Quality of life of patients with chronic renal failure on intermittent hemodialysis at Binh Dan Hospital, Ho Chi Minh City in 2024

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Abstract

This study aimed to evaluate the quality of life (QoL) and related factors among patients with chronic renal failure undergoing hemodialysis at Binh Dan Hospital in Ho Chi Minh City. A cross-sectional study design was used, surveying 330 patients aged 18 to 59 with the WHOQOL-BREF questionnaire, which assessed four domains: physical health, psychological well-being, social relationships, and environmental factors. The findings showed that QoL was moderate overall, with physical health (mean score of 44.2) and psychological well-being (mean score of 45.7) scoring lower than social relationships (mean score of 51.3) and environmental factors (mean score of 53.1). Age was negatively correlated with physical and psychological health, while education and income were positively associated with better social and environmental scores. Frequent dialysis and comorbidities, such as diabetes, were linked to poorer physical and psychological health. The study emphasizes the need for comprehensive care approaches that address physical, psychological, and social aspects to enhance the well-being of hemodialysis patients.

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Keywords

quality of life,
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factors related

1 Introduction

Chronic kidney disease (CKD) presents a significant burden in both developed and developing countries, and Viet Nam is no exception. CKD, particularly in its final stages, is a condition where kidney function is severely compromised due to progressive damage, leading to the need for renal replacement therapy such as dialysis or transplantation [1]. Hemodialysis, one of the most common treatments for CKD, offers life-saving support by filtering waste and excess fluids from the blood, yet it also imposes numerous challenges on patients, including physical, mental, social, and financial burdens [2]. The rise of global incidence of the end-stage renal disease (ESRD) accelerates the demand for dialysis services. In Viet Nam, the number of CKD patients undergoing routine hemodialysis is rapidly increasing, thus placing a strain on healthcare resources and significantly impacting patients' quality of life (QoL) [3]. Hemodialysis is a time-consuming and restrictive treatment modality that require patients to spend many hours on weekly therapy, often resulting in fatigue, dietary and fluid restrictions, as well as a perceived loss of independence. These factors cause a decline in patients' physical and mental well-being, as well as diminished social relationships and economic stability. Patients frequently experience psychological stress due to the dependency on caregivers and the financial strain that dialysis imposes [4].

Despite advances in medical care, including improvements in dialysis technology and protocols, many patients still report a diminished QoL. Understanding and improving the QoL for hemodialysis patients has become a critical objective for healthcare providers, as QoL is a comprehensive measure of the outcomes of treatment and patient well-being [5]. The World Health Organization Quality of Life (WHOQoL-BREF) tool is often used to assess various domains of a patient's life, including physical health, psychological well-being, social relationships, and environmental factors. Measuring QoL allows healthcare professionals to gain insights into the factors that most significantly impact patients' lives and helps in developing interventions to address these challenges [6]. Given the complex and multifaceted nature of CKD, it is crucial to identify and understand the factors that influence the QoL of patients on long-term hemodialysis. These factors include not only the direct clinical characteristics of the disease, such as the duration and frequency of dialysis, but also demographic, social, and economic variables, such as age, gender, education level, employment status, and access to healthcare. By studying these variables, we can identify key areas for intervention that may improve the overall well-being of patients and reduce the negative impact of dialysis on their daily lives [7,8]. The primary objective of this research is to evaluate the QoL and related factors among patients with chronic renal failure undergoing routine hemodialysis at a selected hospital in Viet Nam Specific goals include: (1) Assessing the overall QoL of chronic renal failure patients on routine hemodialysis using the WHOQoL-BREF tool. (2) Identifying the relationship between QoL components (physical health, psychological well-being, social relationships, and environmental factors) and patient characteristics such as age, gender, education, and socioeconomic status. (3) Determining the impact of clinical variables such as dialysis duration, frequency, and comorbidities on QoL. (4) Proposing potential interventions or programs that could enhance the QoL of hemodialysis patients based on the findings of the study.

2 Materials and Methods

2.1 Study design: a descriptive cross-sectional study design was used for this research to evaluate the QoL and related factors among patients with chronic renal failure undergoing hemodialysis. This design allowed the researchers to collect data at a single point in time, focusing on the relationships between demographic, clinical, and quality of life variables in the target population.

2.2 Research Location: the study was conducted at Binh Dan Hospital in Ho Chi Minh City, which has advanced medical equipment and a well-established hemodialysis department, serving a diverse patient population from the city and surrounding areas. The hospital’s environment provided an ideal setting to conduct research on a broad and diverse group of patients with varying socioeconomic backgrounds, ensuring comprehensive data collection.

