

THE EFFECT OF LEMON AROMATHERAPY PILLOW ON ANXIETY IN POST HAEMODIALYSIS PATIENTS

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ABSTRACT

Hemodialysis is a renal supporting therapy for patients who suffer for chronic kidney disease. The procedure of hemodialysis sometimes has a psychological impact on those patients. The situation that commonly appears is anxiety. Non-medical treatment could reduce anxiety after hemodialysis is performed by using lemon aromatherapy (Citrus Aurantium), which is sedative, and limonene, which can improve blood circulation. Aromatic elements in lemons will stimulate memory and emotional responses in the hypothalamus, causing feelings of calmness, relaxation, and reducing anxiety, stress, and peripheral resistance of blood vessels. The purpose of this study was to determine the effect of lemon aromatherapy pillows on anxiety in post-haemodialysis patients. Quasi Experimental quantitative research design with pre-post test one group design used in this study. The sample in this study were all post haemodialysis patients at the palliative nursing home Purwokerto Timur in total sampling of 35 respondents. The instrument used to measure anxiety was the Hamilton Anxiety Rating Scale (HARs) questionnaire. Data analysis using Paired t test. The results of statistical tests showed there was an effect of lemon aromatherapy pillows on anxiety in post haemodialysis patients ($p = 0.000$ is $< \alpha = 0.05$). The conclusion of this study is that lemon aromatherapy pillows can be a non-pharmacological complementary therapy in post haemodialysis patients.

Keywords: aromatherapy pillow, anxiety, haemodialysis

INTRODUCTION

The kidney is one of the most important parts of the body that functions as a blood filter from metabolic waste which makes its existence irreplaceable by other organs. Kidney damage over a long period of time can cause problems with the body's ability and strength in processing metabolic waste. As a result of the accumulation of kidney damage that is long and not treated seriously, it can result in acute and chronic kidney failure from stage 1 to stage 5 and finally end-stage kidney failure (Pratama et al., 2020).

Chronic Kidney Disease (CKD) or known as chronic renal failure is kidney damage with an estimated *glomerular filtration* rate (GFR) of less than 60 mL/min per 1.73 m² that lasts for 3 months or more (Topbas, 2023). Chronic kidney disease (CKD) is characterised by the presence of kidney damage or an estimated glomerular filtration rate (eGFR) of less than 60 mL/min/1.73 m², lasting 3 months or more. CKD involves a progressive loss of kidney function, which often leads to the need for renal replacement therapy, such as dialysis or transplantation (Vaidya, & Aeddula 2024).

According to Lewi's (2020), the causes of chronic kidney failure disease vary. There are two main causes of CKD, namely diabetes (50%) and hypertension (25%). According to Ariwicaksono, (2023) hypertension is the biggest cause of chronic kidney failure. Hypertension can damage the blood vessels in the kidneys and reduce the ability of the kidneys to filter waste from the blood. This is because diabetes and hypertension can directly affect vascular damage or kidney blood vessels. The blood vessels in the kidneys play an important role in filtering waste and excess fluid from the blood. In the presence of diabetes and

hypertension, the potential for damage to the blood vessels will be higher, which can ultimately impair kidney function (Topbas, 2023).

Haemodialysis is one of the *renal supporting therapies* that can cause discomfort for patients such as anxiety, sleep disturbances, skin itching, nausea, and changes in blood pressure. Therefore, non-pharmacological complementary therapy is needed, such as the use of lemon aromatherapy pillows (*Citrus Aurantium*) when the patient is lying or sitting after undergoing haemodialysis. Lemon aromatherapy contains *linalool* which is sedative and *limonene* which can improve blood circulation (Sundara et al., 2022).

Research by Aulia (2023) showed a significant difference in pre-post test systole blood pressure with Confidence Interval >1 and p value = 0.000 $\alpha < 0.05$. Giving lemon aromatherapy can reduce blood pressure in hypertensive patients who work on the olfactory and circulatory nervous systems. When aromatherapy is inhaled, the olfactory nerve delivers impulses to the brain to stimulate the production of endorphins that can calm and relax the body. This can widen blood vessels and heart rate becomes calmer so that blood pressure will decrease.

