



## Hemodialysis Duration and Quality of Life Among Patients with Chronic Kidney Disease at Guido Valadares National Hospital, Dili Timor-Leste : A Cross-Sectional Study

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### ABSTRACT

**Introduction:** Chronic kidney disease (CKD) represents a major global public health concern, with a rapidly increasing burden worldwide. According to the 2023 report by the International Society of Nephrology, approximately 850 million individuals globally are affected by CKD, with a median prevalence of 9.5% and a median mortality rate attributable to CKD of 2.4% (ISN, 2023). In the Asia region, the prevalence of CKD varies considerably, ranging from 7% to 34.3%. The regional burden is largely driven by highly populated countries, particularly China, with an estimated 159.8 million affected individuals (95% CI: 146.6–174.1), and India, accounting for approximately 140.2 million cases (95% CI: 110.7–169.7) (Liyanage et al., 2022). In Timor-Leste, CKD has emerged as a significant contributor to mortality, with an estimated mortality rate of 32.7 per 100,000 population, highlighting its substantial public health burden (WHO, 2021). In 2025, the Nephrology Unit of Hospital Nacional Guido Valadares reported a total of 114 active patients receiving regular haemodialysis therapy, indicating a substantial demand for renal replacement services at the national referral hospital (Medical Record HNGV, 2025). This study aims to examine the relationship between the duration of hemodialysis therapy and quality of life among patients with chronic kidney disease at the Nephrology Unit of Hospital Nacional Guido Valadares, Dili.

**Method:** This study was conducted at the Nephrology Unit of Hospital Nacional Guido Valadares, Dili, using a quantitative correlational approach with a cross-sectional design. A total of 89 participants were included, selected through non-probability sampling using a purposive sampling technique. Data were collected using the WHOQOL questionnaire to assess quality of life, and statistical analysis was performed using the Spearman Rank correlation test.

**Result:** The results demonstrated a statistically significant association between the duration of hemodialysis and quality of life among patients with chronic kidney insufficiency ( $r = 0.629$ ;  $p < 0.05$ ). The majority of respondents had undergone hemodialysis for more than 24 months (58 patients; 65.2%), and most participants were classified as having a high quality of life (54 patients; 60.7%).

**Conclusion:** identified a significant relationship between the duration of haemodialysis therapy and quality of life among patients with CKD. These findings indicate that the length of haemodialysis treatment is an important factor influencing patients' quality of life..

**Keywords:** CKD, Dialysis Therapy Duration, Patient-Reported Outcomes, Health-Related Quality of Life (HRQoL)

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## INTRODUCTION

Chronic kidney disease (CKD) is characterized by structural abnormalities or functional disturbances of the kidneys persisting for more than three months. The condition is progressive and irreversible, with advanced stages resulting in a loss of renal function that cannot be restored. In patients with severe CKD, kidney function is markedly impaired, as indicated by a glomerular filtration rate (GFR) below 15 ml/min/1.73 m<sup>2</sup> (Simatupang et al., 2024).

According to the report by the International Society of Nephrology (2023) It is estimated that approximately 850 million individuals worldwide are affected by CKD, with a global prevalence of 9.5%. In many countries, the incidence of advanced CKD remains comparatively low, largely due to limited access to renal replacement therapies, including haemodialysis and kidney transplantation (ISN, 2023).

In the Asia region, the prevalence of CKD ranges from 7% to 34.3%, with an estimated 434.3 million individuals living with the condition. China and India account for a substantial portion of the global CKD burden (Liyanage et al., 2022). According to global studies, Indonesia ranks among the highest in Asia in terms of the number of CKD cases, with a prevalence of 25.9% in 2022 (Makmun et al., 2025).

In Timor-Leste, the World Health Organization report indicates that CKD ranks among the leading causes of mortality, with a mortality rate of 32.7 per 100,000 population. Mortality rates are higher in females than in males. This trend highlights CKD as a national public health challenge requiring effective interventions (WHO, 2021).

