

Quality of life in patients with chronic kidney failure: self-efficacy as a determinant factor

Maria Magdalena Dwi Wahyuni^{1*}, Marni Marni¹, Helga Jillvera Nathalia Ndun¹, Eka Wilda Faida², Mariana Ikun Ratna Dwi Mulyani Pareira³, Rambu Kezia Tamu Ina Palandima¹

Abstract

Purpose: Self-efficacy is a key determinant of self-care ability and quality of life in patients with chronic kidney disease (CKD) undergoing hemodialysis. This study aimed to analyze self-efficacy among hemodialysis patients at Prof. Dr. W. Z. Johannes Hospital in Kupang to improve their quality of life.

Methods: This was an observational, quantitative, cross-sectional study. A total of 80 CKD patients undergoing routine hemodialysis were included using total sampling. Data were collected through interviews using structured questionnaires and medical records from January to September 2025. Data analysis was conducted using PLS-SEM in SmartPLS version 3.2.9 to examine relationships among variables. **Results:** Self-efficacy had a significant direct effect on the quality of life (T-value = 11.077) and significantly influenced self-care agency and self-care demand. The generality and strength dimensions were the most dominant indicators forming self-efficacy. Social support indirectly improved quality of life by increasing self-efficacy. Most participants demonstrated low self-efficacy and poor quality of life across the physical, psychological, social, environmental, and spiritual domains. **Conclusion:** Self-efficacy plays a central role in improving self-care capabilities and the quality of life among hemodialysis patients. Strengthening self-efficacy through social support and biopsychosocial interventions is essential for developing effective self-care models that enhance patients' quality of life.

Keywords: chronic kidney failure; hemodialysis; quality of life; self-efficacy; social support

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¹Department of Public Health, University of Nusa Cendana, Kupang, East Nusa Tenggara, Indonesia

²STIKES Yayasan RS Dr Soetomo, Surabaya, East Java, Indonesia

³Psikolog Community Education Program, Faculty of Teacher Training and Social Sciences, Kupang, East Nusa Tenggara, Indonesia

*Correspondence:

maria.wahyuni@staf.undana.ac.id

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INTRODUCTION

Chronic Kidney Disease (CKD) is one of the kidney diseases associated with a high risk of mortality and substantial treatment costs. Data from the Institute for Health Metrics and Evaluation (IHME) showed that in 2017, CKD accounted for approximately 1.23 million deaths worldwide, with a global prevalence of 13.4% [1]. The prevalence of CKD varies widely across countries, influenced by sociodemographic factors and access to health services. In contrast, Indonesia demonstrates a unique trend: the prevalence of CKD has decreased while mortality rates have increased.

According to the 2023 Indonesian Health Survey, the prevalence of CKD diagnosed by health professionals among individuals aged 15 years and older was 0.18% (approximately 638,178 people), a decline compared to the 2018 Basic Health Research (Riskesdas), which reported a prevalence of 0.38% (approximately 713,783 people) [2].

Kidney failure is one of the main causes of death in Indonesia, with mortality rates continuing to increase significantly, with a comparison value of (7:3) with infectious diseases [3]. East Nusa Tenggara Province ranks 14th in Indonesia with a total of 11,853 reported CKD cases. At Prof. Dr. W. Z. Johannes Kupang Hospital,

120 CKD patients underwent hemodialysis (HD) in 2025, with 139 visits recorded to the hemodialysis unit in January 2025. Hemodialysis is initiated when kidney function is no longer adequate to prevent permanent or life-threatening complications. Patients undergoing hemodialysis often experience various challenges, including reduced work capacity, decreased sexual function, depression, and fear of death. The structured lifestyle required by hemodialysis therapy (e.g., the treatment sessions conducted two times per week for 3-4 hours) and strict fluid intake restrictions can further reduce patients' motivation and enjoyment of daily life. These conditions ultimately have a negative impact on the quality of life of patients with CKD [4].

Hemodialysis is a lifelong therapeutic option for patients with terminal kidney disease to maintain electrolyte and fluid balance and artificially remove metabolic waste products [5]. Patients experience changes in quality of life that affect physical and psychological well-being, lifestyle, and social environment. These changes play an important role in shaping the overall quality of life and may have either a positive or a negative impact, depending on individual conditions and adaptability. To address these changes, appropriate indicators are needed to encourage healthy lifestyle modifications and improve patients' self-management abilities. In this context, self-efficacy is a key factor that influences the quality of life of patients with CKD.

