

## The Long Relationship of Undergoing Hemodialysis Therapy with the Quality of Life of Chronic Kidney Failure Patients at Prof. Dr. H. Aloei Saboe Hospital, Gorontalo City

Fadilla Sulistayani Duhe<sup>1</sup>, Nurdiana Djamaluddin<sup>2</sup>, Ita Sulistiani<sup>3</sup>

<sup>1</sup>Mahasiswa Program Studi Ilmu Keperawatan UNG

<sup>2</sup>Dosen Program Studi Ilmu Keperawatan UNG

<sup>3</sup>Dosen Program Studi Ilmu Keperawatan UNG

Corresponding Author: [fadilladuhe@gmail.com](mailto:fadilladuhe@gmail.com)

---

### Article Info

#### *Article history:*

Received 14 Apr, 2026

Revised 19 May, 2026

Accepted 10 Jun, 2026

---

#### *Keywords:*

chronic kidney failure,  
hemodialysis, quality of life,  
length of time on  
hemodialysis

---

### ABSTRACT

Chronic kidney failure is a progressive disease that causes a permanent decline in kidney function so that patients need long-term hemodialysis therapy. Hemodialysis that is carried out continuously can have physical, psychological, social, and emotional impacts that affect the patient's quality of life. This study aims to determine the relationship between long-term hemodialysis therapy and the quality of life of chronic kidney failure patients at Prof. Dr. H. Aloei Saboe Hospital, Gorontalo City. This study uses a quantitative method with a cross sectional design. The population in this study is all patients with chronic kidney failure who undergo hemodialysis therapy at Prof. Dr. H. Aloei Saboe Hospital as many as 83 patients. The research sample amounted to 46 respondents who were taken using purposive sampling techniques. The instrument used was the KDQOL-SF 36 questionnaire to measure the patient's quality of life. Data analysis used the Fisher's Exact Test. The results showed that most of the respondents underwent hemodialysis >12 months, 35 respondents (76.1%), while 11 respondents (23.9%) <underwent hemodialysis 12 months). Most of the respondents had a poor quality of life, namely 38 respondents (82.6%), while 8 respondents had good quality of life (17.4%). The results of bivariate analysis using Fisher's Exact Test showed a p value = 0.013 ( $p < 0.05$ ), so that there was a significant relationship between the length of time they underwent hemodialysis therapy and the quality of life of patients with chronic kidney failure at Prof. Dr. Aloei Saboe Hospital. Keywords: Nurse Support, Compliance Level, Chronic Kidney Failure Patients, Hemodialysis Therapy.

---

### INTRODUCTION

Chronic kidney failure (CKD) is on the rise worldwide, especially in low- and middle-income countries. GSK is a persistent and progressive disease that gradually reduces kidney function and can lead to a variety of serious complications. Chronic kidney disease (CKD) is a progressive decline in kidney function that results in the inability of the remaining kidneys to maintain their internal environment. Chronic Kidney Failure is an end-stage, progressive, and irreversible kidney disease that results in the loss of the kidneys' ability to maintain metabolism as well as fluid and electrolyte balance, leading to uremia (Rosa et al., 2025).

The World Health Organization (WHO) stated that there was an increase in Chronic Kidney Disease (CKD) patients in 2021 increasing globally to more than 843.6 million. And it is estimated that the number of deaths due to Chronic Kidney Failure will increase to 41.5% by 2040. This high figure shows that the incidence rate of Chronic Kidney Failure is the 22nd highest cause of death in the world. The population of chronic kidney failure in the United States is around 31 million, and the main causes of chronic kidney failure patients are diabetes as much as 44% and hypertension as much as 28%. In 2040, the proportion of deaths due to chronic kidney failure is predicted to increase to 41.5%, making chronic kidney failure the 12th most common cause of death.

The International Society of Nephrology (ISN) Global Kidney Health Atlas 2023 report reveals that the Asian region is a contributor to more than 50% of the world's CKD cases, with an estimated prevalence of between 10% to 18% in the adult population. Countries such as China, India, Indonesia, and the Philippines are the largest contributors to this high rate, especially due to the increasing prevalence of hypertension and diabetes mellitus (Nephrology, 2023).

Based on the 2018 National Report on Basic Health Research (Riskesdas) published by the Ministry of Health of the Republic of Indonesia, the prevalence of chronic kidney failure (CKD) in the population aged  $\geq 15$  years reached 0.38%, an increase from 0.2% in the 2013 Riskesdas. This increase illustrates the increasing burden of chronic kidney disease in Indonesia in the last five years. The highest prevalence was recorded in North Kalimantan (0.64%), followed by North Maluku (0.56%), North Sulawesi (0.53%), Gorontalo (0.52%), and Aceh (0.47%), while the lowest prevalence was found in Papua (0.15%), Bali (0.22%), and Central Java (0.24%). Of all GKG patients, around 19.3% reported having or were undergoing hemodialysis therapy, with the highest proportion in DKI Jakarta (38.7%) and the lowest in Southeast Sulawesi (1.99%). Meanwhile, a report from the Indonesian health survey The prevalence of chronic kidney failure in Indonesia is also increasing every year. Based on data from the Indonesian Health Survey (SKI) in 2023, the prevalence of chronic kidney failure in Indonesia reached 638,178 people.

According to the Gorontalo Provincial Health Office report in 2023, cases of chronic kidney failure (CKD) were found in various regional hospitals. It was recorded that Tani and Fisher Hospital recorded 55 inpatient cases and 11 outpatient cases, Dr. Ir. Iwan Bokings Hospital Boalemo Regency had 4 inpatient cases and 6 outpatient cases, Toto Kabila Hospital recorded 435 hospitalization cases and 166 outpatient cases, Dr. M.M Dunda Limboto Hospital recorded 32 hospitalization cases and 3,830 outpatient case visits and Prof. Dr. Aloei Saboe Hospital Gorontalo City recorded 266 hospitalizations and a total of 5,469 outpatient case visits. This condition shows that GKG is a health problem that has spread throughout Gorontalo Province.

Based on this data, Gorontalo City is recorded as the region with the highest number of cases of chronic kidney failure in Gorontalo Province, with the largest contribution coming from Prof. Dr. Aloei Saboe Hospital, which recorded a total of 5,469 visits to chronic kidney failure patients undergoing hemodialysis in 2023. This number is the highest compared to other hospitals in Gorontalo province in 2023. The next data shows a trend of increasing total visits, reaching 6,316 visits in 2024 and 5,473 visits in 2025, with the 2025 data being recorded until the reporting period in November 2025.

Data for 2025 also shows the number of active hemodialysis patients every month. The number of patients was recorded as many as 83 patients in January, 76 patients in February, and 53 patients in March. In April, there were 59 patients, then 61 patients in May, 72 patients in June, and 75 patients in July. In August and September, the number of patients was recorded at 77 patients each, and in October the number of patients was again recorded at 83 patients.

