

## Overcoming Anxiety in Chronic Kidney Failure Patients Undergoing Hemodialysis with Finger Relaxation Therapy and Lemon Aromatherapy

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### Abstract

*Chronic renal failure is a decrease in kidney function characterized by a decrease in the glomerular filtration rate (less than 60 mL/min). Anxiety is a common symptom in patients with chronic renal failure undergoing hemodialysis, which can affect the quality of the patient both physically and psychologically. The finger-holding relaxation technique is a simple relaxation technique related to the fingers and the flow of energy in the body. Lemon aromatherapy is a type of aromatherapy that contains chemical compounds that have antidepressant properties, as well as mild sedatives. This research aims to determine and analyze nursing care for patients with chronic renal failure undergoing hemodialysis with anxiety nursing problems before and after using the finger-holding relaxation technique and lemon aromatherapy. The research design used is an applied research design. The subjects in this study were 18 respondents who were in accordance with the results of the HARS scale questionnaire measurements. The intervention was carried out twice, before and one hour after the patient underwent hemodialysis for 15 minutes. The results of the study before the application of finger-holding relaxation therapy and lemon aromatherapy in the hemodialysis room on 18 respondents showed the results of 6 respondents with severe anxiety (33.3%), 8 respondents with moderate anxiety (44.5%) and 4 respondents with mild anxiety (22.2%). The results of the study after the application of finger-holding relaxation therapy and lemon aromatherapy in the hemodialysis room showed the results of a score of 5 respondents with moderate anxiety (27.7%), 9 respondents with mild anxiety (50%), 4 no anxiety (22.3%). The conclusion of this study is that finger-holding relaxation therapy and lemon aromatherapy have been proven to reduce anxiety levels because the benefits of finger-holding relaxation therapy and lemon aromatherapy are in line with aspects that can affect anxiety.*

**Keywords:**Chronic Kidney Failure, Anxiety, Finger-Holding Relaxation Therapy, Lemon Aromatherapy

### Introduction

Chronic kidney failure is a progressive and irreversible disease, caused by various things or causes. Chronic kidney failure can be confirmed if kidney damage has been present for more than 3 months in the form of structural or functional abnormalities with or without a decrease in the glomerular filtration rate, or can also be confirmed by a decrease in the glomerular filtration rate of less than 60 ml/minute for more than 3 months. Based on its degree, this disease is divided into 5 stages or levels ranging from stage 1 to 5 where in the final stage or stage 5 dialysis/hemodialysis is required<sup>1</sup>.

According to the World Health Organization (2020), the incidence of kidney failure worldwide has increased from 13th cause of death to 10th. The death rate increased from 813,000 in 2000 to 1.3 million in 2020. The number of kidney failure cases in Indonesia is quite high. Based on data from the 2018 Basic Health Research, the number of chronic kidney failure patients in Indonesia was 713,783 with the highest number in West Java with 131,846 patients and the lowest number in North Kalimantan with 1,838 patients. Meanwhile, in Lampung Province, the incidence of chronic kidney failure was 22,171 patients<sup>2</sup>. Data from Bandar Lampung City, especially at the Bhayangkara Hospital of the Lampung Police, showed that there were 7,298 hemodialysis procedures from January to December 2023. In December 2023, there were 743 hemodialysis procedures with 6 patients dying and 91 active patients undergoing hemodialysis.

Chronic kidney failure causes the body to fail to maintain normal metabolism and fluid and electrolyte balance. If this kidney dysfunction is not treated immediately, it will potentially cause further kidney damage which can lead to death. One of the treatments that can be done to minimize the risk of causing further kidney damage is hemodialysis<sup>3</sup>. Hemodialysis is a kidney replacement therapy in patients with kidney failure which aims to remove toxic residues, excess fluid and to correct electrolyte imbalances with the principles of osmosis and diffusion using external and internal dialysis systems<sup>4</sup>.

The physiological impacts often experienced by hemodialysis patients are excess fluid which is the main problem experienced by patients due to decreased kidney filtration, decreased urine output and changes in kidney function which automatically disrupt their basic needs such as impaired oxygenation characterized by complaints of shortness of breath, coughing, pale skin, anemia, increased blood pressure which occurs due to fluid accumulation in the lungs, increased heart load, disorders of angiotensin or decreased erythropoiesis<sup>5</sup>. The psychological impacts often experienced by hemodialysis patients include tension, depression, stress and anxiety which vary in each individual which will have a negative impact on their quality of life and health<sup>6</sup>.

