

QUALITY OF LIFE AND ASSOCIATED FACTORS AMONG PATIENTS WITH END-STAGE CHRONIC KIDNEY DISEASE UNDERGOING MAINTENANCE HEMODIALYSIS AT TRA VINH GENERAL HOSPITAL, 2023

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ABSTRACT

Background: Chronic kidney disease (CKD) imposes a substantial burden not only on patients themselves but also on public health, leading to reduced quality of life (QoL) and significant social and economic impacts. **Objective:** To determine the quality-of-life scores and identify associated factors among patients with end-stage chronic kidney disease (ESKD) undergoing maintenance hemodialysis (MHD) at Tra Vinh General Hospital in 2023. **Methods:** A descriptive cross-sectional study using a convenience sampling method was conducted on 122 patients undergoing hemodialysis at the Hemodialysis Unit of the Intensive Care and Toxicology Department, Tra Vinh General Hospital, from May to July 2023. Data were collected using the SF-36 Health Survey. **Results:** Mean SF-36 overall QoL score was 32.49 ± 4.97 ; physical health score was 27.67 ± 8.50 ; mental health score was 37.35 ± 4.68 . Illiterate or primary school participants had significantly lower physical health scores compared with those with higher education levels. **Conclusion:** A survey of 122 patients revealed an overall SF-36 quality-of-life score of 32.49 ± 4.97 , a physical health score of 27.67 ± 8.50 , and a mental health score of 37.35 ± 4.68 . There was a statistically significant association between physical health and gender ($p = 0.006$). Patients who were illiterate or had only primary education had a higher proportion of average-or-below physical health compared with those having fair-or-above physical health, with the difference being statistically significant ($p = 0.003$). Healthcare providers should routinely assess and monitor QoL among patients with ESKD receiving MHD to optimize treatment outcomes and improve patient well-being.

Keywords: *quality of life, associated factors, end-stage chronic kidney disease*

I. INTRODUCTION

Chronic kidney disease (CKD) is an increasingly prevalent health concern worldwide, affecting not only healthcare systems but also the general population. CKD places a substantial burden on patients, compromises public health,

reduces quality of life (QoL), and carries significant social and economic consequences; at the national level. In 2017, CKD was responsible for approximately 1.2 million deaths globally, representing a 4.5% increase compared with 1990, with a prevalence rate of 9.1% of the global population [1].

Currently, maintenance hemodialysis (MHD) is the only treatment option for patients ineligible for kidney transplantation and is widely used both globally and in Vietnam. Hemodialysis is an extracorporeal process that removes accumulated waste products and excess fluid in cases of renal failure. It is a life-sustaining therapy for patients with end-stage renal disease (ESRD) or acute kidney injury.

Although MHD remains one of the most effective methods for prolonging survival in ESRD, it has profound impacts on patients' physical, psychological, economic, social, and environmental well-being, leading to marked deterioration in QoL [2]. Numerous studies, both domestic and international, have documented these negative effects. Evidence also suggests that timely interventions targeting QoL-related factors in hemodialysis patients can significantly improve treatment outcomes [3].

This study was undertaken to assess the quality of life among CKD patients undergoing MHD, with the aim of generating scientific evidence to identify limitations and challenges, propose preventive and corrective measures, and enhance the effectiveness of both care and treatment. The research is entitled: "*Quality of Life and Associated Factors among Patients with Chronic Kidney Disease Undergoing Maintenance Hemodialysis at Tra Vinh Provincial General Hospital, 2023.*"

II. SUBJECTS AND METHODS

2.1 Study Subjects

Patients diagnosed with end-stage chronic kidney disease (ESRD) undergoing hemodialysis at the Intensive Care – Toxicology Department (Hemodialysis Unit) of Tra Vinh Provincial General Hospital.

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Inclusion criteria: Patients with ESRD undergoing maintenance hemodialysis (MHD) for at least 3 months; patients aged 18 years or older; patients who provided consent to participate in the study.

