

Relationship Of Family Support With Low-Salt (Sodium) Dietary Adherence In Chronic Renal Failure Patients On Hemodialysis In RSU. Imelda Pekerja Indonesia (IPI) Medan

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ABSTRACT

Hemodialysis is a kidney replacement therapy that is widely used throughout the world and its number is increasing every year (Cleemput & De-Laet, 2013; Ebrahimi et al., 2016; Yusop et al., 2013). Hemodialysis is performed due to progressive and irreversible kidney damage, so that the kidneys cannot adequately filter toxins and waste products from the blood and (Dorgalaleh et al., 2013). The purpose of the study was to determine the relationship between family support and low-salt (sodium) diet adherence in chronic renal failure patients with hemodialysis in RSU. Imelda Pekerja Indonesia in 2022 This research is a quantitative research using a correlational descriptive design with a cross-sectional observation approach. The results of the study showed a positive and significant relationship between family support and adherence to a low-salt diet (sodium) in patients with Chronic Renal Failure with Hemodilaisa at RSU. Imelda Pekerja Indonesia result $p = 0.018$. The conclusion of the study was that there was an association of family support with adherence to a low-salt diet (sodium) in CRF patients on hemodialysis at RSU. IPI Medan

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INTRODUCTION

Chronic Kidney Disease is a global public health problem with increasing prevalence and incidence. Cases are increasing by 8% each year, with 6-20 million people in the United States estimated to have early-phase CKD. Japan and Asia are recorded as countries with the highest population of late-stage CKD in the world, which is 1,800 cases per million population, and 220 new cases per year (Dharma, 2015).

Hemodialysis is a kidney replacement therapy that is widely used throughout the world and its number is increasing every year (Cleemput & De-Laet, 2013; Ebrahimi et al., 2016; Yusop et al., 2013). Hemodialysis is performed due to progressive and irreversible kidney damage, so that the kidneys cannot adequately filter toxins and waste products from the blood and (Dorgalaleh et al., 2013).

The World Health Organization (WHO) stated that the number of patients with chronic kidney failure in the world in 2013 increased by 50% from the previous year and in America the incidence of chronic kidney failure increased by 50% in 2014 and every year 200,000 Americans undergo hemodialysis (Widyastuti, 2014). The prevalence of CKD based on a doctor's diagnosis in Indonesia is 0.2% (Risksedas, 2013), while in Bali province the incidence of CKD is recorded at 0.2% (Risksedas, 2013). Data from the World Health Organizations (WHO) in 2014 stated that deaths from CKD in Indonesia reached 2.93% of the population or around 41,000 people (Amiranti, 2015).

A decrease in Glomerular Filtration Rate (GFR) on CRF will cause kidney and endocrine disorders. This will cause comorbidities so that it can threaten life. The results of research Sutarka, Suwitra, Loekman, et al. (2010) showed that 40% of CRF patients with an average LFG of 33 ml /

min / 1.73 m² showed coronary artery calcification compared to 13% in patients without kidney disorders.

Reviewing the impact that can be caused by CRF, comprehensive management is needed for the survival of sufferers. The final stage of CRF management is to provide therapy that can replace kidney function with hemodialysis (Aziz, Witjaksono & Rasjidi, 2008). Other management includes prescription diet and fluids, hypertension control and prevention of comorbidities and complications (Brunner & Suddarth, 2002). In addition, adherence to a low-salt diet in CRF sufferers is also very necessary to maintain patient survival as part of the prescription of treatment.

Hemodialysis as kidney replacement therapy cannot cure patients, but hemodialysis can extend life span and improve the quality of life of kidney failure patients. Sacrias et al. (2015) said that 69-71% of hemodialysis patients died due to stopping therapy and only 8-10% continued hemodialysis with 60% of them doing therapy irregularly because the costs needed to do hemodialysis were very expensive (Cleemput & De-Laet, 2013; Cristovao, 2015; Prodjosudjadi & Suhardjono, 2009).