Anxiety experienced by chronic kidney failure patients undergoing hemodialysis can be caused by various stressors, such as the experience of pain in the fistula puncture area when starting hemodialysis, dependence on others, difficulty in maintaining employment, financial, death

threats, changes in self-concept, changes in roles and changes in social interactions<sup>7</sup>. Another causal factor is the patient's dependence on the dialysis machine throughout his life will cause the patient to be required to be able to adjust themselves, this condition can cause feelings of depression and discomfort and can even lead to stress characterized by feelings of disappointment, refusing to change in themselves, and giving low assessments of their abilities, patients have a tendency to experience depression, such as feelings of worthlessness, preferring to be silent and feeling helpless<sup>8</sup>.

In patients who have just undergone hemodialysis, the average level of anxiety obtained is that patients feel hopeless and cannot recover as before. After continuous therapy, patients begin to adapt well and anxiety levels begin to be moderate and mild. The level of anxiety is influenced by how patients undergo hemodialysis<sup>9</sup>. Anxiety can be overcome by using pharmacological and non-pharmacological therapy. Pharmacological therapy that can be used to overcome generalized anxiety disorder is benzodiazepine drugs. Administration of benzodiazepine drugs is carried out gradually starting with the lowest dose and increasing periodically as needed. The benzodiazepine group of choice is a fast-acting drug with a medium half-life with divided doses. This is done to prevent side effects, dependence and withdrawal effects<sup>10</sup>.

To reduce the use of anti-anxiety drugs that are often used to treat anxiety, non-pharmacological therapy can be used. One of the non-pharmacological therapies that can be used is complementary therapy, namely Complementary and Alternative Medicine (CAM)<sup>11</sup>. One type of CAM therapy that is currently popular in the health sector is aromatherapy. Aromatherapy can reduce several complications of hemodialysis such as anxiety, fatigue, pain, sleep quality, stress, and headaches<sup>12</sup>. Lemon aromatherapy is included in the category of non-invasive complementary therapy that contains linalool which is useful for stabilizing nerves so that it does not cause side effects for anyone who inhales it<sup>13</sup>.

Other non-pharmacological therapies that can be used include relaxation. The finger hold relaxation technique is a technique that is easy for anyone to use. This technique is related to the fingers and the flow of energy in the body<sup>14</sup>. The finger hold relaxation technique is carried out by holding the fingers one by one using the palm of the other hand, while the patient is given

suggestions about feelings of anxiety or fear about the pain. The patient is also asked to close their eyes, focus on taking a slow breath through the nose and exhaling through the mouth. And can be more relaxed by imagining that the patient is around the family and is sure that the pain will go away<sup>15</sup>.

## **Methods**

The study used a quantitative research type with the design used in this study is a type of applied research method or called applied research. In this design before the treatment is given, the sample is first given a pretest (initial test) and after the experiment the sample is given a posttest (final test). This design is used in accordance with the objectives to be achieved, namely the application of finger-holding relaxation therapy and lemon aromatherapy to nursing problems of anxiety in chronic kidney failure patients undergoing hemodialysis at the Bhayangkara Hospital, Lampung Police. Pretest and Posttest were conducted using the HARS (Hamilton Anxiety Rating Scale) questionnaire.

## **Location and Time**

Locations used in the application of finger-held relaxation listening therapy and lemon aromatherapy on anxiety in chronic kidney failure patients. Undergoing hemodialysis at the Bhayangkara Hospital in Lampung. This study was conducted during 2 meetings with each respondent with a total of 18 respondents, from June 7, 2024 to June 12, 2024

**Results**

**Table 1**  
**Respondent Characteristics**

Characteristics	Amount	Percentage
<b>Age</b>		
Early Adulthood (20-4-Tahun)	3	17
Middle Adulthood (41-60 tahun)	10	55
Late Elderly (>60 tahun)	5	28
<b>Gender</b>		
Male	7	39
Female	11	61
<b>Education Level</b>		
SD	3	17
SMP	6	33
SMA	7	39
High School	2	11
<b>Occupation</b>		
Working	9	50
Not Working	9	50
<b>Length of Hemodialysis</b>		
< 6 Months	6	33
> 6 Months	12	67
<b>Concomitant Diseases</b>		
Diabetes Mellitus	6	33
Hypertension	12	67