Exclusion criteria: Patients with hearing or speech impairments, or neuropsychiatric disorders; Patients receiving emergency hemodialysis or in critical condition preventing them from participating in interviews; Patients with acute kidney injury.

2.2 Study Methods

Study design: Cross-sectional descriptive study.

Sample size: The sample size was calculated using the formula for estimating a proportion in a descriptive cross-sectional study:

$$n \geq \frac{NZ_{1-\alpha/2}^2 p(1-p)}{d^2(N-1) + Z_{1-\alpha/2}^2 p(1-p)}$$

Where: **n**: the minimum required sample size. **α**: the significance level. Corresponding to a 95% confidence level, the value of $z_{1-\alpha/2}$ is **1.96**. **d**: the absolute precision, with **d = 0.05**. **p** = proportion of patients with "fair" quality of life in a study on MHD patients by Hoi Bui Thi et al (2021), which was 15.8% [4].

N = total number of patients receiving maintenance hemodialysis at the Hemodialysis Unit, Intensive Care – Toxicology Department, Tra Vinh Provincial General Hospital, **N** = 299. The calculated sample size was **n** = 122 patients.

Sampling method: Convenience sampling.

All ESRD patients undergoing MHD at Tra Vinh Provincial General Hospital who met the inclusion criteria and did not meet any exclusion

criteria were recruited consecutively until the required sample size (**n** = 122) was achieved. Each participant was included only once.

Study content and data collection method:

The Medical Outcomes Short Form Health Survey (SF-36) [5] was used to assess quality of life (QoL). The SF-36 consists of 36 questions grouped into 8 domains covering all aspects of physical and mental functioning in overall health assessment: General health; Physical functioning; Role limitations due to physical health problems; Bodily pain; Role limitations due to emotional problems; Vitality/Fatigue; Mental health; Social functioning. Scoring: Each question is scored from 0 to 100, with higher scores indicating better QoL. The score for each domain is calculated as the mean of the scores for all questions in that domain. QoL classification based on SF-36 score: Good: 76–100 points; Fair: 51–75 points; Average: 26–50 points; Poor: 0–25 points

Data analysis: Data were checked, processed, and analyzed using STATA version 14. Descriptive statistics included frequencies and percentages for categorical variables. Prevalence ratios (PR) and 95% confidence intervals (CI) were calculated to assess associations. Statistical significance was set at **p** < 0.05.

III. RESULTS

3.1 Demographic Characteristics of the Study Participants

Table 1. Demographic characteristics of the study participants

Demographic characteristics of the study participants		n = 122	%
Gender	Male	60	49.18
	Female	62	50.82
Age group	18 – 45	42	34.43
	45 – 65	68	55.74
	> 65	12	9.84
Mean age		49.83 ± 13.64	
Educational level	Illiterate / Primary school	18	14.75
	Lower secondary / Upper secondary school	95	77.87
	Vocational school / College / University	9	7.38
	Postgraduate	0	0
Occupation	Farmer	17	13.93
	Worker / Government employee	1	0.82
	Housewife / Homemaker	23	18.85
	Retired / Unable to work	52	42.62
	Unemployed	7	5.74
	Other	22	18.03

Comment: The demographic characteristics of the study population indicated a nearly equal gender distribution, with males representing 49.18% and females 50.82%. The majority of patients were aged 45–65 years (55.74%), followed by those aged 18–45 years (34.43%), while only 9.84% were over 65 years. The mean age was 49.83 ± 13.64 years.

Most participants had completed lower or upper secondary education (77.87%), and none had attained a postgraduate degree. Regarding occupation, retired or unable-to-work individuals accounted for the largest proportion (42.62%), whereas workers or government employees represented the smallest group (0.82%).

