Journal for Quality in Public Health ISSN: 2614-4913 (Print), 2614-921(Online)
Vol. 9, No. 2, Nov 2025, pp: 203-210
DOI : https://doi.org/10.30994/jqph.v9i2.604

The Relationship Between Dietary Compliance and Quality of Life Among Patients with Chronic Kidney Disease Undergoing Hemodialysis at Kertosono Regional Hospital

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Received : April 14th 2026

Accepted : May 6th 2026

Published : May 30th 2026

ABSTRACT

Patients who have been diagnosed with kidney failure must undergo hemodialysis routinely throughout their lives obediently which has an impact on the patient's quality of life. In patients with CKD, it is often recommended to regulate their diet in order to support improving their quality of life. The purpose of this study was to determine the relationship between dietary compliance and the quality of life of CKD patients undergoing hemodialysis therapy in the Hemodialysis Room of RSD Kertosono. The design in the correlation study with a cross-sectional approach. Technique sampling use Purposive Sampling and a sample 35 patients with CKD undergoing hemodialysis. Measurement of the independent variable, namely dietary compliance with a questionnaire and the dependent variable, namely quality of life with the WHOQoL-BREF questionnaire. Statistical tests using spearman rank ($\alpha = 0.05$). The results of this study found that most of the dietary compliance was in the non-compliant category, as many as 21 respondents (60%) and almost half of the quality of life was in the poor quality of life category, as many as 17 respondents (49%). The results of the Spearman rank statistical test obtained ρ value = 0.000 $\leq \alpha$ (0.05) r = 0,775 a strong positive correlation so that H1 was accepted, which means that there is a relationship between dietary compliance and the quality of life of chronic kidney failure patients undergoing hemodialysis therapy in the Hemodialysis Room of RSD Kertosono. Dietary compliance greatly affects the quality of life in CKD patients undergoing hemodialysis.

Keywords: *Chronic Kidney Disease, Dietary Compliance and Quality of Life*

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INTRODUCTION

Chronic kidney disease (CKD) constitutes a major and escalating global public health concern. In 2023, CKD was the ninth leading cause of death worldwide, responsible for approximately 1.48 million deaths. Globally, the number of adults affected by CKD reached 788 million in 2023, more than double the 378 million recorded in 1990. In Indonesia, although national surveys report a relatively low diagnosed prevalence, the actual burden is substantial, with projections estimating around 12.6 million

cases by 2024. Many cases remain underdiagnosed until progression to advanced stages (Statista, 2026). West Java, East Java, and Central Java were the provinces with the highest incidence of kidney failure in Indonesia (Riskesdas, 2018). Data from Kertosono Regional Hospital (RSD) in 2022 showed that 30 patients underwent hemodialysis therapy, and in 2023, the number of hemodialysis patients increased to 34. Kidney failure can occur acutely or chronically. Chronic kidney disease (CKD) is the failure of the kidneys to maintain metabolism and fluid and electrolyte balance due to progressive destruction of the kidney structure, manifested by the accumulation of metabolic waste (uremic toxins) in the blood (Muttaqin & Kumala Sari, 2011). When these metabolic waste substances cannot be excreted, and even accumulate in the body, they will cause very uncomfortable symptoms such as: edema, shortness of breath, pain, nausea, vomiting, fatigue and weakness, loss of appetite, nausea, difficulty sleeping, pruritus, loss of taste in the tongue, difficulty concentrating, decreased libido, body aches, and often uncontrolled blood pressure. This condition causes patients with kidney dysfunction to have a high dependence on hemodialysis. Patients who have been diagnosed with kidney failure are forced to undergo hemodialysis routinely throughout their lives in a compliant manner, which impacts the patient's quality of life (Mayo Clinic, 2026).