2.3 Population and Sample

2.3.1 Population: patients with chronic kidney failure are undergoing periodic dialysis by hemodialysis at Binh Dan Hospital in Ho Chi Minh City. The study targeted patients with chronic renal failure who were undergoing routine hemodialysis at the selected hospital. A purposive sampling method was used to select patients who met the following criteria: Patients aged 18 years or older, undergoing routine hemodialysis, willing and able to provide informed consent.

2.3.2 Inclusion Criteria: patients at the age of >18 with chronic renal failure undergoing regular hemodialysis. Patients with adequate communication and cognitive abilities. Patients who provided informed consent.

2.3.3 Exclusion Criteria: patients with other kidney conditions (e.g., stones, cancer). Patients with cognitive impairments or communication difficulties. Patients in emergency or urgent care situations.

Sample size

$$n = Z^2_{1-\alpha/2} \times \frac{SD^2}{d^2}$$

n : the desired sample size from a large population size

α: level of significance, choose α = 0.05

$Z_{1-\alpha/2}$: two-tailed Z-score confidence level (1.96)

SD : standard deviation of variable. Value of standard deviation taken from (0.44)

d : error of the estimate (0.05)

The sample size was determined using statistical formulas with a standard deviation of 0.44 and a 5% margin of error. After accounting for a 10% attrition rate, the study aimed to include 330 patients**.**

Data were collected over a three-month period, from March 1, 2024, to June 1, 2024**.**

2.4 Research Instrument

The WHOQoL-BREF questionnaire was used to assess the QoL of hemodialysis patients. This standardized tool includes 26 questions covering four domains of life: physical health (7 items), psychological health (6 items), social relationships (3 items), and environment (8 items)[12]. Each item is rated on a 5-point Likert scale, with higher scores reflecting better quality of life. In addition to WHOQoL-BREF, demographic and clinical information was collected, including age, gender, educational level, and dialysis frequency.

2.5 Ethical Safeguards

All personal information and data were collected, kept confidential, used solely for the purposes of the research, and not disclosed without the consent of the participants. The research team acted with the utmost careto ensure no harm came to the patients, always respect and prioritize their health. Participants were informed that they could ask any questions directly to the researchers and allowed to withdraw from the study at any time without a reason.

2.6 Data Analysis

The data collected from the WHOQoL-BREF and patient demographics were entered into SPSS (version 22.0) for analysis. Descriptive statistics, including means, frequencies, and percentages, were calculated to describe the sample's characteristics. Pearson's correlation analysis was used to explore the relationships between variables such as age, gender, and clinical characteristics with quality of life scores. Additionally, multiple regression analysis was performed to determine which factors most significantly influenced the QoL in hemodialysis patients. The results of this analysis helped identify key predictors and informed the development of recommendations for improving patient care.

3 Results

The study on the QoL of 330 chronic kidney failure patients undergoing regular hemodialysis at a hospital. Data analysis and processing yielded the following key results:

Table 1 Demographic and Clinical Characteristics of the Study Population

Variable	Category	Count (n = 330)	Percentage (%)
Gender	Male	257	77.9
	Female	73	22.1
Age Group (years)	55-59	116	35.2
	50-54	94	28.5
	45-49	45	13.6
	40-44	29	8.8
	35-39	28	8.5
	30-34	12	3.6
	25-29	6	1.8
Marital Status	Married	253	76.7
	Single	60	18.2
	Divorced	17	5.2
Education	Graduate	289	87.6
	Intermediate	21	6.4
	High School	7	2.1
	Primary School	8	2.4
Occupation	Worker	259	78.5
	Freelance Labor	13	3.9
	Unemployed	9	2.7
	Retired	44	13.3
Economic Status	Wealthier	57	17.3
	Medium	226	68.5
	Poor	47	14.2

The results show that the majority of participants are male (77.9%), which is consistent with research indicating that male patients are more frequently affected by chronic kidney disease (CKD) and are more likely to undergo hemodialysis. The most common age group is (55-59) years (35.2%), followed by (50-54) years (28.5%), indicating that middle-aged and older adults form the largest portion of the population. Most patients are married (76.7%), which could be reflective of stable support systems at home. A significant portion of the participants have a graduate-level education

(87.6%), suggesting a higher educational background compared to the general population in similar studies. The majority of patients are employed, primarily as workers (78.5%), which could impact their overall quality of life as they continue to contribute economically despite their health condition. Most of the patients fall into the medium-income category (68.5%), with a smaller percentage identifying as wealthier (17.3%) or poor (14.2%). These demographic trends align with previous literature which suggests that male patients, particularly those in middle to older age groups, are more likely to undergo hemodialysis for CKD. Moreover, the relatively high level of education and employment among the patients suggests that they may have greater access to healthcare resources and support systems. This demographic profile provides valuable context for understanding how these factors may influence quality of life outcomes among this population are presented in Table 1.