Hemodialysis as therapy also has negative impacts for patients such as fever (50-60%), dyspnea (20-30%), pulmonary embolism resulting in chest pain (13%), ischemia heart disease (50%), hypertension (85%), pruritus (20-70%) and thirst distress (95%) (Sacrias et al., 2015). In addition, hemodialysis also results in complications such as hypotension, nausea and vomiting, leg cramps and fluid and electrolyte balance disorders.

The success rate of hemodialysis therapy is highly dependent on the patient's level of compliance to follow the recommended food and fluid intake restrictions (Chironda & Bhengu, 2016). Based on the results of the study, the prevalence of patient non-adherence rate to a low-salt diet (sodium) ranged from 68.1% to 87.9% (Kara, 2016). The results of this study are relevant to a study conducted by Fitriani, Krisnansari, and Winarsi (2016) which showed that the prevalence of patient non-compliance rate towards a low-salt diet (Sodium) at Margono Soekarjo Purwokerto Hospital was 77.1%.

The survival ability of CKD patients undergoing hemodialysis is influenced by various factors, such as the severity of the disease experienced, the condition of various body systems that are disturbed by toxins due to CRF, regulation of fluid and food intake, especially salt (sodium) diet, to compliance with following the hemodialysis schedule (Wijayanti, Isroin, & Purwanti, 2017). Some hemodialysis patients do not survive long, but there are also those who survive for years by undergoing hemodialysis (Wahyuni, Irwanti, & Indrayana, 2014). About 60% to 80% of hemodialysis patients die due to excess fluid (Istanti, 2014).

Adherence to fluid intake restrictions is the most difficult thing for patients. Restriction of fluid intake results in increased thirst which can make patients stressed. Patients living in countries with temperatures above 35 degrees often have difficulty controlling their fluid intake. Some research results show that about 39-95% of hemodialysis patients have experience thirst with six main factors that influence it, namely due to potassium depletion, acute urea plasma increase, hyperglycemia, plasma sodium concentration, angiotensin II and psychological factors (Kara, 2013; Sacrias et al., 2015). Bruzda-Zweich, Szczepanska and Zweich (2013) also added other factors that influence thirst include reduced saliva secretion, biological and biochemical changes, hormonal abnormalities and drug side effects.

Diet in chronic renal failure patients on hemodialysis therapy is very important given the effects of uremia. If the damaged kidneys are unable to excrete the end products of metabolism, this acidic substance will accumulate in the patient's serum and work as a poison or toxin in the patient's body. The more toxins that accumulate, the more severe the symptoms that appear. Fluid buildup can also occur resulting in congestive heart failure and pulmonary edema that can lead to

death. Because these things are very important, patients adhere to their diet. So that the needs of patients remain fulfilled and can move normally (Smeltzer and Bare, 2002).

Restrictive diets will change lifestyles and are perceived by patients as a disorder, and the recommended diet is not liked by most patients. Patients feel like they are being "punished" for their desire to eat and drink. Because if the patient obeys his wishes, it will occur such as ascites, hypertension, edema, cramps and others. This makes the patient feel very painful and unable to carry out daily activities. Therefore, patients become dependent on family (Smeltzer and Bare, 2002).

According to Mc. Causland, Waikar, and Brunelli (2012), sodium restriction is a key principle in the management of hemodialysis patients from the first time the patient receives renal replacement therapy. Sodium restriction can lower IDWG, decrease the need for hypertension medications, and improve the impact on left ventricular enlargement and reduced thirst. The National Kidney Foundation-Kidney Disease Outcomes Quality Initiative (NK-KDOQI) Guidelines recommend that the recommended amount of sodium intake for hemodialysis patients is <2400 mg/day or the equivalent of <6 grams/day of salt, preventing cardiovascular complications, while the European Nutrition Guide recommends 2000 to 2300 mg or the equivalent of 5-6 grams/day of table salt and according to the Kidney Organization Guide, The recommended sodium is 1500 to 2000 mg per day.