The study result by Pereira et al., (2023) shown In Timor-Leste, 192 deaths due to CKD were reported in 2020, corresponding to a mortality rate of 2.72%. Globally, Timor-Leste ranked 71st in terms of CKD mortality. By 2023, the number of deaths had risen to 610, making CKD the 8<sup>th</sup> leading cause of death among all reported conditions in the country. According to data from the Nephrology Unit of Hospital Nacional Guido Valadares during 2021–2022, a total of 98 patients received hemodialysis therapy. Of these, 48 patients (48.9%) were male and 50 patients (51.0%) were female (Pereira et al., 2023).

The study conducted by Labrador et al., (2024) reported that between January 2019 and October 2022, a total of 203 patients aged 19 years and older with end-stage renal disease requiring vascular access for hemodialysis received treatment at the Nephrology Service of Hospital Nacional Guido Valadares. Among the underlying causes of CKD, hypertensive nephropathy was the most prevalent, accounting for 46.31%, followed by diabetic nephropathy at 27.09% (Labrador et al., 2024).

Hemodialysis therapy can affect the quality of life of patients with CKD, as it impacts multiple dimensions of daily living, including physiological, psychological, and socio-economic aspects (Andu et al., 2024). Patients with CKD undergoing haemodialysis may experience impaired concentration, cognitive processing, and social interactions, which can significantly affect their quality of life (Lestari et al., 2025). The duration of hemodialysis refers to the time period from the medical diagnosis of CKD to the point when the patient undergoes regular hemodialysis

therapy (Saputra & Wiryansyah, 2023).

According to the World Health Organization (WHO), quality of life is defined as an individual's perception of their position in life within the context of culture and value systems, in relation to their goals, expectations, standards, and concerns considered important (Jamaruddin & Sudirman, 2022).

Assessing an individual's quality of life is challenging, as it is subjective and depends heavily on personal perceptions and experiences. To determine and evaluate a person's quality of life, multiple dimensions must be considered, including physical, psychological, and social status, as well as health conditions or illnesses experienced by the individual. Quality of life assessment can be conducted through monitoring patients' functional status or via subjective reports reflecting the individual's perception of their health and daily life. Standardized instruments, such as the WHOQOL (World Health Organization Quality of Life) developed by the WHO are commonly used to evaluate quality of life across physical, psychological, social relationships, and environmental domains (Anggraini & Fadila, 2023).

Previous studies conducted in other countries have yielded inconsistent results regarding the relationship between hemodialysis duration and patients' quality of life. Some studies reported a significant association, whereas others found no meaningful relationship. These discrepancies highlight the need for local research to better understand the actual conditions in Timor-Leste.

Therefore, this study was conducted to investigate the relationship between hemodialysis duration and quality of life among patients with CKD at the Nephrology Unit of Hospital Nacional Guido Valadares in 2025. The findings of this research are expected to contribute to the development of nursing interventions and clinical strategies aimed at improving the quality of life of CKD patients.

## **MATERIALS AND METHODS**

This study employed a quantitative correlational design with a cross-sectional approach. The cross-sectional approach allows for the simultaneous assessment of independent and dependent variables. The study population consisted of patients with CKD undergoing haemodialysis at the Nephrology Unit of Hospital Nacional Guido Valadares. A total of 89 participants were included, selected according to predefined inclusion criteria established by the researchers. The sampling technique employed non-probability purposive sampling, meaning participants were selected based on specific considerations aligned with the study objectives.

Data were collected using the World Health Organization Quality of Life Questionnaire (WHOQOL-BREF), which comprises 26 items, including two questions (Q1 and Q2) assessing overall quality of life and general health. This instrument evaluates quality of life across four domains such as physical, psychological, social relationships, and environmental.

## RESULTS

## The characteristics of the participants

Table 1. Frequency Distribution by Sex

No.	Sex	Frequency	Percent
1.	Female	45	50.6 %
2.	Male	44	49.4 %
Total		89	100 %

Based on Table 1, the distribution of participants by sex at the Nephrology Unit of Hospital Nacional Guido Valadares showed that the majority of participants were female, with a frequency of 45 (50.6%), while male participants comprised the minority, totaling 44 (49.4%). These results illustrate a nearly balanced male-to-female ratio in the study population.

