

DETERMINANTS OF QUALITY OF LIFE IN PATIENTS WITH CHRONIC KIDNEY DISEASE UNDERGOING HEMODIALYSIS AT DR. M. DJAMIL HOSPITAL, PADANG

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Abstract

Patients with Chronic Kidney Disease (CKD) encounter persistent health burdens that substantially affect their quality of life, particularly during treatment and hemodialysis. Consequently, identifying factors that influence quality of life in this population is essential. This study examined determinants of quality of life among CKD patients undergoing hemodialysis at Dr. M. Djamil General Hospital, Padang, in 2025. This study employed a mixed-methods approach with a concurrent triangulation design. The quantitative component used a cross-sectional design involving 73 patients selected through simple random sampling. Research instruments included the Kidney Disease Quality of Life–Short Form 36 and the Perceived Kidney Disease Self-Management Scale. Data were analyzed using univariate, bivariate, and multivariate analyses with logistic regression. The qualitative component applied a phenomenological approach through in-depth interviews with 15 informants, and the data were analyzed using thematic analysis. Overall, 53.4% of patients with chronic kidney disease undergoing hemodialysis reported low quality of life. Bivariate analysis showed that gender and disease perception were associated with quality of life; however, multivariate analysis identified only disease management perception as the dominant predictor. Patients with negative perceptions had a 33-fold higher risk of low quality of life compared to those with positive perceptions ($p < 0.001$; OR=33.026; 95% CI: 6.124–178.106). No significant associations were found for age, education level, employment status, marital status, comorbidities, or duration of hemodialysis. Qualitative findings supported the quantitative results, showing that patients' perceptions were influenced by informational, emotional, financial, and family support, which in turn improved disease acceptance, adaptation, and quality of life.

Keywords: Chronic Kidney Disease, Hemodialysis, Quality of Life, Perception, Social Support.

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INTRODUCTION

Chronic kidney disease (CKD) is a global public health problem, affecting approximately 10% of the world's population. In 2021, more than 850 million people were reported to be living with various forms of kidney disease, and by 2023, the global prevalence of CKD was estimated at 9.5%, with nearly half of the surveyed countries exceeding this figure (1). In Indonesia, the prevalence of CKD has shown an increasing trend. Data from the 2018 National Basic Health Research (Riskesdas) reported a CKD prevalence of 0.38%, with the majority of patients requiring dialysis therapy. Furthermore, the 2023 Indonesian Health Survey documented more than 600,000 cases of CKD among individuals aged over 15 years, along with over 1.5 million cases of kidney failure recorded under the National Health Insurance program. In West Sumatra Province, the prevalence of CKD reached 0.40% in 2018, with higher rates observed among middle-aged individuals and males. By 2023, more than 13,000 cases of chronic kidney failure were reported. These findings underscore CKD as a

major public health concern that necessitates sustained and comprehensive management strategies (2–4).

End-Stage Renal Disease (*ESRD*) is characterized by a decrease in glomerular filtration rate (GFR) to below 15 mL/min/1.73 m². At this point, the kidneys lose their natural ability to maintain the body's homeostasis, so the buildup of metabolic toxins and electrolyte imbalances becomes a real threat to the patient's life. Hemodialysis comes as the main interventional technology—an "artificial kidney"—that takes over the task of filtration mechanically to prevent fatal complications such as pulmonary edema or heart failure due to uremia. (5)

Although hemodialysis is very effective in clearing the blood of waste such as creatinine and urea, the procedure is not fully able to replace the endocrine functions of the kidneys, such as the production of the hormone erythropoietin for red blood cells or the activation of vitamin D. As a result, hemodialysis patients often have to deal with chronic systemic "side effects," including anemia, itching (pruritus), and extreme fatigue after dialysis. The reliance on dialysis machines that schedule the patient's life to be 12-15 hours per week creates very strict physical and autonomy limitations, drastically changing the patient's lifestyle overnight. (6)

Therefore, the success of treating kidney patients undergoing hemodialysis can no longer be measured only through rigid laboratory indicators. The Quality of Life (QoL) dimension is an indicator of clinical success that is equivalent to life expectancy. Research shows that biopsychosocial interventions, which include nutrition management, mental health support, and social adaptation, are decisive in determining whether a patient simply "survives" on a dialysis machine or truly "lives a quality life" despite limited organ function. (7)

The quality of life in patients with *end-stage renal disease* undergoing hemodialysis is often seen as a medical paradox. On the one hand, hemodialysis is a life-saving technology that replaces the filtration function of the kidneys to keep the level of toxins in the blood stable. However, on the other hand, this procedure drastically limits the patient's autonomy due to the dependence on the dialysis machine for dozens of hours each week. Sudden changes in routine, very tight fluid intake restrictions, and energy fluctuations due to the blood purification process create a cumulative load that significantly lowers patients' perception of their well-being compared to the general population.