**Table 2**

**Results of measuring anxiety levels before applying finger-holding relaxation therapy and lemon aromatherapy (n=18)**

No	Category	Amount	Percentage
1	Anxiety Heavy	6	33,3
2	Anxiety Currently	8	44,5
3	Anxiety Light	4	22,2
	Total	18	100

Based on table 2, the results of the anxiety level using the HARS (Hamilton Anxiety Rating Scale) are explained. At the first meeting on June 7 and 8, 2024 and the second meeting on June 11 and 12, 2024, a pre-test was conducted on 18 respondents before the implementation of finger-holding relaxation therapy and lemon aromatherapy at the Bhayangkara Hospital, Lampung Police, the

results showed that 6 respondents experienced severe anxiety (33.3%), 8 respondents were moderate (44.5%) and 4 respondents with mild anxiety (22.2%).

**Table 3**

**Results of measuring anxiety levels after applying finger-holding relaxation therapy and lemon aromatherapy one hour after hemodialysis (n=18)**

No	Category	Amount	Percentage
1	Anxiety Currently	5	27,7
2	Anxiety Light	9	50
3	No Anxiety	4	22,3
Total		18	100

Based on table 3, the results of the anxiety level using the HARS (Hamilton Anxiety Rating Scale) are explained, at the first meeting on June 7 and 8, 2024 and the second meeting on June 11-12, a post-test was conducted on 18 respondents which was carried out one hour after Hemodialysis after being given the application of finger-holding relaxation therapy and lemon aromatherapy at the Bhayangkara Hospital, Lampung Police, at the first and second meetings, 5 respondents were found with moderate anxiety (27.7%), 9 respondents with mild anxiety (50%), 4 had no anxiety (22.3%).

### **Discussion**

In this study, age did not affect a person's anxiety level, this was because the Hemodialysis procedure itself, plus psychosocial problems were stressors for patients. In line with<sup>16</sup>, it was stated that individual maturity or maturity would affect a person's coping mechanism ability so that more mature individuals find it difficult to experience anxiety because individuals have better adaptation abilities to anxiety compared to immature ages.

In this study, it was found that patients who experienced anxiety from severe to mild were more female, namely 11 patients (61%) and 7 male patients (39%). In line with the research of Gerogianni et al., (2017) found that women have higher levels of anxiety (26.3%) than men (11.8%). This finding is also supported by the research of<sup>17</sup> which investigated anxiety and depression in the hemodialysis population more often in women. In addition, the high level of anxiety in women can be seen in the context that they have responsibilities in different social roles, such as being a mother,

wife, and having a job at the same time<sup>18</sup>.

This study shows that the range of respondents' education is at elementary school-college level, dominated by high school graduates, namely 39%, junior high school 33%, elementary school 17% and college 11%. In line with research by <sup>19</sup> which explains that there is no difference in anxiety between patients with a higher education background and a lower education background because anxiety can also be caused by a lack of information obtained.

The number of respondents who worked was 50% and did not work 50%. These results are in line with the statement of Alfikrie et al., (2020) that age, marital status and employment were not related to the anxiety of patients undergoing hemodialysis. The same study also showed that patients who worked did not affect patient anxiety. Duration of Hemodialysis In this study, data was obtained on the length of time patients had undergone hemodialysis, namely 6 patients underwent hemodialysis <6 months (33%), 12 patients >6 months (67%). 6 patients who experienced severe anxiety had undergone hemodialysis <6 months. 6 respondents who had undergone hemodialysis <6 months, 5 of them experienced severe anxiety and 1 respondent experienced moderate anxiety. The other 12 respondents who had undergone hemodialysis >6 months, 1 respondent experienced severe anxiety, 7 respondents experienced moderate anxiety and 4 respondents experienced mild anxiety. In line with research by Alfikrie et al., (2020), it was explained that patients who underwent HD for less than 6 months had higher levels of anxiety compared to patients who underwent HD for more than 6 months. Anxiety can be caused because the patient has not adapted to the disease<sup>19</sup>.

Based on the results of the study on the application of finger-holding relaxation and lemon aromatherapy in chronic kidney failure (CKF) patients with anxiety problems in the hemodialysis room of the Bhayangkara Hospital, Lampung Police, which was conducted on June 7-12, 2024 for 1 week in two meetings by measuring the level of anxiety before the finger-holding relaxation therapy and lemon aromatherapy were carried out. The results of the study at the first meeting on June 7-8, 2024 and the second meeting on June 11-12, 2024, a pre-test was conducted from 18 respondents which was carried out before the application of finger-holding relaxation therapy and lemon aromatherapy at the Bhayangkara Hospital, Lampung Police, the results showed that 6 respondents experienced severe anxiety (33.3%), 8 respondents were moderate (44.5%) and 4

respondents with mild anxiety (22.2%).