Table 2. Frequency Distribution by Age

No	Age	Frequency	Percent
1.	17-32	12	13.5 %
2.	33-48	23	25.8 %
3.	49-64	44	49.4 %
4.	> 65	10	11.2 %
Total		89	100 %

Based on Table 2, the age distribution of respondents at the Nephrology Unit of Hospital Nacional Guido Valadares Dili indicates that the largest proportion of participants were aged 49–64 years, accounting for 44 individuals (49.4%), while the smallest proportion consisted of respondents aged over 65 years, totaling 10 individuals (11.2%). This distribution suggests that middle to late adulthood constituted the predominant age group among patients included in the study, whereas older adults were comparatively underrepresented.

Table 3. Frequency Distribution by Education Level

No	Education level	Frequency	Percent
1.	Illiterate	35	39.3%
2.	Elementary School	8	9.0%
3.	Junior High School	3	3.4%
4.	Secondary School	30	33.7%

5.	Vocational School	1	1.1%
6.	Bachelor	1	1.1%
7.	University	11	12.4%
Total		89	100 %

Based on Table 3, the distribution of respondents by educational level at the Nephrology Unit of Hospital Nacional Guido Valadares Dili demonstrates that the majority of participants had illiterate, comprising 35 respondents (39.3%). In contrast, the smallest proportions were observed among those with vocational school and university level, each represented by 1 respondent (1.1%). This pattern indicates a predominance of low educational attainment among the study population, with higher levels of education being minimally represented.

**Table 4. Frequency Distribution by Occupation**

No.	Occupation	Frequency	Percent
1.	No have work	73	82.0 %
2.	Farmer	2	2.2 %
3.	Public employee	10	11.2 %
4.	Student	2	2.2 %
5.	Private employee	2	2.2 %
Total		89	100 %

Based on Table 4, the frequency distribution of respondents by occupation at the Nephrology Unit of Hospital Nacional Guido Valadares Dili shows that the majority of participants were unemployed, totaling 73 respondents (82.0%). In contrast, the smallest proportions were observed among students and those employed in the private sector, each accounting for 2 respondents (2.2%). These findings indicate that unemployment predominated among the study population, while engagement in education or private-sector employment was minimal.

### Univariate Analysis

#### 1. Haemodilysis Duration

**Table 5. Frequency Distribution of Haemodilysis Duration**

No.	Duration of Haemodialysis	Frequency	Percent
1.	< 12 months	18	20.2 %
2.	12-24 months	13	14.6 %

3.	> 24 months	58	65.2 %
Total		89	100 %

Based on Table 5, the frequency distribution of respondents according to the duration of hemodialysis at the Nephrology Unit of Hospital Nacional Guido Valadares Dili indicates that the majority of participants had undergone hemodialysis for more than 24 months, comprising 58 respondents (65.2%). Conversely, the smallest proportion of respondents had a hemodialysis duration of 12–24 months, accounting for 13 individuals (14.6%). This distribution reflects a predominance of long-term hemodialysis among the study population, suggesting prolonged treatment exposure in most patients.

## 2. Patients Quality Life

**Table 6. Frequency Distribution of Patients Quality Life**

No.	Patients Quality Life	Frequency	Percent
1.	Not good	12	13.5 %
2.	Sufficient	23	25.8%
3.	Good	54	60.7%
Total		89	100%

Based on Table 6, the frequency distribution of respondents according to quality of life among CKD patients undergoing hemodialysis at the Nephrology Unit of Hospital Nacional Guido Valadares Dili reveals that the majority of respondents reported a high quality of life, totaling 54 individuals (60.7%). In contrast, the smallest proportion of participants experienced a low quality of life, comprising 12 respondents (13.5%). These findings indicate that most patients perceived their quality of life as favorable despite long-term hemodialysis treatment, while a smaller subset continued to experience substantial limitations.

