Journal Educational of Nursing (JEN)
Vol. 9 No. 2 May – August 2026; page 9-18
p-ISSN : 2655-2418; e-ISSN : 2655-7630
journal homepage: https://ejournal.akperrspadjakarta.ac.id
DOI: https://doi.org/10.37430/jen.v9i2.351

Article history:
Received: January 14th, 2026
Revised: January 14th, 2026
Accepted: January 16th, 2026

The Relationship Between Knowledge Level and Self-Efficacy on Self-Care Management in Chronic Kidney Failure Patients Undergoing Hemodialysis at Jakarta Cempaka Putih Islamic Hospital

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Abstract

Background: Chronic Kidney Disease (CKD) patients undergoing hemodialysis require effective self-care management to support the success of their therapy. Knowledge and self-efficacy are important factors in managing self-care. Objective: To determine the relationship between knowledge and self-efficacy levels with self-care management among CKD patients undergoing hemodialysis at the Jakarta Cempaka Putih Islamic Hospital. Methods: This study used a quantitative correlational design with a cross-sectional approach. The sample consisted of 75 CKD patients undergoing hemodialysis selected using simple random sampling. Data were collected using questionnaires on knowledge level, self-efficacy, and self-care management, and then analyzed using Chi-square tests and logistic regression. Results: Bivariate analysis showed a significant relationship between knowledge level and self-care management with a p value <0,001, as well as between self-efficacy and self-care management with a p value <0,001. Multivariate analysis showed that knowledge (OR = 6.633; p value < 0.001) and self-efficacy (OR = 10.633; p value < 0.001) had a significant effect on self-care management, with self-efficacy being the dominant factor. Conclusion: There is a significant relationship between the level of knowledge and self-efficacy with self-care management in CKD patients undergoing hemodialysis. Health education and emotional support are strongly needed to improve self-efficacy and knowledge so that patients' self-care management abilities can be enhanced.

Keywords: knowledge level, self-efficacy, self-care management, chronic kidney disease, hemodialysis.

INTRODUCTION

Chronic kidney disease (CKD) is a global health problem characterized by kidney damage lasting more than three months and a decrease in glomerular filtration rate below 60 mL/minute/1.73 m² [16]. Globally, CKD affects more than 10% of the population, or approximately 800 million people, with mortality reaching 1.5 million in 2020 [9]. The highest prevalence is recorded in Europe (18.38%), while in the United States, the number of end-stage CKD patients reached 804,434 in 2020 [7]. In Indonesia, the prevalence of CKD based on the 2023 Indonesian Health Survey (SKI) is 0.18% or approximately 638,178 people, with DKI Jakarta being one of the provinces with the highest rate at 0.22% [5].

Hemodialysis is the most commonly used renal replacement

therapy to maintain metabolic function and electrolyte balance in patients with chronic kidney disease (CKD) [5]. According to SKI 2023, 21.1% of CKD patients aged ≥15 years undergo hemodialysis [5]. The success of this therapy is influenced by the patient's ability to manage self-care, including diet compliance, fluid restriction, medication, and symptom monitoring [18]. However, various studies have found that self-care management among hemodialysis patients remains low. [8] reported that 40–80% of CKD patients do not comply with dietary and fluid restrictions. In Indonesia, 71.3% of hemodialysis patients are not optimal in self-management, especially regarding diet, fluids, and medications. Factors that influence self-care management include education, knowledge, self-efficacy, anxiety, and depression [9]. Knowledge and self-efficacy are reported as the most dominant factors influencing compliance and self-management ability [6].

Low knowledge about the disease and hemodialysis therapy is a barrier to self-care compliance [1], while low self-efficacy leads to a lack of confidence in consistently following the therapy regimen [2]. Previous studies have confirmed that knowledge and self-efficacy have a significant effect on self-care management in hemodialysis patients [12].