Hemodialysis is an effective, safe, and beneficial kidney replacement therapy for patients. However, this therapy is complex, uncomfortable, and associated with various complications. Because hemodialysis cannot cure, restore, or replace all kidney metabolic and endocrine activity, patients with end-stage kidney disease who undergo this therapy remain at risk of ongoing problems, both as a result of the disease itself and the side effects of hemodialysis (Roberts et al., 2024).

Routine hemodialysis therapy throughout life can cause a variety of problems. These problems include psychological problems such as boredom and boredom that often occur due to lifelong therapy, feelings of helplessness, sadness, hopelessness, depression, and various stressors. On the other hand, the social problems experienced by patients include negative perceptions of other people's opinions, decreased self-confidence, and fear of being alienated or rejected by those closest to and around them (Wahyuni et al., 2025). Patients who undergo long-term hemodialysis tend to experience a decline in quality of life, especially physically and psychologically. This condition is caused by the accumulation of various factors, including chronic fatigue, vascular complications in access to hemodialysis, uncontrolled anemia, decreased functional capacity, and psychosocial stress due to dependence on dialysis machines (Putra et al., 2024).

Complications of hemodialysis can be differentiated into acute and chronic. Acute complications include hypotension, muscle cramps, nausea and vomiting, headache, chest pain, back pain, itching, fever, and chills. Meanwhile, chronic complications include heart disease, malnutrition, hypertension/overvolume, anemia, renal osteodystrophy, neuropathy, reproductive dysfunction, access complications, bleeding disorders, infections, amyloidosis, and polycystic kidney disease (Triyono et al., 2023).

These complications not only have an impact on the patient's physical condition, but also affect psychological and social well-being, so that hemodialysis can affect the quality of life of patients with chronic kidney failure (CKD), especially because hemodialysis therapy affects many aspects of life, including psychological, and socioeconomic aspects. This affects not only the patient, but also the family and the community. Patients can experience decreased concentration, thinking disorders, and even decreased social relationships (Lestari et al., 2025). In addition, hemodialysis also plays an important role in improving the quality of life (QOL) of kidney failure patients. Patients with chronic kidney failure require long-term, often lifelong-term, hemodialysis therapy to maintain survival while controlling uremia symptoms (Faizah et al., 2021).

Quality of life is a metric that evaluates various aspects of well-being, including physical and mental health, social relationships, and the overall environment. In optimal circumstances, the proper application of these four aspects is essential to maintain the quality of human life. The impact of disease on quality of life is especially felt in people with chronic conditions such as chronic kidney disease (Salanti et al., 2023).

Research conducted by (Djamaluddin et al., 2024), that in terms of quality of life of chronic kidney failure patients undergoing hemodialysis in Gorontalo, most patients (56 patients, 80.0%) had a good quality of life, while most (14 patients, 20.0%) had poor quality of life. Thus, in terms of quality of life of chronic kidney failure patients undergoing hemodialysis in Gorontalo, most (56 patients, 80.0%) have a good quality of life.

Based on research conducted by (Permata Sari et al., 2022), with the title "The Long-Term Relationship of Hemodialysis with the Quality of Life of Chronic Kidney Disease Patients in the Hemodialysis Room of Bhayangkara Hospital, Jambi City", the results were obtained that in 2020 there were 16 (55.2%) respondents with hemodialysis > 12 months and 18 (62.1%) respondents had moderate quality of life in patients with chronic kidney disease. Bivariate analysis showed that in the hemodialysis room of Bhayangkara Hospital Jambi City 2020, there was a relationship between the length of hemodialysis and the quality of life of chronic kidney disease patients with a p-value of 0.001.

Based on research conducted by (Utama & Hayati, 2023) with the title "The Relationship of the Length of Time to Run Hemodialysis on the Quality of Life of Chronic Kidney Disease Patients at Sekayu Hospital" The results of the study found that the univariate analysis of the length of time to run hemodialysis was 42 respondents (100%), there were respondents who had been running Hemodialysis for a long time <12 months, 24 people (57.1%) and >12 months were 18 people (42.9%) respectively. square was obtained p value = 0.000 so that there was a significant relationship between the length of time of hemodialysis and the quality of life of patients with Chronic Kidney Disease

Based on observations made by researchers in the hemodialysis room of Prof. Dr. Aloei Saboe Hospital, the number of regular dialysis patients is quite large and continues to increase every year. Most patients have undergone hemodialysis therapy for a long period of time, ranging from 1 to more than 6 years. 5 patients were recorded to have started hemodialysis from 2016–2019, indicating that there was a group of patients with a duration of more than 5 years that were classified as long-term hemodialysis.

Interviews were conducted with 6 patients with chronic kidney failure, complaints were found in the form of prolonged fatigue, limitations in carrying out daily activities, and boredom due to continuous therapy routines. The patient said that the longer they underwent hemodialysis, the greater the tiredness, boredom and stress felt. This condition can trigger the appearance of laziness or the patient's reluctance to continue hemodialysis therapy regularly, the patient feels that his life is limited. A routine hemodialysis schedule makes it difficult for them to work, do activities outside the home, or socialize with the community. So that the patient even feels hopeless and afraid of death, especially when his physical condition begins to decline.

Meanwhile, there are three patients with chronic kidney failure who undergo hemodialysis showing good quality of life. Patients say that they have begun to accept the disease conditions experienced and undergo dialysis regularly. They feel that their body condition is quite stable, the complaints they feel are not too disturbing, and they can still carry out daily activities according to their abilities. Patients also said that they felt calmer and thought positively in undergoing treatment, so that they could still interact with their families and the surrounding environment. This shows that patients are able to adjust to the disease and the treatment undergone, so that the quality of life is maintained.

This shows that the length of hemodialysis therapy has an important role in influencing the quality of life of patients with chronic kidney failure. Therefore, the researcher is interested in conducting a study on the Relationship between Long Undergoing Hemodialysis Therapy and Quality of Life of Chronic Kidney Failure Patients at Prof. Dr. Aloei Saboe Hospital, in order to assess the extent to which patients undergo hemodialysis therapy can have an impact on the patient's physical, psychological, and social condition, as well as how it affects their overall quality of life.

## RESEARCH METHODS

This research was carried out in the dialysis room of Prof. Dr. dr. H. Aloei Saboe Hospital, Gorontalo City on January 20-22, 2026. Types of quantitative research The research design used in this study is quantitative research with a cross sectional approach. Cross sectional research is a type of research that emphasizes the time of measurement/observation of independent and dependent variable data only once at a time. The data collection method in this study used primary data and secondary data, with a sample of 46 respondents. The research instrument used the Kidney Disease Quality of life-Short Form questionnaire (KDQOL-SF 36).

