

Factors Associated with Self-Care Among Patients with Chronic Kidney Disease Undergoing Hemodialysis

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ABSTRACT

Introduction: Chronic kidney disease (CKD) is a progressive condition characterized by the kidneys' inability to maintain the body's internal homeostasis, resulting in the accumulation of metabolic waste products and fluid and electrolyte imbalances. According to the Bangka Belitung Islands Provincial Health Office, 5,534 cases of CKD were reported between 2021 and 2023, with 855 patients undergoing hemodialysis.

Objective: This study aimed to identify factors associated with self-care among patients with chronic kidney disease undergoing hemodialysis at Bakti Timah Hospital, Pangkalpinang, in 2025.

Methods: This quantitative study employed a cross-sectional design involving 159 patients with chronic kidney disease undergoing hemodialysis at Bakti Timah Hospital, Pangkalpinang, in 2025. Data were analyzed to determine the associations between knowledge, family support, gender, and self-care.

Results: Knowledge ($p < 0.001$), family support ($p = 0.010$), and gender ($p = 0.010$) were significantly associated with self-care among patients with chronic kidney disease undergoing hemodialysis.

Conclusion: Knowledge, family support, and gender were significantly associated with self-care among patients with chronic kidney disease undergoing hemodialysis. Improving patients' knowledge and strengthening family support may enhance self-care practices and contribute to better treatment adherence and health outcomes.

Keywords: Chronic kidney disease, family support, gender, hemodialysis, knowledge, self-care.

Introduction

Chronic kidney disease (CKD) is a clinical syndrome caused by a progressive and irreversible decline in kidney function. The kidneys' inability to maintain the body's internal balance is caused by a gradual decline in kidney function, followed by an accumulation of protein metabolic waste and fluid-electrolyte imbalances. Furthermore, chronic kidney failure can lead to the accumulation of substances that cannot be excreted from the body, a condition called uremia (Susanto, 2020).

According to 2018 World Health Organization (WHO) data, the global prevalence of chronic kidney disease reached 10% of the population, while an estimated 1.5 million people undergo hemodialysis worldwide. The incidence is estimated to increase by 8% annually (Syaila, 2024). Chronic kidney disease is the 12th leading cause of death worldwide, killing 850,000 people annually. In 2021, the prevalence of chronic kidney disease (CKD) reached 697.4 million people, with 86 million (12.3%) undergoing hemodialysis and 1.2 million deaths. In 2022, the prevalence of chronic kidney disease (CKD) reached 843.6 million people, with 115.2 million (13.6%) undergoing hemodialysis and 1.4 million deaths. In 2023, the prevalence of chronic kidney disease (CKD) increased to 895.6 million people, with 129 million undergoing hemodialysis and 1.5 million deaths (WHO, 2023).

Based on the 2013 Basic Health Research (Riskesdas), the prevalence of chronic kidney disease (CKD) in Indonesia was 0.2%, or 2 per 1,000 people, or 499,800 cases. In 2018, the incidence of chronic kidney disease increased by 713,783 cases. The 2023 Indonesian Health Survey (SKI) stated that the number of kidney disease sufferers in Indonesia decreased compared to the previous five years. In 2023, the number of chronic kidney disease sufferers reached 638,178 cases, with 1,259 people actively undergoing hemodialysis (SKI, 2023).

According to data from the Bangka Belitung Islands Provincial Health Office, the prevalence of chronic kidney disease was 5,534 cases from 2021 to 2023. In 2021, the prevalence of chronic kidney disease was 1,683 cases, with 232 people undergoing hemodialysis. In 2022, the prevalence of chronic kidney disease was 1,822 cases, with 267 people undergoing hemodialysis. In 2023, the number of chronic kidney failure patients increased to 2,029, with 356 undergoing hemodialysis (Bangka Belitung Provincial Health Office, 2023).

According to medical records at Pangkalpinang Regional General Hospital (RSBT), chronic kidney failure rates decreased over the past two years but increased again in the third year. In 2022, 278 patients with chronic kidney failure, with 138 undergoing hemodialysis. In 2023, 242 patients with chronic kidney failure, with 143 undergoing hemodialysis, were diagnosed. In 2024, 272 patients with chronic kidney failure, with 159 undergoing hemodialysis. Hemodialysis is the most common treatment for kidney failure in Indonesia. Patients with kidney failure undergo hemodialysis throughout their lives to prolong their lives (Purba et al., 2018). Complications in kidney failure patients undergoing hemodialysis can be prevented through self-care behaviors. Self-care is defined as all behaviors performed by chronic kidney failure patients undergoing hemodialysis to maintain and improve their health (Ningsih, 2022). Factors influencing self-care in hemodialysis patients include age, gender, family support, duration of hemodialysis, knowledge, and education level (Astuti, 2016).

