

# The Effect of Inhalation Aromatherapy on the Anxiety of Hemodialysis Patients at RSU Imelda Pekerja Indonesia Medan in 2023

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## ABSTRACT

According to KDIGO (2012) people with chronic kidney disease need hemodialysis therapy. Hemodialysis is the process of exchanging solutes and waste products of the body. The waste substances that accumulate in chronic kidney disease patients are withdrawn by the passive diffusion mechanism of semipermeable membranes. From the results of the analysis that has been carried out at RSU Imelda Pekerja Indonesia on patients undergoing hemodialysis, it was found that 7 out of 22 people undergoing hemodialysis experienced anxiety when they were about to start the hemodialysis process with signs of feeling tense, heart palpitations, nausea and anxiety about side effects during the hemodialysis process. One non-pharmacological therapy is complementary therapy that can be used to reduce some of the complications of hemodialysis such as anxiety, fatigue, pain, sleep quality, stress, and headaches, namely aromatherapy. The purpose of the study was to determine the effect of inhalation aromatherapy on the anxiety of patients undergoing hemodialysis at RSU Imelda Pekerja Indonesia Medan in 2023. This study used quantitative methods. This type of study is pre-experimental with a one-group pretest-posttest design. The study population was 104 people, the study sample was 43 with purposive sampling. Bivariate test with wicoxon test. The results of the study The anxiety level of hemodialysis patients before giving aromatherapy had a mild anxiety level (40-59) as many as 21 people (48.8%), followed by hemodialysis patients with moderate anxiety levels (60-74) as many as 16 people (37.2%), followed by severe anxiety (75-80) as many as 6 people (14.0%). The anxiety level of hemodialysis patients after aromatherapy administration had mild anxiety levels (40-59) as many as 22 people (51.2%), followed by hemodialysis patients with moderate anxiety levels (60-74) as many as 13 people (30.2%), followed by no anxiety (20-39) as many as 5 people (11.6%) and severe anxiety (75-80) as many as 3 people (7.0%). The results of the Wilcoxon test, it was found that there was an effect of inhalation aromatherapy with a decrease in anxiety in hemodialysis patients with sig values.  $0.000 < 0.05$ .

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## INTRODUCTION

A steady decline in kidney function over months or years is known as chronic kidney disease (CKD). Glomerular filtration rate (GFR) of less than  $60\text{mL}/\text{min}/1.73\text{ m}^2$  for at least three months is considered a chronic disease. CKD in today's world is on the rise and is becoming a serious health problem. *The United States Renal Data System (USRDS)* noted that globally there was an increase in CKD Prevalence reaching 726,331 in 2020. Indonesia is a country with a fairly high rate of chronic kidney disease. In 2018, according to a doctor's diagnosis 3.8 per million Indonesians suffer from chronic kidney disease, this is one of the high prevalence rates of chronic kidney disease in Indonesia. A survey by the Indonesian Nephrology Association (Pernefri) showed that there had been a decrease in kidney function with persistent proteinuria or a decrease in glomerular filtration rate (GFR) in 245 cases.

In North Sumatra alone in 2018, the number of new patients was 4076 people undergoing hemodialysis so that it occupies the second position after West Java as many as 14,796 people (Pernefri, 2018). According to reports and medical record data at RSU Imelda Pekerja Indonesia Medan, the number of patients undergoing hemodialysis treatment increased from 85% in 2018 to 100% in 2021, with an average of 35% seeking treatment every day and visits twice a week by doing ohemodialysis lasting five hours. Hemodialysis is the process of exchanging solutes and waste products of the body. The waste substances that accumulate in chronic kidney disease patients are withdrawn by the passive diffusion mechanism of semipermeable membranes. The movement of metabolic waste products takes place following a decrease in the concentration gradient from circulation into the dialysate. With this method, it is hoped that albumin secretion that occurs in patients with chronic kidney disease can be reduced, uremia symptoms are reduced so that the patient's clinical picture can improve.

Anxiety is a persistent feeling of anxiety, unpleasantness, worry and ambiguous feelings along with physical symptoms such as sweating, headaches, restlessness, and heart palpitations that are responses to unexpected threats, responses that include physiological, affective, and cognitive changes. In line with the emotional aspect of anxiety disorders. When patients are anxious, they will have difficulty concentrating and feel a sense of distraction that negatively affects work and relationships with others

One way to reduce anxiety is to use non-pharmacological therapy. This therapy is useful for reducing the anxiety of patients who will undergo hemodialysis therapy. One of the non-pharmacological therapies that can be used is complementary therapy, namely *Complementary and Alternative Medicine* (CAM) (Lin & Cheifetz, 2018). One type of CAM therapy that is being popularly used in the health sector is aromatherapy. This is in accordance with research by Bouya, et al (2018) that aromatherapy can reduce some complications of hemodialysis such as anxiety, fatigue, pain, sleep quality, stress, and headaches.

