Lavender Aromatherapy and Distraction Effectively Reduce Anxiety of Chemotherapy Patients

Siti Estichoma[*], Nurul Mawaddah, Mujiadi
Undergraduate Nursing Study Program, STIKES Majapahit Mojokerto, Jl. Raya GayamanGayaman, Mojoanyar, Mojokerto, East Java 61364, Indonesia
*sitiestiqomah@gmail.com

ABSTRACT

Excessive anxiety in chemotherapy patients can affect the patient's motivation to carry out chemotherapy. Pharmacological therapy to reduce patient anxiety has many unwanted side effects. Therefore, non-pharmacological treatment is needed because it has few side effects, one of which is lavender aromatherapy. The purpose of this study was to determine the impact of giving aromatherapy in reducing the anxiety of chemotherapy patients at Lavalette Hospital. This type of research is quasi-experimental, with the pretest-postest control group design used in this study. The samples in this study were 30 chemotherapy patients at Lavalette Hospital at the time of the research. Data analysis used a paired T-test technique. Data analysis tests the average anxiety level in the intervention group, which was 16.60 with a standard deviation of 2.530, while for the control group, which used distraction techniques, the average was 19.80 with a standard deviation of 2.569. Statistical test results obtained a sig value (2tailed) of 0.002 (P <0.05). The results obtained are differences in anxiety reduction with distraction therapy and lavender aromatherapy therapy. The provision of lavender aromatherapy is more effective than the distraction technique, as evidenced by the difference in the average anxiety reduction of 1.1 points. It is expected that aromatherapy therapy can be applied to chemotherapy patients with anxiety.

Keywords: anxiety; chemotherapy; distraction; lavender aromatherapy

INTRODUCTION

Chemotherapy is the leading choice to treat cancer. Chemotherapy is done to kill cancer cells with anti-cancer drugs. Cancer and chemotherapy have physical and psychological impacts; the psychological impacts that cancer patients often feel are helplessness, anxiety, shame, decreased self-esteem, stress, and anger (Oetami, 2014). Excessive anxiety in chemotherapy patients can affect the patient's motivation to carry out chemotherapy, thus affecting the chemotherapy program (Lutfa, 2008). The side effects caused by undergoing chemotherapy make patients feel uncomfortable, afraid, anxious, lazy, and even frustrated or hopeless with the treatment they are undergoing (Ratna, 2019).

The 2018 Riskesdas illustrates that the majority of the population in Indonesia underwent cancer treatment with surgical methods, which amounted to 61.8%. Patients also choose other treatment methods, namely chemotherapy at 24.9% and irradiation at 17.3%, out of more than 15 million people who are expected to need chemotherapy by 2040 (Riskesdas, 2018). The number of cancer patients in East Java is 61,230 (KEMENKES RI, 2019). Based on the health profile of East Java in 2017, the number of patients undergoing chemotherapy treatment was 9,494 cervical cancer patients and 1,059 breast cancer patients (DINKES JATIM, 2017). All patients undergoing chemotherapy will experience anxiety; it is just that the level of anxiety felt by each person is different (Arman, 2013).

From the results of the author's preliminary study at Lavalette Hospital, data were obtained on 1711 patients undergoing chemotherapy in 2021, and based on the data in the medical record, almost all patients experienced feelings of anxiety when going through chemotherapy treatment in these two weeks the researcher conducted anamnesa using the HARS measuring instrument, 56 patients undergoing chemotherapy experienced anxiety from mild to moderate. The use of drugs to reduce patient anxiety has many undesirable side effects. Therefore, non-pharmacological therapy is needed because it has few side effects, one of which is lavender aromatherapy. Aromatherapy using lavender is believed to provide a relaxing effect for tense nerves and muscles (carminative) after tired activities; lavender has a relaxing and stimulating effect, so it is very well used as a soother for people who are anxious and stimulating for people who are depressed (Anisa, 2020).