Multidimensionally, this decline in quality of life is triggered by the interaction between chronic physical symptoms and psychosocial distress. Physically, patients often complain of extreme fatigue, muscle cramps, and pruritus (hives) that arise due to electrolyte imbalances and blood pressure fluctuations during dialysis. Psychologically, future uncertainty and dependence on caregivers often trigger depression and anxiety. The social impact is no less severe; Rigid therapy schedules often force patients to stop working or limit social interactions, which ultimately worsens self-isolation and lowers their overall social well-being score. (8)

Therefore, in modern nephrology practice, an increase in value (dialysis adequacy) or stability of hemoglobin levels is no longer considered the only success parameter. Health-Related Quality of Life (HRQoL) assessments have been recognized as a strong predictor of patient hospitalization and mortality. This paradigm shift demands a more holistic approach, where medical management must be accompanied by psychological support, supportive nutrition education, and adaptive coping strategies. By ensuring a good quality of life, patients

not only "connect their lives" on the dialysis machine, but are still able to have meaning and social function in the midst of their physical limitations (9).

Maintaining quality of life is a major challenge for patients with chronic kidney disease undergoing hemodialysis and remains a key treatment goal in end-stage kidney disease. Although quality of life encompasses physical, psychological, social, and environmental dimensions, clinical care often prioritizes renal function and complication prevention, resulting in limited attention to psychological well-being, social support, and lifestyle adaptation. Quality of life is further influenced by individual characteristics, disease severity, complications, comorbidities such as hypertension and diabetes, as well as lifestyle factors including unhealthy dietary habits and aging, which accelerate kidney function decline and shape patients' health status, illness perceptions, and overall quality of life (10–12).

Quality of life is defined as an individual's perception among both males and females of their position in life within the context of the culture and value systems in which they live. This assessment reflects the extent to which individuals can adapt to their living standards, expectations, satisfaction, and aspects of life that are of concern in their daily activities (13). Patients who can adapt positively to their health condition generally experience a higher quality of life, since this quality is strongly connected to how well they accept their circumstances. Such acceptance is shaped by an individual's perception of their way of interpreting and assessing an object or event, which can be either positive or negative. The perception of illness, in particular, is deeply influenced by one's belief system and is molded by personal experiences, awareness of symptoms, understanding of the disease, as well as cultural and social contexts. Consequently, illness perception plays a vital role in explaining how patients cope with and sustain their health (14,15).

Health-Related Quality of Life (HRQoL) is a multidimensional concept that reflects the patient's subjective perception of the impact of the disease and its treatment in daily life. In contrast to traditional clinical indicators such as blood pressure or blood sugar levels, which are objective, QoL focuses on how patients feel about their physical functioning, emotional well-being, and social interactions. In the modern medical context, functional recovery is often considered as important as survival, as treatments that are clinically successful but leave deep psychological suffering cannot be said to achieve holistic success.(16),(17)

Structurally, quality of life encompasses four main domains that interact with each other: physical, psychological, social, and environmental. Disturbances in one domain, such as chronic pain in physical functioning, will automatically trigger degradation in the psychological domains (such as depression) and social domains (such as isolation due to limited mobility). Therefore, QoL assessments using validated instruments are essential for health practitioners to determine the most appropriate interventions. By understanding the patient's burden, the medical team can prioritize palliative care or psychosocial support in addition to primary curative therapy to ensure that the patient remains meaningful in life in the midst of his or her illness.(16)(17)

Kidney disease occurs when the kidney organ is damaged so that it is unable to carry out its function as the body's natural filtration system optimally. The kidneys play a crucial role in filtering metabolic waste, balancing fluids, regulating blood pressure, and producing hormones for the formation of red blood cells. When this function is disrupted, toxic residues build up in the blood (uremia), triggering various systemic complications. This disease is often

dubbed the "*silent killer*" because in the early stages, patients often do not feel significant symptoms until their function decreases drastically. (7,8,18)

Clinically, kidney disease is classified into two main categories: *Acute Kidney Injury* (AKI), which occurs suddenly, and *Chronic Kidney Disease* (CKD), which lasts progressively for more than three months. Diabetes mellitus and hypertension are two main causes that slowly damage the kidney's screening unit (nephron). If left untreated, the condition can progress to *End-Stage Renal Disease* (ESRD), in which patients require kidney replacement therapy such as dialysis or kidney transplantation to survive. (19,20,21)

Kidney disease management focuses not only on laboratory parameters such as glomerular filtration rate (GFR) or creatinine levels, but also on maintaining the patient's quality of life. Low-protein diets, fluid restriction, and intensive dialysis routines often place a significant psychological and physical burden on patients. Therefore, the integration between medical and psychosocial support becomes very important. Research in the journal *The Lancet* by Webster et al. (2017) emphasizes that early detection and control of vascular risk factors is the most effective strategy to reduce the global burden of chronic kidney disease. (19,20,21)