**RESEARCH RESULTS****Univariate Results****Characteristics of Respondents Based on Demographic Data**

Table 1. Characteristics of Respondents by Age

No.	Age	(n)	(%)
1.	Early adults (20-35 years)	2	4,3
2.	Late adults (36-45 years)	10	21,7
3.	Pre-elderly (46-55 years old)	14	30,4
4.	Early elderly (56-65 years old)	15	32,6
5.	Senior > 65 years old	5	10,9
<b>Total</b>		<b>46</b>	<b>100</b>

Based on the table above, the characteristics of respondents based on age are known that of the 46 respondents, most of the patient respondents are the most in the early elderly category as many as 15 respondents (32.6%) and the lowest in the early adult category as many as 2 respondents (4.3%)

Table 2. Respondent Characteristics by Gender

No.	Gender	(n)	(%)
1.	Male	20	43,5
2.	Women	26	56,5
<b>Total</b>		<b>46</b>	<b>100</b>

Based on the table above, the characteristics of respondents by gender show that most of the respondents are female as many as 26 respondents (56.5%). Meanwhile, male respondents had 20 respondents (43.5%).

Table 3. Characteristics of Respondents Based on Last Education

No.	Long undergoing hemodialysis	(n)	(%)
1	< 12 Months	11	23,9
2	> 12 Months	35	76,1
<b>Total</b>		<b>46</b>	<b>100</b>

Based on the table above, the characteristics of respondents based on the last education are known that most of the respondents have an education level in the university category with a total of 20 people (43.5%), while the least number of respondents is in the elementary category, which is as many as 4 people (8.7%).

Table 4. Characteristics of Respondents Based on Employment Status

No.	Jobs	(n)	(%)
1.	ASN	13	28,3
2.	Self-employed	3	6,5
3.	State-Owned Enterprises	1	2,2
4.	Not Working	29	63,0
<b>Total</b>		<b>46</b>	<b>100</b>

Based on the table above, data on respondent characteristics based on employment status was obtained that most of the respondents had jobs in the non-working category with a total of 29 people (63.0%), while the least number of respondents was in the category of SOE Employees, which was 1 person (2.2%).

Table 5. Distribution of respondents based on the length of time they underwent hemodialysis in the hemodialysis room of Prof. DR. H. Aloei Saboe Hospital

No.	Education	(n)	(%)
1.	SD	4	8,7
2.	Junior High School	8	17,4
3.	High School	14	30,4
4.	College	20	43,5
<b>Total</b>		<b>46</b>	<b>100</b>

Based on the table above, the distribution of respondents based on the length of time they underwent hemodialysis in the hemodialysis room showed that of the 46 respondents, most of the respondents had undergone hemodialysis therapy in the long category of 35 people > 12 months (76.1%), while respondents who underwent hemodialysis in the shorter category < 12 months as many as 11 people (23.9%).

Table 6. Distribution of Respondents Based on Quality of Life in the Hemodialysis Room of Prof. DR. H. Aloei Saboe Hospital

No.	Quality of Life	(n)	(%)
1.	Good	8	17,4
2.	Bad	38	82,6
<b>Total</b>		<b>46</b>	<b>100</b>

Based on the table above, the distribution of respondents based on quality of life in the hemodialysis room shows that of the 46 respondents, most of them have a poor quality of life, namely 38 people (82.6%), while respondents who have a good quality of life are 8 people (17.4%).

### Bivariate Results

Table 7. The long-term relationship between hemodialysis and quality of life in the Hemodialysis Room of Prof. DR. H. Aloei Saboe Hospital

Duration of Hemodialysis	Quality of Life				Total	<i>p value</i>
	Good		Bad			
	n	%	n	%		
< 12 Months	5	10.9	6	13.0	11	0.005 (< 0.05)
> 12 Months	3	6.5	32	69.6	35	
<b>Total</b>	<b>8</b>	<b>(17.4)</b>	<b>38</b>	<b>(82.6)</b>	<b>46</b>	

Based on the table above, bivariate analysis is known that out of a total of 46 respondents, most of the respondents underwent hemodialysis for > 12 months, namely 35 people, while respondents with a hemodialysis duration of < 12 months amounted to 11 people. Judging from the quality of life, 8 respondents with good quality of life amounted to 8 people (17.4%).

Furthermore, respondents with poor quality of life were 38 people (82.6%). In the group of respondents who underwent hemodialysis < 12 months, there were 5 people (10.9%) with good quality of life and 6 people (13.0%) with poor quality of life. Meanwhile, in the group of respondents who underwent hemodialysis > 12 months, as many as 3 people (6.5%) had a good quality of life and 32 people (69.6%) had a poor quality of life.

The results of the statistical test used the fisher's exact test alternative. The results of the analysis showed a p value of 0.005 and a p value of 0.013 (<0.05)

## DISCUSSION

### **Long Time of Undergoing Hemodialysis Therapy in Chronic Kidney Failure Patients at Prof. Dr. Aloei Saboe Hospital**

Based on the results of the research conducted in the hemodialysis room of Prof. Dr. Aloei Saboe Hospital, Gorontalo City, it was obtained that most of the patients with chronic kidney failure out of 46 patients had undergone hemodialysis therapy. There are 35 patients > 12 months and 11 more in the 12-month <. In this study, the most > 12 months, as many as 35 respondents had undergone therapy for a long period of time. This can be attributed to respondent characteristics such as age, gender, education, and occupation. In addition, female patients generally undergo more long-term hemodialysis which can be influenced by lifestyle factors and the risk of comorbidities. The level of education also plays a role in the patient's understanding of the importance of undergoing therapy regularly so that they can maintain the continuity of treatment. Meanwhile, employment status can affect the patient's ability to adjust the time and support received during hemodialysis therapy. In this study, there were also 11 11 respondents who underwent hemodialysis therapy < 12 months. Most patients feel that they have not been receptive to the changes that have occurred in their lives, which can affect spiritual, psychological, social, family and so on aspects that affect the physical, cognitive and emotional aspects of the respondents. The results of this study are supported by (Devi and Rahman 2022) stating that most of the respondents have undergone hemodialysis for < 12 months. Patients who have not undergone HD for a long time, feel that they are not ready to accept and adapt to the changes that occur in their lives and most respondents say that they only found out about kidney disease after experiencing maximum health decline so they had to undergo hemodialysis therapy.

From a psychological perspective, the length of time to undergo hemodialysis can also cause boredom, boredom, and even stress. Some patients feel that their lives are limited because they have to always adjust the schedule to the hemodialysis time. Opportunities to work, gather with family, or engage in social activities are often disrupted. Feelings of dependence on dialysis machines and uncertainty of health conditions can also trigger anxiety as well as fear of the future. However, not all patients who undergo hemodialysis for a long period of time show negative effects. Some patients are actually able to adapt well. They begin to accept their illness, build a more regular lifestyle, and have strong family support.

Patients who are already in the receiving stage are usually calmer, more compliant with therapy, and able to maintain a stable health condition. This shows that the length of undergoing hemodialysis does not only talk about the duration of time, but also about the adaptation process. The longer the patient undergoes therapy, the greater the challenges faced, but on the other hand, the greater the opportunity to learn to accept and adjust to the condition. The results of this study show that the length of hemodialysis therapy is an important part of the life of patients with chronic kidney failure. Therefore, health services do not only focus on medical measures, but also need to pay attention to psychological support, continuous education, and a more holistic approach so that patients are able to undergo long-term therapy with a maintained quality of life.

