

CHAPTER I

INTRODUCTION

A. Background

Cancer is a condition in which a number of cells in the body develop uncontrollably, producing malignant masses that can invade the surrounding tissues and spread to other organs, simply put, cancer cells find a way to ignore the body's signals that normally stop division, avoid cell growth and death, create their own blood supply, and move places, while gene changes (mutations). inflammation as well as environmental conditions around the tumor to trigger this process (Hanahan, 2022)

There were around 19.98 million new cancer cases worldwide in 2022, making cancer one of the non-communicable diseases with a huge global burden. This case reflects the trend of a surge in the number of cancers globally from year to year due to the factors of population aging and population growth (Ferlay *et al.*, 2024).

In the United States, the Cancer Statistics report there will be 2,041,910 new cases of cancer diagnosed in 2025, with the death rate projected to reach more than 618,000 people, while, in Japan, the latest estimates show that by 2024 there will be around 979,300 new cancer cases (Siegel *et al.*, 2025).

The 2023 Indonesian Health Survey (SKI) shows that the prevalence of cancer in Indonesia is recorded at 0.12%, this figure illustrates the proportion of people who have been diagnosed with cancer by medical personnel, and several provinces recorded a figure higher than the national average, namely DI Yogyakarta which reached 0.36%, followed by DKI Jakarta 0.24%, West Sumatra 0.20%, and Bengkulu 0.7% (Ministry of Health BPS, 2023). Based on data *GLOBOCAN*, 2022 found that there are several types of the most cancers in Indonesia, such as Breast Cancer 28.2%, Cervical 16.3%, Colorectal 14.0%, Ovarian 6.1%, Prostate 4.4%, and Lung 6.

Data from dr. M. Yunus Hospital, Bengkulu Province shows that in 2023 the number of cancer patients undergoing chemotherapy was recorded at 411 cases. Of these, the most cases were breast cancer with 199 cases, lung cancer with 56 cases, and cervical cancer with 56 cases. In 2024, the number of patients undergoing chemotherapy will decrease to 387 cases, with details of breast cancer as many as 253 cases, lung cancer as many as 112 cases, and cervical cancer as many as 41 cases. Furthermore, in 2025 in the period from January to July, there were 327 cancer cases undergoing chemotherapy at dr. M. Yunus Bengkulu Hospital, which shows that the burden of cancer cases is still relatively high and requires continuous attention in the management and improvement of service quality (Dr. M. Yunus Hospital, 2025).

Cancer has an impact on the body and life of individuals diagnosed with cancer, all complaints that will be felt start from physical complaints such as pain, excessive fatigue, drastic weight loss, sleep disturbances, nausea-vomiting, hair loss, decreased appetite, to muscle weakness. Emotionally, cancer patients are prone to anxiety, depression, fear of death, hopelessness, and mental distress due to changes in physical condition (Selviana, 2024).

Different types of therapies are used for cancer patients, such as surgery, radiotherapy, chemotherapy, hormonal therapy, and immunotherapy. Chemotherapy is usually applied to cancers that have spread throughout the body and that are in the metastatic stage. This treatment process uses chemicals or drugs that can be given in the form of pills or through an IV. The goal of chemotherapy is to reduce the speed at which cancer cells spread and prevent them from growing back. However, chemotherapy can cause side effects i.e., nausea and vomiting, severe fatigue (*fatigue*), decreased appetite (*anorexia*), hair loss (*Alopecia*), thrush (*mucositis*), diarrhea or constipation, bone and muscle pain, skin and nail changes, easy infections/decreased immunity, sleep disturbances and anxiety, sadness, or emotional stress (Setia & Rosa, 2024).

The effects of chemotherapy in cancer patients that are often felt, namely, sleep disorders, this problem can be overcome with pharmacological treatment, however, it has side effects there are also non-pharmacological

therapies that do not cause side effects for cancer patients undergoing chemotherapy, including, yoga, massage, and aromatherapy (Setia & Rosa, 2024).

