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Research Article

Assessment of the Quality of Life of Family Caregivers of Hemodialysis Patients with Chronic Kidney Disease in Yogyakarta

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ABSTRACT

Chronic Kidney Disease (CKD) is a leading cause of mortality in worldwide. In Indonesia, 713,783 cases were reported, with 2,850 patients requiring hemodialysis, significantly impacting patients and requiring long-term care from family caregivers. Despite the crucial role of family caregivers in supporting treatment adherence and patient well-being, studies examining caregivers' quality of life in Indonesia, particularly in the Special Region of Yogyakarta, remain limited. This study assessed caregivers' quality of life and its association with demographic factors in four hospitals, including three private and one public hospital located in Sleman, Yogyakarta City, and Bantul Regency. A cross-sectional multicenter study was conducted in four hospitals, involving 292 family caregivers. Data were collected using demographic questionnaires and WHOQOL-BREF, and analyzed with descriptive statistics and correlation tests. Most caregivers were 46–65 years old, female, had high school education, were not working, and were spouses of patients. Care duration ranged 13–36 months, with daily care exceeding 12 hours; patients underwent hemodialysis twice weekly. Quality of life was generally good in psychological and environmental domains, while physical and social domains ranged from moderate to good. Significant correlations with caregivers' quality of life were found in specific hospitals, including caregiver–family closeness ($r=0.294$; $p=0.014$), employment status ($r= -0.256$; $p=0.032$), education level ($r=0.269$; $p=0.021$), and caregiving duration ($r= -0.253$; $p=0.025$). These findings indicate that caregivers' quality of life is influenced by both demographic and relational factors, highlighting the need for targeted support to maintain caregivers' well-being and sustain quality patient care.

INTRODUCTION

Chronic kidney disease (CKD) has become a major public health priority as the number of cases continues to rise and detection is delayed in most patients. CKD is a noncommunicable disease that contributes significantly to morbidity and mortality worldwide. Its prevalence continues to increase along with risk factors such as hypertension, diabetes mellitus, and obesity. Globally, it is estimated that more than 800 million people live with CKD, and nearly four million of them undergo renal replacement therapy, mainly hemodialysis (Bello *et al.*, 2022; Kovesdy, 2022). In Indonesia, the prevalence of CKD reaches 0.38% of the total population, with approximately 19.3% of patients undergoing hemodialysis (Kementerian Kesehatan Republik Indonesia, 2018). The Special Region of Yogyakarta is one of the provinces with the highest prevalence of CKD in Indonesia, so the burden of hemodialysis services in this region continues to increase.

Hemodialysis is an essential therapy for sustaining life, but it cannot cure disease or restore optimal kidney function. This therapy has various physical and psychosocial consequences, including fatigue, anemia, sleep disorders, anxiety, and depression (Sumah, 2020). Patients' dependence on procedures that must be undergone two to three times a week has a major impact on their daily activities, so patients really need family support. This condition makes family caregivers an important component in the success of hemodialysis therapy.

Family caregivers perform various roles, such as assisting with patient mobilization, managing medication, communicating with healthcare professionals, and providing emotional support. However, these roles are often accompanied by psychological stress, social limitations, physical fatigue, and financial burdens due to the high cost of care. Research by Farzi *et al.*, (2019) and Nasution *et al.*, (2022) showed that caregivers of hemodialysis patients are prone to emotional stress, anxiety, sleep disorders, and a decline in quality of life. However, most studies still focus on the condition of patients, while research on the quality of life of caregivers is relatively limited, especially in local contexts such as the Special Region of Yogyakarta.

The quality of life of caregivers is influenced by various factors, including age, education level, employment status, intensity of care, and frequency of hemodialysis undergone by patients (Sulasmi *et al.*, 2023). A decline in quality of life not only affects the well-being of caregivers, but also has the potential to reduce the quality of care provided to patients. Therefore, a comprehensive study of the quality of life of caregivers is important in order to strengthen family-based health services. A deep understanding of this aspect can be the basis for developing supportive interventions, such as education, stress management, and strategies to improve the well-being of caregivers.

