further researchers can apply it to other medical diagnoses to determine whether guided imagery has the same benefits or not in reducing pain felt by patients other than a medical diagnosis of lung cancer.

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