A preliminary study at the Jakarta Cempaka Putih Islamic Hospital showed that some patients had low levels of knowledge and self-efficacy regarding hemodialysis therapy. This condition confirms the need for further research on the role of these two factors in self-care management.

Based on the above description, the researcher is interested in conducting research on "The Relationship between Knowledge Level and Self-Efficacy on Self-Care Management in Chronic Kidney Failure Patients Undergoing Hemodialysis at the Jakarta Cempaka Putih Islamic Hospital."

RESEARCH METHODOLOGY

This study used a quantitative correlational design with a cross-sectional approach. The study population consisted of all 214 CKD patients undergoing hemodialysis at the HD Unit of Jakarta Cempaka Putih Islamic Hospital. The sample size was calculated using the Slovin formula (e 10%) and then increased by 10% to anticipate dropouts, resulting in 75 respondents selected using simple random sampling. Based on the inclusion criteria: stage V CKD patients aged 20-75 years, undergoing routine hemodialysis ≥2 times/week for at least 3 months, conscious and cooperative, able to communicate well, and willing to sign an informed consent form. This study has obtained ethical approval from the Research Ethics Committee of STIKes RSPAD Gatot Soebroto with ethical clearance number No: 005248/STIKes RSPAD Gatot Soebroto/2025.

Data were collected through questionnaires on knowledge level, self-efficacy, and self-care management. The first questionnaire used in this study was a knowledge level questionnaire, adopted from Muthiah and then adapted in the research by [17], with 15 Guttman scale questions and has been declared valid and reliable with a CVI value of 1.00 and a Cronbach's Alpha reliability test of 0.840. The second questionnaire was a self-efficacy questionnaire, adapted from [14] and consisting of 23 Likert scale questions; all items had an r-count > r-table and high reliability with a

Cronbach's alpha of 0.863. The third questionnaire was a self-care management questionnaire, using the Self-Care of CKD Index instrument developed by [16] with 25 Likert scale questions, where all items were declared valid and had good reliability with an r-alpha of 0.832. then analyzed using the Chi-square test and logistic regression.

RESULTS AND DISCUSSION

Table 1 Frequency Distribution of Respondent Characteristics Based on Gender at the Cempaka Putih Islamic Hospital Dialysis Unit (n = 75)

Gender	Frequency (f)	Percentage (%)
Male	47	62,7
Female	28	37,3
Total	75	100,0

Source: Primary Data 2025

Based on Table 1, the characteristics of the respondents show that most of the respondents were male, namely 47 people with a percentage of 62.7%.

Table 2 Frequency Distribution of Respondent Characteristics Based on Age at the Cempaka Putih Islamic Hospital Dialysis Unit (n = 75)

Age (WHO)	Frecuency (f)	Percentage (%)
Young Adult 20 – 24 old	2	2,7
Early Adult 25 – 29 old	15	20,0
Middle Adult 40 – 64 old	50	66,7
Young Old 65 – 74	8	10,7
Old >75	0	0
Total	75	100,0

Source: Primary Data 2025

Based on Table 2, the characteristics of the respondents show that most respondents in the age category were middle adults (40-64 years old), totaling 50 people with a percentage of 66.7%.

Table 3 Frequency Distribution of Respondent Educational Background at the Cempaka Putih Islamic Hospital Dialysis Unit (n = 75)

Characteristics Final Education	Frequency (f)	Percentage (%)
Elementary School	5	6,7
Junior High School	5	6,7
Senior High School	44	58,7
Diploma	4	5,3
Bachelor's Degree	17	22,7
Total	75	100,0

Source: Primary Data 2025

Based on Table 3, the characteristics of the respondents show that most respondents' last level of education was high school, namely 44 people with a percentage of 58.7%.

