



## EFFECT OF GIVING CUTANEOUS MASSAGE WITH VIRGIN COCONUT OIL (VCO) ON THE LEVEL OF PRURITUS IN CKD PATIENTS UNDERGOING HEMODIALYSIS AT RSUD DR. M YUNUS BENGKULU

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### Abstract

Toxic uremia and hemodialysis is one of the diseases of Chronic Kidney Disease (CKD) that can cause pruritus. Pruritus causes skin wounds, infection and disturbs the comfort of the patient so that it requires additional topical therapy to reduce the effects of pruritus. Virgin Coconut Oil (VCO) is one type of topical emollient that is natural, rarely has side effects and is easily available without a doctor's prescription. Research Objective to determine the effect of giving cutaneous massage with virgin coconut oil (VCO) on the level of pruritus in CKD patients undergoing haemodialysis. Research method This type of research will be conducted using quantitative research with experimental equation design using pre-post test design with control group. This study will involve an intervention group and a control group. Where the intervention group will be given treatment in the form of cutaneous massage with virgin coconut oil (VCO) while the control group will be given Olive oil intervention as a comparison. The results of the analysis showed that in the intervention group the pvalue for 0.030 or pvalue <0.05 which means there is an effect and there is a difference in the degree of leg edema between the intervention group and the control group. There was an average decrease of 0.54 from the average respondent's pruritus scale of 2.36 to 1.82.

**Keywords :** Pruritus, Chronic Kidney Disease, Cutaneous Massage, Virgin Coconut Oil (VCO)

### INTRODUCTION

Chronic *Kidney Disease* (CKD) is one of the world's major diseases because it is difficult to cure, because the cost of care and treatment is relatively expensive. Chronic *Kidney Disease* occurs due to the inability of the kidneys to maintain metabolism and maintain fluid and electrolyte balance which results in an increase in ureum. Kidney damage occurs in the nephrons including the glomerulus and renal tubules, damaged nephrons cannot return to normal function (Helnawati et al., 2023). According to the WHO (World Health Organization) report in 2020 on the 10 cases of diseases that cause the greatest death in the world, one of which is Chronic Kidney Disease, which ranks 10th, where there has been an increase in the number of deaths from 813,000 in 2000 to 1.3 million in 2019, in Indonesia based on data from Riskesdas, (2018) which is 0.38% of Indonesia's population of

252,124,458, there are 713,783 people who suffer from chronic kidney failure. (Helnawati et al., 2023) Data in Bengkulu province shows that the prevalence of Chronic Kidney Disease based on doctor's diagnosis in the population aged  $\geq 15$  years is 11th out of 34 provinces in Indonesia with a percentage of 0.44% with the proportion of patients undergoing haemodialysis as much as 20.26%. Data from the Bengkulu city health office shows that there are  $\pm 639$  CKD patients who undergo haemodialysis therapy or 25.90% (Risksedas 2018). Medical Records of RSUD Dr. M Yunus Bengkulu in 2021 there were 10,459 CKD patients, then in 2022 there were 9,495 patients, this data decreased because there were already many choices of places for CKD patients to carry out healing therapy, thus affecting the number of patient visits, while in 2023 there were 7,923 patients, including inpatients while CKD patients undergoing haemodialysis therapy are currently 125 patients (Rekam Medik, 2023).

*Chronic Kidney Disease* is an abnormality that occurs in the structure of the kidneys that affects kidney function with symptoms for more than 3 months, causing changes in an individual's health. Signs of damage to the kidneys can be seen through albuminuria, blood deposits in the urine (haematuria), impaired function in the renal tubules causing acidosis, diabetes insipidus. (Rosyada & Mustofa, 2023). One of the typical symptoms of Chronic Kidney Disease patients is uremic pruritus. This symptom occurs due to increased levels of ureum in the blood as a result of damaged kidney function. (Philipus et al., 2024). Pruritus is an unpleasant skin sensation that causes the urge to scratch. Uremic pruritus, also called pruritus associated with chronic kidney disease, remains a common and sometimes painful problem in patients with advanced or end-stage kidney disease. Pruritus is an unpleasant skin sensation that causes the urge to scratch. Dry skin is a major contributing factor to pruritus in haemodialysis patients due to fluid withdrawal during haemodialysis, accumulation of beta 2 microglobulin levels in the blood, and vitamin A retention. Severe pruritus can lead to typical linear xerosis of the skin accompanied by haemorrhage and infection, as well as impaired activity, disturbed sleep, and reduced quality of life (Helnawati et al., 2023). Therefore, it is necessary to treat pruritus in patients with chronic kidney disease. To reduce pruritus complaints in patients with chronic kidney disease, they can use GLA- Enchised cream, optimise dialysis dose, topical capsaicin, and emollients. In previous research Helnawati et al., (2023) VCO was chosen to treat pruritus and based on the Wilcoxon Rank Test, a p-value of  $0.000 < 0.005$  was obtained, which means that Virgine Coconut Oil (VCO) massage therapy had an effect on reducing the level of pruritus.