3.2. Social Factors of the Study Population

Table 2. Social factors of the study population

Demographic characteristics of the study participants		n = 122	%
Average household income	Poor household	59	48.36
	Near-poor household	23	18.85
	Well-off household	40	32.79
Economic status	Fully dependent	68	55.74
	Partially dependent	42	34.43
	Not dependent on anyone	12	9.84
Living arrangement	Living alone	5	4.10
	Renting with other patients	1	0.82
	Living with family	116	95.08

Comment: Regarding household income status, nearly half of the participants (48.36%) were from low-income households, followed by 32.79% from financially well-off households, and 18.85% from near-poor households. In terms of economic dependence, the majority were fully dependent on others (55.74%), 34.43% were

partially dependent, while only 9.84% were financially independent. With respect to living arrangements, most patients lived with their families (95.08%), whereas 4.10% lived alone, and 0.82% were sharing accommodation with other patients.

Table 3. Clinical characteristics of the study participants

Demographic characteristics of the study participants		n = 122	%
Duration since diagnosis of chronic kidney disease	< 5 years	15	12.30
	5 – 10 years	89	72.95
	>10 years	18	14.75
Duration of conservative treatment	None	5	4.10
	<1 year	8	6.56
	1 – 3 years	15	12.30
	3 – 5 years	27	22.13
	>5 years	67	54.92

Comment: Regarding the duration since CKD diagnosis, 12.30% of patients had been diagnosed for less than 5 years, 72.95% for 5–10 years, and 14.75% for more than 10 years. In terms of the duration of conservative treatment prior to dialysis, 6.56% had received it for less

than 1 year, whereas the highest proportion (54.92%) had undergone such treatment for more than 5 years.

3.2 Characteristics of quality of life assessed by SF-36

Table 4: Mean quality of life scores

Number	Assessment item	Mean score (Maximum score: 100)
Physical health		
1.1	Physical functioning	29.11 ± 14.92
1.2	Role limitations due to physical health problems	15.37 ± 17.74
1.3	Bodily pain	39 ± 11.04
1.4	General health	25.95 ± 8.88
Overall physical health score		27.67 ± 8.50

Number	Assessment item	Mean score (Maximum score: 100)
Mental health		
2.1	Role limitations due to emotional problems	2.74 ± 10.87
2.2	Vitality / Fatigue	48.81 ± 7.10
2.3	Mental state	51.08 ± 8.11
2.4	Social functioning	46.25 ± 9.48
Overall mental health score		37.35 ± 4.68
Overall quality of life score		32.49 ± 4.97

Comment: The table shows that the mean scores for mental health and physical health were 37.35 ± 4.68 and 27.67 ± 8.50, respectively, while the overall mean quality-of-life score was 32.49 ± 4.97.

Table 5: Classification of physical health scores

Characteristics Levels	Physical health		Mental health		Quality of life SF- 36	
	n	%	N	%	n	%
Poor (≤25)	52	42.62	0	0	7	5.74
Average (26 – 50)	68	55.74	120	98.36	114	93.44
Fair (51 - 75)	2	1.64	2	1.64	1	0.82
Good (≥ 76)	0	0	0	0	0	0
Total	122	100	122	100	122	100

Comment: The study results showed that: Regarding physical health, 42.62% of patients had poor physical health, 55.74% had average physical health, and none had good physical health. Regarding mental health, only 1.64% of patients had fair mental health, while the remaining 98.36% had average mental health. There were no patients with poor or good mental health.

3.3 Relationship between physical health and characteristics such as gender, education level, and occupation

Table 6. Relationship between physical health and characteristics such as gender, education level, and occupation