According to research by Dewi Komang Ayu (2013), there is an effect of giving inhaled aromatherapy on reducing the anxiety level of chronic kidney disease patients undergoing hemodialysis at Wangaya Hospital Denpasar where aroma therapy compounds through inhalation will directly affect the central nervous system and affect the balance of the cerebral cortex and nerves found in the brain.

According to research by Ilali et al (2020), multisensory stimulation interventions and aromatherapy interventions with lavender essence are effective in reducing anxiety and depression in older adults undergoing hemodialysis where from the results significant differences were found in each group in terms of anxiety and depression reduction over various measurement times ( $P < 0.001$ ) where there was a significant difference between the two groups in terms of depression one week after the end intervention ( $P = 0.03$ ).

According to research conducted by Ainur Rahmanti, et al (2023), after giving lavender aromatherapy for 30 minutes, researchers waited 15 minutes for reassessment. The results obtained anxiety scores in subject I dropped to 19 (mild anxiety) and subject II dropped to 17 (mild anxiety). Based on the results of an analysis conducted at the hemodialysis unit of RSU Imelda Pekerja Indonesia on March 13-March 18, 2023 conducted by researchers by conducting interviews with patients undergoing hemodialysis, it was found that 7 out of 22 people undergoing hemodialysis experienced anxiety when starting the hemodialysis process with signs of feeling tense, heart palpitations, nausea and anxiety about side effects during the hemodialysis process.

Research on the provision of aromatherapy to the happiness of patients undergoing hemodialysis has been widely conducted, but to determine the effect of giving inhaled aromatherapy on the anxiety of patients undergoing hemodialysis, especially in the North Sumatra area, researchers have not obtained.

### METHOD

This study used quantitative methods. This type of study is pre-experimental with a one-group pretest-posttest design that uses only one group of subjects, measurements are carried out before and after treatment. The difference between the two measurement results is considered as the effect of treatment (Saryono, 2010). The population in this study was 104 people, the sample in this study was 43 people with a purposive sampling approach. The results of statistical test analysis using bivariate analysis test with wicoxon test where the results show there is an effect of inhalation aromatherapy with decreased anxiety in hemodialysis patients with sig values.  $0.000 < 0.05$ .

### RESULTS AND DISCUSSION

#### Characteristics of Hemodialysis Patients Undergoing Hemodialysis at RSU Imelda Pekerja Indonesia in 2023

**Table 1.** Frequency Distribution of Respondent Characteristics

Data	n	%
<b>Age</b>		
Early Adult (26-35 Years)	2	4,7
Late Adult (36-45 Years)	11	25,6
Early Elderly (46-55 years)	20	46,5
Late Elderly (56-65 Years)	10	23,3
<b>Total</b>	<b>43</b>	<b>100</b>
<b>Gender</b>		
Man	26	60,5
Woman	17	39,5
<b>Total</b>	<b>43</b>	<b>100</b>
<b>Long Hemodialysis</b>		
< 1 Year	1	2,3
1-3 Years	24	55,8
> 3 Years	18	41,9
<b>Total</b>	<b>43</b>	<b>100</b>

Based on the table above, it was found that the majority of patients on hemodialysis aged 46-55 years (Early Elderly) as many as 20 people (46.5%), followed by 36-45 years old (late adult) as many as 11 people (25.6%), 56-65 years old (late elderly) as many as 10 people (23.3%) and 26-35 years old (early adult) as many as 2 people (4.7%). Based on gender, the majority of hemodialysis patients were male as many as 26 people (60.5%), followed by female sex as many as 17 people (39.5%). Based on the length of hemodialysis, the majority of hemodialysis patients for 1-3 years were 24 people (55.8%), followed by hemodialysis patients >3 years as many as 18 people (41.9%) and followed by hemodialysis patients <1 year as many as 1 person (2.3%).

#### Anxiety of Hemodialysis Patients Before Giving Aromatherapy Inhalation Undergoing hemodialysis at RSU Imelda Pekerja Indonesia Medan in 2023

**Table 2.** Frequency Distribution of Anxiety of Hemodialysis Patients Before Administration of Inhaled Aromatherapy Undergoing Hemodialysis

Data	n	%
<b>Pre Test Anxiety</b>		

40-59 (Mild Anxiety)	21	48,8
60-74 (Moderate Anxiety)	16	37,2
75-80 (Severe Anxiety)	6	14,0
<b>Total</b>	<b>43</b>	<b>100</b>

Based on table 2, it was found that the majority of hemodialysis patients before aromatherapy had mild anxiety levels (40-59) as many as 21 people (48.8%), followed by hemodialysis patients with moderate anxiety levels (60-74) as many as 16 people (37.2%), followed by severe anxiety (75-80) as many as 6 people (14.0%).