### **Quality of Life in Chronic Kidney Failure Patients Undergoing Hemodialysis at Prof. Dr. Aloei Saboe Hospital**

Based on the results of the study, most of the respondents had a poor quality of life, namely 38 respondents. These findings show that the poor quality of life in respondents is mainly influenced by several aspects that experience problems, namely physical function, physical role, emotional function, energy, and mental health. Problems with physical function showed that respondents experienced limitations in carrying out daily activities, such as walking, working, and doing other routine activities. In addition, disturbances in physical roles indicate that respondents' health conditions hinder their roles and responsibilities in daily life, both in the family and social environment.

Based on research, there are also 8 patients who have a good quality of life, this condition shows that some patients with chronic kidney failure who undergo hemodialysis therapy are still able to maintain a good quality of life even though they have to undergo treatment regularly. This can be influenced by the patient's ability to adapt to the disease suffered, compliance in undergoing hemodialysis therapy, and support from family and health workers. Patients who have a good quality of life are generally still able to carry out daily activities according to their abilities, have a more stable emotional state, and are able to accept the disease conditions experienced so that they can undergo therapy more positively.

In the emotional and mental health aspects, respondents tend to experience feelings of anxiety, sadness, stress, or psychological fatigue easily. This condition has an impact on the decline in motivation, enthusiasm for life, and the ability of respondents to deal with the disease suffered. Meanwhile, low scores on the energy aspect showed that respondents often felt weak, tired quickly, and lacked energy in carrying out daily activities. These results are supported by inspiration (Budi et al., 2023) which shows that patients undergoing hemodialysis have a significant impact on their quality of life.

The quality of life of GJK patients is classified as adequate or moderate, and the factors that affect the quality of life of hemodialysis patients are physical, emotional, energy, and mental health. Research (Permata Sari et al., 2022), also found that hemodialysis therapy can improve the physical, emotional, energy, mental health of

chronic kidney failure patients, as they have to live with the condition for a lifetime. This will affect the patient's quality of life, so the length of time to undergo hemodialysis is one of the factors that affect the quality of life of chronic kidney disease patients.

The characteristics of the respondents in this study also strengthened the results of the discussion. Based on the results of the study, most of the respondents are in the age range of adults to the elderly. This suggests that chronic kidney failure is more prevalent in older age groups. Naturally, the function of the body's organs, including the kidneys, will decline with age. In addition, in the elderly, comorbidities such as hypertension, kidney stones, autoimmune, gout and diabetes mellitus are often found which are the main risk factors for chronic kidney failure. This declining physical condition also makes it easier for patients to feel tired after undergoing hemodialysis, which can affect their daily activities and quality of life. Judging from gender, the respondents in this study were dominated by (women). Gender differences often affect the way a person deals with chronic illnesses. Men generally have lifestyle risk factors such as smoking or a poorly controlled diet, while women tend to be more open in expressing physical and emotional complaints.

These differences can affect how patients interpret the disease they experience and how they assess their quality of life. The education level of the respondents was also an important part of the characteristics of this study. Most of the respondents had a level of education (college). Education plays a role in shaping a person's mindset and understanding of their health condition. Patients with higher levels of education are usually more likely to receive medical information, understand the importance of routine therapy, and adhere to the recommendations of health professionals. Conversely, educational limitations can be an obstacle to understanding the disease process and the importance of long-term management, which can ultimately impact quality of life. In terms of work, some of the respondents are (ASN, Entrepreneur, SOE Employees, ETC).

Hemodialysis therapy which is carried out regularly 2 times a week with a duration of 4 hours makes many patients experience limitations in work. Some patients even have to stop working due to impossible physical conditions. This situation not only has an impact on economic conditions, but can also affect the psychological condition of the patient, such as the appearance of a sense of helplessness or dependence on the family.

However, patients who are still able to work usually have a more stable physical condition and show better adaptability. The length of time undergoing hemodialysis was also an important characteristic in this study. Some respondents have undergone therapy for less than 12 months and some for more than 12 months. Patients who have just undergone hemodialysis are generally still in the adjustment stage, both physically and psychologically. They are still learning to accept the condition of the disease and the therapy routine that must be undertaken. Meanwhile, patients who have been on hemodialysis for a long time often face saturation and fatigue from long-term therapy. But on the other hand, some patients who have been undergoing therapy for a long time actually show better adaptability because they are used to the necessary procedures and lifestyle changes. Overall, the characteristics of the respondents in this study showed that chronic kidney failure patients undergoing hemodialysis had diverse backgrounds, both in terms of age, gender, education, occupation, and length of treatment. These factors do not stand alone, but are interrelated and can affect how patients undergo treatment and assess their quality of life.

### **The long relationship of undergoing hemodialysis therapy with quality of life in patients with chronic kidney failure at Prof. Dr. Aloei Saboe Hospital in patients with chronic kidney failure in the dialysis room of Prof. Dr. dr. H. Aloei Saboe Hospital**

Based on the table of the relationship between long-term hemodialysis therapy and quality of life in patients with chronic kidney failure, it is known that out of a total of 46 respondents, most patients underwent hemodialysis >12 months, which was 35 people (76.1%), while those who underwent <12 months were 11 people (23.9%). In the group of patients who underwent hemodialysis <12 months, there were 5 respondents (10.9%) with good quality of life and 6 respondents (13.0%) with poor quality of life.

Meanwhile, in the group of patients who underwent hemodialysis >12 months, only 3 respondents (6.5%) had a good quality of life, and most of them, namely 32 respondents (69.6%), had a poor quality of life. Overall, poor quality of life was more dominant, with 38 respondents (82.6%), compared to 8 respondents (17.4%). This shows that the majority of chronic kidney failure patients undergoing hemodialysis therapy in this study have poor quality of life. The results of the statistical test showed a p value of 0.005 ( $p < 0.05$ ), which means that there is a significant relationship between the length of time they undergo hemodialysis therapy and the quality of life of patients with chronic kidney failure.

Thus, the alternative hypothesis (H1) is accepted and the null hypothesis (H0) is rejected. This shows that the length of time undergoing hemodialysis therapy has a relationship with the quality of life of patients with chronic kidney failure.

Based on the results of the study, it is known that patients who underwent hemodialysis for less than 12 months had a total of 11 respondents, out of 11 respondents there was a good quality of life as many as 5 people (10.9%), this condition shows that some patients are still able to adjust to changes in health conditions experienced while undergoing hemodialysis therapy. Based on the results of filling out the KDQOL SF-36 questionnaire, respondents with good quality of life generally still have good enough physical function so that they can still carry out daily activities according to their abilities. The patient also still has enough energy, does not experience too

much disturbance in social activities, and is able to maintain relationships with family and the surrounding environment. From the emotional and mental health aspects, patients in this category tend to be more able to accept the condition of their illness so that the levels of anxiety, stress, and despair are not too heavy. They began to understand that hemodialysis therapy is an important part of maintaining health conditions so that they are more compliant with regular treatment. In addition, the characteristics of the respondents also affect the good quality of life in this group. Some of the respondents were in adulthood so their physical condition was still strong enough to adapt to hemodialysis therapy. There are also respondents who can still do light work or remain active in daily activities so that they feel still productive and not too dependent on others. Good family support also greatly affects the patient's psychological condition. Patients who receive attention, motivation, and help from their families tend to be more enthusiastic about undergoing therapy and have a more positive outlook on their lives. In addition, because patients are still in the early stages of undergoing hemodialysis, some of them have not felt too much saturation due to long-term therapy so that the quality of life can still be maintained in the good category.