The increasing prevalence of chronic diseases in the world's population has driven the need to understand better the factors that affect patients' ability to manage their conditions. Among these factors, self-efficacy has been highlighted as an important element in self-care and adaptation for patients. Motivation is needed to adopt healthy behaviors or stop behaviors that harm health. However, self-efficacy is often used interchangeably with other concepts, such as self-management and self-care, thereby reducing coherence and accuracy. Mistakes in distinguishing this concept from other concepts reduce its usefulness. Quality of life is the concept of assessing an individual's ability to lead a normal life, grounded in individual perceptions of goals, expectations, and standards, with particular attention to the individual's lived experience, influenced by the values and culture of the environment in which the individual is situated. Assessing the quality of life of CKD patients is very helpful for them in understanding the condition and its impact. Patients with chronic kidney failure who undergo hemodialysis often experience a decline in quality of life [5,6]

Research indicated that self-efficacy is a pivotal determinant. Wahyuni et al. suggest that sociodemographic factors such as age, gender, occupation, educa-

tion level, family, marital status, duration of hemodialysis, and self-efficacy affect the quality of life of CKD patients [7]. Other factors that affect the quality of life of CKD patients on hemodialysis include the tendency to experience depression, the onset of disease complications, the duration of hemodialysis, adherence to treatment, body mass index, social support, interdialytic weight gain (IDWG), and hemoglobin levels [8]. The patient's quality of life decreases as the patient not only faces health problems associated with CKD but also those related to therapy that lasts a lifetime [9]. Wahyuni's research (2022) explains that a patient undergoing lifelong hemodialysis therapy can survive and maintain a good quality of life with strong self-efficacy. Patients must accept the condition and understand that hemodialysis is part of their lives. This affects the patient's ability to effectively manage diet, physical activity, rest, stress, and adherence to therapy and medication [10].

Not many hemodialysis patients believe they will improve significantly by practicing self-care. The real impact of patients with good self-efficacy is being able to carry out daily routines without any burden. Compliance and healthy lifestyle behaviors are also generally good, and the desire to recover is very high [9]. Self-efficacy, as an internal psychological factor, influences the trajectory of patients' fragility and cognitive impairment. Improving quality of life requires not only high self-efficacy but also family support to optimize the treatment process [11].

Self-efficacy has three dimensions, according to Bandura: magnitude, generality, and strength. These three dimensions help patients determine their next course of action and are important factors in supporting self-care that improves quality of life. Most CKD patients still have difficulty controlling their disease in their daily lives. This condition is often accompanied by a decrease in confidence in facing various limitations due to CKD. Self-efficacy is important in supporting patients' recovery mechanisms amid psychological fragility through behavioral interventions that transform the health system towards more proactive and humanistic care. Self-efficacy helps patients to overcome stress and anxiety, to be disciplined in carrying out dialysis therapy, to manage a balanced diet to maintain fluid balance, and to process symptoms related to dialysis therapy, such as fatigue and pain. Strong self-efficacy can improve their quality of life by engaging in fun activities and building good relationships with others [12].

Self-efficacy serves as an internal driver that fundamentally strengthens Self-Care Agency. Within Orem's theoretical framework, Self-Care Agency is the complex power or capability a patient possesses to

engage in self-care activities. However, this agency often remains passive or latent without a strong belief in that ability. Bandura explains that self-efficacy determines how much effort a person exerts and how resilient they are in the face of challenges and adverse situations. Therefore, self-efficacy acts as a psychological catalyst that activates Self-Care Agency, transforming potential abilities into concrete, consistent, independent, and responsible actions, enabling patients to position themselves independently to maintain their quality of life [13]. The problem of chronic kidney failure is highly complex, so this study aims to evaluate a social support-based model to improve the quality of life of CKD patients undergoing hemodialysis at Prof. DR. W.Z. Johannes Kupang Hospital.

METHODS

Study design, setting, and participants

This research employed a quantitative, analytical, observational study with a cross-sectional design. This design was chosen because it allows for the simultaneous measurement and observation of variables at a single point in time, enabling efficient data collection. The study was conducted at the hemodialysis unit of Prof. Dr. W.Z. Johannes Hospital, Kupang City. The study population consisted of all patients with CKD registered at the hospital and undergoing hemodialysis. A total of 80 patients were included using a total sampling technique. Participants were identified through medical records, focusing on patients who routinely underwent hemodialysis between January and September 2025. The inclusion criteria were patients who had undergone routine hemodialysis therapy for at least 3 months, had family members with whom they maintained active relationships, were willing to participate as respondents, and were able to communicate effectively during data collection. Meanwhile, the exclusion criteria were patients in critical condition or those unable to provide complete primary data during the data collection period.

Data collection

This study analyzed eight variables with 33 indicators: Basic Conditioning Factor (BCF), Social Support, Nursing Agency, Self-Care Agency, Self-Care Demand, Self-Efficacy, Self-Care Management, and Quality of Life (as the dependent variable). Most instruments used were standardized, previously validated tools, including the WHOQOL-BREF for quality of life, the Self-Care of CKD Index, and the Healthcare Provider Social Support Scale (HPSS).

Data were collected through interview techniques using structured questionnaires. Interviews were conducted in the hemodialysis unit while patients were undergoing therapy. The process was facilitated by nurses and carried out with the head of the unit's permission. Only patients in stable condition were included in the interviews.

Data analysis

Data analysis was performed using the Partial Least Squares (PLS) method, supported by SmartPLS version 3.2.9. PLS is an alternative to Structural Equation Modeling (SEM) suitable for analyzing complex relationships among variables, particularly with relatively small sample sizes (30–100). SmartPLS employs a bootstrapping method to estimate standard errors under the assumption of an unknown population distribution. It also facilitates one-way significance analysis, allowing researchers to focus on the most significant paths in constructing the final model. This approach provides a robust statistical solution for developing predictive structural models of patient quality of life despite variable complexity and limited sample size. This study received ethical clearance from the Research Ethics Commission of the Faculty of Public Health, Nusa Cendana University (No. 2024070-KEPK).