Table 2 Mean Scores of QoL Domains for Hemodialysis Patients

Domain	Mean Score (± SD)	Interpretation
Physical Health	44.2 ± 9.1	Moderate
Psychological Well-being	45.7 ± 8.7	Moderate
Social Relationships	51.3 ± 10.4	Fairly Good
Environmental Factors	*53.1 ± 11.2*	*Fairly Good*

(Very Poor: 0-20, Poor: 21-40, Moderate: 41-60, Fairly Good: 61-80, Very Good: 81-100)

The results indicate that while patients report moderate levels of physical and psychological health, they tend to experience better outcomes in terms of social relationships and environmental factors. This may highlight the role of support systems and living conditions in maintaining a better QoL for hemodialysis patients. Older age was associated with lower physical and psychological health scores ($r = –0.32$, $p < 0.05$), indicating that as patients age, their physical and mental health tend to decline. Higher educational levels and income were positively correlated with better environmental and social scores ($r = 0.29$, $p < 0.01$), suggesting that patients with more resources and education tend to experience better quality of life in these domains. No significant correlation was found between gender and QoL scores across all domains, meaning that both male and female patients have similar experiences regarding their quality of life. In conclusion, the study reveals the significant impact of age, education, and socioeconomic status on the quality of life of hemodialysis patients, particularly in the physical, psychological, social, and environmental domains. Gender, however, does not seem to significantly affect the QoL outcomes are presented in Table 2.

Table 3 Relationship of Patient Characteristics with QoL Components

Variable	Physical Health	Psychological Well-being	Social Relationships	Environmental Factors
Age	–0.32*	–0.28*	0.15	–0.12
Gender	0.05	0.08	0.12	0.06
Education	0.18*	0.19*	0.22**	0.29**
Socioeconomic Status	0.21*	0.15*	0.25**	0.30**

*p < 0.05, **p < 0.01

The results negatively relationship with physical health ($r = –0.32$, $p < 0.05$) and psychological well-being ($r = –0.28$, $p < 0.05$), indicating that older patients tend to have lower scores in these domains.No significant impact on any QoL component. Positively correlated with all domains, showing stronger relationships with social relationships ($r = 0.22$, $p < 0.01$) and environmental factors ($r = 0.29$, $p < 0.01$), suggesting that higher education levels contribute to better quality of life in these areas. Positively associated with all QoL components, with the strongest effect on environmental factors ($r = 0.30$, $p < 0.01$), indicating that patients with better socioeconomic status experience a higher QoL, particularly regarding their environment and social relationships. Multiple Regression Analysis: patients undergoing dialysis three or more times per week reported significantly lower physical health scores ($\beta = –0.35$, $p < 0.01$). Patients with comorbid conditions (e.g., diabetes, hypertension) had significantly lower psychological well-being ($\beta = –0.29$, $p < 0.01$). These findings emphasize that more

frequent dialysis and the presence of comorbidities can have a negative impact on certain aspects of quality of life are presented in Table 3

Table 4 Impact of Clinical Variables on QoL

Variable	Physical Health (β)	Psychological Well-being (β)	Social Relationships (β)	Environmental Factors (β)
Dialysis Frequency (≥ 3x)	−0.35**	−0.15	−0.10	−0.12
Comorbid Conditions	−0.25*	−0.29**	−0.15*	−0.18*
Duration of Dialysis (>2y)	−0.22*	−0.20*	0.12	0.15*

*p < 0.05, **p < 0.01

The results Patients undergoing more frequent dialysis reported significantly lower physical health scores (β = −0.35, p < 0.01), indicating a substantial negative impact on physical well-being. Psychological well-being, social relationships, and environmental factors also showed minor negative correlations, but they were not statistically significant.The presence of comorbidities like diabetes and hypertension significantly affected both physical health (β = –0.25, p < 0.05) and psychological well-being (β = –0.29, p < 0.01). These conditions also had a negative impact on social relationships and environmental factors. Longer dialysis duration negatively impacted physical health (β = –0.22, p < 0.05) and psychological well-being (β = –0.20, p < 0.05). Based on the findings, interventions that address both physical and psychological health are essential. Programs focused on mental health support, physical rehabilitation, and nutritional guidance could improve patients' well-being. Additionally, social interventions, such as family and community engagement programs, could enhance social relationships. Improving access to healthcare services and enhancing living conditions may further boost the environmental quality of life for hemodialysis patients are presented in Table 4.