The results of the pre-test conducted at the first and second meetings showed that 6 respondents (33.3%) experienced severe anxiety. Before being given therapy, the patient with the highest anxiety score was Mrs. V, 24 years old, with a score of 33.5 (severe category). Respondents who experienced severe anxiety found that on average respondents who experienced severe anxiety said that there was a lack of social support from their family or closest people. In line with the research of Al Husna et al. (2019), explaining that hemodialysis patients need social/family support that is felt to be very diverse, it can be in the form of support when they drop off during treatment, someone who accompanies or accompanies hemodialysis, getting financial assistance from partners, parents, siblings, children, or other people, free hemodialysis costs by BPJS, getting motivation from others, and getting trust and appreciation from the community. Thus, it can be said that the more hemodialysis patients get social support, the lighter their anxiety will be. This proves that social support can also affect the anxiety of hemodialysis patients<sup>20</sup>.

Respondents who experience severe anxiety are also caused by several other stressors such as pain experiences in the fistula puncture area and the threat of death<sup>7</sup>. The majority of respondents from severe to mild anxiety levels answered questionnaires no. 2,4,5,6,12, where this questionnaire shows symptoms ranging from, weak, lethargic, lack of enthusiasm, looks tense, difficulty sleeping, lack of concentration, dizziness and frequent urination. In line with the research of Tangian et al., (2015), explaining that in general patients with chronic diseases such as chronic kidney disease will show emotions that are tense, sad, suffering, weak, lack of enthusiasm, frequent urination and so on. However, there are some patients who actually show emotions that are relaxed, calm, do not think too much, are not sad or laugh and smile easily, and so on<sup>21</sup>.

After the administration of finger grip relaxation therapy and lemon aromatherapy, there was a decrease in anxiety symptoms including improved concentration, decreased dizziness, decreased restlessness, decreased tension, improved eye contact and decreased worry about the conditions faced. In line with research<sup>15</sup> which explains that thumb grip is useful for reducing worry, additional benefits for depression, hatred, obsession, anxiety. The index finger grip aims to reduce fear, can help with depression, frustration, digestive problems, elimination, and discomfort. The

middle finger grip generally functions to overcome anger, and additional benefits to reduce irritability, instability, general fatigue. The ring finger grip generally functions to overcome sadness, additional functions to overcome negative feelings, respiratory comfort and ear discomfort. Meanwhile, the little finger grip has benefits to reduce discomfort, relaxation and digestive disorders<sup>22,23</sup>.

On the other hand, according to<sup>13</sup>, aromatherapy is a healing method using very concentrated essential oils that are often very fragrant and taken from plant extracts. Lemon aromatherapy oil extract is taken from the fruit. The effect can be clearing and stimulating which can reduce stress. According to Setyoadi and Kushariyadi (2011), the benefits of aromatherapy include overcoming insomnia and depression, relieving anxiety, reducing feelings of tension, improving health and well-being of the body, mind and soul, maintaining stability or balance of the system in the body to be healthy and attractive, is a holistic treatment to balance all body functions<sup>22,24</sup>.

## **Conclusion**

Based on the results of the study and discussion, it can be concluded that before the application of finger-holding relaxation therapy and lemon aromatherapy was given to chronic kidney failure patients undergoing hemodialysis with anxiety nursing problems at the Bhayangkara Hospital, Lampung Police, the results showed that 6 respondents experienced severe anxiety (33.3%), 8 respondents were moderate (44.5%) and 4 respondents with mild anxiety (22.2%). After the application of finger-holding relaxation therapy and lemon aromatherapy to chronic kidney failure patients undergoing hemodialysis with anxiety nursing problems at the Bhayangkara Hospital, the results showed that 5 respondents had moderate anxiety (27.7%), 9 respondents had mild anxiety (50%), 4 had no anxiety (22.3%).

Based on the results of research on the application of finger-holding relaxation therapy and lemon aromatherapy in chronic kidney failure patients undergoing hemodialysis at the Bhayangkara Hospital of the Lampung Police, it turns out that the administration of this therapy can reduce anxiety levels in chronic kidney failure patients undergoing hemodialysis.

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