According to the results of a direct interview survey of researchers to the Hemodialysis room at RSUD Dr. M Yunus Bengkulu there were 7 out of 10 CKD patients who were undergoing hemodialysis experiencing Pruritus, who experienced pruritus with a scale of 3 there were 3 patients, scale 2 there were 2 patients and scale 1 there were 2 patients, patients who were undergoing

hemodialysis experiencing Pruritus, who experienced pruritus with a scale of 3 there were 3 patients, scale 2 there were 2 patients and scale 1 there were 2 patients, said that no therapy had ever been done to overcome the pruritus, only that there were several patients who took the initiative to use lotion as a skin moisturizer. Based on the background description above, the researcher is interested in conducting research on "The Effect of Cutaneous Massage with Virgin Coconut Oil on Pruritus in Cronic Kidney Disese Patients Undergoing Hemodialysis at Dr. M Yunus Bengkulu Hospital in 2024."

## MATERIALS AND METHODS

The type of research to be conducted uses quantitative research with an experimental equation design using a pre-post test design with control group. This study will involve an intervention group and a control group. Where the intervention group will be given treatment in the form of cutaneous massage with virgin coconut oil (VCO) while the control group will be given Olive oil intervention as a comparison. The population in this study were chronic kidney disease patients undergoing routine haemodialysis. Selection of research samples using Non Probability sampling technique, namely purposive sampling where the researcher determines the sampling by setting some inclusion criteria in accordance with the research objectives so as to answer the research problem. Samples in this study were haemodialysis patients who experienced complaints of pruritus (itching) on their skin.

## RESULTS AND DISCUSSION

Univariate analysis in this study to see the characteristics of respondents, the characteristics of the pruritus scale before and after the intervention in the intervention group and the control group.

*Table 1 : Frequency Distribution of Respondents' Characteristics*

No.	Variable	Group	
		Intervensi	Control
<b>1.</b>	<b>Age</b>		
	Mean	54.54	49.89
	Median	57.00	49.50
	Min-Max	25-73	23-70
	SD	10.844	10.408
	CI 95%	50.33 - 58.74	45.86 - 53.93
<b>2</b>	<b>Gender</b>		
	Male	12 (42.9 %)	10 (35.7 %)
	Female	16 (57.1 %)	18 (64.3 %)
<b>3</b>	<b>Education</b>		
	SD	8 (28.6 %)	7 (25.0 %)

	SMP	6 (21.4 %)	8 (28.6 %)
	SMA	10 (35.7 %)	9 (32.1 %)
	PT	4 (14.3 %)	4 (14.3 %)
<b>4</b>	<b>Occupation</b>		
	Not Working / Retired	7 (25 %)	7 (25.1%)
	PNS/TNI/POLRI	0 (0 %)	2 (7.1)
	Labourer	2 (7.1 %)	0 (0%)
	Farmer/Fisherman	6 (21.4 %)	7 (25.0%)
	Entrepreneur/self-employed	5 (17.9 %)	3 (10.7%)
	IRT	8 (28.6 %)	9 (32.1%)
<b>5</b>	<b>Duration Of HD</b>		
	< 1 Year	12 (43 %)	15 (53,6 %)
	1-2 Year	6 (21.4 %)	4 ( 14.2 %)
	> 2 Year	10 (35.6 %)	9 ( 32,2 %)