### Anxiety of Hemodialysis Patients After Giving Aromatherapy Inhalation Undergoing iohemodialysiso at RSU Imelda Pekerja Indonesia Medan in 2023

**Table 3.** Frequency Distribution of Anxiety of Hemodialysis Patients After Aromatherapy Inhalation Undergoing Hemodialysis

Data	n	%
<b>Post Test Anxiety</b>		
20-39 (Normal/Not Anxious)	5	11,6
40-59 (Mild Anxiety)	22	51,2
60-74 (Moderate Anxiety)	13	30,2
75-80 (Severe Anxiety)	3	7,0
<b>Total</b>	<b>43</b>	<b>100</b>

Based on table 3, it was found that the majority of hemodialysis patients after aromatherapy administration had mild anxiety levels (40-59) as many as 22 people (51.2%), followed by hemodialysis patients with moderate anxiety levels (60-74) as many as 13 people (30.2%), followed by no anxiety (20-39) as many as 5 people (11.6%) and severe anxiety (75-80) as many as 3 people (7.0%).

### Differences in Anxiety of Hemodialysis Patients Before and After Giving Aromatherapy Inhalation Undergoing iohemodialysiso at RSU Imelda Pekerja Indonesia Medan in 2023

**Table 4.** Anxiety of Hemodialysis Patients Before and After Aromatherapy Inhalation Undergo Hemodialysis

		<b>Ranks</b>		
		N	Mean Rank	Sum of Ranks
Post Test Anxiety - Pre Test Anxiety	Negative Ranks	13 <sup>a</sup>	7.00	91.00
	Positive Ranks	0 <sup>b</sup>	.00	.00
	Ties	30 <sup>c</sup>		
	Total	43		

- a. Post Test Anxiety < Pre Test Anxiety
- b. Post Test Anxiety > Pre Test Anxiety
- c. Post Test Anxiety = Pre Test Anxiety

**Table 5. Uji Wilcoxon**

<b>Improvement of breath patterns - ACBT</b>	
Z	-3.500 <sup>b</sup>
Asymp. Sig. (2-tailed)	.000

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- a. Based on positive ranks
  - b. Wilcoxon Signed Ranks
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Based on table 4. It was found that

- a. Negative Ranks: there is a reduction or decrease in anxiety from pretest scores to posttest scores.
- b. Positive Ranks there is no increase in anxiety from pretest scores to posttest scores.
- c. Ties there is the same value between pretest and posttest.

Based on the results of the Wilcoxon test, it was found that there was an effect of inhalation aromatherapy with a decrease in anxiety in hemodialysis patients with sig values.  $0.000 < 0.05$ .

### Discussion

From the results of the study, it was found that the anxiety level of hemodialysis patients before giving aromatherapy had a mild anxiety level (40-59) as many as 21 people (48.8%), followed by hemodialysis patients with moderate anxiety levels (60-74) as many as 16 people (37.2%), followed by severe anxiety (75-80) as many as 6 people (14.0%). The anxiety level of hemodialysis patients after aromatherapy administration had mild anxiety levels (40-59) as many as 22 people (51.2%), followed by hemodialysis patients with moderate anxiety levels (60-74) as many as 13 people (30.2%), followed by no anxiety (20-39) as many as 5 people (11.6%) and severe anxiety (75-80) as many as 3 people (7.0%). The results of the Wilcoxon test, it was found that there was an effect of inhalation aromatherapy with a decrease in anxiety in hemodialysis patients with sig values.  $0.000 < 0.05$ .

In line with the results of Manalu's research, (2019) obtained the average value of anxiety before giving inhaled aromatherapy to patients with chronic kidney disease, namely with an average value of 37.15 with a standard deviation of 5,942 and an average value after giving inhaled aromatherapy of 19.08 with a standard deviation of 2,875. The difference in the average value of anxiety before and after inhalation aromatherapy in patients with chronic kidney disease with an average value of 28,115 with a standard deviation of 4.4085 shows that the difference in the average value between measurements before and after 18,000 with a standard deviation of 4,163. Based on the results of statistical tests, a p value = 0.001 is obtained where the p value is smaller than the  $\alpha$  value = 0.05, it can be concluded that the hypothesis is accepted, namely that there is an effect of inhaled aromatherapy on reducing anxiety values in chronic kidney disease patients undergoing hemodialysis.

### CONCLUSION

Based on the results of the study, it can be concluded that from the results of the Wilcoxon test conducted, it was found that there was an effect of giving inhaled aromatherapy with a decrease in anxiety in hemodialysis patients with a value of sig.  $0.000 < 0.05$ .

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