This study assessed the quality of life of family caregivers of hemodialysis patients across four hospitals in Yogyakarta, including three private and one public hospital located in Yogyakarta City, Bantul, and Sleman. Additionally, this study examined related demographic factors using a novel multicenter approach to map determinants of caregiver quality of life in the local context, which remains underexplored.

METHODS

This quantitative descriptive observational study was conducted using a cross-sectional approach. Data collection was conducted from August to September 2025 at four hospitals in the Special Region of Yogyakarta Province. The hospitals involved were PKU Muhammadiyah Bantul Hospital, PKU Muhammadiyah Gamping Hospital, PKU Muhammadiyah Yogyakarta Hospital, and RSUD Panembahan Senopati Bantul. The questionnaire used in this study was a demographic questionnaire to determine the characteristics of family caregivers, including age, gender, education, occupation, relationship with the patient, length of care, duration of care, and frequency of hemodialysis. In addition, this study used the WHOQOL-BREF questionnaire to assess the quality of life felt by family caregivers, consisting of 26 questions that have been translated into Indonesian. The study sample consisted of family caregivers who had cared for hemodialysis patients for at least 6 months, with a daily care duration of 6 hours, were at least 18 years old, and were willing to participate in the study. The sample was drawn using non-probability sampling with an incidental sampling method.

RESULTS AND DISCUSSION

Characteristics of family caregiver

According to Table 1, the majority of family caregivers in this study were female, consistent with the findings of Vina (2021) and Zygouri *et al.*, (2021), who explained that social, cultural, and gender stereotypes position women as the primary providers of care. This pattern indicates that caregiving is still perceived as an extension of women's domestic roles, particularly when patients experience chronic conditions requiring continuous assistance. In terms of age, caregivers were predominantly in the 46–65 year age group, followed by those aged 26–45 years, in line with Rahmi & Putri (2021) who stated that adulthood is a life stage with high involvement in family responsibilities. At this stage of life, individuals are generally considered physically capable of providing care while simultaneously fulfilling other family roles, which may explain why this age group is more frequently assigned caregiving duties. Most caregivers had a high school level of education, consistent with Zhang *et al.*, (2021) and data from the Indonesian Bureau of Statistics on the educational profile of the Bantul population. Limited educational attainment may also restrict employment opportunities, contributing to the high proportion of caregivers who were not formally employed. This finding supports Livana & Wardani (2019) who reported that caregiving is commonly undertaken by wives who do not have formal employment, while those who were employed were mainly engaged in informal sectors such as farming, trading, and manual labor, which offer more flexible time arrangements.

The relationship between caregivers and patients was dominated by spouses and children, consistent with Ramasamy *et al.*, (2025) who identified spouses as the primary caregivers of hemodialysis patients. Emotional closeness and co-residence likely facilitate the assumption of caregiving roles within the nuclear family. The most common duration of caregiving ranged from 13 to 36 months, indicating that caregiving is a long-term responsibility rather than a temporary task, as described by Alim *et al.*, (2023). Daily caregiving duration generally reached 13–24 hours, reinforcing the findings of Farzi *et al.*, (2019) that found caregivers devote a substantial portion of their daily time to patient care. Field observations further showed that each hemodialysis session required approximately five hours in the hospital, excluding additional care provided at home.

