



## MINDFULNESS AND LAVENDER AROMATHERAPY TECHNIQUES FOR ANXIETY IN CERVICAL CANCER PATIENTS THOSE UNDERGOING CHEMOTHERAPY: LITERATURE REVIEW

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### ABSTRACT

One disease that is considered very scary in society is cancer. Treatment such as chemotherapy is needed to kill cancer cells. However, chemotherapy also has side effects both physical and psychological. Psychological disorders occur such as feeling anxious or worrying too much about something that can affect the ability to carry out activities. One of the psychological therapies carried out is mindfulness techniques and lavender aromatherapy to reduce anxiety levels in cervical cancer patients undergoing chemotherapy. Mindfulness techniques can provide benefits for cancer patients in achieving relaxation of anxiety during chemotherapy treatment. Apart from mindfulness techniques, providing aromatherapy is also an alternative for reducing anxiety in patients undergoing chemotherapy. The aromatherapy used to reduce anxiety is the aroma of lavender. Lavender aromatherapy can reduce anxiety and stress because it has relaxing properties that can have a positive effect on the nervous system and mood. The scent of lavender can stimulate receptors in the nose that are connected to the brain and stimulate the release of chemicals such as serotonin which can improve mood. The design used is a literature review, articles were collected using academic databases used in this search, namely Pubmed, Google Scholar, Science Direct with research articles published from 2019 - 2023. Based on the articles collected, we obtained review results from 21 journals that show mindfulness. and aromatherapy can help a person manage anxiety, including anxiety that may arise in connection with cervical cancer and the chemotherapy process.

Keywords: anxiety; cancer patients; chemotherapy; lavender aromatherapy; mindfulness

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### INTRODUCTION

One disease that is considered very scary in society is cancer. According to data from the Ministry of Health, cancer is ranked 7th (seventh) cause of death in the world (Ministry of Health of the Republic of Indonesia, 2022). Cervical cancer is the cancer that most commonly attacks women. Cervical cancer can cause infertility, morbidity and even mortality in women, making this disease a serious threat to women. Cancer cells multiply quickly in a sufferer's body, so treatment is needed to kill these cells with chemotherapy. Chemotherapy treatment is one way to kill cancer cells but it also has side effects, both physical and psychological (Hafsah, 2022). Anxiety is a psychological condition that commonly occurs due to unpleasant experiences experienced by every human being, so it is not surprising that anxiety occurs in humans who experience physical disorders, up to 50% of medical patients report clinically experiencing anxiety. Anxiety is also a state of worry, nervousness or fear when faced with difficult experiences in one's life and thinking that something bad will happen. Anxiety

symptoms are very different and vary for each individual. Anxiety symptoms can interfere with a person's quality of life because they can affect a person's ability to carry out various activities (Donsu et al., 2017). One psychological therapy that can be done to reduce anxiety is mindfulness. Mindfulness is an emotional regulation strategy that can be implemented by paying attention to everything that is happening at the moment with an attitude of acceptance (Rustandi & Gumilang, 2020). By undergoing mindfulness training, individuals will learn to be more open and increase their curiosity, so that individuals will be more accepting of themselves as they are without any desire to judge or change them (Putri & Yudiarso, 2021) (Putri & Yudiarso, 2021). This technique works by increasing awareness to accept the situation that is happening to him. Apart from mindfulness techniques, providing aromatherapy is also an alternative for reducing anxiety in patients undergoing chemotherapy (Gempur et al., 2022)