Table 4 Frequency Distribution of Long-Term Respondent Characteristics Duration of HD Treatment at the Cempaka Putih Islamic Hospital Dialysis Unit (n = 75)

Characteristics Duration of HD Treatment	Frecuency (f)	Percentage (%)
< 12 months	14	18,7
12 - 24 months	28	37,3
> 24 months	33	44,0
Total	75	100,0

Source: Primary Data 2025

Based on Table 4, the characteristics of respondents show that most respondents underwent hemodialysis for more than 24 months, namely 33 people (44.0%).

Table 5 Frequency Distribution of Respondents Based on Knowledge Level at the Dialysis Unit of Cempaka Putih Islamic Hospital (n = 75)

Characteristics Level of Knowledge	Frecuency (f)	Percentage (%)
Good	55	73,3
Fair	20	26,7
Poor	0	0
Total	75	100,0

Source: Primary Data 2025

Based on Table 5, it was found that most respondents had a good level of knowledge, namely 55 people with a percentage of 73.3%.

Table 6 Frequency Distribution of Respondents Based on Self-Efficacy in the Dialysis Unit of Cempaka Putih Islamic Hospital (n = 75)

Source: Primary Data 2025

Based on Table 6, it was found that most respondents had high self-efficacy, namely 45 people (60.0%).

Table 7 Frequency Distribution of Respondents Based on Self-Care Management in the Dialysis Unit of Cempaka Putih Islamic Hospital (n = 75)

Self-care Management	Frequency (f)	Percentage (%)
Supportive System	47	62,7
Partly Compensatory System	28	37,3
Wholly Compensatory System	0	0
Total	75	100,0

Source: Primary Data 2025

Based on Table 7, it was found that most respondents had self-care management in the supportive system category, namely 47 people (62.7%)

Self-efficacy	Frequency (f)	Percentage (%)
High	45	60,0
Moderate	30	40,0
Low	0	0
Total	75	100,0

Table 8 Analysis of the Relationship Between Knowledge Level and Self-care Management in the Dialysis Unit of RSIJ Cempaka Putih (n = 75)

Level of Knowledge	*Self-care Management*						Total		*P Value*	Correlation Coeffesient
	Supportive System		*Partly Compensatory System*		*Wholly Compensatory*					
	f	%	f	%	f	%	f	%		
Good	43	91,5	12	42,9	0	0	55	73,3	<0,001	0,532
Fair	4	8,5	16	57,1	0	0	20	26,7		
Poor	0	0	0	0	0	0	0	0		
Total	47	100,0	28	100,0	0	0	75	100,0		

Source: Primary Data 2025

Based on Table 8, it can be concluded that the correlation strength level has a sufficient relationship with the correlation coefficient value of 0.532 and has a significant relationship as indicated by the p value = <0.001 (p < 0.05).

Table 9 Analysis of the Relationship Between Self Efficacy and Self-care Management in the Dialysis Unit of RSIJ Cempaka Putih (n = 75)

Self-efficacy	*Self-care Management*			Total	*P Value*	Correlation Coeffesient
	Supportive System	*Partly Compensatory System*	*Wholly Compensatory System*			

							f	%		
High	39	83,0	6	21,4	0	0	45	60,0		
Moderate	8	17,0	22	78,6	0	0	30	40,0	<0,001	0,608
Low	0	0	0	0	0	0	0	0		
Total	47	100,0	28	100,0	0	0	75	100,0		

Source: Primary Data 2025

Based on Table 9, the results above show that the correlation strength has a strong relationship with the correlation coefficient value of 0.608 and has a significant relationship as indicated by the p value = <0.001 (p < 0.05).

Table 10 Multivariate Analysis of Binary Logistic Regression Test (n = 75)

Variable	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp(B)
Knowledge Level	1.892	0.735	6.631	1	0.010	6.633	1.571 – 27.999
Self-efficacy	2.366	0.643	13.534	1	0.001	10.659	3.021 – 37.604
Constant	-1.465	0.676	9.686	1	0.002	0.122	—

Source: Primary Data 2025

Based on Table 10. Multivariate analysis results show that knowledge (OR = 6.633; p value < 0.001) and self-efficacy (OR = 10.633; p value < 0.001) have a significant effect on self-care management, with self-efficacy as the dominant factor.