This is in line with research (Putri, 2024) explaining that patients who undergo hemodialysis for less than or equal to 12 months are still found to have good or poor quality of life. The results showed that the majority of respondents with a duration of hemodialysis  $\leq 12$  months had a good quality of life as many as 45 respondents (60.8%). This study explains that a good quality of life is influenced by the patient's ability to adapt to therapy, family support, and the psychological condition of the patient who begins to receive the disease experienced. In addition, patients who receive good social support and health education tend to be better able to maintain their daily activities and emotional state.

In addition, out of a total of 11 respondents, there were also 6 people (13.0%) who had poor quality of life. This condition shows that even though the patient is still relatively new to hemodialysis therapy, some respondents have experienced a poor quality of life. This happens because at the beginning of undergoing hemodialysis therapy, the patient is still in the stage of adjusting to changes in health conditions and considerable changes in lifestyle. Patients must accept the fact that they have chronic kidney failure disease that requires a lifetime of routine therapy. This condition often causes fear, anxiety, sadness, and stress because the patient feels that his life has changed compared to before he got sick. Based on the results of the KDQOL SF-36 questionnaire, a decrease in quality of life was seen in several domains such as physical function, physical role, energy, emotional, and social function. Respondents began to experience body weakness, fatigue easily, and limitations in carrying out daily activities. Many patients feel that their bodies are not as strong as they were before they were sick, so activities that were previously easy to do become strenuous. In addition, patients also begin to experience sleep disturbances, pain, and discomfort during hemodialysis therapy. From the psychological aspect, patients with poor quality of life in this group generally still find it difficult to accept the disease conditions experienced. They feel afraid, anxious, sad, and even stressed because they have to undergo routine therapy in the long term. Sudden changes in lifestyle make patients feel that their lives are limited. A routine hemodialysis schedule makes it difficult for patients to work, have difficulty doing activities outside the home, and feel dependent on their families. Some respondents also feel embarrassed or insecure about their health condition so they begin to withdraw from the social environment. This condition makes patients feel that their quality of life has decreased even though they have only undergone therapy for less than 12 months.

Respondent characteristics can also be a factor that influences the appearance of poor quality of life in this group. Respondents with older age generally experience a decrease in body function so that it is easier to feel tired after undergoing hemodialysis. In addition, the presence of comorbidities such as hypertension and diabetes mellitus can aggravate the patient's health condition. Respondents who are not working are also more susceptible to psychological distress because they feel lost productivity and depend on their families to meet their daily needs. Lack of social support and lack of adaptability to hemodialysis therapy can also make patients feel burdened with the condition of the disease experienced. As a result, the patient's quality of life becomes lower both physically, psychologically, and socially.

This is in line with the study (Br Sembiring et al., 2024) The study explained that patients who underwent hemodialysis for less than 12 months tended to experience a decrease in quality of life. This is because patients who have just undergone hemodialysis therapy are still in the stage of adapting to changes in physical, psychological, social, and emotional conditions due to illness and therapy that must be undergone regularly. In addition, patients who have just undergone hemodialysis also tend not to be able to accept the changes that occur in their lives so that they can cause anxiety, stress, and even depression that have an impact on reducing the quality of life.

In addition, a total of 35 respondents underwent hemodialysis therapy for more than 12 months, 3 (6.5%) of whom had a good quality of life because this condition showed that even though patients had undergone hemodialysis therapy for a long time, some respondents were still able to maintain their quality of life well. Based on the results of the KDQOL SF-36 questionnaire, patients in this category generally still have the ability to carry out daily activities according to their physical condition. Despite the limitations, patients are still able to maintain social functions, establish communication with family and the surrounding environment, and are not completely dependent on others. From the emotional and mental health aspects, patients seem to be more able to accept the disease conditions experienced so that they do not experience heavy psychological pressure. Patients begin to

consider hemodialysis therapy as part of a life routine that must be lived so that the process of adaptation to the disease becomes better.

Based on the characteristics of respondents, good quality of life can be influenced by the level of education of the respondents, most of whom are at the high school and college levels. A higher level of education helps patients understand the importance of undergoing hemodialysis therapy regularly and adhering to the recommendations of healthcare professionals. Patients become more receptive to medical information and better able to manage their health conditions so as to help maintain a good quality of life. In addition, in terms of work, some respondents are still able to do activities or light work. Patients who are still able to work generally have a more stable physical condition and show better adaptability to hemodialysis therapy. This situation makes the patient feel that he is still productive and not completely dependent on his family so that the patient's psychological condition becomes better. From the age aspect, although most of the respondents are in the age range of adults to the elderly, some patients are still able to maintain their physical condition and daily activities according to their body capabilities. In addition, patients who have undergone hemodialysis for a long time are also more accustomed to dealing with changes in body conditions and therapeutic effects so that their adaptability becomes better than patients who have just undergone hemodialysis.

This is in line with the study (Alifianur et al., 2024) which showed that most of the respondents had a good quality of life, and patients who had undergone hemodialysis for a period of more than 12 months also continued to show a good quality of life. This shows that the length of time to undergo hemodialysis does not necessarily have a negative impact on quality of life, but can provide an opportunity for patients to adapt to the condition of the disease and the therapy undergone. Thus, a good quality of life can be achieved both in patients undergoing hemodialysis for more than 12 months, which is influenced by the patient's adaptability as well as the support received during therapy.

In addition, out of a total of 35 respondents, there were also 32 people (69.6%) who had poor quality of life. This number indicates that most patients undergoing long-term hemodialysis experience a decline in quality of life. Based on the results of the KDQOL SF-36 questionnaire, a decrease in quality of life occurred in almost all domains, such as physical function, physical role, energy, social, emotional, mental health, and pain. Patients begin to experience heavier physical limitations, easily feel tired, weak, and unable to carry out daily activities as before. Many patients have to reduce their activities, stop working, and even rely on family help to meet their daily needs. From a psychological aspect, patients who undergo hemodialysis for more than 12 months often experience saturation due to routine therapy that is carried out continuously. Patients feel that their lives are limited because they have to come to the hospital regularly to undergo therapy. These conditions cause boredom, prolonged stress, anxiety, sadness, and even feelings of hopelessness over incurable disease conditions. In the energy domain, patients often complain of fatigue that lasts continuously which affects enthusiasm and ability to do activities. In addition, sleep disorders and pain that often appear also cause patients to feel that their quality of life is declining. The social function of patients in this group also decreased. The routine hemodialysis therapy schedule makes it difficult for patients to carry out activities outside the home, difficult to work, and rarely participate in social activities in the community. Some patients feel unconfident about their physical condition so they choose to limit interactions with others. This causes patients to feel isolated and lose their zest for life. In addition, the characteristics of the respondents, most of whom are in late adulthood to the elderly, also affect the physical condition of the patient. At that age, body function naturally decreases and is often accompanied by comorbidities such as hypertension and diabetes mellitus which further aggravate the health condition of chronic kidney failure patients.