Aromatherapy is the use of essential oils from plants to improve the mind, body, and spirit. It is used by cancer patients to improve quality of life and reduce stress, anxiety, pain, nausea, and vomiting caused by the effects of cancer and its treatment (Agustin et al., 2020). One of the most popular aromas is lavender because aromatherapy can improve sleep quality and mood, thereby reducing anxiety (Segala et al., 2022). The main ingredients of lavender flowers are linalyl acetate and linalool (C<sub>10</sub>H<sub>18</sub>O). Linalool is the main active ingredient that plays a role in the anti-anxiety (relaxation) effects of lavender. This is supported by research conducted by Maharani, (2021) stating that lavender aromatherapy can be used to reduce anxiety levels. Based on the explanation above, the author is interested in conducting literature study research with the theme "the effectiveness of mindfulness and lavender aromatherapy on anxiety in cervical cancer patients undergoing chemotherapy" which aims to reduce anxiety, identify the characteristics of cervical cancer patients undergoing chemotherapy, determine the intensity/level of anxiety before and after administering mindfulness techniques and lavender aromatherapy to cervical cancer patients undergoing chemotherapy.

## **METHOD**

Article publication date within the last 4 (four) years (2020-2023), (3) articles research can be accessed in full (full text), and (4) articles are in Indonesian and English. The exclusion criteria for this study were: (1) complete articles that could not be accessed, and (2) articles published below (2020-2023).

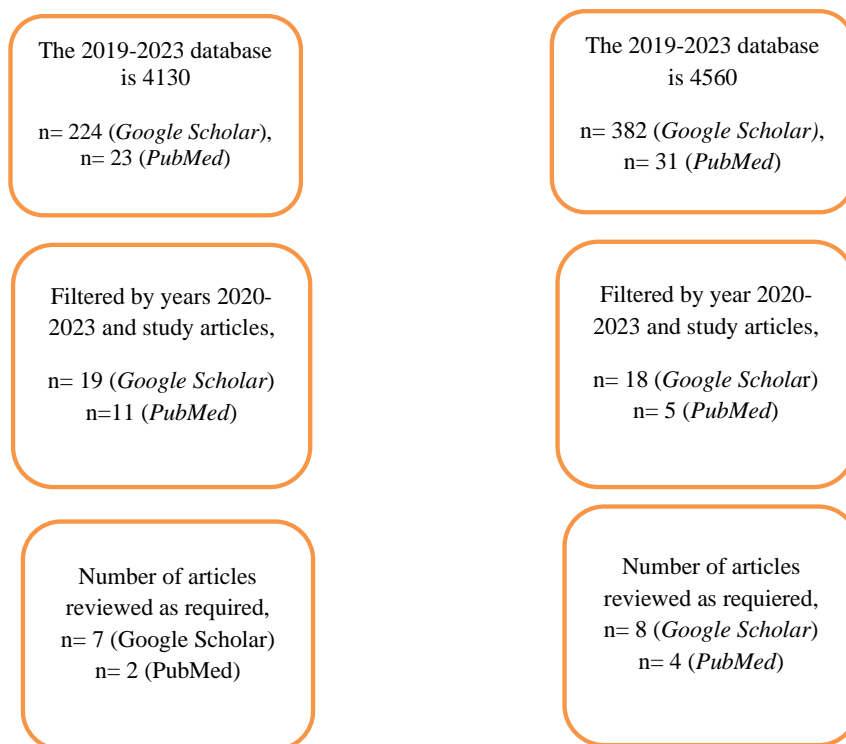


Figure 1. Article search process

**RESULTS**

The articles taken are from 2020 to 2023 and discuss mindfulness techniques and lavender aromatherapy for anxiety in cervical cancer patients undergoing chemotherapy. Research by Park, et al., Susanto (2023), Langelo, et al., (2021), Astuti, et al., (2022) and Ulfa & Susanto (2023) examines that mindfulness can reduce or improve many psychological conditions such as worry. Meanwhile research by Agustin, et al., (2020), Pranatalia, et al., (2020), Noviani, et al., (2022), Nisa & Hidayani (2022), Sitohang & Simanullang (2023), Motulo, et al., (2023) and Simanjuntak, et al., (2023) studied that lavender aromatherapy can reduce or reduce anxiety levels. The following are 21 articles that meet the criteria.