The results of the study of Mc. Causland, Waikar, and Brunelli (2012) showed that the average daily salt intake of hemodialysis patients in Japan was 12.6 grams (~5.5 grams or 240 mmol sodium), while hemodialysis patients in Spain as much as 10 grams (~4.3 grams or 189 mmol sodium) and hemodialysis patients in America as much as 9.7 grams (~4.2 grams or 183 mmol sodium). Meanwhile, research by Nerbass et al. (2013) indicates that the average daily sodium consumed by hemodialysis patients in Brazil is as much as 8.6 grams / day due to the use of salt and additional flavoring of foods containing salt in their food, resulting in increased thirst, IDWG and blood pressure.

The amount of daily sodium intake consumption is strongly influenced by the patient's ability to take care of himself (self-management) to control symptoms and disease processes. Li, Jiang and Lin (2013) in their study say that self-management is interpreted as a task that must be performed by patients from day to day to control or reduce the impact of disease on their physical health status. Ryan and Sawin (2009) say that self-management consists of three components, namely processes, programs and outcomes.

Adherence to a health program is an observable behavior that can be directly measured through the results or goals achieved in a predetermined treatment program (Bastable, 2002). Various studies say that adherence behavior in the treatment of a disease is significantly related to health status. These studies include Nugraha & Nurhayati (2014) research showing a significant relationship between *compliance* behavior using the *Health Belief Model* (HBM).

The results showed that the dimensions of HBM include individual confidence in their susceptibility to disease complications (*perceived susceptibility*), individual beliefs about the seriousness of their disease (*perceived severity / seriousness*), perceived benefits of individuals in displaying healthy behavior (*perceived benefit*), obstacles perceived by individuals in undergoing recommended behavior (*perceived barrier*), individual beliefs about signals that cause a person to move toward prevention (*cues to action*) and individual beliefs about the ability to do something (*self-efficacy*) are related to the compliance behavior of CRF patients undergoing hemodialysis. Vice versa, a person's non-compliance behavior with treatment will have an impact on his health condition/status. Including compliance in undergoing diet and fluids in patients with kidney failure. Non-compliance with the recommended low-salt (sodium) diet can adversely affect the

prognosis of the disease. Research by Wizeman, Wabel, Chamney, Zaluska, et al., (2008) shows that excess fluid input (*overhydration*) in CRF patients on hemodialysis will increase mortality rates.

Factors that affect hemodialysis compliance include education, knowledge, attitudes, family support (Notoatmodjo, 2012) and factors of length of time undergoing hemodialysis (Kamerrer, 2007). Family support is associated with control of fluid intake to achieve lower interdialytic body weight but also to survival (Yakoyoma et al., 2009).

Patients undergoing hemodialysis need to be given motivation and social support, because patients suffering from CKD experience a state of dependence on their lives and there is an adjustment to the disease which results in changes in behavior, including passivity, dependence, insecurity, confusion and suffering (Hidayati 2012).

General Hospital is a type B referral hospital in RSU. Imelda Pekerja Indonesia. CRF patients who underwent hemodialysis (HD) in April-July 2022 were 136 people with an average visit of 70 CRF patients undergoing HD per month, while CRF patients undergoing routine HD per month were 50 people. Based on a preliminary study conducted on 12 patients who underwent routine HD, it was found that 7 of them came with complaints of tightness without fever so that patients used oxygen therapy during HD. Other data obtained during the preliminary study found that of the 7 people experienced an increase in Interdialytic weight gain (IDWG) of more than 5%. In addition, a patient with anasarca edema with pitting edema+3 and an increase in IDWG by 30%.