For patients with ESKD, hemodialysis remains the most widely utilized form of kidney replacement therapy, especially in Indonesia. This treatment is typically performed three times weekly and aims to remove waste products and excess fluid. However, hemodialysis only partially replaces kidney function and demands strict lifelong adherence to medication, fluid restrictions, and dietary management. Dietary compliance is one of the most critical yet difficult aspects of hemodialysis care. Patients must restrict intake of potassium, phosphorus, sodium, and fluids while maintaining adequate protein levels. Despite its importance, non-adherence to dietary restrictions among hemodialysis patients is notably high, with a worldwide pooled prevalence of approximately 60%. Non-compliance frequently results in complications such as hyperkalemia, hyperphosphatemia, fluid overload, and heightened cardiovascular risk, often leading to increased hospitalizations and symptom severity (Vijay et al, 2022).

These complications substantially affect patients' health-related quality of life (QoL). Hemodialysis patients generally report lower QoL compared to the general population, influenced by physical limitations, psychological burden, treatment dependency, and dietary restrictions. Existing evidence indicates that poor dietary compliance is associated with worse quality of life due to increased symptom burden and reduced functional capacity. Although the relationship between dietary compliance and quality of life is recognized internationally, research specifically addressing this association among hemodialysis patients in Indonesia, particularly in regional hospital settings, remains limited. Therefore, this study aims to examine the relationship between diet compliance and quality of life in chronic kidney disease (CKD) patients undergoing hemodialysis therapy in the Hemodialysis Room of Kertosono Regional Hospital. The findings are expected to contribute valuable evidence for the development of targeted nutritional interventions and holistic care strategies in similar clinical contexts (Mark, P. B., et al, 2025)

METHODS

This study used a correlational research design with a cross-sectional approach, which examines the correlation between risk factors by simultaneously collecting data at a single point in time (Potter & Perry, 2017). The study was conducted from January 28th to 29th in the Hemodialysis Ward of Kertosono Regional Hospital. The population of this study was 35 patients, recruited using a Purposive Sampling technique. The independent variable was diet compliance in chronic kidney disease patients using a questionnaire, while the dependent variable was Quality of Life in Chronic Kidney Disease Patients using the WHOQoL-BREF. SPSS statistical test using the Spearman Rank Test $\leq \alpha$ 0.05.

RESULTS

Table 1. respondent characteristics based on gender

No	Gender	Frequency	Percentage
1	Male	17	49 %
2	female	18	51 %
	Aggregate	35	100

Based on the table above, of the 35 respondents, the majority were female, namely 18 respondents (51%).

Table 2. respondent characteristics based on age

No	Age	Frequency	Percentage
1	25-30 year	4	11 %
2	31-35 year	7	20 %
3	36-40 year	8	23 %
4	41-45 year	6	17 %
5	46-50 year	5	14 %
6	51-55 year	3	9 %
7	> 55 year	2	6 %
	Aggregate	35	100

Based on table above, of the 35 respondents, a small proportion were aged 36-40 years, namely 8 respondents (23%).

Table 3. respondent characteristics based on education

No	Education	Frequency	Percentage
1	Elementary school	1	3 %
2	Junior high school	10	29 %
3	Senior high school	18	51 %
4	University	6	17 %
	Aggregate	35	100

Based on table above, of the 35 respondents, the majority had a high school education, namely 18 respondents (51%).

Table 4. respondent characteristics based on work

No	Work	Frequency	Percentage
1	housewife	5	14 %
2	government employees	7	20 %
3	farmer	6	17 %
4	self-employed	14	40 %
5	Doesn't work	3	9 %
	Aggregate	35	100%

Based on table above, of the 35 respondents, almost half worked as self-employed, namely 14 respondents (40%).

Table 5. respondent characteristics based on marital status

No	Marital status	Frequency	Percentage
1	single	3	9 %
2	married	24	69 %
3	widowed	4	11 %
4	widower	4	11 %
	Aggregate	35	100%

Based on table above, of the 35 respondents, the majority were married, namely 24 respondents (69%).