RESULTS

A total of 80 patients with CKD undergoing routine hemodialysis participated in this study. The largest proportion of respondents was aged 47-60 years (46.3%). Male patients accounted for 57.5%. Most respondents had a body weight between 46 and 59 kg (46.3%) and had been undergoing hemodialysis for 1-3 years (33.8%). Half of the respondents had completed senior high school (50%), while 30% had higher education. As many as 28.8% of respondents were not employed. More than half of the patients reported an income equal to or above the MSE (IDR 1,950,000) (56.2%). Most respondents were categorized as having a normal BMI (63.8%). Based on Table 1, the cross-tabulation results for the dependent variable, quality of life, show that 82.5% have a low quality of life. Male CKD patients had a lower quality of life than female patients. CKD patients aged 47-60 years have a lower quality of life.

Based on Table 2, cross-tabulation analysis reveals distinct patterns across the self-efficacy dimensions. In the magnitude dimension, a low quality of life was found in 82.2% of patients with low magnitude and 85.7% of those with high magnitude. In contrast, the generality and strength dimensions showed more

pronounced differences: 98.5% of patients with low generality and 97.0% with low strength reported a low quality of life. Conversely, adequate quality of life was predominantly observed among patients with high generality (86.7%) and high strength (85.7%). In total, 82.5% of respondents had a low quality of life.

Table 3 explains that self-efficacy is related to the patient's confidence in performing self-care. This is influenced by the Magnitude indicator, which reflects the difficulty HD patients have performing self-care,

Table 1. Characteristics of respondents (n=80)

Variable	n (%)
Age (years)	
18 – 32	7 (8.8)
33 – 46	16 (20.0)
47 – 60	37 (46.3)
61 – 73	20 (25.0)
Gender	
Male	46 (57.5)
Female	34 (42.5)
Body weight (kg)	
32.5 – 45	13 (16.3)
46 – 59	37 (46.3)
60 – 72	25 (31.3)
73 – 85.5	5 (6.3)
Duration of hemodialysis (years)	
> 5	21 (26.3)
> 3-5	16 (20.0)
1-3	27 (33.8)
< 1	16 (20.0)
Patient education	
Higher education level (Diploma/D3, Strata /S1, S2, S3)	24 (30.0)
Senior high school	40 (50.0)
Junior high school	8 (10.0)
Elementary school	6 (7.5)
No formal education	2 (2.5)
Jobs	
Government Employee / Military / Police	20 (25.0)
Self-Employed / Private Sector Employee	19 (23.8)
Farmer / Laborer / Others	6 (7.5)
Retired	12 (15.0)
Not currently employed	23 (28.8)
Income level	
≥ IDR 1,950,000	45 (56.2)
< IDR 1,950,000	35 (43.8)
Patient's body mass index (BMI)	
Normal	51 (63.8)
Underweight	13 (16.3)
Overweight	6 (7.5)
Obesity	10 (12.5)

Table 2. The relationship between magnitude, generality, and strength dimensions with the quality of life of CKD patients

Variable	Quality of life		Total
	Adequate n (%)	Low n (%)	
Magnitude			
High	1 (14.3)	6 (85.7)	7 (100.0)
Low	13 (17.8)	60 (82.2)	73 (100.0)
Total	14 (17.5)	66 (82.5)	80 (100.0)
Generality			
High	13 (86.7)	2 (13.3)	15 (100.0)
Low	1 (1.5)	64 (98.5)	65 (100.0)
Total	14 (17.5)	66 (82.5)	80 (100.0)
Strength			
High	12 (85.7)	2 (14.3)	14 (100.0)
Low	2 (3.0)	64 (97.0)	66 (100.0)
Total	14 (17.5)	66 (82.5)	80 (100.0)

resulting in 91.3% of patients being categorized as having low self-efficacy. Generality, which is the ability to generalize patients' confidence in self-care, is in the low category at 81.3%. Strength, i.e., the expectation of having better health than HD patients, is 82.5% low. The magnitude dimension is displayed based on the results of the cross-tabulation test on the dependent variable, quality of life. Explains that the Quality of Life of CKD Patients: 82.5% of the physical domain is categorized as low; 78.8% of the psychological domain is categorized as low; 85% have a low Social Relationship domain; 73.8% have a low Environmental and Spiritual Domain.