METHOD

This type of research is Quasi Experimental, with the design used in this research is pretest-postest control group design. This study was conducted in the chemotherapy room of Lavalette Hospital Malang, the population in this study were patients undergoing chemotherapy at Lavalette Hospital with an average number of 120 patients every month. The sample in this study amounted to 30 chemotherapy patients at Lavalette Hospital at the time of the study with sampling using consecutive sampling technique. The measuring instrument in this study was a questionnaire sheet to measure the anxiety level of chemotherapy patients before and after the intervention. The anxiety questionnaire used in this study is HARS (Hamilton Anxiety Rating Scale), in the HARS questionnaire contains questions covering 14 items of question themes to assess a person's anxiety and the instrument used in applying aromatherapy is Lavender aromatherapy SOP. Data analysis in this study used paired T test technique.

RESULTS

Table 1.
General Data (n=30)

Data	f	%
Age		
21-30	4	13.3
31-40	8	26.7
41-50	7	23.3
51-60	7	23.3
>60	4	13.3
Gender		
Female	29	96.7
Male	1	3.3
Type of Cancer		
Ca Mamae	12	40.1
Ca Rectum	1	3.3
Ca Ovary	13	43.3
Ca Endometrium	4	13.3
Cancer Stage		
III	18	60.0
IV	12	40.0
Chemotherapy History		
1	1	3.3
2	6	20.0
3	9	30.0
4	7	23.3
5	7	23.3
Marriage Status		
Married	30	100
Single/Widower/Widow	-	

Table 2.
Normality Test Results (n=30)

Variable	Saphiro Wilk	
	Df	Sig
score pre test control	15	0,205
score post test control	15	0,538
score pre test intervention	15	0,110
score post test intervention	15	0,468

Table 2 shows the results of the normality test in the control group and intervention group.

Table 3.
Effect of Lavender Aromatherapy on Anxiety of Chemotherapy Patients (n=30)

		Mean	N	T hitung	*P*
Lavender Aromatherapy	Pre	21,33	15	8,787	0,000
	Post	16,60	15		

Table 3 states that based on the paired t test, the anxiety level was obtained before and after being given lavender aromatherapy.

Table 4.
Effect of Distraction on Anxiety of Chemotherapy Patients (n=30)

		Mean	N	T count	*P*
Distaction Technique	Pre	23,40	15	10,311	0,000
	Post	19,80	15		

Table 4 states that based on the paired t test, the anxiety level was obtained before and after being given lavender aromatherapy.

Table 5.
Difference in Anxiety Level of Chemotherapy Patients in Intervention Group and Control Group (n=30)

	N	Mean	Mean Difference	*SD*	*SE*	*P*
Lavender Aromatherapy	15	16,60	-3,200	2,530	0,653	0,002
Distaction Technique	15	19,80	-3,200	2,569	0,663	

Table 5 shows the average anxiety levels in the intervention and control groups.

DISCUSSION

The results of this study found that out of 30 people there were respondents the majority aged 31-40 years with a total of 8 people (26.7%), the most gender was female with a total of 29 people (96.7%), the characteristics of respondents based on the type of cancer were respondents with Ovarian cancer with a total of 13 people (43.3%), with the most cancer stage being stage III with a total of 18 people (60%), and showed that the most respondents with a history of chemotherapy were 3 times with a total of 9 people (30%) and all respondents were married with a total of 30 people (100%).

The normality test used is Saphiro-Wilk because the number of respondents is ≤50 people (Dahlan, 2012). The normality test results obtained for the control group before being observed were 0.205, and after being observed were 0.538; the intervention group, before being given the intervention, was 0.110, and after being observed was 0.468. This shows that the pretest data in the control and intervention groups are typically distributed (p>0.05), so hypothesis testing can use the paired t-test.

Anxiety Before and After Giving Aromatherapy

In this study, it was found that the anxiety level of respondents before giving aromatherapy was found that the average respondent experienced a moderate level of anxiety with a total of

10 respondents (66.6%). In contrast, after giving lavender aromatherapy intervention, it was found that the anxiety level decreased from moderate to mild with the number of respondents who experienced mild anxiety level 12 (80%). On average, the patient experienced a decrease in anxiety level of 4.73. The average of 15 respondents' anxiety scores before the intervention was 21.33. After the intervention, it decreased to 16.