Sleep disorders are situations in which individuals find it difficult to initiate or maintain their sleep for at least one month, which impacts their daily activities. For cancer patients undergoing chemotherapy, sleep problems such as insomnia often arise as a result of psychological stress and side effects from medications (Source: Stuttgart) *et al.*, 2024). The prevalence rate of sleep disorders in cancer patients ranges from 30% to 93%, which is three times higher compared to the non-cancer patient population (9-33%). These sleep problems can continue in individuals who have been diagnosed and undergoing cancer treatment, and this condition can last for months or even years after treatment ends (Laughs) *et al.*, 2023).

Sleep disorders in cancer patients that are not addressed can have serious consequences for the patient's physical and mental state, insufficient sleep can increase severe fatigue, decrease immunity, and worsen the body's response to treatments such as chemotherapy and radiotherapy. Long-lasting sleep problems can worsen a patient's anxiety, depression, and quality of life. Lack of quality rest also impacts hormonal regulation and metabolic processes, ultimately slowing healing and increasing the risk of complications (Spear *et al.*, 2024).

YOCAS (*Yoga for Cancer Survivors*) is a yoga program developed specifically for cancer survivors as a non-pharmacological intervention to improve the quality of life after treatment. The program combines breathing techniques, gentle stretching, and relaxation to help alleviate a variety of physical and emotional complaints (Armer & Lutgendorf, 2021).

The main benefit of YOCAS that has been clinically proven is its ability to improve the sleep quality of cancer survivors, who often experience sleep disturbances due to stress, anxiety, and side effects of cancer therapy such as chronic fatigue. By participating in YOCAS sessions regularly, the results

obtained are reduced sleep pattern disorders such as insomnia, as well as an increase in overall energy and mood (Spider-Girls) *et al.*, 2024).

Research by Evelyn, *et al* (2024) on *The effect of YOCAS yoga on cancer-related fatigue and quality of life in older (60+) vs. younger (≤ 59) cancer survivors: Secondary analysis of a nationwide, multicenter, phase 3 randomized controlled trial*. Showing results, older cancer survivors who participated in YOCAS (*Yoga for Cancer Survivors*) held two to three times weekly for four weeks at low to moderate intensity levels showed similar progress in CRF and QOL when compared to participants under 59 years of age with a p value of 0.758.

Research by Selvaraj, *et al* (2024) on *Yoga for Cancer Survivors (YOCAS): A Systematic Review of the YOCAS Program's Impact on Physical and Psychological Well-Being*. Showed results, sleep problems in 410 patients and found that this clearly improved overall sleep disorders compared to usual treatment. Participants experienced an improvement in sleep efficiency, as well as the number of awakenings after sleep.

Research by Karen M, *et al* (2020) on *the Multicenter Randomized Controlled Trial of Yoga for Sleep Quality Among Cancer Survivors* suggests that yoga can significantly improve the quality of sleep of patients. Data analysis revealed significant differences related to overall sleep quality ($p = 0.009$), daytime disturbances ($p < 0.001$), subjective sleep quality ($p = 0.047$), and use of sleeping medications ($p = 0.046$). These findings confirm that yoga is effective in improving sleep quality and reducing dependence on sleeping pills among cancer patients.

Previous research, YOCAS has had the effect of reducing complaints felt by cancer patients. But to get maximum results, YOCAS therapy is combined with Aromatherapy, aromaterpy that can be used, namely, Aromatherapy *Peppermint* that utilizes essential oils from the plant *Peppermint* (*Mentha piperita L.*), which is known for its soothing, soothing, and relaxing properties. The oil contains active ingredients such as menthol and menthone that have a physiological impact on the nervous system, including reducing

stress, improving focus, and overcoming fatigue (MahdaviKian *et al.*, 2021). It is related to sleep problems, although *Peppermint* It is better known for its mild and refreshing stimulant effects. By creating a sense of relaxation before bed, aromatherapy *Peppermint* has the possibility of improving the quality of sleep, especially when combined with other relaxation techniques (C. M. Sari *et al.*, 2023).

Research by Derya, et al (2023) on *Aromatherapy in Cancer Patients Receiving Palliative Care*. It was found that there was an improvement in sleep quality after *inhalation of peppermint*, such as the difference in PSQI score after intervention was better in the aromatherapy group than in the control with reported statistical significance.