Table 3. Frequency distribution of self-efficacy and quality-of-life factors of CKD patients (n=80)

Variable	n (%)
Magnitude	
High	7 (8.8)
Low	73 (91.3)
Generality	
High	15 (18.8)
Low	65 (81.3)
Strength	
High	14 (17.5)
Low	66 (82.5)
Physical domain	
Good	0 (0.0)
Moderate	14 (17.5)
Low	66 (82.5)
Psychological domain	
Good	0 (0.0)
Moderate	17 (21.3)
Low	63 (78.8)
Social relations domain	
Good	0 (0.0)
Moderate	12 (15.0)
Low	68 (85.0)
Environmental and spiritual domains	
Good	0 (0.0)
Moderate	21 (26.3)
Low	59 (73.8)

Table 4 summarizes the latent variables in this study (X1-X7), showing low categories and high frequencies. Figure 1. It can be seen from the outer model that the load value (loading) has been qualified: > 0.50 for X6_2 (generality) and X6_3 (strength). The results of the Model Analysis Significance Test (Inner model) before the Fit model showed that self-efficacy (X6) had a significant effect on self-care agency (X4), with a T-statistic of 3.578. In addition, self-efficacy (X6) has a significant effect on self-care demand (X5), with a T-statistic of 4.637. Self-efficacy (X6) had a significant effect on quality of life (Y1), as indicated by the highest T-statistic (11.077). Self-care demand (X5) did not have a significant direct effect on quality of life (Y1), with a T-statistic of 0.605, which was below the significance threshold.

Table 4. Summary table of all latent variables (X1-X7) (n=80)

Variable	n (%)
Age (47-60)	37 (46.3)
Gender (Male)	46 (57.5)
Body weight (46-59)	37 (46.3)
Duration of hemodialysis (1-3 years)	27 (33.8)
Patient education (Senior High School)	40 (50.0)
Jobs (Not Currently Employed)	23 (28.8)
Income level ($\geq$ IDR 1,950,000)	45 (56.2)
Patient's BMI (Normal)	51 (63.8)
SE Magnitude (Low)	73 (91.3)
SE Generality (Low)	65 (81.3)
SE Strength (Low)	66 (82.5)
QOL Physical domain (Low)	66 (82.5)
QOL Psychological domain (Low)	63 (78.8)
QOL Social relations domain (Low)	68 (85.0)
QOL Environmental and spiritual domains (Low)	59 (73.8)

Notes: SE (Self-Efficacy); QOL (Quality of Life)

Although self-efficacy is theoretically a predictor of care management, in this study, the relationship was not significant because patient management remained reactive to BCF conditions and family assistance. In contrast, the patient's mental capacity (self-efficacy) remained weak due to the psychological burden of chronic disease.

The test results showed that of the 33 initial indicators, only 23 met the requirements for inclusion in the final model. The magnitude indicator (X6_1) was not included in the list of meaningful indicators (factor loading <0.50), so it was automatically removed from the model, as it was considered ineffective at measuring the self-efficacy construct in this context. Basic physical needs have been relatively met or handled externally. Hence, the magnitude dimension is less sensitive to reflecting the patient's internal beliefs than other, more complex dimensions, such as hope (strength) and behavioral consistency (generality). After the magnitude dimension was removed, the self-efficacy variable (X6) was only formed by two indicators: Generality (X6_2), which is the indicator that plays the most role (most dominant) in forming the self-efficacy variable with a T-statistic value of 35.655; and Strength (X6_3): An indicator reflecting the patient's hope for improved health in the future. Thus, the magnitude dimension was removed to ensure greater construct validity, retaining only indicators that truly reflect the strength of the patient's self-confidence in performing self-care.

Figure 2 shows the model results from the study on self-care among CKD patients undergoing HD therapy at Prof. DR. W.Z. Johannes Kupang Hospital. The image shows that X1 has a direct effect on X3, X6, and X7. X2 has a direct effect on X6. X6 directly affects X4, X5, Y1.

Y1 is directly affected by X5 and X6. The results of the analysis showed that self-efficacy was driven by BCF and social support, thereby directly affecting self-care agency (T-statistic = 3.578) and the quality of life of CKD patients (T-statistic = 11.077). The indicators for the self-efficacy variables are X6_2 (generality) and X6_3 (strength). Generality (X6_2) is the indicator that plays the most important role in forming the self-efficacy variable, with a T-statistic of 35.655. Generality is the highest in the low category at 81.3%.

Based on the structural equation modeling (SEM) analysis using SmartPLS on chronic kidney disease (CKD) patients undergoing hemodialysis at Prof. DR. W.Z. Johannes Kupang Hospital, the model fit was evaluated using the Standardized Root Mean Square Residual (SRMR). A model is considered to have acceptable fit with an SRMR < 0.10 , or a good fit with SRMR < 0.08 . The saturated model yielded an SRMR of 0.094, indicating an acceptable overall model fit. The structural equations derived from the path coefficients are interpreted as follows:

$$X4 = 0.715X6$$

$$X6 = 0.315X1 + 0.506X2$$

$$Y1 = 0.291X5 + 0.950X6$$

$$X5 = 0.739X6$$

Notes: X1 = Basic Conditioning Factor (BCF), X2 = Social Support, X4 = Self Care Agency, X5 = Self Care Demand, X6 = self efficacy, Y1 = Quality of Life.