Table 1.  
List of selected articles

Title	Year	Author	Method	Result
Mindfulness-Based Cognitive Therapy for Psychological Distress, Fear of Cancer Recurrence, Fatigue, Spiritual Well-Being, and Quality of Life in Patients With Breast Cancer - A Randomized Controlled Trial	2020	Sunre Park, MA, CPSY, RN, Yasuko Sato, MHSc, RN, Yuka Takita, MSN, RN, Noriko Tamura, MA, CPSY, Akira Ninomiya, MD, Teppei Kosugi, MD, Mitsuhiro Sado, MD, PhD, MSc, Atsuo Nakagawa, MD, PhD, Maiko Takahashi, MD, Tetsu Hayashida, MD, PhD, and Daisuke Fujisawa, MD, PhD, CPSY	This research uses a randomized controlled trial method compared MBCT intervention and checklist control waiting (WLC) in nonmetastatic breast cancer patients outpatient.	The results of this study show that MBCT is proven to improve well-being covering psychological, physical, and spiritual domains in Japanese patients with nonmetastatic breast cancer.
The Effect of Inhaled Aromatherapy on Anxiety in Hemodialysis	2020	Ary Agustin, Dian Hudiyawati, Arif Putra Purnama	This research uses a pre-experimental one group pretest and posttest design	The results of this study show that there is an effect of giving inhaled aromatherapy on reducing

Title	Year	Author	Method	Result
Patients			method.	the anxiety level of patients undergoing hemodialysis.
The Effect of Lavender Aromatherapy on Reducing Fibrinolytic Therapy in the ICU. Anxious Response of Acute Coronary Syndrome Patients Post Fibrinolytic Administration	2020	F. Venora Pranatalia, Chrisyen Damanik, Marina Kristi	This research uses a pre-experimental method with a pre-post test design in one group (one group pre test - post test design) with time series design approach.	The results of this study show that giving lavender aromatherapy to ACS patients after giving fibrinolytic therapy can reduce anxious response.
Randomized Controlled Trial of Cognitive-Behavioral and Mindfulness-Based Stress Reduction on the Quality of Life of Patients With Crohn Disease	2021	Ganit Goren, MSW, Doron Schwartz, MD, Michael Friger, PhD, Hagar Banai, MD, Ruslan Sergienko, MA, Shirley Regev, PhD, Heba Abu-Kaf, MD, Dan Greenberg, PhD, Anna Nemirovsky, MA, Karny Ilan, Livnat Lerner, Alon Monsonego, PhD, Iris Dotan, MD, Henit Yanai, MD, Rami Eliakim, MD, Shomron Ben Horin MD, Vered Slonim-Nevo, PhD, Shmuel Odes, MD, and Orly Sarid, PhD, on behalf of the Israeli IBD Research Nucleus	This research uses the Randomized Controlled Trial method.	The results of this study show that COBMINDEX is effective in improving patients' quality of life and reducing psychological symptoms and fatigue.
The Efficacy and Mechanisms of a Guided Self-Help Intervention Based on Mindfulness in Patients With Breast Cancer: A Randomized Controlled Trial	2021	Di Shao, PhD, Huihui Zhang, MD, Naixue Cui, PhD, Jiwei Sun, PhD, Jie Li, PhD dan Fenglin Cao, PhD	This research uses the Randomized Controlled Trial method.	The results of this study show that Guided Self-Help Intervention Based on Mindfulness reduces symptoms of depression and sleep disorders by reducing feelings of rumination and worry in breast cancer patients.
Lavender essential oil on postmenopausal women with insomnia: Double-blind randomized trial	2021	Leandro dos Reis Lucena, Jair Guilherme dos Santos-Junior, Sergio Tufik, Helena Hachul	This research used a double-blind randomized trial method.	The results of this study were that participants with Lavandula angustifolia essential oil intervention experienced improved sleep patterns, quality and overall sleep efficiency.
Mindfulness Stress Management on Health Workers' Anxiety Levels During the Covid-19 Pandemic	2021	Wahyuni Langelo, Cindi Oroh, Meisi Mondigir	This research uses a quasi experiment method with one group pre-posttest without control group.	The results of this research are that mindfulness stress management has an influence on levels health worker anxiety.
Enhanced mindfulness-based stress reduction (MBSR+) in episodic	2022	Shana AB Burrowes, PhD, Olga Goloubeva, PhD, Kristen Stafford, PhD, Patrick F. McArdle,	This research uses the MRI Outcomes of Mindfulness Meditation for	The results of this study were that there was a significant improvement in sleep quality but there was