Based on table 1 above, the results of the analysis obtained the mean age in the intervention group was 54.54 years with an age range of 25-73 years. While the mean age in the control group was 49.89 years with an age range of 23-70 years. In the intervention group, most were female as much as 57.1% in the intervention group and the analysis obtained in the control group, most were also female as much as 64.3%. for the results of education in the intervention group, a small portion 35.7% had a high school education and in the control group 32.1% A small portion had a high school education. While the results of job analysis in the intervention group 28.6% worked as housewives, a small portion of 21.4% worked as farmers / fishermen and 25% did not work / retired, for the results of job analysis in the control group obtained 32.1% as housewives, a small portion of 25% as farmers / fishermen and 25.1% did not work. The results of the analysis of the length of time undergoing HD were obtained in the intervention group 43% of patients undergoing haemodialysis < 1 year while in the control group 53% of patients undergoing haemodialysis < 1 year.

*Table 2 : Mean Distribution of Pruritus Scale in CKD patients undergoing Haemodialysis before and after treatment*

Variabel	Mean	Median	Min-Max	SD	CI 95%
<b>Intervensi</b>					
Pre	2.36	2.00	1-5	0.951	1.99 - 2.73
Post	1.82	2.00	1-3	0.670	1.56-2.08

<b>Control</b>					
Pre	2.61	2.00	2 – 5	0.875	2.27 - 2.95
Post	2.29	2.00	1 – 4	0.810	1.97 - 2.60

Based on table 2 above, the results of the analysis showed that the mean value of the pruritus scale in CKD patients undergoing haemodialysis before the intervention of cutaneous massage with virgin coconut oil (VCO) was 2.36 and after the intervention decreased to 1.82, which means that there is a decrease in the mean pruritus scale in the intervention group by 0.54. While in the control group given Olive Oil, the average pruritus scale before the ankle pump exercise intervention was 2.61 and after the intervention decreased by 0.32, which means there is a decrease in the average degree of leg edema in the control group.

Bivariate analysis is an analysis conducted to analyse the relationship of two variables in research conducted by researchers. In this study, a bivariate test was conducted to see if there was an effect of giving cutaneous massage therapy with virgin coconut oil (VCO) on the scale of pruritus in CKD patients undergoing haemodialysis before and after the intervention.

Before the bivariate test, first test the normality of the data with the Kolmogrov-smirnov method, based on the results of the normality test obtained pvalue <0.05 which means that the data is not normally distributed. Furthermore, bivariate analysis was carried out to determine whether there was an effect of Cutaneus Massage therapy with Virgin Coconut Oil (VCO) on the pruritus scale in CKD patients undergoing Haemodialysis at RSUD Dr. M Yunus Bengkulu using the mann whitney test, while to determine the difference in the degree of leg edema before and after in the intervention and control groups with the Wilxocon test.

*Table 3 : Difference in Mean Scale of Pruritus Before and After Treatment in the Intervention*

*Group with Cutaneous Massage with Virgin Coconut Oil (VCO)*

	N	Median (Min-Max)	Z	P Value
Pre	28	2.00 (1 - 5)	-3.638	0.000
Post	28	2.00 (1 - 3)		

Based on table 3 above, illustrates that the results of the Wilcoxon Signed Rank Test statistical test show a p value of  $0.000 \leq 0.05$ , which means that there is a difference in the average degree of leg edema before and after treatment in the intervention group.

*Table 4 : Mean Difference In Pruritus Scale Before And After Treatment In The Control Group With Olive Oil Therapy*

	N	Median (Min-Max)	Z	P Value
Pre	28	2.00 (2-5)	-3.000	0.003
Post	28	2.00 (1-4)		

Based on table 4 above, it illustrates that the results of the Wilcoxon Signed Rank Test statistical test show a p value  $\leq 0.05$ , which means that there is a difference in the average degree of leg oedema before and after treatment in the control group

*Table 5 : The Effect of Cutaneous Massage Therapy with Virgin Coconut Oil (VCO) on the Degree of Leg Edema in CKD Patients Undergoing Hemodialysis at Dr. M Yunus Hospital Bengkulu Year 2024*

Variabel	Mean	Median	Min-Max	SD	PValue
Intervensi	1.82	2.00	1-3	0.670	0.030
Control	2.29	2.00	1-4	0.810	

Based on table 5 above, it is known that the results of the Mann-Withney U Test statistical test show a p value of 0.030 (p Value  $<0.05$ ) which means that there is an effect of giving Cutaneus Massage therapy with Virgin Coconut Oil (VCO) on the degree of leg edema in CKD patients undergoing haemodialysis at Dr. M Yunus Bengkulu Hospital in 2024.