Table 1. Characteristics of Family Caregiver in the study

Characteristics	A*(n=70)	B*(n=70)	C*(n=73)	D*(n=79)
Age				
18-25 years	4 (5.7)	4 (5.7)	4 (5.5)	11 (13.9)
26-45 years	19 (27.1)	22 (31.4)	27 (37.0)	32 (40.5)
46-65 years	44 (62.9)	37 (52.9)	35 (47.9)	33 (41.8)
≥66 years	3 (4.3)	7 (10.0)	7 (9.6)	3 (3.8)
Gender				
Male	29 (41.4)	21 (30.0)	27 (37.0)	19 (24.1)
Female	41 (58.6)	49 (70.0)	46 (63.0)	60 (75.9)
Education Level				
Primary	9 (12.9)	7 (10.0)	12 (16.4)	14 (17.7)
Secondary	11 (15.7)	11 (15.7)	10 (13.7)	10 (12.7)
Senior	42 (60)	30 (42.9)	28 (38.4)	46 (58.2)
University	8 (11.4)	22 (31.4)	23 (31.5)	9 (11.4)
Occupation				
No Occupation	19 (27.1)	23 (32.9)	26 (35.6)	28 (35.4)
Farmer/Trader/Labourer	18 (25.5)	18 (25.7)	17 (23.3)	26 (32.9)
PNS/TNI/POLRI/BUMN	7 (10)	2 (2.9)	4 (5.5)	1 (1.3)
Entrepreneur	14 (20)	5 (7.1)	14 (19.2)	15 (19.0)
Others	12 (17.1)	22 (31.4)	12 (16.4)	9 (11.4)
Relationship with patient				
Spouse	41 (58.6)	45 (64.3)	41 (56.20)	49 (62.0)
Child	23 (32.9)	17 (24.3)	18 (24.7)	25 (31.6)
Sibling	3 (4.3)	1 (1.4)	0	2 (2.5)
Parent	3 (4.3)	7 (10.0)	0	3 (3.8)
			14 (19.2)	
Length of care				
6-12 months	12 (17.1)	11 (15.7)	25 (34.2)	14 (17.7)
13-36 months	30 (42.9)	26 (37.1)	27 (37.0)	36 (45.6)
37-72 months	10 (14.3)	22 (31.4)	11 (15.1)	19 (24.1)
>72 months	18 (25.7)	11 (15.7)	10 (13.7)	10 (12.7)
Duration of care				
6-8 hours	11 (15.7)	3 (4.3)	17.8	22 (27.8)
9-12 hours	1 (1.4)	0	0	12 (15.2)
>12 hours	58 (82.9)	67 (95.7)	60 (82,2)	45 (57.0)
Frequency of hemodialysis				
Once a week	0	0	3 (4,1)	8 (10.1)
Twice a week	69 (98.6)	70 (100)	70 (95,9)	71 (89,9.
Three times a week	1 (1.4)	0	0	0 (0)

Table 2. Analysis Quality of Life Family Caregiver

Domain	A		B		C		D	
Quality of Life	Mean± SD	Interpretation	Mean±SD	Interpretation	Mean±SD	Interpretation	Mean± SD	Interpretation
Physical	70.31 ±12.75	Good	59.09 ±10.15	Moderate	50.67 ± 9.86	Moderate	68.41 ±12.03	Good
Psychological	68.47 ±11.85	Good	67.19 ±9.63	Good	61.97 ± 10.80	Good	65.30 ±13.07	Good
Environment	59.67 ±13.60	Medium	59.31 ±12.83	Moderate	62.37 ± 16.45	Good	58.49 ±13.32	Moderate
Social	67.67 ±14.87	Good	73.47 ±9.30	Good	64.25 ± 13.77	Good	63.53 ±12.67	Good

Moreover, the frequency of hemodialysis was generally twice per week, in line with Panthi *et al.*, (2023) illustrating the high intensity of care demands that caregivers must continuously manage, which may predispose them to physical exhaustion and psychological strain.

Family Caregiver Quality of Life Analysis

As healthcare has evolved, quality of life has become an important health outcome that represents the final objective of health interventions (Orbayyinah *et al.*, 2025). According to the recent study conducted by Utami *et al.* (2025), the family support can improve patients' quality of life. Based on Table 2, the quality of life of family caregivers across four hospitals showed relatively similar patterns, although there were variations in each of the dimensions. In Hospitals A and D, most of caregivers had a good quality of life in the physical, psychological, and environmental dimensions, while the social dimension was still in the moderate category. These findings are in line with Remonte Jr. *et al.*, (2024), who reported that caregivers of hemodialysis patients tend to have relatively good quality of life, especially when they have effective coping mechanisms (Geglorian *et al.*, 2022). This condition indicated that although caregivers are able to maintain their physical and psychological health through adaptation and coping strategies, time constraints and the intensity of care still limited their participation in social activities.