Table 6. Frequency Distribution of Diet Compliance of Chronic Kidney Failure Patients in the Hemodialysis Ward of Kertosono Regional Hospital

No	Dietary Compliance	Frequency	Percentage
1	Obedient	14	40 %
2	Not obey	21	60 %
	Aggregate	35	100 %

Based on table above, it can be seen that of the 35 respondents regarding Diet Compliance of Chronic Kidney Failure Patients in the Hemodialysis Room of Kertosono Regional Hospital, most of them had dietary compliance with the criteria of non-compliance, namely 21 respondents (60%).

Table7. Frequency Distribution of Quality of Life of Chronic Kidney Failure Patients in the Hemodialysis Ward of Kertosono Regional Hospital

No	Work	Frequency	Percentage
1	Quality of life is very poor	2	6 %
2	Poor quality of life	17	49 %
3	Quality of life is moderate	11	31 %
4	Quality of life is good	1	3 %
5	Very good quality	4	11 %
	Aggregate	35	100 %

Based on table above, it can be seen that of the 35 respondents regarding the Quality of Life of Chronic Kidney Failure Patients in the Hemodialysis Room at Kertosono Regional Hospital, almost half had a poor quality of life, namely 17 respondents (49%).

Table 8. Frequency Distribution of the Relationship between Diet Compliance and Quality of Life of Chronic Kidney Failure Patients Undergoing Hemodialysis Therapy in the Hemodialysis Room of Kertosono Regional Hospital

	Quality of Life											
	Very Poor Quality of Life	**%**	**Poor Quality of Life**	**%**	**Poor Quality of Life**	**%**	**Good Quality of Life**	**%**	**Very Good Quality of Life**	**%**	**∑**	**%**
Comply	0	0	1	7,1	8	57,1	2	14,3	3	21,5	14	100
Not Comply	2	9,5	16	76,2	3	14,3	0	0	0	0	21	100
Total	2	9,5	17	48,6	11	31,4	2	5,7	3	8,6	35	100
Statistical Test *Spearman rank* ρ-Value = 0,000 ≤ α = 0,05 r = 0,775, n = 35												

Based on table above, it is known from the cross tabulation that of the 35 respondents, the majority have dietary compliance with the category of non-compliant and poor quality of life as many as 16 respondents (76.2%). The Spearman rank test obtained ρ value = 0.000 ≤ α = 0.05, so Ha is accepted, so there is a Relationship Between Diet Compliance and Quality of Life of Chronic Kidney Failure Patients Undergoing Hemodialysis Therapy in the Hemodialysis Room of RSD Kertosono. In the Spearman rank test, the correlation coefficient number is 0.775, meaning that the level of strength of the relationship (correlation) between variables is classified as strong. The direction of the relationship between variables is a unidirectional relationship because the correlation coefficient value is positive, so it can be interpreted that the more non-compliant the worse the quality of life.

DISCUSSION

Diet Compliance of Chronic Kidney Failure Patients in the Hemodialysis Ward of Kertosono Regional Hospital**,** Based on the results of the study on January 28-29, 2025, out of 35 respondents, most of them had non-compliant criteria, as many as 21 respondents (60%). This study also linked the characteristics of respondents with dietary compliance, the results obtained were; Age (ρ-Value = 0.813 > α = 0.05), Gender (ρ-Value = 0.129 > α = 0.05), Education (ρ-Value = 0.725 > α = 0.05), Occupation (ρ-Value = 0.750 > α = 0.05), marital status (ρ- Value = 0.358 > α = 0.05). These findings align with global trends indicating that non-adherence to dietary restrictions among hemodialysis patients is consistently high, with a pooled prevalence of approximately 60% (Win et al., 2025; Vijay et al., 2022). The absence of association with sociodemographic factors in this study suggests that dietary non-compliance may be more strongly influenced by behavioral, psychosocial, and environmental barriers rather than basic demographic variables.

From a theoretical perspective, long-term adherence to complex dietary regimens in CKD is inherently difficult due to the chronic and incurable nature of the disease. Patients must simultaneously restrict potassium, phosphorus, sodium, and fluid intake while ensuring sufficient high-quality protein consumption. This restrictive lifestyle often conflicts with daily realities, particularly for patients who are primary breadwinners and must maintain physical stamina for work (Subekti, 2024). Such tension between therapeutic requirements and socioeconomic demands frequently leads to intentional or unintentional dietary deviations.