## DISCUSSION

The mean age in the intervention group was 54.54 years with an age range of 25-73 years, while the mean age in the control group was 49.89 years with an age range of 23-70 years. all ages can experience CKD and edema in the legs, including children but the increasing age the greater the risk. This is in line with research conducted by Arifin Noor et al., (2023) which states that the increasing age, the more kidney function decreases so that there is a decrease in glomerular excretion and deterioration in tubular function. A small-scale decrease in kidney function is a normal process for every human as they age, but does not cause abnormalities or cause symptoms because it is still within reasonable limits that can be tolerated by the kidneys in the body. However, due to several risk factors, it can cause abnormalities where the decline in kidney function occurs rapidly or progressively, causing various complaints from mild to severe. In addition, there are other factors, namely the presence of degenerative diseases. And according to the discussion of Nova, (2023) obtained the same data, the average age of patients diagnosed with cronic kidney disease at the oldest age is 77 years & the youngest is 3 years.

The results of this study showed 57.1% were female in the intervention group and the analysis obtained in the control group, most of them were also female at 64.3%. Each study must have different results, in this study researchers found many women who experienced leg edema compared to men because based on the initial assessment, it was found that women were still doing a lot of activities that caused them to keep walking and standing plus less adherence to fluid intake. Based on the research Ajeng et al., (2022) also obtained the results of women 9% more than men 4% because according to researchers this is because women cannot control food and drink intake. Meanwhile, based on research by Arifin Noor et al., (2023) Men became the largest sample in their research compared to women. Because of the lifestyle carried out by men such as smoking, drinking coffee, alcohol, and supplement drinks has the potential to trigger systemic diseases and can worsen health and even result in decreased function in the kidneys.

Education in the intervention group was mostly 35.7% high school education, 28.6% elementary level education, 21.4% junior high school level and 14.3% college education. Meanwhile, in the control group, 32.1% had a high school education, 28.6% had a junior high school education, 25% had a primary school education and 14.3% had a university education. The level of education can affect various aspects of life including health maintenance. Knowledge is a very important domain for fostering individual or person actions. the higher the level of education, the easier it is to accept the concept of healthy living independently, creatively and continuously because the level of knowledge will influence a person in behavior (Ajeng et al., 2022) so that there is a relationship between the level of education and the level of knowledge of leg edema in CKD patients.

In the intervention group, 28.6% worked as housewives, a small portion of 21.4% worked as farmers / fishermen and 25% did not work / retired, while for the results of job analysis in the control group, 32.1% were found to be housewives, a small portion of 25% as farmers / fishermen and 25.1% did not work. According to (Ajeng et al., 2022) all types of work will affect the frequency and distribution of a disease. The intensity of daily activities can accelerate the occurrence of various diseases.

It was found that in the intervention group most 43% of patients underwent haemodialysis < 1 year while in the control group it was also found that most 53% of patients underwent haemodialysis < 1 year. According to the discussion in Nova, (2023) the longer the patient does haemodialysis treatment, the patient's habits will improve and it is good if the patient gets the necessary health education or information. With this, the longer the patients undergo haemodialysis, the more compliant they are in undergoing haemodialysis treatment.

### **Overview of the average pruritus scale in CKD patients undergoing haemodialysis before and after the intervention in the intervention group.**

The results of this study showed that the mean value of the pruritus scale in CKD patients undergoing haemodialysis before the intervention of cutaneous massage with Virgin Coconut Oil (VCO) was 2.36 after the intervention decreased with a depth of 1.82, which means that there is a reduction in the mean pruritus scale in the intervention group with a depth of 0.54. Virgine Coconut Oil (VCO) has a high fatty acid content, especially lauric acid and has a higher phenolic and antioxidant content than ordinary coconut oil. Virgin coconut oil applied to the skin will affect body tissues, especially connective tissue. The union of the connective tissue makes the skin strong. In research conducted by Helnawati et al., (2023) with the results of the Wilcoxon Rank Test obtained a p-value of 0.000 <0.005 which means that Virgine Coconut Oil (VCO) massage therapy has an effect in reducing the level of pruritus experienced by respondents.