Hemodialysis (HD), or commonly known as dialysis, is the most commonly used method of kidney replacement therapy to treat end-stage kidney failure. This procedure aims to take over the function of the kidneys that are no longer able to remove metabolic waste and excess fluid from the body. Through the help of a special machine and filter called a dialyzer, the patient's blood is drained out of the body, cleansed of toxins such as urea and creatinine, and then returned to the blood circulation in cleaner conditions. (22)

Technically, the hemodialysis process involves the principles of diffusion and ultrafiltration. During a session that usually lasts 4 to 5 hours, blood is pumped through a semi-permeable membrane inside the dialyzer, surrounded by dialysis fluid. The difference in concentration causes the toxin to move from the blood to the dialysate fluid, while excess water is drawn through hydrostatic pressure. To perform this procedure routinely, patients need permanent vascular access, such as an *Arteriovenous Fistula* (Cimino), which connects arterial and venous blood vessels so that blood flow is strong enough for the machine to process. (23,24)

Patients undergoing long-term hemodialysis often experience a decline in quality of life due to lifestyle changes and activity restrictions. Patients with chronic kidney failure face a range of lifelong health challenges, particularly those related to quality of life during treatment or hemodialysis (HD) therapy. Therefore, efforts to improve the quality of life of patients undergoing HD constitute a crucial aspect of clinical management (25). Patients also experience difficulties in accepting and adjusting to the changes associated with the disease and hemodialysis, which further contributes to a decline in their overall quality of life (24). This study aims to identify the determinants of quality of life among patients with chronic kidney failure undergoing hemodialysis at Dr. M. Djamil General Hospital in Padang.

METHODS

This study employs a mixed-methods research approach using a Concurrent Triangulation Design, which integrates quantitative and qualitative methods that are conducted simultaneously and analyzed separately. The findings from both methods are then merged and compared to yield a more comprehensive understanding. The quantitative component of this study utilizes a cross-sectional research design, in which all variables are measured at a single

point in time. Data collection was conducted using the Kidney Disease Quality of Life Short Form 36 (KDQOL-SF 36) questionnaire to assess quality of life, and the Perceived Kidney Disease Self-Management Scale (PKDSMS) questionnaire to measure perception-related variables. The total sample consisted of 73 participants, selected through a simple random sampling technique.

Quantitative data analysis included univariate, bivariate, and multivariate approaches. Univariate analysis described the frequency distribution of independent variables (sociodemographic factors, comorbidities, patient perception, and duration of hemodialysis) and the dependent variable (quality of life), presented as frequencies and percentages. Bivariate analysis used the Chi-square test on 2×2 contingency tables at a 0.05 significance level (95% confidence interval), and variables with $p < 0.25$ were entered into multivariate analysis. Multivariate analysis with logistic regression was then used to identify dominant predictors of the dependent variable.

Validity and reliability testing of the instruments was not repeated in this study, as both questionnaires had been previously validated. The Indonesian version of the KDQOL-SF-36 underwent translation as well as validity and reliability testing by Hudoyo et al. (2021), yielding a validity coefficient of 1.00 and an overall Cronbach's alpha of 0.708, indicating good reliability. The highest reliability was observed in the *Symptoms and Problems* dimension ($\alpha = 0.823$), while the lowest was found in the *Mental Component Summary* dimension ($\alpha = 0.528$), which remains acceptable for health research (26). The patient perception questionnaire, the PKDSMS, had also been previously tested by Adref et al. (2024). All items demonstrated corrected item total correlation values greater than 0.312, with an overall Cronbach's alpha of 0.831, indicating good internal consistency. Reliability analysis referred to an r-table value of 0.312 ($\alpha = 5\%$; $df = 38$), confirming that all items were suitable for use (27).

The qualitative component of this study employs a phenomenological approach, as it enables the generation of clear and in-depth information and provides a comprehensive depiction of conditions in the field. Data were collected through in-depth interviews with a total of 15 informants, consisting of 5 CKD patients, 5 family caregivers, and 5 nurses. Informants were selected using a purposive sampling technique. This study received Ethical Clearance from Health Research Ethics Committee RS M. DJamil Padang with number: DP.04.03/D.XVI.10.1/319/2025.

RESULTS

1. Quantitative Results

Table 1. Descriptive and Bivariate Analysis of Factors Influencing the Quality of Life of CKD Patients Undergoing Hemodialysis

Variables	Category	n (%)	Bad Qol n (%)	Good Qol n (%)	p (<0,05)	OR (95% CI)
Quality Of Life	Bad	39 (53.4%)	-	-	-	-
	Good	34 (46.6%)				
Sociodemographic Factors						