Critically, while the 60% non-compliance rate in this study mirrors international data, it remains concerning given the well-established consequences of poor dietary adherence, including hyperkalemia, hyperphosphatemia, fluid overload, cardiovascular complications, and increased hospitalization rates. The lack of correlation with sociodemographic characteristics challenges the assumption that higher education or specific occupational status would naturally improve compliance. This implies that current educational approaches in hemodialysis units may be insufficiently tailored to address deeper

psychological and practical barriers, such as food cravings, limited access to appropriate foods, and the cumulative burden of lifelong restrictions.

This interpretation is consistent with Rahayu (2019), who reported a similarly high non-compliance rate (72.5%) among hemodialysis patients, linking it to insufficient knowledge and prolonged treatment duration. The persistence of high non-adherence rates over time indicates a systemic gap in patient empowerment strategies. In conclusion, dietary compliance continues to be one of the most demanding aspects of CKD self-management. Future interventions should move beyond generic education toward more personalized, multidisciplinary, and family-supported programs that address both motivational and practical challenges. Strengthening such strategies is essential to improve not only compliance but also overall clinical outcomes and quality of life for hemodialysis patients.

Quality of Life of Chronic Kidney Failure Patients in the Hemodialysis Ward of Kertosono Regional Hospital, Based on the results of the study on January 28-29, 2025, out of 35 respondents, 17 respondents (49%) had poor quality of life. This study also linked the characteristics of respondents with the level of anxiety, the results obtained were; Age (ρ-Value = 0.007 <α = 0.05), Gender (ρ-Value = 0.198 > α = 0.05), Education (ρ-Value = 0.082 > α = 0.05), Occupation (ρ-Value = 0.543 > α = 0.05), marital status (ρ-Value = 0.364 > α = 0.05). These results are consistent with existing literature indicating that health-related quality of life (HRQoL) among hemodialysis patients remains suboptimal in many settings. Studies in Indonesia have reported poor or moderate quality of life in 60–65% of hemodialysis patients (Nurbadriyah et al., 2023; Wulandari et al., 2025). The significant association with age in this study aligns with broader evidence that older patients often experience greater declines in physical functioning, increased comorbidity burden, and reduced adaptive capacity (Hidayat et al., 2026).

Theoretically, CKD patients on hemodialysis face multiple interconnected burdens that impair quality of life, including persistent physical symptoms (fatigue, pain, and fluid overload), psychological distress (anxiety and depression), dietary restrictions, and treatment-related dependency. These factors collectively diminish physical, psychological, social, and environmental domains of well-being. Age-related decline in physiological reserve and cumulative comorbidity further exacerbate these challenges, explaining the significant correlation observed in this study (Yonata et al., 2022).

Critically, the high proportion of poor quality of life (49%) in this regional hospital setting is concerning, even though it is slightly lower than some national reports. The lack of association with education, occupation, and marital status suggests that socioeconomic and demographic factors alone do not adequately explain QoL outcomes in this population. This highlights a critical gap: current hemodialysis care may not sufficiently address holistic needs beyond medical management. The exclusive association with age implies that younger patients may possess better resilience or coping mechanisms, while older patients require more targeted supportive interventions (Kusmiran et al., 2026).

This interpretation supports findings from recent Indonesian studies showing that quality of life in hemodialysis patients is influenced more by modifiable clinical and psychosocial factors than by fixed sociodemographic variables. The persistence of poor QoL despite advances in dialysis technology underscores the need for integrated care models that combine medical treatment with nutritional counseling, psychological support, and family involvement. In conclusion, poor quality of life remains highly prevalent among CKD patients undergoing hemodialysis at Kertosono Regional Hospital. Future interventions should prioritize age-stratified approaches, with enhanced support for older patients, while addressing universal challenges such as symptom management and psychosocial well-being. Strengthening these aspects is essential to improve patient-centered outcomes in similar resource-limited settings.