## Bivariate Analysis

**Table 7. The cross-tabulation analysis of the correlation between hemodialysis duration and patients quality of life among patients with CKD**

<i>Correlation Test</i>			
	<i>Spearman's rho</i>	Patients quality of life	Hemodialysis duration
	<i>Correlation coefficient</i>	1,000	0,629
	Sig. (2- tailed)		0,000
Hemodialysis duration	N	89	89
Patients	<i>Correlation coefficient</i>	0,629	1,000

quality of life	Sig. (2- tailed)	0,000	
	N	89	89

*Correlation is significant at the 0.01 level (2- tailed)*

Based on Table 7, the results of the Spearman rank correlation analysis examining the relationship between hemodialysis duration and quality of life among patients with CKD indicate a correlation coefficient of  $r = 0.629$  with a statistically significant p-value of 0.000 ( $p < 0.05$ ). This strong positive correlation demonstrates a meaningful and significant association between the length of hemodialysis treatment and patients' quality of life. Specifically, the findings suggest that patients who have undergone hemodialysis for a longer duration tend to report a higher quality of life, reflecting better adaptation and perceived well-being over time among individuals receiving long-term dialysis therapy at the Nephrology Unit of Hospital Nacional Guido Valadares Dili.

## DISCUSSION

### 1. Hemodialysis Duaration

Based on the research findings obtained at the Nephrology Unit of Hospital Nacional Guido Valadares Dili involving a total of 89 respondents, it was found that 18 patients (20.2%) had undergone hemodialysis for less than 12 months, 13 patients (14.6%) for 12–24 months, and the majority 58 patients (65.2%) had received hemodialysis for more than 24 months. These results indicate that most participants were long-term hemodialysis patients, reflecting prolonged treatment exposure among individuals included in the study.

Consistent with the present findings indicating substantial treatment exposure among individuals included in the study, evidence from previous research further supports this pattern. The study by Shadrina et al., (2024) reported that the majority of patients had undergone hemodialysis for more than 24 months, accounting for 34 respondents (54.8%), followed by those with a treatment duration of less than 12 months (15 respondents; 24.2%) and 12–24 months (13 respondents; 21.0%). In contrast, findings from Andu et al., (2024) demonstrated a different distribution, in which the largest proportion of patients had received hemodialysis for less than 12 months, totaling 51 respondents (41%). These variations suggest that hemodialysis duration may differ considerably across study settings, potentially reflecting differences in patient characteristics, healthcare access, and referral patterns.

Based on the assumptions proposed by Sembiring et al., (2024) each patient requires a different period of time to adapt to the various changes they experience, including symptoms, complications, and the demands of lifelong therapy. Interviews conducted by the researchers revealed that patients who had recently initiated hemodialysis exhibited varying levels of depression, ranging from no depression to mild, moderate, and severe depression. Many patients reported difficulty accepting the changes occurring in their lives, which may adversely affect multiple dimensions of well-being, including spiritual, psychological, social, familial, and other aspects. Consequently, these challenges can influence patients' physical, cognitive, and emotional well-being, particularly during the early stages of hemodialysis treatment.

### 2. Patients Quality o Life

Based on the research findings obtained at the Nephrology Unit of Hospital Nacional Guido Valadares Dili, the distribution of respondents according to patients quality of life showed that

the majority reported a high quality of life, totaling 54 individuals (60.7%). Meanwhile, 23 respondents (25.8%) experienced a moderate quality of life, and the smallest proportion 12 respondents (13.5%) reported a low quality of life. These results indicate that most patients perceived their quality of life positively, whereas a smaller subset faced notable limitations in physical, cognitive, or emotional well-being.

Based on the findings from 89 respondents, the majority of patients reported a good quality of life, while only a small proportion experienced lower or moderate levels of well-being. Domain specific analysis using the WHOQOL instrument indicated that the highest scores were observed in the environmental domain, whereas the lowest scores were found in the social relationships domain. These results suggest that, hemodialysis patients at the Nephrology Unit of Hospital Nacional Guido Valadares Dili experienced relatively high quality of life in terms of environmental factors, but faced limitations in social and psychological well-being.