4 Discussion

The present study revealed that patients undergoing routine hemodialysis experience a moderate QoL across physical, psychological, social, and environmental domains. These findings align with previous studies, such as those conducted in Viet Nam, which reported similar QoL scores of 43.9 ± 19.0 [2]. The physical health domain was notably affected, with patients frequently experiencing fatigue, pain, and restricted mobility, similar to other studies that reported low physical health scores (40.17 ± 17.05) [4]. Psychological health was also a significant concern, with many patients reporting anxiety, depression, and emotional stress. This finding is supported by studies indicating that 45% of patients had psychiatric comorbidities, primarily depression and anxiety [6]. These mental health challenges, often exacerbated by dependency on dialysis and caregivers, highlight the need for mental health interventions in this patient group. Social relationships and environmental factors, while more positive, still demonstrated the strain that hemodialysis places on personal relationships and daily living [8]. Financial pressures and loss of independence further contribute to a diminished QoL. This study reinforces the need for a holistic approach to patient care, addressing both the physical and psychological burdens of hemodialysis, as emphasized in global and local studies [9].

5 Conclusion

This study assessed the QoL of patients with chronic renal failure undergoing routine hemodialysis using the WHOQoL-BREF tool, revealing that overall QoL is moderate. Physical health and psychological well-being scored lower than social relationships and environmental factors, indicating that while patients manage social and environmental challenges relatively well, they face significant physical and mental health burdens. The study found that older patients and those with lower education levels or socioeconomic status had poorer QoL, particularly in the physical and psychological domains. In contrast, higher education and better economic standing were associated with improved QoL, particularly in social and

environmental aspects. Gender did not significantly affect QoL scores. Clinical factors such as the frequency of dialysis and the presence of comorbidities, like diabetes and hypertension, significantly impacted QoL. Patients undergoing more frequent dialysis sessions and those with chronic conditions reported lower physical and psychological health, underscoring the strain of intensive treatment schedules and multiple health issues. The study suggests targeted interventions to enhance QoL, including programs to improve physical health through rehabilitation, address mental health through counseling and support, and provide nutritional guidance. Enhancing social support systems and improving access to healthcare services are also essential for promoting a better living environment for these patients.

References

1. A Lim, K., & Hee Lee, J. (2022). Factors Affecting Quality of Life in Patients Receiving Hemodialysis. *Iranian Journal of Public Health*, 51(2), 355-363. https://doi.org/10.18502/ijph.v51i2.8688

2. Pham Minh, K., Đức, C., Trung, H., & Dung, L. (2022). Một số yếu tố liên quan đến chất lượng cuộc sống của bệnh nhân suy thận mạn lọc máu chu kỳ tại Bệnh viện Đa khoa tỉnh Hà Tĩnh năm 2020. *Tạp chí Y học Dự phòng*, 32, 35-41. https://doi.org/10.51403/0868-2836/2022/529

3. Brito, D. C. S. de, Machado, E. L., Reis, I. A., Carmo, L. P. de F. do, & Cherchiglia, M. L. (2019). Depression and anxiety among patients undergoing dialysis and kidney transplantation: A cross-sectional study. *Sao Paulo Medical Journal = Revista Paulista De Medicina*, 137(2), 137-147. https://doi.org/10.1590/1516-3180.2018.0272280119

4. Buur, L. E., Madsen, J. K., Eidemak, I., Krarup, E., Lauridsen, T. G., Taasti, L. H., & Finderup, J. (2021). Does conservative kidney management offer a quantity or quality of life benefit compared to dialysis? *A systematic review*. *BMC Nephrology*, 22(1), 307. https://doi.org/10.1186/s12882-021-02516-6

5. Goh, Z. S., & Griva, K. (2018). Anxiety and depression in patients with end-stage renal disease: Impact and management challenges - a narrative review. *International Journal of Nephrology and Renovascular Disease*, 11, 93-102. https://doi.org/10.2147/IJNRD.S126615