The Relationship Between Diet Compliance and Quality of Life in Chronic Kidney Failure Patients Undergoing Hemodialysis Therapy in the Hemodialysis Room at Kertosono Regional Hospital The present study, conducted on January 28–29, 2025, at the Hemodialysis Room of Kertosono Regional Hospital, revealed a strong and statistically significant relationship between dietary compliance and quality of life among chronic kidney disease (CKD) patients undergoing hemodialysis. Of the 35 respondents, 21 (60%) were categorized as non-compliant with dietary restrictions, while 17 (48.6%) reported poor quality of life. Spearman rank correlation analysis yielded a ρ value of 0.000 (p

< 0.05), indicating a highly significant positive relationship. Thus, the alternative hypothesis (Ha) was accepted, confirming that better dietary compliance is associated with improved quality of life in this population.

This finding is consistent with theoretical frameworks emphasizing that dietary adherence is a cornerstone of effective CKD management. Patients on hemodialysis must strictly regulate intake of potassium, phosphorus, sodium, and fluids to prevent complications such as hyperkalemia, fluid overload, and cardiovascular events. Non-compliance often leads to increased symptom burden, frequent hospitalizations, and diminished physical and psychological well-being, all of which directly impair health-related quality of life (HRQoL) (Win et al., 2025; Vijay et al., 2022). Critically, the strong correlation ($\rho = 0.000$) observed in this study underscores the clinical importance of dietary compliance as a modifiable factor influencing patient outcomes. While 60% non-compliance and nearly 49% poor quality of life rates are concerning, they are not unexpected given the well-documented challenges of long-term dietary restriction in a chronic, incurable condition. The results suggest that non-compliance is not merely a knowledge deficit but likely stems from complex psychosocial, economic, and behavioral barriers. This interpretation highlights a critical gap in current hemodialysis care models, which often prioritize medical and technical aspects over sustained behavioral support (Hidayat et al., 2026).

From an opinion-based perspective, these findings indicate that interventions solely focused on patient education are insufficient. Multidisciplinary programs incorporating motivational counseling, family involvement, practical meal planning tools, and regular compliance monitoring are urgently needed. The significant relationship also implies that improving dietary adherence represents one of the most impactful and cost-effective strategies to enhance quality of life in resource-limited settings such as regional hospitals in Indonesia. In conclusion, this study provides robust evidence of a strong positive relationship between dietary compliance and quality of life among hemodialysis patients. Addressing dietary non-compliance should be positioned as a priority in holistic CKD care to achieve better patient-centered outcomes.

CONCLUSION

This study reveals a strong positive correlation ($r = 0.775$, $p = 0.000$) between dietary compliance and quality of life among patients with chronic kidney failure undergoing hemodialysis therapy at the Hemodialysis Unit of RSD Kertosono. The majority of respondents exhibited non-compliance with dietary restrictions (60%), which corresponded with a high prevalence of poor quality of life (49%). The findings carry significant practical implications for the management of hemodialysis patients. First, enhancing dietary compliance should be positioned as a primary intervention to improve patients' quality of life. Healthcare professionals, particularly nephrology nurses and dietitians, must implement more intensive, individualized nutritional counseling and continuous monitoring programs to address the high rate of dietary non-compliance. Second, hospitals should integrate routine dietary adherence assessments into standard care protocols within hemodialysis units. The development of structured educational interventions, incorporating family support, behavioral strategies, and simplified dietary monitoring tools, is strongly recommended to foster sustainable compliance. Third, from a policy perspective, these results underscore the need to strengthen multidisciplinary collaboration in chronic kidney disease management. Healthcare institutions are encouraged to allocate resources for comprehensive patient empowerment programs that emphasize nutritional adherence as a key modifiable factor influencing quality of life. Ultimately, improving dietary compliance emerges as a highly actionable and cost-effective strategy to meaningfully enhance the overall well-being of hemodialysis patients. Targeted interventions in this domain have the potential to yield substantial clinical benefits and should be prioritized in both clinical practice and health service planning.

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