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Self-Management and Nutritional Status in Hemodialysis Patients

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ABSTRACT

Introduction: Malnutrition in hemodialysis patients can be caused by various factors, one of which is low self-management ability. This study aims to analyze the relationship between self-management and nutritional status in hemodialysis patients.

Methods: The research design used was descriptive analytic with a cross-sectional approach. The sample consisted of 127 chronic kidney disease (CKD) patients undergoing hemodialysis at the Hemodialysis Unit of Petrokimia Gresik Hospital from April to May 2025, using a purposive sampling technique. Data analysis was performed using the Chi-square test with the assistance of SPSS software.

Results: The analysis results showed a significant p value=0.037 (<0.05), indicating that there was a significant relationship between self-management and nutritional status in hemodialysis patients.

Conclusion: Self-Management is associated with the nutritional status of patients undergoing hemodialysis. Hemodialysis nurses are advised to provide support and education to hemodialysis patients so that patients can practice self-management to maintain their nutritional status.

Keywords: Chronic kidney disease, Hemodialysis patient, Nutritional status, Self-management

INTRODUCTION

The effectiveness of hemodialysis therapy in patients with chronic kidney disease is greatly influenced by patient involvement in self-management, which includes fluid intake regulation, diet, medication regimen, vascular access care, and adherence to the therapy schedule. However, even though they are undergoing regular hemodialysis therapy, patients with chronic kidney disease (CKD) remain at high risk of complications, one of which is malnutrition (Astuti et al., 2019). Malnutrition is a common condition in hemodialysis patients and can be caused by low intake of energy, protein, and other nutrients that are important for the body. The causes of malnutrition are diverse, such as strict dietary restrictions, digestive disorders, comorbidities, and micronutrient imbalances as a result of the hemodialysis

process (Ulfa et al., 2019). Malnutrition in hemodialysis patients is also closely related to protein-energy wasting syndrome, which contributes to increased morbidity and mortality rates. This condition is characterized by weight loss, loss of body fat, and decreased levels of visceral proteins such as serum albumin and transferrin (Putri et al., 2020). Based on the researcher's observations at the location, many hemodialysis patients know about the CKD diet rules but are not implemented in their daily lives. Therefore, it is necessary to analyze whether there is a correlation between management capabilities and the nutritional status of CKD patients.

The Global Burden of Disease Study reports that the global prevalence of CKD reaches 697.5 million cases (Deng, et al., 2025). The number of kidney disease patients in Indonesia is estimated to increase by 41.4% between 1995 and 2025. Indonesia ranks fourth among countries with the highest number of chronic kidney failure patients in the world (Kusumastuti, et al., 2025). Data compiled by Dr. Soetomo Hospital in East Java showed that during 2024, there were 229 new CKD patients receiving hemodialysis services, with a total of 12,969 male patients and 14,187 female patients receiving hemodialysis services in 2024 (Dr. Soetomo Hospital, 2024). The high prevalence of malnutrition, ranging from 18% to 75%, is one of the problems faced by CKD patients undergoing hemodialysis. Those majority of patients were in the 36–60 age range (89.2%) and were predominantly male (55.4%) (Tahir, et al., 2022). In addition, research by Syakilla, et al., (2025) showed that 52 of 67 respondents (79.1%) with chronic kidney disease (CKD) undergoing hemodialysis at Prof. Dr. H. Aloei Saboe Regional General Hospital in Gorontalo had moderate nutritional status, and 9 respondents (11.9%) had poor nutritional status.

Medical and nutritional factors, psychosocial aspects and self-management skills play an important role in preventing malnutrition. Self-management refers to an individual's ability to independently manage their illness and daily care. In the context of hemodialysis, self-management includes understanding the appropriate diet, adhering to hemodialysis procedures and schedules, and consistency in maintaining a healthy lifestyle (Malinda et al., 2022). Previous studies have shown that poor self-management can lead to decreased appetite and symptoms of depression, which impact patients' nutritional status (Nursia et al., 2019).