Title	Year	Author	Method	Result
migraine: effects on sleep quality, anxiety, stress, and depression: a secondary analysis of a randomized clinical trial		PhD, Madhav Goyal, MD, B. Lee Peterlin, MD, Jennifer A. Haythornthwaite, PhD, David A. Seminowicz, PhD	Migraine clinical trial method. This is a randomized controlled trial placebo with single masking.	no significant change in terms of anxiety, depression and stress.
The Effectiveness of Mindfulness Therapy on the Anxiety Levels of Patients Undergoing Hemodialysis	2022	Vitri Astuti, Dwi Fitriyanti, Novi Hery Yono	This research uses a quasi-experimental research design method with pre and post tests.	The results of this study show that providing mindfulness therapy is effective in reducing anxiety levels in chronic kidney failure patients undergoing hemodialysis.
The Effect of Lavender Aromatherapy on Maternal Anxiety During the Covid-19 Pandemic at East Denpasar Community Health Center I	2022	Ni Wayan Noviani, Ni Luh Putu Citrawati, Putu Savitri Astikasari	This research uses a quasi-experimental method with one group pretest-posttest without control.	The results of this research show that there is a significant difference between anxiety levels.
Lavender Aromatherapy Through a Humidifier on Sleep Quality in Breast Cancer Patients	2022	Sediana Sagala, Dudut Tanjung, Elmeida Effendy	This research used a randomized controlled trial method with control group pretest-posttest design.	The results of this research are lavender aromatherapy recommended as an alternative therapy to improve sleep quality breast cancer patients.
Giving Aromatherapy Lavender Flowers to the Anxiety Scale in Pre-mastectomy Patients	2022	Eka Ristin Tarigan, Rostime Hermayerni Simanullang, Afnijar Wahyu, Laurena Ginting, Masta Melati Hutahaeen	This research uses a quasi-experimental design with a one group pre and posttest method without control.	The results of this research show that lavender aromatherapy can reduce the anxiety scale in pre-mastectomy patients.
Improving biobehavioral health in younger breast cancer survivors: Pathways to Wellness trial secondary outcomes	2023	Julienne E. Bower, PhD, Ann H. Partridge, MD, Antonio C. Wolff, MD, Steve W. Cole, PhD, Michael R. Irwin, MD, Elissa D. Thorner, MHS, Hadine Joffe, MD, MSc, Laura Petersen, MA, Catherine M. Crespi, PhD, Patricia A. Ganz, MD	This research uses the Pathways to Wellness trial method.	The results of this study are that Mindful Awareness Practice has beneficial effects on the psychological and immune outcomes of young breast cancer survivors and is a promising approach to improving biobehavioral health.
The immediate effects of lavender-based essential oil inhalation on subsequent polysomnography in people with poor sleep quality	2023	Chun-Pai Yang, Cheng-Chia Yang, I-Ju Tsai, Tsung-Hsing Lin, Ya-Ling Chiou, Hsiao-Fen Wang, Ching-Mao Chang, Kuang-Hway Yih	This research used a single-blinded method with guidelines Consolidated Standards of Reporting Trials (CONSORT).	The results of this study were that Single Lavender Essential Oil (SLEO) and Complex Lavender Essential Oil (CLEO) increased Total Sleep Time (TST) and Sleep Period Time (SPT), without significant differences between the two groups.
Deep Breathing Mindfulness Therapy for Correctional Inmates	2023	Marsela Riska Raswandaru, Rosiana Eva Rayanti, Angreit Angel Priskila Rompas, Novilya Meydi Lalintia,	This research uses an outreach method with a series of assessment activities through	The results of this research were that correctional inmates (WBP) felt calmer after doing mindfulness breathing exercise therapy.