DISCUSSION

Description of Respondent Characteristics Based on Gender

The results of the study show that the majority of respondents were male (62.7%). This finding is consistent with the [6], which reported that the prevalence of chronic kidney disease is higher in males (0.22%) than in females (0.14%). Various studies have also demonstrated a similar pattern, including research by [12] and [19], which found that males constitute the dominant group among hemodialysis patients. This condition is associated with higher exposure to risk factors among males, such as smoking habits, alcohol consumption, workload, as well as a higher prevalence of hypertension and diabetes, all of which contribute to impaired kidney function. Clinically, the predominance of males in the hemodialysis population indicates the need for more intensive health education related to lifestyle modification and the importance of self-management in this group.

Description of Respondent Characteristics Based on Age

From the age aspect, the majority of respondents were in the middle-aged category (40–64 years), accounting for 66.7%. This result is consistent with studies by [13], [11], which showed that hemodialysis patients are generally aged 46–65 years. This age range represents a period when the risk of chronic diseases increases due to physiological changes and a decline in organ function. In the context of self-management, middle-aged individuals tend to have longer health-related experiences, which may influence perceptions, motivation, and readiness to perform self-care. These findings reinforce that the middle-aged group is the population most vulnerable to the progression of kidney disease and requires long-term hemodialysis.

Description of Respondent Characteristics Based on Final Educational Level

In terms of education, the majority of respondents had a senior high school education (58.7%). This finding is consistent with the study by [15], which showed that upper secondary education was the most dominant educational level among hemodialysis patients. Theoretically, educational level influences an individual's ability to understand information related to the disease, renal diet, fluid management, and adherence to therapeutic regimens. Although senior high school graduates have relatively adequate basic literacy, structured health education is still needed to ensure optimal understanding, especially in the context of complex self-care management.

Description of Respondent Characteristics Based on Duration of Hemodialysis

Regarding the duration of hemodialysis, most respondents had undergone therapy for more than 24 months (44%). This condition is consistent with the findings of [4], which also reported a high proportion of hemodialysis patients with a duration of more than 24 months. A long duration of hemodialysis indicates that the respondents are chronic patients who have adapted to the therapeutic regimen. The length of therapy usually influences an increase in knowledge and the strengthening of self-efficacy. However, prolonged therapy may also trigger treatment fatigue; therefore, continuous educational support and monitoring are necessary to prevent a decline in motivation and adherence.

Description of Knowledge Level among Patients with Chronic Kidney Disease Undergoing Hemodialysis

The results of this study also show that the majority of respondents had a good level of knowledge, totaling 55 individuals (73.3%). This finding is supported by the study conducted by [16], which found that most hemodialysis patients had good knowledge related to self-care management. Knowledge is an important modality in self-management, particularly in dietary restrictions, fluid regulation, and medication adherence. Adequate knowledge usually influences the subsequent psychological variable, namely self-efficacy, which serves as a strong predictor of success in self-care.

Description of Self-Efficacy among Patients with Chronic Kidney Disease Undergoing Hemodialysis

In line with this, the majority of respondents in this study demonstrated high self-efficacy, totaling 45 individuals (60%). This result is consistent with the study by [10], which found that self-efficacy was significantly associated with self-care behavior among patients with chronic kidney disease. Individuals with high self-efficacy tend to be more confident in their ability to follow dietary regimens, adhere to fluid restrictions, and attend hemodialysis schedules consistently. Thus, self-efficacy functions as a bridge that connects knowledge with effective self-care actions.