Age	Adult	54 (74%)	27 (50%)	27 (50%)	0.471	0.583
	Elderly	19 (26%)	12 (63.2%)	7(36.8%)		(0.199-1.707)
Gender	Male	37 (50.7%)	25 (67.6%)	12 (32.4%)	0.026	3.274
	Female	36 (49.3%)	14 (38.9%)	22 (61.1%)		(1.253-8.555)
Level Of Education	Low	25 (34.2%)	13 (52%)	12 (48%)	1.000	0.917
	High	48 (64.8%)	26 (54.2%)	22 (45.8%)		(0.348-2.414)
Employment Status	Unemployed	56 (76.7%)	29 (51.8%)	27 (48.2%)	0.817	0.752
	Employed	17 (23.3%)	10 (58.8%)	7 (41.2%)		(0.251-2.256)
Marital Status	Married	67 (91.8%)	38 (56.7%)	29 (43.3%)	0.145	0.153
	Not Married	6 (8.2%)	1 (16.7%)	5 (83.3%)		(0.017-1.379)
Comorbidities	Present	68 (93.2%)	39 (57.4%)	29 (42.6%)	0.044	-
	Absent	5 (6.8%)	-	-		
Perception	Heavy	29 (39.7%)	26 (89.7%)	3 (10.3%)	0.001	20.667
	Light	44 (60.3%)	13 (29.5)	31 (70.5%)		(5.308-80.636)
Duration of Undergoing Hemodialysis	>12 Months	47 (64.4%)	28 (59.6%)	19 (40.4%)	0.241	0.498
	<12 Months	26 (35.6%)	11 (42.3%)	15 (57.5%)		(0.188-1.315)

Based on Table 1, more than half of the respondents (53.4%) undergoing hemodialysis had poor quality of life. Regarding gender, more than half of the patients were male (50.7%), of whom 25 individuals (67.7%) had poor quality of life. Patients with chronic kidney disease undergoing hemodialysis who had poor quality of life (57.4%) also had comorbidities. Regarding perception, 29 patients (39.7%) were classified as having severe perception, of whom 26 (89.7%) had poor quality of life at Dr. M. Djamil General Hospital, Padang, in 2025.

Table 2. Final Multivariate Analysis of Factors Affecting the Quality of Life of CKD Patients Undergoing Hemodialysis

Variables	P-value	OR	95% CI
Gender	0.57	3.544	0.964 – 13.031
Marital status	0.029	0.036	0.002 – 0.715
Perception	0.000	33.026	6.124 – 178.106
Duration of Undergoing Hemodialysis	0.195	0.400	0.100 – 1.600

Based on Table 2, the variables associated with quality of life among chronic kidney failure patients undergoing hemodialysis at Dr. M. Djamil General Hospital in Padang were marital status and perception. The most dominant variable associated with quality of life was perception, as it had the highest odds ratio. The perception variable had an OR of 33.026 with a p-value of 0.000 ($p < 0.05$), indicating that patients with negative perceptions of their health were 33 times more likely to have poor quality of life compared to those with positive perceptions, after controlling for duration of hemodialysis, sex, and marital status. The 95% confidence interval (6.124–178.106) does not cross 1, further confirming that this association is both statistically significant and clinically meaningful.

2. Qualitative Results

Table 3. Characteristics of the Informants

Code Informants	Informants	Age	Gender	HD Duration/Experience
Inf-1	Patient	Teenager	Male	<12 Months
Inf-2	Patient	Elderly	Male	>12 Months
Inf-3	Patient	Adult	Female	>12 Months
Inf-4	Patient	Adult	Male	<12 Months
Inf-5	Patient	Adult	Female	>12 Months
Inf-6	Family	Adult	Female	-
Inf-7	Family	Adult	Female	-
Inf-8	Family	Elderly	Female	-
Inf-9	Family	Adult	Female	-
Inf-10	Family	Adult	Male	-
Inf-11	Nurse	Adult	Female	>1 Years
Inf-12	Nurse	Elderly	Female	>1 Years
Inf-13	Nurse	Elderly	Female	>1 Years
Inf-14	Nurse	Adult	Female	>1 Years
Inf-15	Nurse	Adult	Female	>1 Years

"If we don't understand, we immediately ask a doctor or nurse." (Inf-5)

The findings of this study indicate that informational support significantly enhances health literacy among hemodialysis patients, thereby facilitating better acceptance of their disease condition. The resulting more positive perceptions are reflected in improved quality of life, consistent with quantitative evidence identifying perception as the primary predictor of quality of life among patients with chronic kidney disease. However, limited information regarding dietary management and physical activity continues to cause confusion for some patients, which may exacerbate negative perceptions and ultimately reduce overall quality of life.

Financial Support and Illness Perception

Financial support is a crucial component in shaping the perceptions of patients with chronic kidney disease undergoing hemodialysis, particularly because this therapy is long-term, routine, and associated with substantial direct and indirect costs. Patients' perceptions of their illness and hemodialysis therapy are influenced not only by physical conditions but also by the sense of financial security experienced during treatment. Patients who perceive adequate financial support tend to develop more positive perceptions of hemodialysis therapy, as concerns related to treatment costs, transportation, and other supportive needs are alleviated.

"Because HD is covered by BPJS, all that comes out is transportation and food." (Inf-8)

Financial coverage reduces patients' economic anxiety, allowing them to focus more on the treatment process. The perception that therapy can be undertaken without a substantial financial burden contributes to a better quality of life. These findings reinforce the indirect relationship between financial support, positive illness perception, and quality of life.