Physical health				
Characteristic	Average or below quality	Fair or above quality	p	PR (95% CI)
Gender				
Male	18 (30.0)	42 (70.0)	0.006	0.65 (0.47 – 0.89)
Female	34 (54.8)	28 (45.2)		
Education level				
Illiterate / Primary school	14 (77.78)	4 (22.22)	0.003	0.07 (0.10 – 0.38)
Lower secondary / Upper secondary school	36 (37.89)	59 (62.11)		
Vocational school / College / University	2 (22.22)	7 (77.78)		
Occupation				
Farmer	3 (27.7)	14 (82.3)	0.085	1
Worker / Government employee	0 (0.0)	1 (100.0)	0.085	1.21 (0.97 – 1.51)
Housewife / Homemaker	5 (21.7)	18 (78.3)	0.747	0.95 (0.70 – 1.29)
Retired / Unable to work	37 (71.2)	15 (28.8)	<0.001	0.35 (0.21 – 0.57)
Unemployed	3 (42.9)	4 (57.1)	0.293	0.69 (0.35 – 1.37)
Other	4 (18.2)	18 (81.8)	0,966	0.99 (0.74 – 1.33)

Comment: The relationship between physical health scores and educational attainment shows that participants with no formal education or only primary education had a higher proportion of below-average physical health compared to those with good or above-average physical health. This difference was statistically significant ($p = 0.003$). No association was found between occupation and the SF-36 physical component score ($p > 0.05$). However, a significant association was observed between the category of retirees/disabled individuals and the SF-36 physical component score, with the difference being statistically significant ($p < 0.001$)."

IV. DISCUSSION

A total of 122 patients agreed to participate in the study. The results show that females accounted for 50.82%, while males accounted for a similar proportion of 49.18%. However, my findings contrast with those of Trần Tất Thắng and Hoàng Thị Thành, whose study reported male and female proportions of 54% and 46%, respectively, with a male-to-female ratio of approximately 1:1.17 [6].

In this study, the mean age of all participants was 49.83 ± 13.64 years. Regarding age group distribution, the highest proportion was in the 45–65 age group, accounting for 55.74%. This is consistent with several previous studies, such as Hang Nguyen Thi's, which reported a mean age of 48.4 ± 13 years [7]. These findings suggest that most patients with chronic kidney disease are aged between 45 and 65 years, with an average age around 50 years—a result consistently observed across multiple studies. This may be explained by the fact that individuals in this age range are more likely to develop comorbidities such as cardiovascular diseases, diabetes, and kidney disorders. Some international studies have reported higher or lower mean ages, which could be due to differences in sampling methods, cultural practices, or the geographical context of the research.

The mean physical health score in my study was 27.67 ± 8.50 , the mean mental health score was 37.35 ± 4.68 , and the mean SF-36 quality of life score was 32.49 ± 4.97 , with a maximum possible score of 100. These results are similar

to those reported by Han Dang Thi et al., whose study found an overall SF-36 score of 31.45 ± 9.86 , with a physical health score of 27.45 ± 12.45 and a mental health score of 35.44 ± 9.68 [8].

One possible explanation for the gender difference is that, in many Asian cultures, women often experience heavier burdens related to their traditional roles, such as motherhood, household chores, and childcare responsibilities. Married women may also face additional pressures from relationships with their in-laws. These social and cultural factors could contribute to lower quality of life scores among women compared to men.

However, the results did reveal a significant association between being retired or permanently disabled and lower physical SF-36 scores ($p < 0.001$). This could be explained by the fact that individuals in these groups are often limited in mobility and lack the physical capacity to work, which in turn impacts their physical quality of life scores.

IV. CONCLUSION

A survey of 122 patients revealed an overall SF-36 quality-of-life score of 32.49 ± 4.97 , a physical health score of 27.67 ± 8.50 , and a mental health score of 37.35 ± 4.68 . There was a statistically significant association between physical health and gender ($p = 0.006$). Patients who were illiterate or had only primary education had a higher proportion of average-or-below physical health compared with those having fair-or-above physical health, with the difference being statistically significant ($p = 0.003$).

Based on these findings, healthcare providers should prioritize regular assessment and monitoring of quality of life in patients with end-stage chronic kidney disease undergoing maintenance hemodialysis. Establishing regular patient support clubs is recommended, where healthcare staff can integrate counseling and health education programs into meetings. Such initiatives would provide opportunities for patients and their families to exchange experiences, enhance knowledge about treatment adherence, prevent disease-related complications, and promote psychosocial interaction.

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