In terms of age, the majority of chronic kidney failure patients undergoing hemodialysis therapy in this study were in the age range of 56–65 years. with a total of 15 people (32.6%) out of a total of 46 respondents. In general, these results show that most chronic kidney failure patients undergoing hemodialysis are in the age range over 45 years. In the early elderly group that dominated the study, declining physical conditions were often accompanied by comorbidities such as hypertension and diabetes mellitus, which are major risk factors for chronic kidney failure. In addition, at that age, patients also begin to experience limited activities, changes in social roles, and greater dependence on family. This condition can affect their perception of quality of life.

Based on the characteristics of respondents from the gender aspect, the majority of respondents are women. In general, women often face obstacles in quality of life, related to homework and other activities in this study, high poor quality of life is often found in female patients undergoing hemodialysis therapy.

The educational characteristics of the respondents showed that most of them were educated in high school and college. Higher levels of education generally provide a better understanding of chronic kidney disease and the importance of undergoing regular and continuous hemodialysis. However, in practice, the quality of life of patients is not only determined by the level of education alone, but also by how the patient is able to adapt during therapy for a certain period of time. Patients with low education, especially elementary and junior high schools, tend to have limitations in understanding medical information optimally, including related to hemodialysis procedures and complication management. This condition can affect their perception and readiness to undergo long-term therapy, so that it has the potential to have an impact on quality of life, especially in physical and psychological aspects.

If associated with the length of time to undergo hemodialysis, in each therapy many patients experience a decrease in quality of life due to the process of adaptation to changes in body conditions and lifestyles. However, as the time of undergoing hemodialysis increases, some patients begin to be able to adjust, so that the quality of life can gradually improve, especially in those who have good understanding and adequate support. The results of this study show that at all levels of education, the adaptation process during hemodialysis remains an important factor in determining quality of life. Education can help improve understanding, but length of therapy and adaptability are key in maintaining and improving the quality of life of patients.

The respondents' employment status showed that most were in the non-working category, which indicated that many patients were no longer actively working. This condition leads to increased physical and financial dependence on the family, especially since hemodialysis therapy must be undergone regularly and in the long term. This dependence makes the role of the family very important, both in providing medical expenses, transportation to health facilities, and assistance during therapy.

This research is in line with research (Saputra et al., 2023). The length of hemodialysis has an effect on quality of life. Each patient needs different times to adapt to the changes they experience such as symptoms, complications and lifelong therapy. So that the quality of life in patients with chronic kidney failure also fluctuates according to the time required for each stage of adaptation to hemodialysis procedures. This can be caused by a variety of factors, such as chronic fatigue, limited physical activity, dependence on hemodialysis machines, dietary and fluid restrictions, changes in social roles, and prolonged psychological burden. The long-term hemodialysis process can also cause complications such as anemia, bone disorders, and cardiovascular problems that also affect the patient's physical and mental condition. These findings are in line with the concept in the Kidney Disease Quality of Life (KDQOL) theory which states that the quality of life of chronic kidney disease patients is a multidimensional condition that includes physical, psychological, and social aspects, as well as the specific impact of kidney disease and the therapy undergone on daily life.

In the KDQOL model theory, quality of life is not only assessed from general health status, but also from the burden of kidney disease, the impact of disease on activities and social roles (Effects of kidney disease), and symptoms and problems experienced by patients (Symptoms/problems). Patients who undergo hemodialysis for a long period of time tend to experience decreased physical functions such as fatigue, weakness, and limited activity. This condition is related to the domains of physical function and vitality in KDQOL. In addition, long-term dependence on hemodialysis therapy can cause psychological burdens in the form of stress, treatment fatigue, feeling useless, and even depression, which is reflected in the domain of mental health and the burden of kidney disease.

## CONCLUSION

Based on the results of the study on the relationship between the long relationship between undergoing hemodialysis therapy and the quality of life of patients with chronic kidney failure at Prof. Dr. H. Aloei Saboe Hospital, Gorontalo City, the researcher can conclude as follows: Nurse support for chronic kidney failure patients undergoing hemodialysis therapy in the dialysis room of Prof. Dr. H. Aloei Saboe Hospital, Gorontalo City is in the poor category, Enough, and good, with most respondents getting nurse support in the good category.

The length of time they underwent hemodialysis therapy in patients with chronic kidney failure at Prof. Dr. H. Aloei Saboe Hospital, Gorontalo City, was divided into < 12 months and > 12 months, with most of the respondents having undergone hemodialysis therapy for > 12 months as many as 35 respondents (76.1%).

The quality of life of patients with chronic kidney failure who underwent hemodialysis therapy was in the good and poor categories, with most respondents having a poor quality of life as many as 38 respondents (82.6%), while good quality of life as many as 8 respondents (17.4%).

There is a significant relationship between the length of time they undergo hemodialysis therapy and the quality of life of patients with chronic kidney failure at Prof. Dr. H. Aloei Saboe Hospital, Gorontalo City. The results of the Fisher's Exact Test showed a p-value = 0.005 ( $p < 0.05$ ), so that the longer the patient underwent hemodialysis therapy, the patient's quality of life tended to experience significant changes.

## ADVICE

For health workers, especially nurses in the hemodialysis unit, it is expected to improve comprehensive services to patients with chronic kidney failure by providing continuous education on the importance of compliance with hemodialysis therapy, complication management, and the implementation of a healthy lifestyle. In addition, nurses need to provide psychological support and motivation to patients to be able to adapt to long-term therapy so that the patient's quality of life can be maintained. For patients undergoing hemodialysis therapy, it is expected to be more active in seeking information, consulting with health workers, and increasing awareness of the importance of therapy adherence to prevent complications. Patients are also expected to be able to build internal motivation and self-confidence in managing fluid restrictions, diet, and regularity of dialysis schedules. The patient's active participation in the treatment process can support the success of therapy and improve the quality of life.

For Chronic Kidney Failure Patients, it is expected to increase compliance in undergoing hemodialysis therapy according to a predetermined schedule, maintain diet and fluid restriction as recommended by health

workers, and strive to maintain good physical and psychological condition. Patients are also expected to be able to build a positive attitude and adjust themselves to changes in health conditions so that they can improve their quality of life while undergoing hemodialysis therapy.

For Further Investigators, it is recommended to conduct research with a wider scope and use different research designs, such as longitudinal or cohort, to look at changes in patients' quality of life over time. Researchers can also add other variables that have the potential to affect the quality of life of patients with chronic kidney failure, such as family support, depression levels, therapy adherence, economic status, comorbidities, and coping mechanisms of patients so that a more comprehensive picture of the factors affecting the quality of life of patients undergoing hemodialysis can be obtained.