Research by Sahar H, et al. (2020) on *the Effects of Aromatherapy with Lavender and Peppermint Essential Oils on the Sleep Quality of Cancer Patients: A Randomized Controlled Trial* There was a significant improvement in sleep quality over time for all groups receiving the intervention ($p < 0.0001$). In addition, the interaction between the type of intervention and the time also showed significance ($p < 0.001$), but there was no significant difference between the *peppermint*, lavender, and control aromatherapy groups ($p = 0.375$). However, p-values showed that sleep quality appeared to be better in the *peppermint* and lavender groups compared to the control groups (*peppermint* vs control $p = 0.190$; lavender vs control $p = 0.280$), and there was no significant difference between the two aromatherapy groups ($p = 0.817$).

Research by Hui C, et al (2022) on *Aromatherapy with single essential oils can significantly improve the sleep quality of cancer patients: a meta-analysis* showed that the use of aromatherapy had a significant positive impact on the sleep quality of individuals with cancer ($p < 0.01$). In a specific group of patients. Single essential oils such as *peppermint* and lavender gave significant results ($p < 0.01$), while oil mixtures showed no significant effect ($p = 0.23$). The results of this study confirm that aromatherapy functions well as a supportive method to improve sleep quality for cancer patients.

An initial survey in the chemotherapy room of dr. M. Yunus Hospital in Bengkulu Province was conducted by researchers in 2025 to 23 respondents showing that as many as 12 people had good sleep quality, and 11 people had poor sleep quality, shown by complaints such as difficulty sleeping, restlessness, anxiety, pain when going to sleep, lack of sleep, frequent waking up at night, waking up not refreshed, drowsiness during the day, and fatigue. This shows that the quality of sleep in patients after undergoing chemotherapy varies from good to bad.

After the initial survey data was collected, the author was interested in conducting research on the management of *yoga for cancer survivors* (YOCAS) by administering *Mentha piperita L Aromatherapy*. Cancer patients undergoing chemotherapy treatment who have sleep disorders at dr.M. Yunus Hospital, Bengkulu.

B. Problem Formulation

Based on the background of high sleep disturbances experienced by cancer patients in the chemotherapy room, the question was formulated, namely "Is there an effect of *Yoga for Cancer Survivors* (YOCAS) therapy and the administration of *Mentha piperita L Aromatherapy*. affect sleep disturbances in the chemotherapy room of M. Yunus Hospital Bengkulu City?".

C. Research Objectives

1. General Purpose

It is known that there is an effect of *Yoga for Cancer Survivors* (YOCAS) therapy and the administration of *Mentha piperita L. Aromatherapy* on sleep disorders in cancer patients undergoing chemotherapy.

2. Special Purpose

- a. It is known that the characteristics of the respondents include age, number of chemotherapy cycles, gender, stage of cancer and comorbidities.

- b. It was known that sleep disturbances were scored before the *Yoga for Cancer Survivors* (YOCAS) intervention with the administration of *Mentha piperita* L. aromatherapy in the group.
- c. It was known that the sleep disturbance score was achieved after the *intervention of Yoga for Cancer Survivors* (YOCAS) with the administration of *Mentha piperita* L. aromatherapy in the group.
- d. It is known that the effect of *Yoga for Cancer Survivors* (YOCAS) therapy with the administration of aromatherapy *Mentha piperita* L. on sleep disorders in cancer patients in the chemotherapy room of Dr. M. Yunus Hospital, Bengkulu City.

D. Research Benefits

1. Share Hospital Installation

The results of this study can provide information on alternative non-pharmacological therapies to overcome sleep disorders and improve the quality of health services for chemotherapy patients, in order to help patients get better sleep quality during the treatment process.

2. For Educational Institutions

This study can be used as an additional scientific reference in lecture activities, especially in the field of nursing, for the development of science on the management of sleep disorders using the approach, *Yoga for Cancer Survivors* (YOCAS) by administering aromatherapy *Mentha piperita* L. to cancer patients.

3. For Other Researchers

The results of this study can be used as basic data to develop *Yoga for Cancer Survivors* (YOCAS) and *Mentha piperita* L. aromatherapy interventions in an effort to reduce sleep disturbances in cancer patients undergoing chemotherapy.