The quality of life of CKD patients is directly and significantly influenced by patient self-efficacy (T = 11.077), whereas the direct effect of self-care demands is not statistically significant (T = 0.605). It is indirectly influenced by social support from families, health workers, religious leaders, and community leaders (T = 5.927). The self-efficacy factor affects the demand for self-care (T = 4.637). The proposition in this model is that social support needs to encourage self-efficacy to improve quality of life. Self-efficacy also needs to be driven by the Basic Conditional Factor (gender, education, occupation, income level) and encourage Self-Care Demand to improve quality of life. In addition to encouraging self-efficacy, BCF also encourages self-care management. Self-efficacy also encourages patient self-care agency. This interpretation suggests that social support affects the problem-solving component of CKD patients, which, in the long term, can help them adapt to the environment, disease, and challenges associated with therapy. Social support serves as a supportive factor for CKD patients, positively affecting maintenance of physical condition, engagement in self-care behaviors, and self-efficacy.

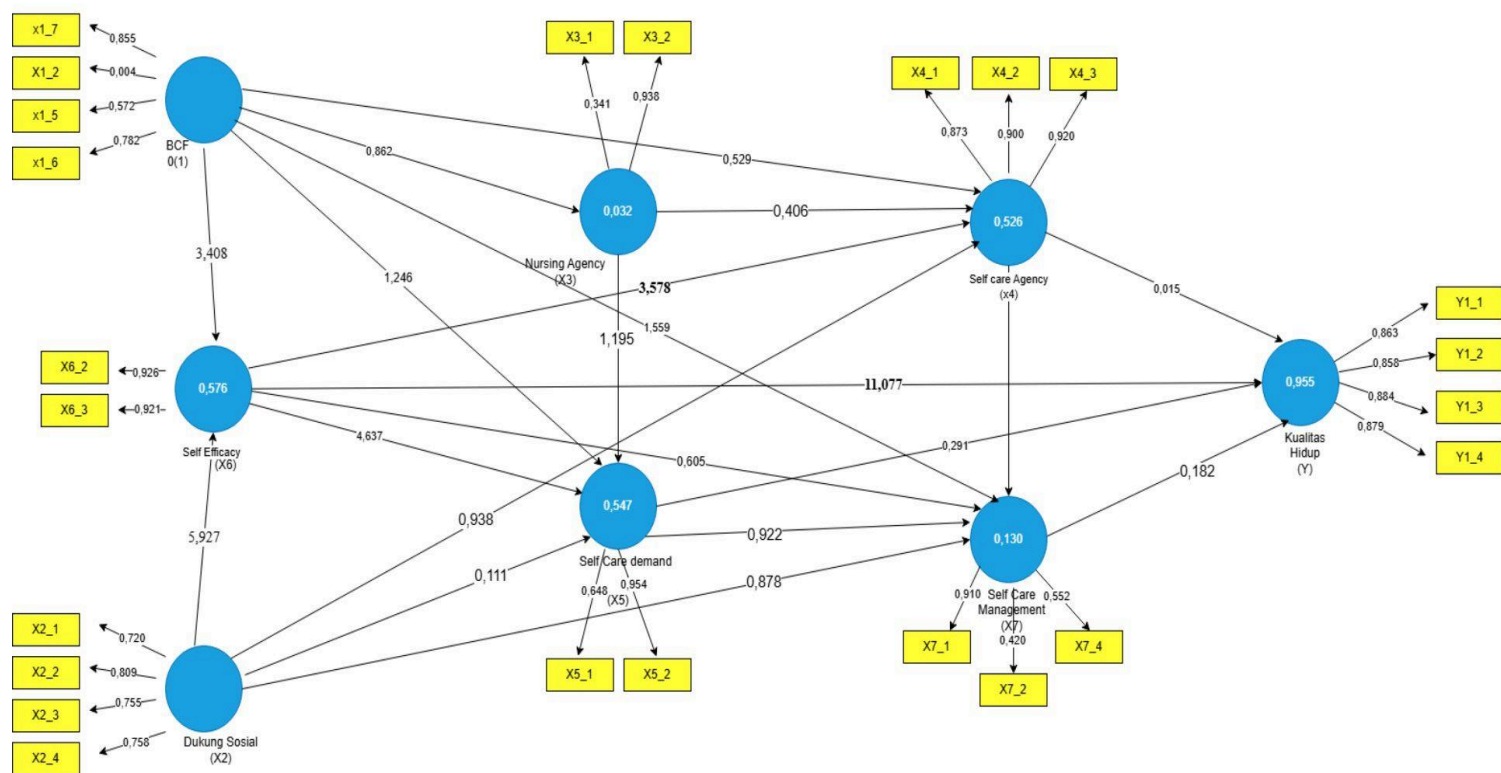


Figure 1. Outer model chart with meaningful indicator cross-loading values

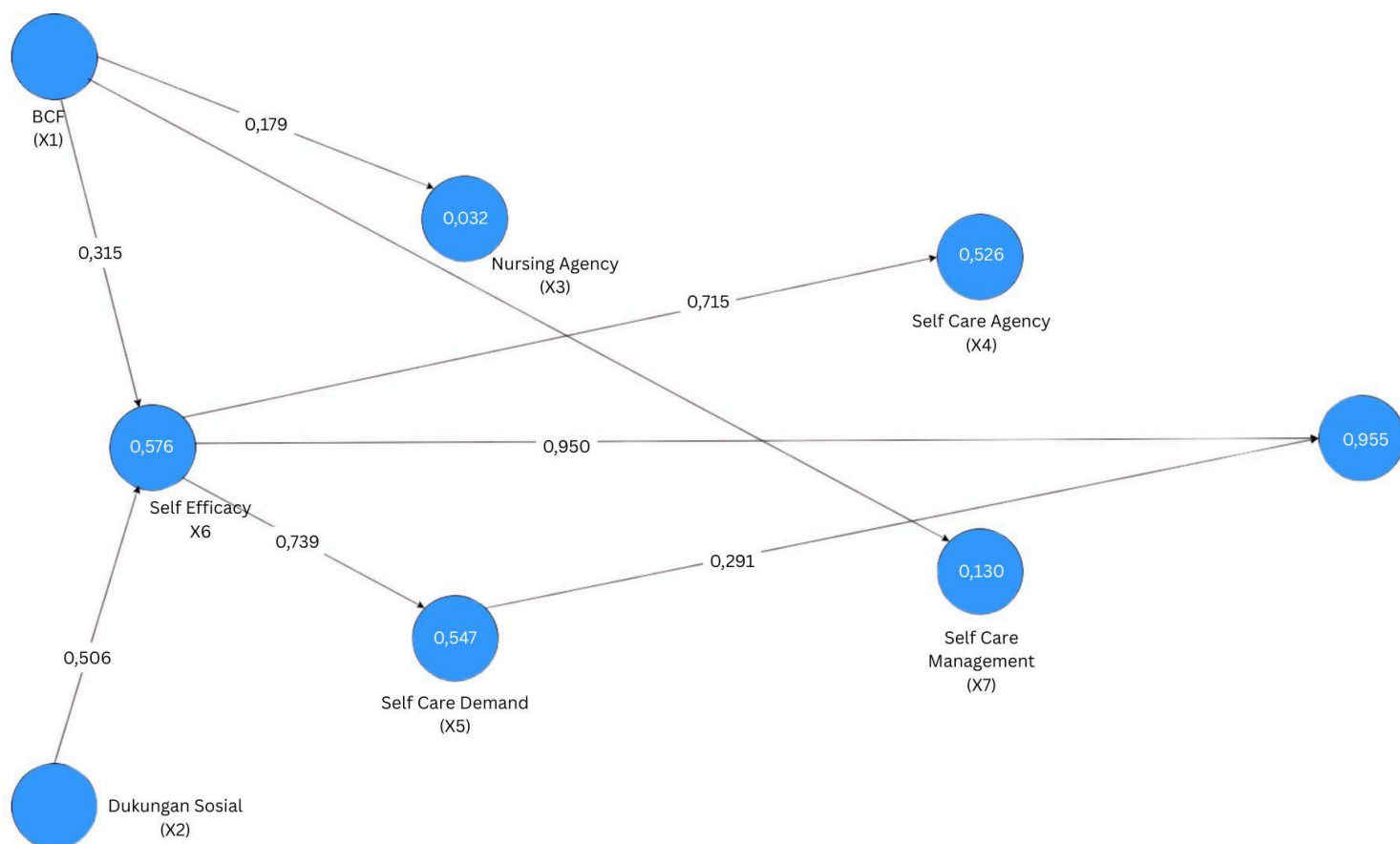


Figure 2. Path diagram and parameter coefficients of the social support-based self-care model to improve the quality of life of CKD patients with HD at Prof. DR. W.Z. Johannes Kupang Hospital

DISCUSSION

Women with CKD have a lower quality of life than men, and previous research in this area has shown similar findings. Cultural differences support the findings of the current research. Our society is conservative and male-dominated, with established social roles. Despite having chronic illnesses, men report higher levels of social