According to research by Wijayanti et al. (2017), family support can improve self-care skills in hemodialysis patients. This includes both assessment, instrumental, informational,

and emotional support, given the complex challenges faced by hemodialysis patients. The study's findings indicate that good family support significantly contributes to improving self-care in hemodialysis patients, thereby helping patients achieve better health. The results of the Spearman's rho test analysis showed that family support had a significant effect on patient self-care with a p value of 0.547 with $r = 0.01$ ($\alpha = 0.05$), the p value showed a correlation coefficient of 0.547 (moderate correlation).

The results of a preliminary survey conducted by researchers on November 26, 2024, at Bakti Timah Hospital in Pangkalpinang, through brief interviews with six chronic kidney failure patients undergoing hemodialysis, revealed that four patients were female and two were male. Two of the six patients were aged 26-45, one of the six patients was aged 17-25, and three of the six patients were aged 46-65. Four of the six patients took their medication regularly, and two of the six patients took medication when experiencing symptoms.

Based on the above background, this study aimed to identify the factors associated with self-care among patients with chronic kidney disease undergoing hemodialysis at Bakti Timah Hospital, Pangkalpinang, in 2025.

Objective

This study aimed to determine the relationship between fatigue and family support with the quality of life of chronic kidney disease patients undergoing hemodialysis at Bakti Timah Hospital Pangkalpinang in 2025.

Method

This research used a quantitative analytic design with a cross-sectional approach. The sample consisted of 36 respondents selected using total sampling. The instruments used in the study were fatigue, family support, and quality of life questionnaires. Data were analyzed using the Chi-Square statistical test with a significance level of $\alpha = 0.05$

Results

Table respondent characteristics

Gender	Total	Percentage %
Male	37	55,2%
Female	30	44,8%
Knowledge		
Good	36	53,7%
Less	31	46,3%
Family support		
Good	35	52,2%
Less	32	47,8%
Self Care		
Good	38	56,7%
Less	29	43,3%
Total	67	100

It is known that there are 37 male respondents (55.2%) more than 30 female respondents (44.8%). It is known that there are 35 respondents (52.2%) with good family support, more than 32 respondents (47.8%) with poor family support. It is known that there are 38 respondents (56.7%) who do good self-care, more than 29 respondents (44.3%).

The Relationship between Knowledge Factors and Self-Care in Chronic Kidney Disease (CKD) Patients Undergoing Hemodialysis at Bakti Timah Hospital, Pangkalpinang in 2025

Knowledge	Self-Care				Total		p- value	POR
	Good		Less					(CI
	N	%	N	%	N	%		95%)
Good	29	80,6	7	19,4	36	100	0,00	10.127
Less	9	29,0	22	71,0	31	100		(3.263-
Total	38	56,7	29	43,3	67	100		31.430)

Based on the data in Table above, it can be concluded that the correlation between knowledge and self-care was highest among patients with good knowledge (29 patients, 80.6%), compared to those with poor knowledge (9 patients, 29.0%). Furthermore, good self-care was most often performed by patients with good knowledge (7 patients, 19.4%) and the least by patients with poor knowledge (22 patients, 71.0%). Data analysis using the chi-square test yielded a p-value (0.00) $< \alpha$ (0.05), indicating a relationship between patient knowledge and self-care in chronic kidney disease (CKD) patients undergoing hemodialysis at Bakti Timun Hospital, Pangkalpinang in 2025. Further analysis yielded a Prevalence Odd Ratio (POR) of 10.127 (95% CI 3.263-31.430). The prevalence ratio (OD) is a measure used to compare the prevalence of a disease or condition between two different groups. This means that patients with good knowledge are 10.127 times more likely to perform good self-care compared to patients with less knowledge.

The Relationship between Gender Factors and Self-Care in Chronic Kidney Disease (CKD) Patients Undergoing Hemodialysis at Bakti Timah Hospital, Pangkalpinang in 2025

Gender	Self-Care				Total		p-value	POR
	Good		Less					(CI
	N	%	N	%	N	%		95%)
Male	28	75,7	9	24,3	37	100	0,01	6.222
Female	10	33,3	20	66,7	30	100		(2.139-
Total	38	56,7	29	43,3	67	100		18.101)

Based on the data from table above, it can be concluded that the correlation between gender and self-care is highest in male patients (28 patients) compared to female patients (10 patients) and less self-care by patients is lowest in male patients (9 patients) and highest in female patients (20 patients) The results of data analysis using the chi-square test yielded a p-value $(0.01) < \alpha (0.05)$, indicating a relationship between patient gender and self-care in chronic kidney disease (CKD) patients undergoing hemodialysis at Bakti Timun Hospital, Pangkalpinang in 2025. Further analysis yielded a Prevalence Odd Ratio (POR) of 6.222 (95% CI: 2.139-18.101). The Prevalence Odd Ratio (POR) is a measure used to compare the prevalence of a disease or condition between two different groups. This means that male patients are 6.222 times more likely to perform good self-care than female patients.