Title	Year	Author	Method	Result
		Fanisa Carolin, Windika Novtavia Manggopa, Farizi	questionnaires and interviews. Preparation, implementation and evaluation stages.	
Application of Mindfulness Therapy in Overcoming Anxiety in Hemodialysis Patients at Hajimena Health Center in 2023	2023	Setia Rana Ulfa, Giri Susanto	This research uses observation, implementation and evaluation methods.	The results of this research show that mindfulness therapy is very effective in reducing the level of anxiety experienced by hemodialysis patients.
The Effect of Providing Lavender Aromatherapy on Anxiety Levels in KB Implant Acceptors at the Haurpanggung Community Health Center, Garut Regency in 2023	2023	Khoerun Nisa, Hidayani	This research uses a quasi-experimental method with a pretest posttest one group design.	The results of the research show that there is an effect of giving lavender aromatherapy on the level of anxiety in birth control implant acceptors.
Slow Strok Back Massage Intervention with Lavender Aromatherapy Oil in the Pinang Room at RSUP dr. Wahidin Sudirohusodo Makassar: Case Report	2023	Miftahul Janna, Nurul Fadhilah Gani, Hasnah, Nurhidayah	This research uses interview, physical examination and observation methods.	The results of this research show that Slow Stroke Back Massage (SSBM) with lavender aromatherapy lasting 10 minutes for 3 days with lavender aromatherapy oil is effective in reducing pain in cervical cancer patients.
The Effect of Lavender Aromatherapy on Reducing Anxiety in Breast Cancer Patients Undergoing Chemotherapy at Murni Teguh Memorial Hospital	2023	Novita Sitohang, Rostime Hermayerni Simanullang	This research uses a quasi-experimental pre and posttest one group only design method.	The results of this research show that lavender aromatherapy has an effect on anxiety.
The Effect of Lavender Aromatherapy on Patient Anxiety Levels Before Tooth Extraction	2023	Florin K. M. Motulo, Billy J. Kepel, Ni Wayan Mariati	This research uses a quasi-experimental method with a non-equivalent control group design.	The results of this study showed that lavender aromatherapy had a significant effect on the patient's anxiety level before tooth extraction.i
The Effect of Lavender Aromatherapy on Reducing Anxiety Levels in Chronic Kidney Failure Patients Before Undergoing Hemodialysis at Royal Prima Hospital	2023	Efrita Simanjuntak, Pitarwan Sarumaha, Yasmin Waruwu, Navy Popy Trianty hareva, Faozanolo Hulu, Tiarnida Nababan	This research uses a quasi design method Experimental with one group pre-test and post test design.	The results of this research show that there is an effect of lavender aroma therapy on reducing anxiety.
The effect of Brief Mindfulness Meditation (BMM) to	2022	Anak Agung Sri Sanjiwani, Ketut Lisnawati, Anak Agung	This research uses a quantitative research method	The results of this study showed that there was a significant change in anxiety