Findings from several studies in Indonesia show that most CKD patients undergoing hemodialysis experience malnutrition, especially in the productive age group and those with comorbidities such as hypertension or diabetes (Tahir et al., 2022). Weight loss can even occur within the first three months of therapy and worsen after one year. The purpose of this study was to explain the relationship between self-management and nutritional status in hemodialysis patients.

METHOD

This study used cross-sectional design. The population in this study was all chronic kidney disease (CKD) patients undergoing hemodialysis at the Hemodialysis Unit of Petrokimia Gresik Hospital from April 1 – May 28, 20250 with a total population of 188 patients. Sampling was conducted using the Slovin

formula with a 5% margin of error, resulting in a sample of 127 respondents. The sampling technique used was purposive sampling with the inclusion criteria were patients aged 20-60 years, but patients who experienced decreased consciousness and patients who experienced severe nausea and vomiting were excluded in this study. The self-management variable was measured using the Hemodialysis Self-Management Instrument (HDSMI-18) questionnaire, which consisted of 18 questions and covered four domains, partnership, self-care, problem solving, and emotional management. This questionnaire uses a four-point Likert scale, ranging from "never" (score 1) to "always" (score 4). The total skor of HDSMI-18 was categorized to be good level of self-management (if score >40), moderate level of self-management (if score 24-48), and bad level of self-management (if score <24) (Mailani, 2023). The validity and reliability test results for this questionnaire are 0.331-0.799 and Cronbach's alpha value is 0.898 (Astuti, 2019). The nutritional status variable was measured using Body Mass Index (BMI) observations, obtained from comparing weight (kg) to height squared (m^2), then classified into the categories of underweight, normal, overweight, and obese. In this study, the respondents' body weight was calculated using the ckd patient's dry body weight value

The data collected through questionnaires and observations then processed to be editing, coding, entry, cleaning, and tabulation. Bivariate analysis was performed using the Chi-square statistical test to determine the relationship between self-management and nutritional status. The test was conducted with a significance level (α) of 0.05. (Notoatmodjo, 2020).

RESULTS

The majority of respondents were aged 45–59 years (72.4%), female (60.6%), and high school graduates (80.3%), followed by college graduates (19.7%). None of the respondents had only a primary school education.

Table 1. Characteristics of respondents

Variabels	n	(%)
Gender		
Male	50	39.4%
Female	77	60.6%
Age		
20-44 years	35	27.6%
45-59 years	92	72.4%
60 years	0	0%
Occupation		
Private employee	50	39.4%
Self-employed	50	39.4%
Civil Servant	5	3.9%
Military/ police	0	0%
Not working	22	17.3%
Education		
Elementary	0	0%
Junior High School	0	0%
Senior High School	102	80.3%
Academy/College	25	19.7%
Others	0	0%
Marital status		
Married	112	88.3%
Unmarried	5	3.9%
Widows	5	3.9%
Widowers	5	3.9%
Duration of HD		
< 3 months	0	0%
> 3 months	127	100%

Table 2. Cross Tabulation of the Relationship between Self-Management and Nutritional Status in Hemodialysis Patients

Self–Management level	Nutritional status								Total	
	Obese		Overweight		Normal		Thin			
	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
Bad level	1	100%	0	0%	0	0%	0	0%	1	0.8%
Moderate level	6	25%	5	20.8%	12	50%	1	4.2%	24	18.9%
Good level	14	13.7%	6	5.9%	77	75.5%	5	4.9%	102	80.3%
Total	**21**	**16.5%**	**11**	**8.7%**	**89**	**70.1%**	**6**	**4.7%**	**127**	**100%**
Chi square test p-value = 0.037										

Most respondents worked as entrepreneurs (39.4%) and private employees (39.4%). The majority of respondents were married (88.3%), while the rest were unmarried (3.9%), widows (3.9%) and widowers (3.9%). Based on the duration of hemodialysis therapy, all respondents (100%) had been undergoing hemodialysis for more than three months.