support and quality of life than women, as they are valued more than women in our society. Research conducted by Kandasamy states that CKD patients without social support are significantly associated with a poor quality of life. Social isolation has been associated with lower self-rated health, higher mortality, higher rates of depression, and negative health behaviors such as poor diet and non-adherence to medication [14]. Family support, as part of social support, is indispensable for assisting family members who need HD therapy. The reality is that patients do not have a deep connection to interact with, or the deep involvement and care of these figures.

Good enthusiasm and self-efficacy among HD patients can encourage them to be consistent and compliant with self-care. Low self-efficacy causes patients to lack confidence in their ability to recover, so they are not optimal at self-care. Patients still feel burdened and cannot accept their current disease condition. Patients' self-efficacy is optimal when they receive intimate, in-depth social support from significant others [15].

CKD patients are encouraged to engage in effective self-management across physical, psychological, social, and spiritual domains. Adherence to hemodialysis therapy for CKD patients is an important aspect that must be considered. Non-compliance in undergoing hemodialysis can cause the accumulation of toxic metabolic waste substances in the blood, causing comprehensive physical complaints and potentially leading to death if not handled properly. This condition ultimately contributes to the increase in morbidity and mortality rates in patients with chronic kidney failure, which have been at a high level. Research conducted by Barbosa explains that the quality of life in patients undergoing hemodialysis can change, especially when viewed from differences in race, social relationships, and cultural and ethnic backgrounds [16].