Table 4. Qualitative Analysis of the Quality of Life of CKD Patients Undergoing Hemodialysis

Themes	Statements	Key Findings
Informational Support	<i>"Almost every time patients or families ask, let alone new patients. We explain it slowly in simple language, for example, they know it in terms of hypertension, they don't know what hypertension is, so we adjust" (Inf-11). "The solution is from food; there are many taboos, so how good is it?" (Inf-5)</i>	Informational support functions effectively and serves as an important factor in fostering patients' and families' understanding of the disease. Adequate informational support plays a major role in improving health literacy among patients and their families. The ability of nurses to use non-medical language is essential to effective education. However, the need for clear and specific information regarding dietary management and physical activity remains an area that requires further improvement.
Financial Support	<i>"HD is borne by BPJS at most transportation costs and meals that come out, but in the past I had to pay personally for a year up to 48 million, finally assisted by RT, which also went to BASARNAS, and the Social Service was assisted to be taken care of by M. Djamil using BPJS until now, using BPJS for HD therapy" (Inf-5)</i>	Financial support provided through the national health insurance system (BPJS) is crucial for patients' therapy. In addition, social assistance from neighborhood authorities (RT), the Social Affairs Office, the National Search and Rescue Agency (BASARNAS), as well as from nurses, highlights the importance of social support networks in alleviating the burden experienced by patients with chronic illnesses. Thus, financial support is derived not only from formal institutions but also from the surrounding social community
Emotional Support	<i>"Family always gives encouragement, says don't think about things, just live as usual" (Inf-2). "Be happy, if you are sad, your children will be happy" (Inf-8)</i>	Patients' emotional well-being is strongly influenced by the social support they receive from family, friends, and healthcare professionals. Nurses play a crucial role as emotional mediators, helping patients adapt to their chronic condition and providing the emotional support they require. Patients who receive strong emotional support tend to exhibit lower levels of anxiety and greater motivation in undergoing hemodialysis therapy, which in turn positively contributes to treatment outcomes
Companionship	<i>If there is a companion, it feels safer and not boring. If there is anything, help immediately" (Inf-1). Whoever accompanies the mother, takes the place of the father or grandmother" (Inf-6)</i>	Companionship is not only a moral aspect but also a form of supervision and patient safety during therapy. Educated caregivers can assist healthcare providers by observing early warning signs, enabling prompt intervention when necessary. Therefore, educational and counseling programs for family members are highly recommended to enhance the quality of caregiving and ensure patient safety
Dietary Patterns	<i>Previously, he often ate chiki-chikian and packaged drinks almost every day" (Inf-1). Because I often work in the field, so for eating it's mostly eat fast food, such as coffee, water that is lacking, especially instant noodles, which are the most frequent" (Inf-2)</i>	An unhealthy dietary pattern is a major contributing factor to chronic kidney failure. Following diagnosis, patients often demonstrate positive behavioral changes, including increased awareness of the importance of maintaining a healthy diet. However, to ensure the sustainability of these changes and adherence to appropriate dietary regulation, continuous monitoring and ongoing education from healthcare providers and family members remain essential.

Emotional Support and Illness Perception

Emotional support from family members and the surrounding social environment is one of the strongest factors directly shaping patients' perceptions. The presence of family members who consistently provide encouragement, prayers, and attention helps patients feel valued and not alone in facing their illness. This condition fosters the belief that the disease is not an endpoint but a situation that can be managed with the support of close relatives. In this context, emotional support serves as a psychological buffer that assists patients in developing more adaptive perceptions of their chronic condition.

"Family always encourages, just say live it." (Inf-2)

Patients who receive consistent emotional support demonstrate more adaptive illness perceptions, viewing hemodialysis as part of an effort to sustain life rather than merely as a burden. This perception contributes to greater emotional stability and improved quality of life.

Family Accompaniment and Illness Perception

Family accompaniment also influences patients' perceptions of changes in roles and independence. Although some patients must accept a reduced level of independence, supportive and nonjudgmental accompaniment helps them adapt more effectively to these changes. Patients continue to feel valued and cared for, leading to more positive perceptions of themselves and their illness. This support is crucial in preventing feelings of helplessness or being a burden to the family.

"If there is a companion, it feels safer." (Inf-1)

Healthcare providers observed that patients who received accompaniment tended to be more emotionally stable and more adherent to therapy. This accompaniment fostered the perception that patients were not facing their illness alone, which ultimately had a positive impact on their quality of life.

Dietary Patterns and Illness Perception

Awareness of the relationship between dietary patterns and disease gives rise to two distinct perceptual responses. In some patients, this awareness generates feelings of regret, guilt, and psychological stress, as they associate their illness with past eating habits. Such negative perceptions may reduce quality of life, particularly in the mental dimension. However, among patients who receive adequate informational support and accompaniment, this awareness instead promotes behavioral change toward healthier and more controlled dietary patterns.