The study by Fitriani et al., (2020) examined the quality of life of patients with renal insufficiency in relation to hemodialysis therapy. However, hemodialysis is not a curative treatment; it is performed to maintain bodily function during life. In cases of chronic renal insufficiency, patients remain dependent on hemodialysis for survival. Patients who undergo regular hemodialysis therapy tend to experience a higher quality of life.

According to the findings of Maruli et al., (2024) the majority of respondents reported a good quality of life, with 22 participants (44%) falling into this category. However, most patients who had undergone hemodialysis for more than 12 months experienced a moderate to lower quality of life. This is because, over time, patients may experience fatigue and various symptoms or complications associated with prolonged hemodialysis. Patients who were able to maintain their condition well tended to report higher quality of life, indicating that perceived well-being is closely linked to the individual's acceptance of their health status.

### **3. The Relationship Between Hemodialysis Duration and Quality of Life in Patients with CKD at the Nephrology Unit of Hospital Nacional Guido Valadares Dili**

Based on the research conducted at the study site, the findings indicated a significant correlation between the duration of hemodialysis and the quality of life of patients with chronic renal insufficiency. The analysis using Spearman's rank correlation coefficient showed a strong relationship, with an r-value of 0.629 and a significance level of  $p < 0.05$  ( $p = 0.000$ ). These results confirm that the duration of hemodialysis, as the independent variable, is significantly associated with the dependent variable, namely the quality of life of the patients.

These research findings are consistent with those of Maruli et al., (2024) who conducted a study at RSI Namira and reported a significant relationship between hemodialysis duration and the quality of life of patients with CKD. The study showed a significance value of 0.03 ( $< 0.05$ ), supporting the hypothesis, with a correlation coefficient of 0.644, indicating a strong relationship. Therefore, it can be concluded that patients who undergo longer term hemodialysis therapy tend to experience a higher quality of life.

Based on the research conducted at the Nephrology Unit of Hospital Nacional Guido Valadares Dili, involving 89 respondents, the study found a significant relationship between the duration of hemodialysis and patients' quality of life. This relationship was influenced by individual life aspects, particularly the patients' acceptance of their health condition, as well as by external life factors, including physical, psychological, social, and environmental domains.

The impact of haemodialysis on individual patients' quality of life requires a period of

adaptation to the changes they experience, such as symptoms, therapy routines, and treatment related complications. Consequently, the quality of life of patients with CKD varies over time and depends on the stage of adaptation to haemodialysis therapy. However, the majority of respondents who had undergone haemodialysis for more than 24 months reported a relatively good quality of life, as patients become more accustomed to the therapy and are able to manage symptoms and complications effectively. Patients who successfully maintain their condition tend to experience better overall quality of life, highlighting that perceived well-being is strongly influenced by patients' acceptance of their health status, as reflected in questionnaire-based assessments of quality of life.

## CONCLUSION

The majority of CKD patients undergoing haemodialysis had a treatment duration of more than 24 months, with 58 out of 89 participants (65.2%) falling into this category. Additionally, most participants reported a good quality of life, with 54 out of 89 patients (60.7%) scoring favorably on the WHOQOL-BREF assessment. The correlation analysis revealed a significant positive relationship between haemodialysis duration and quality of life, with a Spearman's correlation coefficient of  $r = 0.629$  and a p-value of 0.000 ( $<0.05$ ).

These findings suggest that longer exposure to regular haemodialysis may positively influence patients perceived quality of life, potentially due to better adaptation to the therapy, improved symptom management, and enhanced psychosocial adjustment. The results highlight the importance of monitoring and supporting patients over extended dialysis periods and provide evidence to guide nursing interventions and clinical strategies aimed at optimizing both the physiological and psychosocial well-being of CKD patients in the local context.

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