Table 2 shows that of the 1 respondent with poor self-management, 1 respondent had obese nutritional status. There were 24 respondents with moderate self-management, the nutritional status of 12 of these respondents was normal, 6 respondents were obese, 5 respondents were overweight, and 1 respondent was underweight. Lastly, out of 102 respondents with good self-management, 77 respondents had normal nutritional status, 14 respondents had obesity nutritional status, 6 respondents had overweight nutritional status, and 5 respondents had underweight nutritional status. The chi-square test results showed that the significance level of p value = 0.037 < 0.05, indicating a significant relationship between self-management and nutritional status in hemodialysis patients with a chi-square value of 13.419 greater than the chi-square table value of 12.592. Therefore, it can be concluded that there is a significant relationship between self-management and nutritional status.

DISCUSSION

Statistical test results show a significant relationship between self-management and nutritional status. This indicates that a patient's ability to manage their health correlates with their nutritional status. Good self-management allows patients to understand the importance of an appropriate diet, avoiding foods that can worsen kidney conditions, and complying with dietary recommendations given by health workers. On the other hand, patients with low self-management skills tend to have difficulty regulating their diet and meeting their daily nutritional needs, which ultimately puts them at risk of malnutrition (Satti et al., 2021). This study is in accordance with the research by Idris & Sari (2022), which states that there is a relationship between self-management and blood sugar levels in middle-aged adults (40-60 years old) with type 2 diabetes mellitus at the Diabetes Wound Care Specialist Unit in Pondok Gede, with a positive correlation coefficient of 0.734.

In this study, most respondents had a good level of self-management, while only 0.8% of respondents showed a bad level of

self-management. These were possible because most respondents were in the 45–59 age range. A person's level of maturity can be seen from their age, where increasing age is generally accompanied by more focused mindsets and behaviors. This allows individuals to be more compliant in the therapy process.

Most respondents in this study had a high school education. Several studies have revealed that education level can affect patients' ability to perform self-management. In addition, understanding medical instructions and awareness of the importance of care often play a more significant role than formal education. However, Astuti et al. (2019) stated that there was no significant correlation between educational level and self-management abilities in hemodialysis patients, so higher education does not necessarily guarantee a better understanding of the disease and how to treat it.

According to Prastiwi et al. (2022), self-management reflects an individual's skills in coping with chronic diseases, which include the ability to make decisions, carry out self-care, and manage the emotional impact of the disease. Astuti et al. (2019) added that factors such as knowledge, self-efficacy, and social support greatly influence the success of self-management in hemodialysis patients.

Self-management of hemodialysis patients includes adherence to hemodialysis procedures, medication, fluid intake, and diet. Patients with chronic kidney disease must implement effective self-management in limiting fluid and sodium intake. Fluid and sodium restriction in hemodialysis patients can reduce the impact of increased body fluid volume, lower blood pressure, and Interdialytic Weight Gain (IDWG). Patients who have good self-management can be motivated to treat their disease by understanding their condition, preventing the onset of symptoms, and knowing how to manage the symptoms that arise (Okyfianti, et al., 2025).

Dani et al. (2015) stated that hemodialysis patients greatly need support from health workers, as they have high expectations for recovery. Such support can encourage patients to be more active in their own care, including in food selection and diet management. Therefore, it can be known that efforts to improve self-management have a direct positive impact on the nutritional status of hemodialysis patients. Interventions that focus on nutrition education, self-management skills training, and psychosocial support are very important to help patients achieve an optimal quality of life during long-term therapy.

Furthermore, this study has limitations in terms of the relatively short research period of only two months, which limited the scope and depth of the analysis that could be carried out. This time constraint meant that the data collected was not able to represent all the variables that might have had an influence, thus limiting the generalizability of the findings of this study.

CONCLUSION

There is a significant relationship between self-management and nutritional status in hemodialysis patients. Hemodialysis nurses are advised to provide education to hemodialysis patients in improving especially to maintain their nutritional status.

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