METHOD

This research is a quantitative research using this research using a correlational analytical design, which is research that aims to reveal the correlative relationship between the independent variable and the dependent variable and test based on existing theories. This study uses a *cross sectional* approach that emphasizes the time of measurement or observation of data on independent variables and dependent variables carried out once at a time. A *cross-sectional* approach was taken to develop and explain the relationship between family support and adherence to a low-salt diet (sodium) in CRF patients with hemodialysis. The research began to be carried out from the beginning of the preparation of the proposal to the preparation of research results from March to August 2022 at RSU. Imelda Pekerja Indonesia. Sampling is a process in selecting portions of the population to be representative of the population. Sampling technique is a technique used to take samples from the population. The sampling method used in this study is *purposive sampling*, which is the selection of samples by determining subjects who meet the research criteria to be included in the study until a certain period of time, so that the number of clients needed is met.

The research sample is a portion of the overall object studied and is considered representative of the entire population. In other words, the sample is the elements of the population that are selected based on their ability to represent them. The number of samples in this study was 37 people

RESULTS AND DISCUSSION

Univariate Results

After conducting a study entitled "The Relationship of Family Support with Low Salt Diet Adherence in CRF Patients with Hemodialysis In RSU. Imelda Pekerja Indonesia In 2022, the following results were obtained:

Table 1. Distribution of Respondent Characteristics Based on Age in CRF Patients with Hemodialysis in the Hemodialysis Room RSU IPI Medan Year 2022

No	Characteristic	Frequency	Percentage %
1	26 - 35 Years	18	48,6

Relationship Of Family Support With Low-Salt (Sodium) Dietary Adherence In Chronic Renal Failure Patients On Hemodialysis In RSU. Imelda Pekerja Indonesia (IPI) Medan. Nataria Yanti Silaban, et.al

2	36-45 Years	15	40,5
3	46-55 Years	4	10,8
Total		37	100

Based on table 1. Above it can be seen that the majority of respondents whose age interval is 26-35 years are 18 people (48.6%), while the minoritas of respondents whose age interval is 46-55 years are 4 people (10.8%).

Table 2. Distribution of Respondent Characteristics by Sex in CRF Patients with Hemodialysis in the Hemodialysis Room RSU IPI Medan Year 2022

No	Characteristic	Frequency	Percentage %
1	Man	29	78,4
2	Woman	8	21,6
Total		37	100

Based on table 2. Above it can be seen that the majority of respondents are men as many as 29 people (78.4%)

Table 3. Distribution of Respondent Characteristics Based on Occupation in CRF Patients with Hemodialysis in the Hemodialysis Room RSU IPI Medan Year 2022

No	Characteristic	Frequency	Percentage %
1	civil servants	8	21,6
2	self-employed jobs	15	40,5
3	Farmer	14	37,8
Total		37	100

Based on the 3 above, it can be seen that the majority of respondents based on self-employed jobs are 15 people (40.5%) while the minority are civil servants as many as 8 people (21.6%).

Custom Data

Table 4. Distribution of Family Support Respondent Characteristics in CRF Patients with Hemodialysis in the Hemodialysis Room RSU IPI Medan Year 2022

No	Family Support	Frequency	Percentage %
1	Good	20	54.1
2	Bad	17	45.9
Total		37	100

Based on table 4 The above can be seen Good family support is 20 people (54.1%) and bad family support is 17 people (45.9%)

Table 5 Distribution of Respondent Characteristics of Low Salt Diet Adherence in CRF Patients on Hemodialysis in the Hemodialysis Room RSU IPI Medan Year 2022

No	Low Salt (Sodium) Diet Adherence	Frequency	Percentage %
1	Obedient	20	54,1
2	Disobedient	17	45,9
Total		37	100

Based on table 5. Above can be seen respondents who adhere to a low-salt diet as many as 20 people (54.1%) and respondents who do not comply as many as 17 people (45.9%).