"I used to drink coffee and instant noodles a lot." (Inf-2)

This awareness triggers self-reflection and encourages behavioral change. Patients who understand the medical rationale behind dietary restrictions tend to develop a stronger sense of self-control over their illness, which contributes to a relatively higher quality of life. Conversely, difficulties in adhering to recommended dietary regimens may lead to frustration and negative perceptions.

DISCUSSION

The results of the study showed that more than half of chronic kidney disease patients undergoing hemodialysis at Dr. M. Djamil Padang Hospital had a low quality of life. This condition shows that hemodialysis, as a kidney replacement therapy, not only has a physical impact, but also affects the psychological, social, and economic condition of patients. Patients must undergo routine therapy throughout life, limit their intake of certain fluids and foods, and deal with changes in social and occupational roles. This condition makes patients susceptible to stress, anxiety, fatigue, and a decrease in overall well-being. These findings are in line with research that states that hemodialysis patients often experience impaired physical, social, and emotional functions that affect their quality of life.(28)

In this study, no association was found between age, level of education, employment status, marital status, comorbidities, and duration of undergoing hemodialysis and quality of life among CKD patients undergoing hemodialysis at Dr. M. Djamil General Hospital in Padang. A significant association was found between sex, perception, and quality of life among CKD patients undergoing hemodialysis at Dr. M. Djamil General Hospital in Padang, with a p-value of 0.026 and 0.000 (<0.05). These findings are consistent with a study by et al. (2024) conducted at Sekarwangi Hospital, which similarly reported a significant relationship between sex and quality of life among CKD patients receiving hemodialysis (29). A study conducted in Alberta, Canada, by Riehl-Tonn et al. (2024) also reported an association between gender and quality of life among patients with chronic kidney disease (30). Male patients undergoing hemodialysis tend to experience a decline in quality of life due to various biopsychosocial factors that affect their overall well-being. Additionally, the burden of being the primary wage earner and head of the household increases psychological pressure, heightening concerns about the inability to fulfill responsibilities and even the fear of death (31).

The lack of a significant relationship between hemodialysis duration and quality of life suggests that the length of therapy does not always determine a patient's ability to adapt. Some patients who are new to hemodialysis may experience significant stress because they have not yet accepted their condition, while patients who have been on therapy for a long time tend to begin to adapt. However, in other patients, long-term therapy actually leads to boredom and emotional exhaustion. These results align with research suggesting that the quality of life of hemodialysis patients is influenced by psychosocial factors and family support rather than solely by the length of therapy.(32,33)

The most dominant variable influencing quality of life is the perception of disease management. Patients with negative perceptions have a 33-fold higher risk of low quality of life than patients with positive perceptions. These results indicate that how patients understand, accept, and interpret their chronic illness significantly determines their ability to adapt to hemodialysis therapy. Patients with positive perceptions tend to be more motivated to undergo treatment, adhere to their diet, maintain their health, and maintain their social activities. Conversely, patients with negative perceptions are more likely to feel hopeless, anxious, and lose their enthusiasm for life, resulting in a lower quality of life. These findings are supported by recent research explaining that positive perceptions of illness are associated with better self-management skills and an improved quality of life in hemodialysis patients. Patient perceptions of chronic illness are influenced by personal experiences, understanding of the disease, social support, and the patient's ability to manage psychological stress during therapy (34).

Kidney disease occurs when the kidney organ is damaged so that it is unable to carry out its function as the body's natural filtration system optimally. The kidneys play a crucial role in filtering metabolic waste, balancing fluids, regulating blood pressure, and producing hormones for the formation of red blood cells. When this function is disrupted, toxic residues build up in the blood (uremia), triggering various systemic complications. This disease is often dubbed the "*silent killer*" because in the early stages, patients often do not feel significant symptoms until their function decreases drastically. (35)

Clinically, kidney disease is classified into two main categories: *Acute Kidney Injury* (AKI), which occurs suddenly, and *Chronic Kidney Disease* (CKD), which lasts progressively for more than three months. Diabetes mellitus and hypertension are two main causes that slowly damage the kidney's screening unit (nephron). If left untreated, the condition can progress to *End-Stage Renal Disease* (ESRD), in which patients require kidney replacement therapy such as dialysis or kidney transplantation to survive. (19)

Kidney disease management focuses not only on laboratory parameters such as glomerular filtration rate or creatinine levels, but also on maintaining the patient's quality of life. Low-protein diets, fluid restriction, and intensive dialysis routines often place a significant psychological and physical burden on patients. Therefore, the integration between medical and psychosocial support becomes very important. Research in the journal *The Lancet* by Webster et al. (2017) emphasizes that early detection and control of vascular risk factors is the most effective strategy to reduce the global burden of chronic kidney disease. (30)

This finding may be explained by the fact that males tend to have a higher frequency of chronic kidney failure than females, partly due to lifestyle factors such as smoking, consumption of energy drinks or alcohol, and other unhealthy habits. In addition, greater psychological and emotional burdens, such as stress related to economic responsibilities and difficulties adapting to lifestyle changes, may contribute to a poorer quality of life among male patients. This indicates that patients with a negative or burdened perception were 20.6 times more likely to experience poor quality of life compared to those with a more positive perception. Although gender showed a significant association in the bivariate analysis, it was no longer statistically significant in the final multivariate model. Therefore, gender was not considered a primary determinant of quality of life in this study.