Increased self-efficacy is associated with better medication adherence. Self-efficacy in self-care and depression levels are significant predictors of the quality of life of patients undergoing hemodialysis. Therefore, health workers need to design interventions that focus on increasing patients' confidence in

self-care abilities to support improved quality of life. In addition, social support plays an important role in improving patients' health and adjusting hemodialysis therapy schedules from three to twice per week. Social support is also able to increase the motivation of patients with chronic kidney failure to remain consistent in undergoing hemodialysis and adopt a healthy lifestyle, which significantly improves quality of life. This is in line with research conducted by Rasyid et al., which found that social support from both family and health service providers plays an important role in improving quality of life; patients who receive support have a better quality of life [17].

Self-efficacy can influence an individual's decision to perform self-care measures at home. Research by Wely finds that patients undergoing hemodialysis with high self-efficacy engage in greater physical activity and have better psychosocial functioning than those with lower self-efficacy. Self-efficacy is positively associated with self-care behaviors, which ultimately improve quality of life [18]. Research conducted by Ainun et al. found that respondents in the poor category generally showed low self-confidence in their ability to undergo long-term treatment of uncertain duration [19]. Self-efficacy plays a role in initiating and maintaining health behaviors, so a patient's self-efficacy can predict quality of life.

Self-efficacy is a key variable directly influencing quality of life. To strengthen self-efficacy dimensions—particularly generality and strength—among CKD patients in the low category, intervention strategies should focus on fostering internal coping mechanisms and psychological resilience against external stressors. By enhancing internal motivation and self-worth, patients are better equipped to maintain long-term therapeutic adherence and active involvement in their health management. The research conducted by Syafitri yielded results on the quality of life of patients with chronic kidney failure in the hospital's hemodialysis room. Royal Prima Medan is mostly of good quality, at 48%. This can happen because the patient states that he has accepted the disease and the conditions he suffers. The patient is always enthusiastic about undergoing hemodialysis therapy, even though the therapy will be undergone for the rest of his life [20].

The generality dimension of self-efficacy reflects the patient's confidence in applying self-care behavior across various daily activities, including physical tasks such as walking, sitting, and eating. Patients hope to make self-care a new habit. This behavior is carried out with full awareness, commitment, optimism, a sense of peace, and joy. This positive influence motivates other CKD patients to increase their fighting power [20]. The

dimension of strength touches the social domain. Patients become visionary individuals, acting not only in their own interests but also positively influencing other patients to engage in self-care. This dimension can be improved through the patient's proactive attitude to encourage themselves and other patients. The presence of social support, through consistent appreciation of the patient's efforts and fighting spirit, will increase the patient's confidence and a visionary mindset [21].

In patients with CKD undergoing hemodialysis, high self-efficacy is associated with greater adherence to treatment regimens, including adherence to hemodialysis schedules, dietary and fluid intake, medication use as recommended, and independent monitoring of health conditions [22]. The ability to self-manage and apply discipline in following treatment recommendations is an important factor in achieving desired health expectations. This process contributes to improved patient self-control, the sustainability of care behavior, and an overall improvement in quality of life [23]. Self-efficacy is the variable that plays the strongest role in determining the patient's ability to persist, remain committed, and consistently carry out self-care; when self-care is good, quality of life also improves. The ability of the informant (nurse/accompanying doctor) affects the patient's level of trust and confidence. Confidence in the patient's abilities becomes difficult to shake if the patient has more trustworthy self-judgment than others.

CKD patients also need to motivate themselves by learning from others' experiences. Strong self-efficacy will optimize the patient's self-care efforts to improve quality of life. This is in line with research conducted by Novitarum et al., which states that a person's experiences, both positive and negative, play a role in the learning process and serve as a source of knowledge in determining the next step. This process will ultimately affect the individual's level of self-efficacy. The experience of success is clear evidence that optimal effort can produce success [24].

Self-efficacy also needs to be driven by BCF (gender, education, occupation, income level) and encourage SCD to improve quality of life. In addition to encouraging social support and self-efficacy, BCF also encourages SCM. Self-efficacy also encourages SCA patients. This self-care model is based on social support because it is a potential variable that encourages positive resources within the patient to cope with their physical, mental, and social health. This stabilization restores patients' quality of life, enabling them to be productive, engage in social life, and feel valued [25]. Research conducted by Wahyuni explains that family support can increase patients' motivation to comply

with treatment and provide comfort. Patients whose families are actively involved in their self-care tend to feel more valued and more capable of undergoing therapy. Conversely, an uncomfortable or inadequate service environment can worsen the patient experience, ultimately leading to increased physical and emotional discomfort [7].

