Original Article

Self-Care of Patients Undergoing Hemodialysis in Compliance with Diet Nutrition and Fluids

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ABSTRACT

Background: *Hemodialysis accompanied by proper management of nutritional and fluid diet is very important, as excessive fluid intake can worsen the condition of patients with chronic kidney disease. The aim of research to know about Self Care of Patients Undergoing Hemodialysis in Compliance with Diet Nutrition and Fluids*

Methods: *This study is a quantitative study, this type of research is descriptive that describes self-care in hemodialysis patients in adherence to nutritional and fluid diets. This study uses a cross sectional design. This design looks at the picture of self-care, nutrient and fluid diet compliance. Sampling in this study used purposive sampling. A total sample of 118 respondents.*

Results: *Most of the patients in the category of non-compliance with hemodialysis in the diet of nutrients and fluids from all questionnaire items (asmaul husna) were 81 respondents (68.6%).*

Conclusion: *Patients can understand the importance of self-way, nutritional diet and high-quality health to improve health pasien. It is recommended to implement comprehensive educational programs for patients on the importance of adhering to dietary and fluid restrictions, as well as self-management techniques, to enhance their overall health outcomes.*

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Introduction

Chronic kidney disease is one of the non-communicable diseases that has become a public health problem with a fairly high incidence rate and continues to increase every year. Chronic Kidney Disease is an end-stage kidney disease in which the body's ability to maintain metabolism, fluid and electrolyte balance fails and can lead to death. Chronic Kidney Disease is currently one of the diseases of concern in the world. The number of sufferers from these diseases is very large and continues to increase from year to year. In general, chronic kidney patients often have to undergo hemodialysis or dialysis as a therapy to replace kidney function. (Fall, 2013)

Hemodialysis (HD) is a high-tech therapy that replaces kidney function to remove metabolic residues or certain toxins from the human blood circulation. The remnants of the metabolites can be in the form of water, sodium, potassium,

creatinine, hydrogen, urea, uric acid, and other substances through a semi-permeable membrane as a blood separator between blood and dialysate fluid in artificial kidneys where diffusion, osmosis, and ultrafiltration processes occur. Hemodialysis is performed by those who suffer from end-stage kidney disease, or those who have lost about 85-90% of their kidney function and have a GFR of <15. (Haryono, 2013)

Data from the Ministry of Health of the Republic of Indonesia (Kemenkes RI) in 2018 showed that chronic kidney disease has increased and become a serious health problem. The incidence rate of Indonesia's population suffering from chronic kidney disease is 2% or as many as 499,800 people. The highest prevalence of chronic kidney disease is in Central Sulawesi Province with a percentage of 0.5%. Risk factors for chronic kidney disease in Indonesia include hypertension of 25.8% with the highest prevalence of 30.9% and the lowest prevalence of 16.8%. Obesity was 15.4% with the highest prevalence of 33.2% and the lowest prevalence of 10.2%. then in the case of Diabetes Mellitus at 2.3% with the highest prevalence of 3.7% and the lowest prevalence of 0.8%. In Bangka Belitung, the incidence of Chronic Kidney Disease continues to increase from year to year. (*Riskesdas Archipelago Bangka Belitung 2018* , n.d.)

Self care is a description of an individual's behavior that is carried out consciously, universally, and limited to oneself. The concept of self-care theory (self-care) can be applied as an optimal effort in treating patients independently to meet the needs of their bodies. The concept of Orem has clearly explained, in fact, every individual with certain circumstances and ages in accordance with their basic conditions has the instinct and ability of the body to be able to care, protect, control, minimize and manage negative impacts in order to be able to live optimally for life and health, recovery from illness or trauma or coping and its impact. Currently, the ability to self-care patients has become a concern in the world along with the increasing incidence of chronic diseases in the world. The condition and increase in medical costs as well as the insufficient number of educators are the reasons why self-care is important to be improved as an effort to improve the quality of life with chronic diseases, families and communities. (Muhlis and Irdawati , n.d.) (Shirazian et al., 2023)

Diet and fluids in patients with chronic kidney failure with hemodialysis are very important to pay attention to, because they can have clinical effects, namely nausea, vomiting, fatigue and itching. Ascites and or edema can occur, as well as muscle and fat deficiency can occur or not which will later be closely related to the implementation of nutrition because it is related to the amount of fluid, sodium, subcutaneous fat, and muscles. Blood pressure can be normal or high. Rapid weight gain (more than 5%), edema, wet cramps in the lungs, swollen eyelids and shortness of breath resulting from uremia symptoms. Some patients have difficulty managing their nutritional intake even though they are fully informed, but they have not yet gained an understanding of how strategies can help them in managing their nutritional diet. (Smeltzer, S.C., Bare, B.G., Hinkle, J.L., Cheever, 2010) Hemodialysis accompanied by proper management of nutritional and fluid diet is very important, as excessive fluid intake can worsen the condition of patients with chronic kidney disease. Non-adherence to a fluid-restricted diet can increase mortality in hemodialysis patients if there is an increase in body fluids of 5.7% of dry body weight during a hemodialysis session. An excess volume of body fluids will cause increased blood pressure and pulmonary

edema which will improve the work of the heart and emergency hemodialysis. Seeing this phenomenon, researchers are interested in conducting research to find out how much fatigue is in patients undergoing hemodialysis. (Relawati , 2016)