These findings are consistent with a study by Sinurat et al. (2022) conducted at Rasyida Kidney Hospital in Medan, which also reported a significant relationship between perception and quality of life among CKD patients receiving hemodialysis (36). A study conducted by Maricruz et al. (2022) at Daniel Alcides Carrión Hospital of Huancayo also found that there is a moderate significant correlation between the variables ($p = 0.000$; $Rho = -0.451$), indicating that as patients present greater complications, their perception of quality of life is lower (37). Individuals with good self-management in chronic illness tend to be capable of managing their condition optimally, as demonstrated by adherence to treatment, proper dietary regulation, routine health monitoring, and regular physical activity. Conversely, poor self-management leads individuals to pay less attention to their health status, such as infrequent medical check-ups, inadequate dietary control, frequent non-adherence to medication, and neglect of physical activity, all of which may ultimately worsen their health condition (34).

The results of this study indicate that more than half of patients with chronic kidney disease (53.4%) undergoing hemodialysis at RSUP Dr. M. Djamil Padang have a low quality

of life. Quantitative findings identify patients' perceptions of their illness and its management as the most dominant factor influencing quality of life, both in bivariate and multivariate analyses. In this study, marital status emerged as a significant variable in the multivariate analysis; however, it was not interpreted as an independent factor that automatically improves quality of life. These results are strengthened by qualitative findings, which reveal that patients' perceptions are shaped through a complex interaction of informational support, emotional support, financial support, family assistance, and experiences related to dietary restrictions.

Quantitatively, negative perceptions of the disease increase the risk of poor quality of life by up to 33 times after controlling for gender, marital status, and duration of hemodialysis. These findings suggest that the quality of life of hemodialysis patients is not solely determined by clinical conditions or sociodemographic characteristics but is strongly influenced by how patients interpret their illness and their ability to manage the chronic condition.

Quantitative findings identify patients' perceptions of their illness and its management as the most dominant factor influencing quality of life, both in bivariate and multivariate analyses. These findings are reinforced by qualitative results, which reveal that patients' perceptions are shaped through a complex interaction of informational support, emotional support, financial support, family accompaniment, and experiences related to dietary restrictions.

Qualitatively, patients who perceive their illness as "severe," "exhausting," and "life-limiting" tend to experience emotional fatigue, anxiety, and decreased motivation to adhere to therapy, which ultimately leads to a lower quality of life. Informational support emerged as a key factor shaping patients' perceptions. Qualitative findings show that clear explanations from healthcare providers, delivered in simple and easily understandable language, help patients and their families understand the purpose of hemodialysis and the importance of treatment adherence. This is consistent with quantitative findings indicating that patients with more positive perceptions tend to have a better quality of life. Conversely, limited information, particularly regarding diet and physical activity, can worsen patients' perceptions and generate confusion and feelings of helplessness, thereby contributing to poor quality of life.

Based on the in-depth interviews conducted with the informants, informational support from healthcare providers plays an essential role in helping patients understand and trust the treatment process they undergo. The explanations provided by doctors and nurses were considered sufficiently clear and easy to understand, as they were delivered using simple language and, at times, local dialects to enhance communication. This highlights the importance of implementing therapeutic communication that aligns with the cultural context of the patients

Financial support, particularly through BPJS Kesehatan and social assistance programs, functions as a protective factor by reducing patients' psychological burden. Qualitative findings indicate that assurance of treatment coverage provides patients with a sense of security and optimism in undergoing therapy. This economic security contributes to the development of positive perceptions, which quantitatively are shown to be closely associated with a better quality of life.

Based on the in-depth interviews conducted with the informants, financial support from the National Health Insurance (BPJS Kesehatan) serves as a major protective factor in reducing the economic stress experienced by patients with chronic illnesses. Most informants stated that

hemodialysis therapy no longer posed a significant financial burden because the costs were covered by BPJS, although additional expenses such as transportation, meals, and supplementary medications were not included in the program. In addition, some patients received social assistance from their surrounding community, including support from neighborhood groups (RT), the Social Affairs Office, and even personal initiatives from healthcare workers, indicating that financial support is not solely derived from formal systems but also from informal social networks that enhance patients' psychosocial resilience.

Emotional support and family accompaniment also play a substantial role in fostering positive patient perceptions. Qualitatively, patients who receive moral support, encouragement, and family presence during hemodialysis appear calmer, more adherent to therapy, and emotionally more stable. These findings help explain why marital status emerged as a significant factor in the multivariate analysis. However, not all married patients reported a good quality of life, indicating that the quality of emotional support is more important than marital status itself.