### **Overview of the average pruritus scale in CKD patients undergoing haemodialysis before and after the intervention in the control group.**

The results of the research in the control group given olive oil, the average degree of pruritus scale before the olive oil intervention was 2.61 and after the intervention the depth decreased by 0.32, which means there was a decrease in the average degree of leg edema in the control group. Olive oil is a class of emollients or moisturisers that can moisturise and enrich the skin structure. It has fatty acids (oleic acid, palmitic acid, and linoleic acid) that can help dry skin. The vitamin content in olive oil is A, D, and E. Vitamin E has a tocopherol component that acts as an antioxidant and maintains TEWL on the skin. In line with research conducted by Rosyada & Mustofa, (2023) the results of this case study were a decrease in pruritus scores in both respondents from scale 4 to 1 and scale 6 to 3. Another study conducted by Muliani et al., (2021) obtained the results of t-test analysis obtained p-value = 0.000 so it was concluded that there was an effect of giving olive oil emollients on the scale of pruritus in patients undergoing haemodialysis.

### **The effect of cutaneous massage therapy with virgin coconut oil (VCO) on pruritus scale in CKD patients undergoing haemodialysis.**

This study found that there is an effect of cutaneous massage therapy with Virgin Coconut Oil (VCO) on the scale of pruritus in CKD patients undergoing haemodialysis at RSUD Dr. M. Yunus Bengkulu in 2024. The results of the analysis showed that in the intervention group the p value was 0.030 or p value <0.05, which means that there is an effect and there is a difference in the scale of pruritus between the intervention group and the control group. In the intervention group, there was a decrease in the pruritus scale before and after treatment in the intervention group, there was an average decrease of 0.54 from the average respondent's pruritus scale of 2.36 to 1.82. Virgin Coconut Oil (VCO) is pure coconut oil made without heating or with minimal heating. The use of virgin coconut



oil as a skin and hair care ingredient has been practised by Indonesians for generations. It has a high fatty acid content, especially lauric acid, and has a higher phenolic and antioxidant content than ordinary coconut oil. Topical use of Virgine Coconut Oil (VCO) will react with skin bacteria into free fatty acids such as those contained in sebum, so as to protect the skin from the dangers of pathogenic microorganisms. Research (Syaputra et al., 2021) The results showed that there was a significant difference in the decrease in itching felt by respondents after the intervention with a P-value of 0.001 these results were  $<0.05$  and in other studies conducted by Helnawati et al., (2023) with the results of the Wilcoxon Rank Test obtained a p-value of  $0.000 < 0.005$  which means that massage therapy with Virgin Coconut Oil (VCO) has an effect in reducing the level of pruritus experienced by respondents.

## CONCLUSION

Based on the results of research and discussion of the effect of 30-degree foot elevation therapy and foot massage on the degree of leg edema in CKD patients undergoing haemodialysis, the following conclusions are made:

1. The mean age of respondents in the intervention group was 54.54 years in the control group 49.89 years, most of them were female both in the intervention group and the control group, the last education of respondents was mostly high school, the occupation of respondents mostly worked as housewives, the length of time undergoing haemodialysis was also mostly respondents  $<1$  year both in the intervention group and the control group.
2. The mean scale of pruritus in CKD patients undergoing haemodialysis before the intervention of cutaneous massage with virgin coconut oil (VCO) was 2.36, after being given the intervention decreased to 1.82 and, which means there is a reduction in the mean scale of pruritus in the intervention group by 0.54.
3. The mean pruritus scale before the olive oil intervention was 2.61 after the intervention decreased to 2.29, which means there is a decrease in the mean pruritus scale in the control group by 0.32.
4. There is an effect of cutaneous massage therapy with virgin coconut oil on the scale of pruritus in CKD patients undergoing haemodialysis at RSUD Dr. M. Yunus Bengkulu with a p value of 0.030 or p value  $<0.05$  which means there is an effect and there is a difference in the scale of pruritus between the intervention group and the control group.

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