Title	Year	Author	Method	Result
reduce anxiety in cancer patients undergoing chemotherapy		Oka Widana, I Gde Wayan Wisastrawan	with a quasi-experimental design with a pre-posttest design with control group and uses the STAI (State-Trait Anxiety Inventory) measuring instrument.	scores (state & trait) in the treatment group after being given the BMM intervention ( $p < .005$ ). This shows that the BMM intervention has an effect on reducing anxiety in cancer patients.
The Effect of Giving Lavender Aromatherapy on Anxiety Levels of Preoperative Patients with Spinals Anesthesia in the Primaya Hospital Tangerang Operating Room	2023	R. Tri Rahyuning Lestari, Rohanah	This research method is research quantitative using a pre-post experimental design research design One Group Pretest-Posttest Design.	The results of this research show the effect of giving Lavender Aromatherapy on the patient's anxiety level preoperatively with spinal anesthesia.
Benefits of Mindfulness Training to Reduce Anxiety in Cancer Patients Using Chemotherapy	2017	Jenita DT. Donsul, Surantono, Kirnantoro.	The research method uses a quasi-experimental design with pretest and posttest control group design.	The results of this study show that mindfulness training can provide benefits for cancer patients in achieving relaxation to reduce anxiety when facing chemotherapy treatment.
The Effect of Lavender Aromatherapy on Maternal Anxiety	2021	Istiqomah Mirazanah, Bunga Tiara Carolin, Sri Dinengsih	This research method is quasi-experimental using a pretest and posttest with control group design.	The results of this study show the influence of lavender aromatherapy on maternal anxiety.

## DISCUSSION

Cancer is a large group of diseases characterized by the growth of abnormal cells in the body. These abnormal cells can grow and attack any part of the body. Cancer is a frightening disease and cause of death throughout the world and is a threat to human welfare and health in general because cervical cancer sufferers are often found to have reached an advanced stage. The World Health Organization estimates that 9 million people will die from cancer and by 2030 it is estimated that 11.4 million will die from cancer (Ministry of Health, 2022). Chemotherapy is a treatment that can stop the growth of cancer cells. Chemotherapy is a systematic therapy, which means the drug spreads throughout the body and can reach cancer cells that have spread far or have metastasized to other places. However, chemotherapy also has side effects both physically and psychologically (Hafsah, 2022). The psychological disorder that usually occurs is anxiety.

Anxiety is a state of worry, nervousness or fear when faced with difficult experiences in one's life and thinking that something bad will happen. One psychological therapy that can be done to reduce anxiety is mindfulness. Mindfulness is an emotional regulation strategy that can be implemented by paying attention to everything that is happening at the moment with an attitude of acceptance (Rustandi & Gumilang, 2020) (Rustandi & Gumilang, 2020). By undergoing mindfulness training, individuals will learn to be more open and increase their curiosity, so that individuals will be more accepting of themselves as they are without any desire to judge or change them (Putri & Yudianto, 2021). This statement is strengthened by

research by Ulfa & Susanto (2023) which states that mindfulness is very effective in reducing anxiety levels.

Apart from mindfulness techniques, providing aromatherapy is also an alternative for reducing anxiety in patients undergoing chemotherapy (Gempur et al., 2022). Aromatherapy is the use of essential oils from plants to improve the mind, body, and spirit. It is used by cancer patients to improve quality of life and reduce stress, anxiety, pain, nausea, and vomiting caused by the effects of cancer and its treatment (Agustin et al., 2020). One of the most popular aromas is lavender because the main ingredients in lavender flowers are linalyl acetate and linalool (C<sub>10</sub>H<sub>18</sub>O). Linalool is the main active ingredient that plays a role in the anti-anxiety (relaxation) effects of lavender. This is supported by research conducted by Sitohang & Simanullang (2023) that lavender aromatherapy can reduce or relieve anxiety.

## **CONCLUSION**

Based on the discussion above, it can be concluded that cancer is a disease that is considered very frightening in society. Cervical cancer is the cancer that most commonly attacks women. Cancer cells multiply quickly in a sufferer's body, so treatment is needed to kill these cells with chemotherapy. As a result of experiencing anxiety during chemotherapy treatment, mindfulness and giving lavender aromatherapy can reduce anxiety in patients.

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