## REFERENCES

- Al Hakim, R., Mustika, I., & Yuliani, W. (2021). Validity and Reliability of Achievement Motivation Questionnaire. *FOKUS (Guidance & Counselling Study in Education)*, 4(4), 263. <https://doi.org/10.22460/fokus.v4i4.7249>
- Alesandra, V., & Cusmarih, C. (2024). The Relationship between Hemodialysis Time and Anxiety Level in Chronic Kidney Failure Patients at Bekasi Regency Hospital. *Malahayati Nursing Journal*, 6(2), 660–676. <https://doi.org/10.33024/mnj.v6i2.10926>
- Anggraini, D., Klinik, B. P., Medicine, F., Baiturrahmah, U., Raya, J., Aie, P., Padang, P. K., & Indonesia, S. B. (2022). Aspek Klinis Dan Pemeriksaan Laboratorium Penyakit Ginjal Kronik Clinical Aspects and Laboratory Examination of Chronic Kidney Disease. *Journal of Public Health*, 9(2), 236–239.
- Br Sembiring, F., Elvina Pakpahan, R., Suryani Tumanggor, L., & Karniat Gustin Laiya, E. (2024). The Long Relationship of Undergoing Hemodialysis with the Quality of Life of Chronic Kidney Failure Patients at H. Adam Malik Hospital Medan. *Indonesian Trust Health Journal*, 7(1), 1–11.
- Budi, I. S., Rahmawati, P. A., Setiyowati, M. A., Ni, N., Afriyani, N., & Damayanti, Y. K. (2023). Literature Review : Effects of Hemodialysis on. 10(2).
- Candra Susanto, P., Ulfah Arini, D., Yuntina, L., Panatap Soehaditama, J., & Nuraeni, N. (2024). Quantitative Research Concepts: Population, Samples, and Data Analysis (A Literature Review). *Journal of Multidisciplinary Sciences*, 3(1), 1–12. <https://doi.org/10.38035/jim.v3i1.504>
- Crisanto, E. Y., Djamaludin, D., Yulendasari, R., Rita Purnama, Triyono, T., & Umsani, U. (2022). Health counseling on healthy behavior of patients with chronic kidney failure (CKD). *Journal Of Public Health Concerns*, 2(2), 65–69. <https://doi.org/10.56922/phc.v2i2.187>
- Damayantie, N., Rusmimpong, R., Mashudi, M., & Ditiaharman, R. (2022). Analysis of Quality of Life Factors of Chronic Kidney Failure Patients Undergoing Hemodialysis. *Silampari Journal of Nursing*, 6(1), 585–592. <https://doi.org/10.31539/jks.v6i1.4647>
- Djamaluddin, N., Sulistiani, I., & Mointi Lestari, Adelia Dwi. (2024). Overview of Quality of Life of Chronic Kidney Failure Patients Undergoing Hemodialysis Therapy. 17(1), 131–141.
- Elan, E., Sumardi, S., & Juandi, A. S. (2022). Preparation of Class Action Research Instruments in an Effort to Improve Social Skills. *Journal of Early Childhood Agapedia*, 6(1), 91–98. <https://doi.org/10.17509/jpa.v6i1.51339>
- Faizah, U. (2021). Side Effects of Hemodialysis in Chronic Kidney Disease (CKD) Patients with Aloe Vera Gel. *Indonesian Nursing Scientific Journal*, 5(1), 75–82. <http://jurnal.umt.ac.id/index.php/jik/index75>
- Feronika, N., Bayhakki, B., & Hasneli, Y. (2025). The Long-Term Relationship of Hemodialysis and Family Support for Interdialytic Weight Gain (IDWG) in Chronic Kidney Failure Patients in the Hemodialysis Unit. *Malahayati Nursing Journal*, 7(2), 486–502. <https://doi.org/10.33024/mnj.v7i2.16312>
- Golang, H., Muhafilah, I., & Wulan, Q. A. (2024). The Relationship Between Individual Characteristics and Quality of Life of Kidney Failure Patients in the Hemodialysis Room of Bhayangkara Tk I Raden Said Sukanto Hospital. *Journal of Urban Public Health*, 4(1), 1–12. <https://doi.org/10.37012/jkmp.v4i1.2123>
- Mess, J Thanks. (2023). Family Support for Chronic Kidney Failure Patients Undergoing Hemodialysis at Elisabeth Hospital Medan in 2023. *Journal of Scientific Horizons*, 3 (October), 467–480.
- Haiya, N. N., Ardian, I., Azizah, I. R., & Marfu'ah, S. (2024). Investigation of the quality of life of hemodialysis patients based on aspects of family support. *Journal of Nursing Echo*, 17(1), 162–178. <https://doi.org/10.33992/jgk.v17i1.3310>
- Hermawati, & Widarti, R. (2025). Patients with chronic kidney failure in the United States and Europe 46%-98%. 17(1), 55–66.
- Jaya, I. F. (2023). Fluid Restriction Knowledge Education in Chronic Kidney Failure Patients Undergoing Hemodialysis. *Indonesian Journal Of Community Service*, 3(2), 61–68.
- Jusron Iriawan, Dwia Indah Sari, A. P. (2024). The relationship between the length of suffering undergoing hemodialysis and the quality of life of chronic kidney failure patients. *Journal of Innovation Research and Knowledge*, 8(23), 1769–1778.
- Kandarini, Y., Made, I., & Winangun, A. (2021). Sustained Low-Efficiency Dialysis Hemodialysis: Indications and Application. *Digest of Medical Science | Digest of Medical Science*, 12(1), 453–459.