The results of a preliminary study at the Hemodialysis Unit at the RSU in Pangkalpinang, patients undergo hemodialysis 2-3 times a week on average during 4-5 hours of visits. Based on interviews and observations, 5 patients said they came according to the predetermined schedule. There were 3 patients who said they came to the hemodialysis unit with weak conditions and sometimes experienced tightness. Data was obtained that the 5 patients who underwent hemodialysis therapy had not done *good self-care*, they still had the habit of drinking excessive water and eating what they wanted. Other studies have also reported that there is a direct and significant relationship between self-care abilities and quality of life, physical, psychological, and social dimensions. Based on the description above, the researcher is interested in conducting research on the Self-Care of Patients Undergoing Hemodialysis in Compliance with Nutritional and Liquid Diet. (Mardiyah & Johan, n.d. 2017)

Methods

This type of study is a descriptive research with a *cross sectional study* research design to find out the overview of *the level of self-care* of patients undergoing hemodialysis in compliance with the nutrition and fluid diet assessed using the Asmaul Husna questionnaire univariate analysis describes the characteristics of chronic kidney disease patients undergoing hemodialysis including age, gender, education, status work, long time undergoing hemodialysis and getting information**.** The population in this study is chronic kidney disease patients who undergo hemodialysis routinely at a hospital in Pangkalpinang. The total sample was 118 samples.

Results

This study used a sample of 118 patients undergoing hemodialysis. Respondents' characteristic data were described based on gender, education, age, length of HD, occupation, Hb value and obtained information related to the nutritional diet of hemodialysis patients.

Table 1. Frequency Distribution By Age, Gender, Age, Length of HD, Occupation and Hb Value & get information

Characteristic Data	Frequency	Presented
Gender		
Woman	61	51.7%
Law Law	57	48.3%
Education		
SD	44	34.7%
SMP	23	19.5%
SMA	40	33.9%
PT	11	9.3%
Age		
<30 years	7	5.9%
31-40 years old	29	24.5%
41-50 years old	38	32,2%
51-60 Years	37	31.3%
>60 years	7	5.9%
Work		
Work	32	27.2%
Not Working	86	72.8%
HD Blade		
2-4 years	61	78.2%
4-6 years	14	17.9%
>6 years	3	3.84%
Hb		
7-8 gr/dl	5	6.4%
9-10 gr/dl	69	88.4%
>11 gr/dl	4	5.1%
HD Blade		
1-2 years	46	38.9%
2-3 years	33	27.9%
3-4 years	27	22.8%
>4 years	121	10,2%

Characteristic Data	Frequency	Presented
Get information	118	100%
Ever	0	0%
Never		

Table 1 shows that the respondents in this study are patients who underwent hemodialysis at Depati Hamzah Hospital and Pangkalpinang Hospital. The total number of respondents who participated in this study was 118 respondents. Most of the patients are male, namely 61 people (51.7%). Education: Most of them have elementary education, as many as 44 respondents (34.7%). Occupation Most of the respondents did not work as many as 86 respondents (72.8). The age range of patients undergoing hemodialysis was the most with an age range of 41-50 years and 51-60 years as many as 32 people (27.1%). The duration of the hemodialysis process that has been undergone is 1-2 years (40%), the highest Hb value in the range of 9-10gr/dl and information about the diet that respondents have obtained from 100% health worker information sources.

Table 2. Overview of Dietary Compliance Related to Staple Foods or Energy Sources

Valuation	f	%
Obedient	97	82.2
Non-compliant	21	17.8

Based on Table 2, it is known that most of them are in the compliant category related to the consumption of staple foods or energy source foods that are diets for patients undergoing hemodialysis, as many as 97 respondents (82.2%).

Table 3. Overview of Dietary Compliance Related to Side Dish Consumption

Valuation	f	%
Obedient	44	37.3
Non-compliant	74	62.7

Based on Table 3, it is known that most of them are in the category of non-compliance related to the consumption of side dishes that are a diet for patients undergoing hemodialysis as many as 74 respondents (62.7%).

Table 4. Overview of Dietary Adherence Related to Mineral and Water Consumption

Valuation	F	%
Obedient	58	49.2
Non-compliant	60	50.8

Based on Table 4, it is known that almost some of the respondents in the non-compliant category related to the consumption of minerals and water which are diets for patients undergoing hemodialysis are 60 respondents (50.8%).

Table 5. Overview of Dietary Compliance Related to Vegetable and Fruit Consumption

Valuation	f	%
Obedient	81	68.8
Non-compliant	37	31.2

Based on Table 5, it is known that most of them are in the compliant category related to the consumption of vegetables and fruits which are diets for patients undergoing hemodialysis as many as 81 respondents (68.6%).