According to the researcher's assumption, the decrease in anxiety levels in the intervention group occurred because the content contained in lavender aromatherapy smelled by respondents made respondents feel comfortable and calm; lavender aromatherapy contains linalyl acetate and linalool (C10H18O), which plays role in reducing the level of anxiety felt. This is in line with research conducted by Salsabilah (2020). Lavender containing camphor, terpinen- 4-ol, linalool, linalyl acetate, beta-ocimene, and 1, 8-cineole has proven to be effective as Complementary and Alternative Medicine analgesia, which can reduce labor anxiety levels, both applied by inhalation and massage, Lavender aromatherapy can be used to reduce labor anxiety levels.

The same results were obtained from research conducted by Mirazana (2021). The results of the study on anxiety before being given lavender aromatherapy averaged 22.47, and after being given lavender aromatherapy, averaged 18.33 with an average difference of 4.14; in the control group, the first examination averaged 22.60, and the second examination averaged 22.27 with an average difference of 0.33. There is a significant difference in the mean score of anxiety levels between the intervention group and the control group, with a significance level of 0.001 <0.05.

Anxiety Before and After Giving Distraction
Our study found that the majority of respondents experienced a decrease in anxiety levels after the distraction intervention. Before the intervention, the average respondent experienced a moderate level of anxiety, with 13 respondents (86.6%) falling into this category. However, after the intervention, the anxiety level decreased to mild, with 9 respondents (60%) reporting mild anxiety. On average, patients experienced a decrease in anxiety level of 3.6. The average patient anxiety score before the distraction was 23.40, which decreased to 19.80 after the intervention.

According to the researcher's assumption, the decrease in anxiety levels occurs because the shift in respondents' focus on other things makes the level of anxiety felt to be reduced. This is in line with research conducted by Abidin et al. (2019), research conducted on 40 respondents, who found that distraction by watching movies is effective in reducing anxiety; this is because the distraction of watching movies makes the right and left brain at the same time using both equally, the patient becomes focused and anxiety decreases. The distraction technique given in this study is watching TV; this technique diverts a person's attention to the object of the movie that is liked and age-appropriate so that the level of anxiety felt can be diverted. It can be concluded that the provision of distraction techniques by watching TV influences reducing the patient's anxiety level.

The Effect of Lavender Aromatherapy on Anxiety in Chemotherapy Patients
The results of the paired t-test analysis showed that the level of anxiety in the intervention group and the control group decreased after being given treatment. In the intervention group given lavender aromatherapy, the average decrease was 4.73 with a significance of 0.002 <0.05, so it can be said that there is a significant difference in the lavender aromatherapy method in reducing anxiety levels. In the control group, the results showed an average decrease of 3.6 with a significance of 0.002 <0.05, so it can be said that there is a significant difference in the distraction method in reducing anxiety levels.

In the results of the study, both interventions, lavender aromatherapy and distraction, showed a decrease in anxiety experienced by respondents, but the decrease in anxiety levels experienced by patients in the intervention group experienced a higher average decrease when compared to the control group, namely a decrease of 4.73 compared to 3.6 in the control group. According to the researcher's assumption, this occurs because the aromatherapy content creates a calming effect and a sense of comfort. In addition, inhalation makes the nose have direct contact with the parts of the brain that are responsible for stimulating the effects caused by aromatherapy.

Main Findings: Lavender Aroma Therapy Reduces Anxiety in Chemotherapy Patients
The results of the paired t-test analysis showed that the anxiety level in the intervention group and the control group decreased after treatment. In the intervention group given lavender aromatherapy, the average decrease was 4.73 with a significance of $0.002 < 0.05$, indicating a significant difference in the lavender aromatherapy method in reducing anxiety levels. This finding provides valuable insight into the potential benefits of aromatherapy. In the control group, the average decrease was 3.6, with a significance of $0.002 < 0.05$, indicating a significant difference in the distraction method in reducing anxiety levels.

In the results of the study, it was found that both lavender aromatherapy and distraction interventions showed a decrease in anxiety experienced by respondents. Still, the reduction in anxiety levels experienced by the intervention group experienced a higher average decrease compared to the control group, namely a reduction of 4.73 compared to 3.6 in the control group. According to the researcher's assumption, this occurs because of the aromatherapy content that creates a calm effect and a sense of comfort. In addition, inhalation gives the nose direct contact with parts of the brain, stimulating aromatherapy's impact.