METHOD

This research is a quantitative research using *Quasy experimental* method with *pre-post test one group design*. The population in this study were all post haemodialysis patients at the Palliative Shelter House East Purwokerto, Banyumas Regency in April to June 2025. The sampling technique was total sampling of 35 respondents with inclusion criteria, namely willing to become respondents.

(*informed consent*), undergoing haemodialysis aged 20-65 years, not experiencing hearing loss, and not drinking alcohol. The exclusion criteria in this study

were respondents who had no complication diseases such as heart disease, DM, cancer and tuberculosis.

RESULT AND DISCUSSION

The results of the study are presented in the form of univariate and bivariate data analysis tables as follows:

1. Characteristics of respondents based on age, gender, education level, and type of work.

Table 1. Results of Univariate Analysis Characteristics of respondents based on age, gender, education level, and type of work

Age Group (years)	Respondents	
	f	%
20 - 30	4	11,4
31 - 40	6	17,1
41 - 50	9	25,7
51 - 65	16	45,8
Gender	f	%
Male	27	77,1
Female	8	22,9
Education Level	f	%
Primary School	2	5,7
Secondary School	8	22,8
High School	17	48,6
Bachelor's Degree	8	22,9
Type of Employment	f	%
Housewife	4	11,4
Civil Servant	6	17,1
Self-Employed	3	25,7
Labourer	11	45,8
Farmer	6	11,4
Retired	5	17,1
Total	35	100

Based on table 1 above, the results show that most of the respondents are in the age category 51-65 years as many as 16 people (45.8%). The gender of the respondents was male 27 people (77.1%). The respondents' education level was high school, 17 people (48.6%) and the type of work was labourer as many as 11 people (31.5%).

This is in accordance with the results of research by Komariyah et al (2024), that age, gender and level of education are associated with compliance limiting fluids in patients chronic renal failure undergoing haemodialysis at Kajen District Hospital Pekalongan namely the majority of respondents 26 people (81, 3%) were adults, 17 people (53.1%) were

male, 12 people (37.5%) had an education graduated from elementary school / graduated from junior high school and 20 people (62.5%) were compliant in fluid restriction.

According to Anggita et al (2023), chronic renal failure patients in improving quality of life are influenced by several factors including: age, gender, stage of

GGK, frequency of haemodialysis therapy, social support. These factors are expected so that patients can adapt and cope with changes to the environment so that it becomes a coping ability.

2. Effect of Lemon Aromatherapy Pillow on Anxiety of Post Haemodialysis Patients

Table 2: Effect of Lemon Aromatherapy Pillow on Anxiety of Post Hemodialysis Patients

Variable	n	Mean	SD	t	df	p	α
Before	35	25.42	1.46				
After	35	19.65	2.78	12.587	34	0.000	0,05

Based on table 2. shows the results that there is a significant effect of lemon aromatherapy pillows on post haemodialysis patient anxiety ($p = 0.000$ is $< \alpha = 0.05$). In line with research by Sari (2021), there is an effect of giving citrus (orange) aromatherapy on anxiety in haemodialysis patients with an average anxiety score before giving citrus (orange) aromatherapy is 51.20 and after giving citrus (orange) aromatherapy is 34.45.

According to Farrar & Farrar, (2020) that lemon aromatherapy is able to activate olfactory stimuli that produce direct effects on blood pressure, pulse rate, muscle tension, pupil dilation, body temperature, and blood flow. During inspiration, the aroma of *essential oils* will be inhaled into the respiratory tract. The molecules contained in the essential oil will be absorbed and end up in the alveoli, so the molecules are easily transported into the blood circulation. During the aroma of essential oil is inhaled, the receptor cells in the nose will create a biological signal, which will be forwarded by the olfactory

bulbus to the limbic system that will stimulate one's emotions.

CONCLUSION

This study concludes that by applying pillow with lemon aromatherapy could decrease level of anxiety of post hemodialysis patients who suffered from chronic renal diseases.

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