The Relationship between Knowledge Level and Self-Care Management among Patients with Chronic Kidney Disease Undergoing Hemodialysis

The analysis of the relationship between knowledge and self-care management showed a significant association with a moderate correlation strength ($r = 0.532$) and a p-value of <0.001. This finding strengthens the theory that knowledge serves as an important foundation in helping patients

understand the disease and hemodialysis therapy appropriately. The better the patient's knowledge, the greater the opportunity to perform effective self-care, including dietary regulation, fluid management, and monitoring of clinical conditions

The Relationship between Self-Efficacy and Self-Care Management among Patients with Chronic Kidney Disease Undergoing Hemodialysis

Meanwhile, the relationship between self-efficacy and self-care management showed a stronger result, with a correlation value of r = 0.608 and a p-value of <0.001. This confirms that self-efficacy is a psychological factor that has a significant influence on patients' ability to manage their disease. Patients with high self-efficacy are better able to overcome barriers, maintain adherence, and perform self-management independently. In the context of this study, self-efficacy is a stronger predictor compared to knowledge, indicating that self-confidence plays an important role in the success of self-care management among hemodialysis patients at Jakarta Islamic Hospital Cempaka Putih.

The Relationship between Knowledge Level and Self-Efficacy on Self-Care Management among Patients with Chronic Kidney Disease Undergoing Hemodialysis at Jakarta Islamic Hospital Cempaka Putih

Based on the multivariate binary logistic regression analysis, it was found that the level of knowledge had a p-value of 0.010 ($p < 0.05$) with an OR of 6.633, while self-efficacy had a p-value of <0.001 ($p < 0.05$) with an OR of 10.659. These results indicate that knowledge and self-efficacy are independent predictors of self-care management, with self-efficacy being the most dominant factor due to its higher OR value.

These findings are consistent with Dorothea Orem's Self-Care Deficit Theory, which explains that patients' inability to perform self-care occurs when they lack knowledge, skills, or motivation. In patients with chronic kidney failure, self-care includes fluid restriction, diet, medication compliance, vascular access care, and early detection of complications. The results of the study show that the better the patient's knowledge, the more capable they are of understanding the risks of fluid overload, signs of complications, and actions to be taken, thereby reducing self-care deficits.

This is also in line with Albert Bandura's Social Cognitive Theory, which states that an individual's belief in their own abilities determines the success of health behaviors. In chronic kidney disease, self-efficacy enables patients to believe that they are capable of restricting fluids, adhering to a diet, attending regular hemodialysis sessions, and managing thirst and fatigue. Thus, self-efficacy has been proven to be a crucial factor in determining the success of self-care management in patients with chronic kidney disease. Good knowledge and high self-efficacy help patients understand the therapeutic regimen while fostering confidence to implement it consistently. A study by [2] found that 71.2% of patients with good knowledge and high self-efficacy were adherent to dietary and fluid management.

CONCLUSION

The results of this study indicate that most respondents were male,

middle-aged adults with a high school education who had undergone hemodialysis for more than 24 months. The majority of patients had a good level of knowledge, high self-efficacy, and self-care management in the supportive system category.

The results of the chi-square analysis show a significant relationship between the level of knowledge and self-efficacy with self-care management. Knowledge has a fairly strong correlation r = 0.532 and p-value = <0.001 (P < 0.05), while self-efficacy has a strong correlation r = 0.608 and p-value = <0.001 (P < 0.05).

The results of the Binary Logistic Regression test show that the knowledge level variable has a significant relationship with self-care management (p-value = <0.001 with an OR value of 6.633). The self-efficacy variable shows a significant relationship with self-care management (p-value = <0.001 with an OR value of 10.633) with self-efficacy as the dominant factor. Thus, both variables, knowledge and self-efficacy, contribute significantly to improving self-care management in chronic kidney failure patients undergoing hemodialysis at the Jakarta Cempaka Putih Islamic Hospital.

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ACKNOWLEDGEMENT

The author would like to express his gratitude to the Jakarta Cempaka Putih Islamic Hospital for the permission and facilities provided during the research process. Thanks are also extended to all respondents who participated and willingly provided data. The author would also like to thank all those who provided direct and indirect support, enabling this research to be completed successfully.