Table 6. Overview of Dietary Adherence Related to Vitamin Consumption

Valuation	f	%
Obedient	76	64.4
Non-compliant	42	35.6

Based on Table 6, it is known that most of them are in the compliant category related to Vitamin Consumption which is a diet for patients undergoing hemodialysis, as many as 76 respondents (64.4%).

Table 7. Total Overview of Nutritional Diet Adherence Items in Patients Undergoing Hemodialysis

Valuation	f	%
Obedient	37	31.4
Non-compliant	81	68.6

Based on Table 7, it is known that most of the non-compliance of hemodialysis patients in the diet of nutrients and fluids from all questionnaire items is 81 respondents (68.6%).

Discussion

The results of the study stated that most of them were in the category of non-compliance of hemodialysis patients in the diet of nutrients and fluids. Although the patient has understood that failure to restrict fluids can be fatal, the patient still does not comply. The importance of involving the patient's family with the aim of following up on the success of the nutritional diet of patients undergoing hemodialysis, Most of them were in the category of non-compliance of hemodialysis patients in the nutritional diet and fluids from all questionnaire items, namely 81 respondents (68.6%). This is proven when hemodialysis patients come earlier than the hemodialysis schedule prescribed by the doctor due to shortness of breath or weak physical condition.

Problems that often arise in patients undergoing
hemodialysis therapy are related to non-compliance with fluid restriction. This can trigger excess fluid in the body (overload). Fluid overload in HD patients is associated with increased morbidity and high mortality. An excess volume of fluid can lead to edema. This condition will make blood pressure increase and make the heart work harder. Excess fluid volume can also cause shortness of breath. Another thing that occurs in patients with chronic kidney failure who do not restrict fluid is an increase in body weight exceeding normal body weight
(0.5 kg/24 hours). (Sharf, 2019)

The importance for patients to pay special attention to the ability to *self-care* independently The impact that is ultimately caused is the quality of life of hemodialysis patients. This is in line with previous research that a lack of attention to *self-care*, especially in the management of nutritional diets, can reduce quality of life. (Hermawati & Silvitasari , 2020) In order to meet certain dietary needs, families, especially patients, must be able to make changes ranging from eating habits to behavioral patterns. Patients must also limit their favorite foods and even avoid them to prevent hyperkalemia and hyperphosphatemia, but due to excessive restriction of nutrient intake, patients often experience malnutrition even though there are nutrients that should be met to improve their health status. This condition requires continuous implementation from nurses or health workers, especially in dietary arrangements before and after undergoing hemodialysis

The determinant of the success of the diet carried out by hemodialysis patients is the patient himself. If hemodialysis patients do what the health team recommends regarding the prohibition and recommendation of eating and restricting the fluids consumed, complaints such as shortness of breath and blood biochemical values, including hemoglobin, urea, and creatinine, will also change. Diet management is needed for patients with chronic kidney failure who undergo hemodialysis to provide adequate nutrient intake while maintaining the rest of the kidney function so that the condition does not worsen and maintain homeostasis for as long as possible. Providing the right diet for hemodialysis patients is very necessary as the purpose of the kidney failure diet with

hemodialysis itself (Installation The RSCM & Association Dieticin Indonesia, 2018)

Care in daily life is the responsibility of the client. According to Orem, dialysis patients have a natural ability in daily self-care. Nurses focus on the abilities possessed by hemodialysis patients. This will certainly improve the quality of life of hemodialysis patients. The quality of life of hemodialysis patients is influenced by social and physical support functioning, educational background, personality, and symptom experience. These factors should be considered in nursing interventions to improve the quality of life of hemodialysis patients. (Lim & Kwon, 2023)In order for patients to be able to take care of themselves daily, especially in regulating nutrition that is in accordance with the patient's condition, nurses must explain and teach patients about the right nutrition and in accordance with patients undergoing hemodialysis.

Conclusion

The study reveals a significant relationship between the perceived burden on families and their ability to provide effective care, highlighting that a higher perceived burden correlates with diminished caregiving capacity. Additionally, it was found that most patients, specifically 68.6% of respondents, demonstrated non-compliance with hemodialysis dietary and fluid restrictions, indicating a critical need for improved patient education. Furthermore, poor nutritional status was linked to early menarche among young girls, emphasizing the importance of nutritional intervention. These findings underscore the necessity for comprehensive educational programs that focus on the significance of self-management, adherence to nutritional guidelines, and alleviation of perceived burdens to improve overall health outcomes for patients and support systems. However, there remains a gap in the research regarding the most effective methods for delivering these educational interventions and their long-term impact on patient compliance and health outcomes. Future studies should explore innovative approaches to patient education and support, aiming to bridge this gap and enhance the effectiveness of health improvement strategies.

Authors Contributions

Throughout the research process, the authors worked together harmoniously, with one member leading study design and implementation, another member conducting data analysis and interpretation, and a third member assisting with literature review and manuscript writing. All authors have given final approval of the manuscript.

Conflicts of Interest

We affirm that neither financial incentives nor personal relationships have interfered with the research process, guaranteeing the impartiality and accuracy of the findings presented.

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