Discussion

Meliono, Irmayanti, et al. (2019). Knowledge is information combined with understanding and the potential to act, embedded in a person's mind.

Data analysis using the chi-square test yielded a p-value $(0.00) < \alpha (0.05)$, indicating a relationship between patient knowledge and self-care in chronic kidney disease (CKD) patients undergoing hemodialysis at Bakti Tin Hospital, Pangkalpinang in 2025. Further analysis yielded a Prevalence Odd Ratio (POR) of 10.127 (95% CI 3.263-31.430). The Prevalence Odd Ratio (POR) is a measure used to compare the prevalence of a disease or condition between two different groups. This means that patients with good knowledge are 10.127 times more likely to perform good self-care compared to patients with less knowledge.

This study aligns with research conducted by (Eka., et al. 2022). The chi-square calculation yielded a P-value of 0.000 ($P < \alpha$), indicating a relationship between knowledge and adherence to self-management of hemodialysis care in patients with chronic kidney disease (CKD) at RSI PKU Muhammadiyah Pekajangan.

This study also aligns with research conducted by (Lailatur Rohemah, 2019). Data processing yielded a N = 38 sample size with a significance level of $p = 0.000 < \alpha 0.05$, indicating that H1 was accepted and H0 was rejected. This suggests a significant relationship between knowledge of self-care and self-care management behavior in hemodialysis patients at Siti Khodijah Muhammadiyah Hospital, Sepanjang Branch.

This study also aligns with research conducted by (Yuyun Solihatin., et al. 2020), with a p-value of $0.000 < \alpha (0.05)$. This indicates that the Ha hypothesis is accepted, meaning that there is an influence on the level of self-management knowledge of CKD patients in the Hemodialysis Ward of SMC Tasikmalaya Regional Hospital.

The results of this study, in line with the two studies above, indicate that knowledge plays a role in the successful implementation of self-care. The better the self-care knowledge, the more efficient the self-care results will be for chronic kidney disease (CKD) patients undergoing hemodialysis at Bakti Timun Hospital, Pangkalpinang in 2025.

According to (Pipit, Vanie, et al. 2024), gender is often defined as sex. Gender is the biologically determined nature or division of two human sexes, inherent to a particular sex, permanently unchanging, and biologically determined, often referred to as God's will or nature. Another concept, however, is a characteristic inherent in men or women that is socially and culturally constructed. The results of data analysis using the chi-square test obtained a p-value $(0.01) < \alpha (0.05)$, indicating a relationship between patient gender and self-care in chronic kidney disease (CKD) patients undergoing hemodialysis at Bakti Timun

Hospital, Pangkalpinang in 2025. Further analysis yielded a Prevalence Odd Ratio (POR) of 6.222 (95% CI: 2.139-18.101). The Prevalence Odd Ratio (POR) is a measure used to compare the prevalence of a disease or condition between two different groups. This means that male patients are 6.222 times more likely to perform good self-care compared to female patients.

This study is inconsistent with research conducted by Pius, A.L., et al., 2025. The results showed no significant relationship between gender and quality of life in hemodialysis patients (p-value = 0.643). Although there was a difference in the percentage of men and women in terms of quality of life, this difference was not statistically strong enough to indicate a significant relationship.

In line with the above research, according to (Akmal, 2022), this study proved no relationship between gender and the effectiveness of family involvement in Self-Care Management of Hemodialysis Patients with a p-value of 0.477 ($p > 0.05$).

This study aligns with that of (Handi, et al., 2018), which found that the results of the chi-square analysis (p-value = 0.000 < 0.05) showed a relationship between gender and quality of life in CKD patients undergoing hemodialysis.

According to the researchers, there was a significant relationship between gender and self-care in patients with chronic kidney disease (CKD) undergoing hemodialysis at Bakti Timun Hospital, Pangkalpinang in 2025. Gender also plays a role in differences in perceptions of quality of life. Female patients undergoing hemodialysis have higher levels of anxiety and depression than male patients, thus influencing in carrying out self-care in patients with chronic kidney disease (CKD) undergoing hemodialysis.

Conclusion

Knowledge, family support, and gender were significantly associated with self-care among patients with chronic kidney disease at Bakti Timah Hospital, Pangkalpinang, in 2025. These findings suggest that improving patients' knowledge and strengthening family support may enhance self-care practices, while gender differences should also be considered when developing individualized interventions to optimize self-care among patients undergoing hemodialysis.

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