6. Jin, D. C., Ha, I. S., Kim, N. H., Lee, S. W., Lee, J. S., Yoon, S. R., & Kim, B. S. (2012). Brief Report: Renal replacement therapy in Korea, 2010. *Kidney Research and Clinical Practice*, 31(1), 62-71. https://doi.org/10.1016/j.krcp.2012.01.005

7. Lương C. M., Nguyễn T. B., Võ Đ. C., & Nguyễn D. P. (2022). Tỉ lệ rối loạn lo âu và các yếu tố liên quan ở người bệnh chạy thận nhân tạo tại Bệnh viện Nguyễn Tri Phương năm 2021. Tạp chí Y học Việt Nam, 515(2), Article 2. https://doi.org/10.51298/vmj.v515i2.2745

8. Masià-Plana, A., Juvinyà-Canal, D., Suñer-Soler, R., Sitjar-Suñer, M., Casals-Alonso, C., & Mantas-Jiménez, S. (2022). Pain, Anxiety, and Depression in Patients Undergoing Chronic Hemodialysis Treatment: A Multicentre Cohort Study. *Pain Management Nursing: Official Journal of the American Society of Pain Management Nurses*, 23(5), 632-639. https://doi.org/10.1016/j.pmn.2022.03.005

9. Nguyễn, T. T. H., Lê, T. T., Tô, M. T., Nguyễn, C. C., & Cao, T. D. (2020). Chất lượng cuộc sống của người bệnh chạy thận nhân tạo chu kỳ sau giáo dục sức khỏe tại Bệnh viện Đa khoa tỉnh Thái Bình năm 2020. *Tạp chí Khoa học Điều dưỡng*, 3(3), Article 3.

10. Brevik, L. M. (2022). The Emergent Multiphase Design: Demonstrating a fully integrated approach in the context of language research in education. In The Routledge Handbook for Advancing Integration in Mixed Methods Research. *Routledge*.
11. Floria, I., Kontele, I., Grammatikopoulou, M. G., Sergentanis, T. N., & Vassilakou, T. (2022). Quality of Life of Hemodialysis Patients in Greece: Associations with Socio-Economic, Anthropometric and Nutritional Factors. *International Journal of Environmental Research and Public Health*, 19(22), 15389. https://doi.org/10.3390/ijerph192215389
12. Skevington, S. M., Lotfy, M., O'Connell, K. A., & WHOQOL Group. (2004). The World Health Organization's WHOQOL-BREF quality of life assessment: Psychometric properties and results of the international field trial. A report from the WHOQOL group. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation*, 13(2), 299-310. https://doi.org/10.1023/B:QURE.0000018486.91360.00

Chất lượng cuộc sống của bệnh nhân suy thận mạn đang chu kỳ chạy thận nhân tạo tại Bệnh viện Bình Dân, Thành phố Hồ Chí Minh năm 2024

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Tóm tắt Nghiên cứu này nhằm đánh giá chất lượng cuộc sống (QoL) và các yếu tố liên quan ở bệnh nhân suy thận mạn đang chạy thận nhân tạo tại Bệnh viện Bình Dân, Thành phố Hồ Chí Minh. Thiết kế nghiên cứu cắt ngang được sử dụng, khảo sát 330 bệnh nhân từ 18 tuổi đến 59 tuổi bằng bảng câu hỏi WHOQOL-BREF, bao gồm bốn lĩnh vực: sức khỏe thể chất, sức khỏe tâm lý, các mối quan hệ xã hội và các yếu tố môi trường. Kết quả cho thấy QoL tổng thể ở mức trung bình, với sức khỏe thể chất (điểm trung bình 44,2) và sức khỏe tâm lý (điểm trung bình 45,7) thấp hơn so với các mối quan hệ xã hội (điểm trung bình 51,3) và các yếu tố môi trường (điểm trung bình 53,1). Tuổi tác có mối tương quan tiêu cực với sức khỏe thể chất và tâm lý, trong khi trình độ học vấn và thu nhập có mối liên hệ tích cực với điểm số cao hơn trong các lĩnh vực xã hội và môi trường. Chạy thận nhân tạo thường xuyên và bệnh lý kèm theo, như tiểu đường, có liên quan đến sức khỏe thể chất và tâm lý kém hơn. Nghiên cứu nhấn mạnh sự cần thiết của các phương pháp chăm sóc toàn diện, giải quyết các khía cạnh thể chất, tâm lý và xã hội để nâng cao chất lượng cuộc sống của bệnh nhân chạy thận nhân tạo.

Từ khóa Chất lượng cuộc sống, chạy thận nhân tạo, mô hình phân tích đường dẫn, các yếu tố liên quan.