This is in line with the explanation in the journal by Ratnadila (2018). Aromatherapy's mechanism of action in the body occurs through two physiological systems, namely the body's circulation system and the olfactory system. Odor is a molecule that quickly evaporates into the air and enters the nasal cavity through inhalation so that the brain will record it as an olfactory process. The olfactory process is divided into three levels, starting with the reception of odor molecules in the olfactory epithelium, a receptor containing 20 million nerve endings. Then, the smell will be transmitted as a message to the olfactory center located at the back of the nose. At this place, neurons interpret the odor and deliver it to the limbic system. The limbic system is the center of pain, pleasure, anger, fear, depression, and various other emotions. Then, the response is sent to the hypothalamus for processing. Through the delivery of reactions by the hypothalamus, the entire essential oil system will be delivered by the circulation system and chemical agents to the body's organs. Physiologically, the content of therapeutic elements of aromatic ingredients will correct the imbalance in the body system. Odors that cause a sense of calm stimulate the brain region called the nucleus Rafe to release serotonin secretion.

Effectiveness of Lavender Aromatherapy and Distraction Techniques on Anxiety of Chemotherapy Patients
Based on the data analysis of the Independent t-test using 25 software, the average anxiety level in the intervention group was 16.60, while in the control group, the distraction technique was 19.80. This shows a difference in anxiety levels, where the level of anxiety in patients given aromatherapy therapy intervention is lower than the control group with a comparison of 3.20. Based on data analysis, a significance value of 0.002 was obtained, which means that the p-value < 0.05, meaning that H1 is accepted, so the hypothesis taken is that aromatherapy has an effect on the anxiety of chemotherapy patients compared to distraction.

This research is in line with research conducted by Annisa (2020). Based on the study results, lavender aromatherapy effectively reduced anxiety when inhalation and massage were applied. Lavender contains camphor, terpinene-4-ol, linalool, linalyl acetate, and beta octane; studies of linalool and linalyl acetate contained in lavender can stimulate parasympathetic nerves, linalyl has a narcotic effect, and linalool acts as a sedative (Ali et al., 2015).

Relaxation is one way to overcome anxiety or stress by relaxing the muscles and nerves. Relaxation can improve general health by accelerating the body's metabolic processes and reducing levels of aggression and destructive behaviors resulting from stress. Researchers concluded that the intervention group experienced a decrease in anxiety levels after being given lavender aromatherapy; there was a significant difference in the difference in anxiety levels between the intervention group and the control group, where the intervention group experienced a better decrease in anxiety levels than the control group, this is because the content of lavender aromatherapy can provide a relaxing effect for tense nerves and muscles.

CONCLUSION
Based on the results of research on the Effectiveness of Aromatherapy and Distraction on the Anxiety of Chemotherapy Patients at Lavalette Hospital, it can be concluded that lavender aromatherapy interventions are more effective than distraction techniques, as evidenced by the difference in reducing anxiety by an average of 1.1 points.

REFERENCES
Oetami, F. (2014). *Analisis Dampak Psikologis Pengobatan Kanker Payudara di RS.Dr.Wahidin Sudirohusodo Makasar.*

American Cancer Society. (2015). A Guide to Chemotherapy. American Cancer Society .

NCI (2015). Tumor Markers Fact Sheet. National Cancer Institute U.S Department of Health and Human Services.

Lutfa, U., Maliya, A. (2008). Faktor-faktor yang mempengaruhi kecemasan pasien dalam tindakan kemoterapi di rumah sakit Dr. Moewardi Surakarta. (Skripsi thesis Universitas Muhammadiyah Surakarta, 2008).

Riset Kesehatan Dasar (Riskesdas) (2018). Badan Penelitian dan Pengembangan Kesehatan Kementerian RI tahun 2018.

Kemenkes RI. (2019). Buletin Jendela Data dan Informasi Kesehatan ; Situasi Penyakit Kanker. 1–2. diakses pada tanggal 25 Maret 2020