Based on the in-depth interviews conducted with the informants, emotional support from family members emerged as the most influential type of support affecting the quality of life of hemodialysis patients. Families play a crucial role in providing motivation, encouragement, and a sense of security throughout the treatment process. In addition, patients also received social support from fellow patients and healthcare professionals, which contributed positively by enhancing their confidence and emotional well-being during dialysis sessions.

Emotional support from family is also a crucial factor in improving the quality of life for hemodialysis patients. Patients who receive attention, motivation, and support from their families tend to have more stable emotions and are more optimistic about undergoing therapy. Other research also shows that family support is significantly associated with improved quality of life for hemodialysis patients because families serve as a source of motivation, supervision, and psychological support during treatment.(38)

In addition to emotional support, financial support also influences patients' perceptions of their illness and quality of life. The high cost of hemodialysis therapy can be a source of anxiety for patients and their families. Financial assistance through the National Health Insurance (BPJS Kesehatan) helps reduce financial pressure, allowing patients to focus more on their treatment. Good financial support provides a sense of security and enhances patients' positive perceptions of the continuity of therapy. Recent research also shows that economic hardship and financial constraints are associated with a reduced quality of life for hemodialysis patients.(39)

The study also showed that dietary habits influence patients' perceptions of their disease. Some patients admitted to having a habit of consuming fast food, high-sodium foods, and caffeinated beverages before developing chronic kidney failure. After undergoing hemodialysis, patients began to realize the importance of dietary management. However, adherence to the diet remains a challenge due to long-standing habits and financial constraints. Other research has shown that adherence to fluid and dietary restrictions is associated with quality of life in hemodialysis patients (40).

Family accompaniment also plays an important role in maintaining the physical and psychological stability of patients during hemodialysis. Healthcare providers reported that

patients who attend hemodialysis sessions without accompaniment tend to exhibit higher levels of anxiety, less emotional stability, and lower adherence to medical recommendations. This indicates that family accompaniment is not merely a form of moral support but also serves a protective function for patient safety and treatment success. With consistent accompaniment, patients are better able to accept their illness and to perceive hemodialysis as part of a life-sustaining effort rather than merely as a burden.

Based on the in-depth interviews conducted with the informants, the presence of a companion during therapy was found to provide patients with a sense of security and emotional comfort that is highly needed. In addition to monitoring the patient's physical condition, companions also serve as communication mediators between the patient and healthcare providers, and they are able to respond quickly in the event of an emergency during the hemodialysis process. Patients who are accompanied generally exhibit greater emotional stability and better physiological conditions compared to those who attend the sessions alone.

In addition, dietary patterns before and after diagnosis influence patients' perceptions of their illness. Qualitative findings reveal that prior habits of consuming fast food, caffeinated beverages, and energy drinks often lead to regret and psychological distress after initiating hemodialysis. However, patients who can understand the medical rationale behind dietary restrictions and attempt to adhere to them tend to develop a stronger sense of self-control, resulting in a relatively higher quality of life.

Based on the in-depth interviews conducted with the informants, most patients reported that before undergoing hemodialysis, they engaged in unhealthy eating habits such as frequent consumption of fast food, high-sodium meals, caffeinated drinks, and energy beverages. After being diagnosed with chronic kidney failure and beginning hemodialysis, many patients became more aware of the importance of maintaining a low-sodium and fluid-restricted diet, although not all were able to adhere to these guidelines consistently. This difficulty in sustaining healthy dietary patterns was attributed to long-standing habits and economic limitations.

CONCLUSION AND RECOMMENDATION

More than half of patients (53.4%) with chronic kidney disease undergoing hemodialysis at Dr. M. Djamil General Hospital, Padang, had a low quality of life. The findings indicate that patients' perceptions of their illness and its management represent the most dominant factor associated with quality of life. After controlling for sociodemographic variables and duration of hemodialysis, perception remained strongly and statistically significantly associated with patients' quality of life. Qualitative findings supported the quantitative results by demonstrating that patients' perceptions were shaped through informational support, emotional support, financial support, family accompaniment, and experiences with dietary restrictions. These factors influenced how patients interpreted and made meaning of their illness, which subsequently affected their quality of life. Therefore, efforts to improve the quality of life of hemodialysis patients should focus on strengthening positive illness perceptions through clear patient education, adequate emotional support, and active family involvement throughout the treatment process.

There is a need to strengthen continuous educational programs, such as counseling for patients and their families, regarding the management of chronic kidney disease and the

provision of adequate support to help patients maintain positive perceptions and achieve a better quality of life. Collaboration among institutions, including the Social Affairs Office, community organizations, and hospitals, must be enhanced to establish a more robust support system for chronic patients, particularly in the area of financial assistance. Patients are encouraged to maintain positive perceptions of their illness by participating in health education, adhering to dietary guidelines, and following their treatment schedule. Self-awareness in disease management is essential for improving quality of life. Families are also expected to play an active role in providing emotional support and accompaniment during hemodialysis. Family involvement not only helps reduce patient anxiety but also enhances safety and treatment adherence.

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