Bivariate Results

Table 6. Relationship of Family Support with Low Salt (Sodium) Diet Adherence in CRF Patients on Hemodialysis in the Hemodialysis Room RSU IPI Medan

Family Support	Low Salt (Sodium) Diet Adherence		Total	Chi-Square
	Obedient	Disobedient		
Good	15	5	20	0.017
Bad	6	11	17	
Total	21	16	37	

From the results of the analysis using the SPSS system, the *Chi-Square test* showed that there was a positive and significant relationship between family support and adherence to a low-salt (sodium) diet at RSU. IPI Medan with the result $p = 0.017$, so it can be concluded that H_a accepted that there is a significant relationship between family support with a low-salt diet (sodium) in CRF patients with hemodialysis.

Discussion

After the author conducted a study by collecting data through correlation test tests and conducting data analysis techniques conducted on respondents about the relationship of family support with Low Salt Diet Adherence (Sodium) in CRF patients with Hemodialysis at RSU. IPI Medan . Then the author will discuss the results of research that has been found as follows:

The Relationship of Family Support with Low Salt Diet Adherence in CRF Patients on Hemodialysis in the Hemodialysis Room RSU IPI Medan

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The survival ability of CKD patients undergoing hemodialysis is influenced by various factors, such as the severity of the disease experienced, the condition of various body systems that are disturbed by toxins due to CRF, regulation of fluid and food intake, especially salt (sodium) diet, to compliance with following the hemodialysis schedule (Wijayanti, Isroin, & Purwanti, 2017). Some hemodialysis patients do not survive long, but there are also those who survive for years by undergoing hemodialysis (Wahyuni, Irwanti, & Indrayana, 2014). About 60% to 80% of hemodialysis patients die due to excess fluid (Istanti, 2014).

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CONCLUSION

Based on the results of research and discussion, this study concluded that the relationship between family support and low-salt diet adherence in CRF patients with hemodialysis in the RSU hemodialysis room. IPI Medan. The Hospital increased the provision of education in terms of family support with salt relief diet adherence in Chronic Renal Failure patients undergoing hemodialysis, thereby improving the quality of life in these patients. Improve health services, especially in treating Chronic Renal Failure patients undergoing hemodialysis by involving family support to improve adherence to a Low Salt (Sodium) Diet. Provide family support and holistic health services so that the compliance of Chronic Renal Failure patients in a Low Salt (Sodium) Diet increases.

REFERENCE

- Ahrari, S., Moshki, M., & Bahrami, M. (2014). The Relationship between social support and adherence of dietary and fluids restrictions among hemodialysis patients in Iran. *Journal of Caring Science*, 3(1): 11-19. doi: 10.5681/jcs.2014.002
- Alharbi, K., & Enrione, B.E. (2012). Malnutrition is prevalent among patients in Jeddah, Saudi Arabia. *Saudi Journal Kidney Diseases and Transplantation*, 23(3) : 598-608.

- Al-yassiri, A. M. H (2014). Prevalence of xerostomia in patients with chronic hemodialysis in Babil City. *Karbala Journal of Medical*, Vol.7 No.1.
- Black M. Joyce & Hawks H. Jane (2005). *Medical Surgical Nursing Clinical Management for Positive Outcomes*. (Ed.7). St. Louis: Missouri Elsevier
- Saunders Bland, R.J., Cottrell, R.R., & Guyler L.R. (2008). Medication compliance of hemodialysis patients and factors contributing to non-compliance. *Dialysis & Transplantation Journal*.
- Bruzda-Zweich, A., Szczepanska, J., &Zwiech R. (2013). Sodium gradient, xerostomia, thirst and inter-dialytic excessive weight gain : a possible relationship with hyposalivation in patients on maintenance hemodialysis.
- International Urology Nephrology* (2014) 46:1411-1417. Doi: 10.1007/s11255-013-0576-y.
- Kara, B. (2016). The importance of fluid management in patients on hemodialysis : an overview. *International Journal of Nursing Papers* 2016; 1:1-2. Doi: <http://scigatejournals.com/publications/index.php/ijnp>.
- Kemenkes RI. (2011). Diet penyakit ginjal kronik dengan hemodialisis. www.kemenkes.go.id