- <https://doi.org/10.15562/ism.v12i1.935>
- Lestari, R., Amalia, Ariyani, H., Solihatin, Y., & Muksin, A. (2025). The Long Relationship of Undergoing Hemodialysis with the Quality of Life of Chronic Kidney Failure Patients. Source: Student Health Journal, 4. <https://doi.org/10.35568/senal.v2i1.5221>
- Muliani, R., & Fauziah, L. A. (2022). 24-Article text-119-1-10-20220517. 5(2), 533–544.
- Nephrology, I. S. O. (2023). Global Kidney Health Atlas. Mon, 19–28.
- Nur, M. A. (2024). Scientific Journal of Science and Technology: Data Processing. 2, 163–175.
- Nurul Melani Haifa, Indah Nabilla, Virda Rahmatika, Rully Hidayatullah, & Harmonedi Harmonedi. (2025). Identification of Research Variables, Types of Data Sources in Educational Research. Learning Dynamics : Journal of Education and Language, 2(2), 256–270. <https://doi.org/10.62383/dilan.v2i2.1563>
- Permata Sari, S., AZ, R., & Maulani, M. (2022). The Long-Term Relationship of Hemodialysis with the Quality of Life of Chronic Kidney Disease Patients in the Hemodialysis Room of Bhayangkara Hospital, Jambi City. Indonesian Nurse Scientific Journal, 3(2), 54–62. <https://doi.org/10.22437/jini.v3i2.20204>
- Putra, I. E., Syaodih, E., & Agung, I. W. P. (2024). The Effect of Service Quality and Family Support on the Quality of Life of Patients in the Hemodialysis Room of Rs. Mh. Thamrin Cileungsi Indra. 10(November), 625–639.
- Putri, I. (2024). The long-standing relationship between undergoing hemodialysis and quality of life in patients with chronic kidney failure. Sec. 12.
- Roberts, G. V., Jefferson, N. M., Picillo, R., Torreggiani, M., Piccoli, G. B., Jaques, D. A., Niyyar, V. D., Lea, J., Hercé, M., Heude, I., Rouleau, J., Livet, A., Ribot, F., Pernet, C., Conway, P. T., & Murea, M. (2024). Patient, Nurse, and Physician Perspectives on Personalized, Incremental Hemodialysis. Journal of the American Society of Nephrology, 35(10), 1442–1445. <https://doi.org/10.1681/ASN.0000000000000467>
- Rosa, D., Furqoni, P. D., & Wardiyah, A. (2025). Long Relationship of Undergoing Hemodialysis (HD) with Self-Esteem in Chronic Kidney Failure Patients at Bintang Amin Hospital, Bandar Lampung. Malahayati Nursing Journal, 7(5), 1905–1919. <https://doi.org/10.33024/mnj.v7i5.19781>
- Rsu, D. I., & Prima, R. (2023). The Relationship Between Family Support and Illness Perception in Chronic Kidney Failure Patients in the Hemodialysis Room at Royal Prima Medan Erika Hospital. Sec. 3, 605–621.
- Ryu, J. H., Koo, T. Y., Ro, H., Cho, J. H., Kim, M. G., Huh, K. H., Park, J. B., Lee, S., Han, S., Kim, J., Oh, K. H., & Yang, J. (2021). Better health-related quality of life in kidney transplant patients compared to chronic kidney disease patients with similar renal function. PLoS ONE, 16(10 October), 1–17. <https://doi.org/10.1371/journal.pone.0257981>
- Salanti, P., Muninggar, & Eni, T. (2023). Long relationship of undergoing hemodialysis therapy with quality of life in patients with chronic kidney failure in the cut room of Dr. Saiful Anwar Malang Fitri Hospital. Professional Health Journal, 5(1), 49–69.
- Saputra, A., Wiryansyah, O. A., Study, P., Science, S., Mitra, S., & Palembang, A. (2023). The Relationship of Length of Hemodialysis Period with Quality of Life of Chronic Kidney Failure Patients. 15(1).
- Sinaga, P., Siswandi, I., & Bahri, S. H. (2024). The Relationship between Self-Efficacy and Duration of Hemodialysis on Quality of Life of Patients Undergoing Hemodialysis. Indonesian Journal of Nursing Sciences and Practice, 5(2), 51. <https://doi.org/10.24853/ijns.v5i2.51-56>
- Sk, H. J. (2024). The Relationship of Long Undergoing Hemodialysis with Quality of Life of Chronic Kidney Failure Patients at DR Hospital. 5(2), 240–251.
- Sofya, A., Novita, N. C., Afgani, M. W., Isnaini, M., Islam, U., Raden, N., & Palembang, F. (2024). Survey Methods: Explanatory Survey and Cross Sectional in Quantitative Research Survey Methods: Explanatory Survey and Cross Sectional in Quantitative Research. 4(3), 1695–1708.
- Sukmawati, A. S., Sabur, F., Nur, M., Darmawan, A. R., Sa'dianoor, S., Mahbub, K., Irmawati, I., Silviana, S., Tawil, M. R., Sampurno, C. B. K., & others. (2023). Research Methodology Textbook. PT. Sonpedia Publishing Indonesia.
- Sukmawati, S., Marlisa, A., Samang, B., Study, P., Results, T., West, U. S., Management, P. S., West, U. S., Agroecotechnology, P. S., & West, U. S. (2022). Overview of the diagnosis of pre-hemodialysis patients at Wangaya Hospital in 2020-2021. 5(2), 37–42.
- Suleman, I. (2024). Nursing Research Methodology. [https://www.researchgate.net/profile/Fakhriatul-Falah-2/publication/389945598\\_Buku\\_Digital\\_-\\_Metodologi\\_Penelitian\\_Keperawatan/links/67da30df78221c759f4caca8/Buku\\_Digital\\_Research\\_Methodology\\_Keperawatan.pdf?origin=publication\\_detail&tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InB1YmXpY2F0aW9uIiwicGFnZSI6InB1YmXpY2F0aW9uRG93bmxvYWQlLCJwcmV2aW91c1BhZ2U0iOiwjdWJs aWNhdGlvbiJ9fQ](https://www.researchgate.net/profile/Fakhriatul-Falah-2/publication/389945598_Buku_Digital_-_Metodologi_Penelitian_Keperawatan/links/67da30df78221c759f4caca8/Buku_Digital_Research_Methodology_Keperawatan.pdf?origin=publication_detail&tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InB1YmXpY2F0aW9uIiwicGFnZSI6InB1YmXpY2F0aW9uRG93bmxvYWQlLCJwcmV2aW91c1BhZ2U0iOiwjdWJs aWNhdGlvbiJ9fQ)
- Suleman, I., Jusuf, H., Ilham, R., & Akbar, H. (2024). Research Methodology. PT. A remix of the game.
- Suparmo, S., & Daniel Hasibuan, M. T. (2021). The Relationship of Fluid Restriction Compliance to the Occurrence of Post-Hemodialysis Edema in Chronic Kidney Failure Patients at Aminah Hospital, Tangerang City. Indonesian Trust Health Journal, 4(2), 522–528. <https://doi.org/10.37104/ithj.v4i2.88>

- 
- Triyono, A. H., Suandika, M., Wibowo, T. H., & Dewi, F. K. (2023). Description of the incidence of intra-hemodialysis complications in chronic kidney failure patients undergoing hemodialysis at Tk II Hospital 04.06.01 Wijayakusuma Purwokerto. *Journal of Nursing and Health (JNH)*, Volume 8 N, 27–39.
- Utama, Y. A., & Hayati, I. (2023). The relationship between the length of running hemodialysis and the quality of life of chronic kidney disease patients at Sekayu Hospital. *Proceedings of the National Seminar on Nursing*, 9(1), 24–29. <https://conference.unsri.ac.id/index.php/SNK/article/view/2876/1602>
- Veriyallia, Vera. (2025). Duration and Quality of Life in Chronic Kidney Disease Patients With the Roy Adaptation Approach. 9(1).
- Waruwu, M., Pu'at, S. N., Utami, P. R., Yanti, E., & Rusydiana, M. (2025). Quantitative Research Methods: Concepts, Types, Stages and Advantages. *Scientific Journal of the Education Profession*, 10(1), 917–932. <https://doi.org/10.29303/jipp.v10i1.3057>
- Widodo, S., Festy, L., & Ode, A. La. (2023). Research Methodology Textbook. In *Cv Science Techno Direct* (issue January).