Research by Claire Reid (2016) on 576 CKD patients in Italy showed that patients' success in undergoing HD requires self-efficacy and self-management [25]. The study used the instruments Self-Management Behavior Questionnaire, Perceived Efficacy in Patient-Physician Interactions Questionnaire, and Life Options DeNovo, compiled by Curtin et al. (2008) [26]. CKD patients with high self-efficacy will demonstrate good self-management in self-care. Self-management behaviors encompass caregiver communication, partnerships in self-care, self-advocacy, and medication adherence [26]. The focus of this research aligns with prior research examining how social support affects patients' self-management of self-care, thereby improving quality of life through self-efficacy. CKD patients' self-management behaviors related to their chronic conditions during activities arise from self-efficacy. Strong social support from those closest to them encourages, motivates, and provides patients with energy and hope, thereby increasing their self-efficacy for self-care [27].

Self-efficacy carried out by CKD patients with Hemodialysis at the research site was sourced from: a) Other patients who survived and were in good condition even though they had undergone hemodialysis for more than 5 years. During the hemodialysis process, they share stories and experiences/obstacles/solutions/and motivations. Some patients can still go to the office for normal activities and rarely drop out. This condition gives them hope and becomes a strength; b) Other patients who continue to struggle encourage themselves to accept and be consistent with medical assistance. Failure is often experienced, but they must have a high fighting spirit, because the patient still has the life value needed by others. This is important because traditional or non-medical medicine (*pendoa/faith healers*) still dominates Eastern culture. If the changes from hemodialysis therapy are long-lasting and insignificant, they can affect the patient's commitment and self-confidence towards hemodialysis therapy; c) Patient despair often occurs when language/attitude/behavior from the nurse or family is inadvertently offensive. This affects the patient's optimism, which decreases. Attention from nurses and companions (family/husband/wife/children) is crucial. Verbal and non-verbal appreciation from those closest to them serves as a vital source of psychological em-

powerment, helping them remain consistent in treatment and dialysis. (d) The anxiety and tension that patients often experience during the hemodialysis process cause fatigue and emotional distress. This condition requires the physical and emotional touch of the nurse and companion so that the patient returns to a positive heart condition. If these needs are met, hemodialysis therapy will be most successful.

CKD patients are encouraged to practice effective self-management and reduce perceived stress. SE increases patient awareness to perform self-management. CKD patients need to manage themselves because they face many physical and psychosocial pressures, such as hypertension, lack of appetite, anemia, sexual disorders, reduced income, social isolation, and dependence on caregivers.

Increased SE is associated with a positive attitude toward patient decision-making. Examples include increased medication adherence, behaviors thought to improve health and reduce physical and psychological symptoms, engaging in activities that reduce stress, and believing they can take action and help others according to their abilities. Research by Rayyani shows that SE influences an individual's decision to take self-care measures as recommended by medical personnel [28]. SE acts as a mediator between changes in the quality of life. SE measurements are designed to test an individual's confidence to perform a chosen activity as a desired endeavor. Yu's research shows that CKD patients with high SE levels can engage in greater physical activity and psychosocial functioning [29]. Research by Moattari states that SE will increase if patients are empowered through motivation and having their illness and treatment explained, thereby improving quality of life [30].

CONCLUSION

This study concludes that self-efficacy is an important factor affecting both self-care capabilities and overall quality of life among patients with CKD undergoing hemodialysis. Self-efficacy refers to a patient's confidence in their ability to manage the disease, follow a therapy regimen, and cope with the psychological and physical challenges that arise from chronic illness and long-term therapy. This study identified relationships among basic conditioning factors, social support, self-efficacy, self-care demand, and quality of life in a population of patients with CKD undergoing hemodialysis at Prof. Dr. W. Z. Johannes Hospital, Kupang. Using a cross-sectional approach,

these findings reflect a snapshot of the subjects' condition at a specific point in time; therefore, the relationships between the variables are correlative or associative, not evidence of causality.

The observed data indicate that self-efficacy and self-care demand are closely related to the dimensions of patient quality of life in this hospital population. Although the final model constructed a significant pathway, it should be interpreted within the context of the study population. It cannot be generalized to an absolute causal relationship without further experimental research designs.

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Authors' contributions

M.M.D.W: Conceptualization, methodology, supervision, writing, editing, investigation; M.M: Investigation, Data curation, Writing; H.J.N.N: Data analysis, methodology, manuscript translation; E.W.F: Formal analysis, validation, writing – review & editing; M.I.R.D.M.P: Metodologi, Penulisan—ulasan & penyuntingan; R.K.T.I.P: Data curation, writing—review & editing

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Data availability

The data supporting this study can be obtained from the corresponding author upon reasonable request through the official institution or affiliations.

Ethics statement

This study was approved by the Research Ethics Commission of the Faculty of Public Health, University of Nusa Cendana (No. 2024070-KEPK). All participants were informed about the purpose and procedures of the study, and written informed consent was obtained before data collection. Participants' confidentiality and anonymity were strictly maintained throughout the study.

Conflicts of interest

The authors declare no conflict of interest regarding the publication of this article.

Use of artificial intelligence (AI)

Portions of this manuscript were edited using a combination of ChatGPT to improve grammar and clarity and Consensus. App AI for literature search support. All AI-assisted content was reviewed and validated by the authors, who take full responsibility for the final content.

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