At Hospital B, caregivers' quality of life was classified as good in terms of psychological and environmental dimensions, but only moderate in terms of physical and social dimensions. This indicates that adequate psychological support and environmental conditions are not yet sufficient to fully compensate for the physical demands of strictly scheduled hemodialysis treatment. Alnasser *et al.*, (2025) reported that more than half of caregivers experienced mild to moderate burdens, which were often related to physical fatigue and reduced personal time and social activities. Thus, the continuous burden of care tends to have a direct impact on the decline in caregivers' physical quality of life and limited social interaction.

Meanwhile, at Hospital C, caregivers' quality of life was rated as good in terms of psychological, social, and environmental dimensions, but still moderate in terms of physical dimensions. This pattern shows that although caregivers are able to maintain psychological well-being and social relationships through a good adaptation process, the physical demands of long-term care remain a major limiting factor. Nimah *et al.*, (2024) emphasize that good psychological quality of life and the ability to adapt to the demands of caregiving play an important role in improving caregivers' capacity to provide care, particularly in emotional aspects. However, without additional support to maintain physical health, caregivers' quality of life remains at risk of decline, which may ultimately affect the sustainability of the caregiving role.

The Relationship of Demographic Characteristics with Quality of Life

Based on Table 3, the correlation test showed that most demographic characteristics have no significant relationship with overall quality of life. However, several specific relationships were found in each hospital that describe how the social context and caregiving role affect quality of life. At Hospital A, there was a positive correlation between the closeness of family relationships and the quality of life of caregivers (r=0.294; *p*=0.014). This result indicates that the strength of emotional bonds between caregivers and other family members contributes to a better perceived quality of life. This finding reinforces Sumah's (2020) opinion

Table 3. The Relationship between Demographic Characteristics and Quality of Life

Variable	A		B		C		D	
	r	*p*-value	r	*p*-value	r	*p*-value	r	*p*-value
Age	-0.046	0.703	-0.160	0.187	-0.160	0.176	-0.080	0.485
Gender	-	0.306	-	0.240	-	0.625	-	0.336
Education Level	0.049	0.685	-0.010	0.937	0.269	0.021	0.196	0.84
Occupation	0.041	0.735	-0.256	0.032*	0.107	0.369	0.107	0.350
Relationship with patient	0.294	0.014	-0.121	0.319	0.069	0.564	0.121	0.489
Length of care	-0.044	0.718	-0.009	0.943	0.123	0.299	-0.253	0.025
Duration of care	-0.196	0.104	-0.125	0.303	-0.196	0.097	-0.083	0.469
Frequency of hemodialysis	-0.147	0.223	0.000	0.000	-0.063	0.599	-0.195	0.085

that the role of the nuclear family is very important in supporting patient therapy management.

At Hospital B, employment status was negatively correlated with quality of life (r=-0.256; *p*=0.032), meaning that working caregivers tended to have a lower quality of life than those who did not work. This correlation indicates that the dual role of being both a worker and a caregiver causes role conflict, fatigue, and limited time for rest and socialization, thereby directly impacting a decline in quality of life. Although Farzi *et al.*, (2019) stated that income from work can help cover care costs, while the results of this study show that the physical and psychological burdens resulting from the demands of dual roles are more dominant than the economic benefits.

At Hospital C, education level had a positive correlation with quality of life (r=0.269; *p*=0.021), meaning that the higher the caregiver's education level, the better their quality of life. This correlation can be explained by the ability of caregivers with higher education to understand medical information, manage problems, and seek relevant sources of support, so that they feel more capable of controlling the care situation. This is in line with Joseph *et al.*, (2021) who stated that education improves health literacy and coping capacity in dealing with the burden of caregiving.

Meanwhile, at Hospital D, a significant negative correlation was found between the duration of caregiving and quality of life (r=-0.253; *p*=0.025). This result means that the longer a person takes on the role of caregiver, the greater the likelihood of a decline in their quality of life. This correlation illustrates the cumulative effects of stress, physical fatigue, and lack of recovery time. This condition becomes even more severe when patients are highly dependent, causing caregivers to lose the opportunity to carry out personal and social activities independently (Amin & Haswita, 2025).

This study has some limitations due to its cross-sectional design, which only describes conditions at a single point in time, and the use of incidental sampling, which may limit the generalizability of the findings. Additionally, data obtained from questionnaires may introduce bias due to respondent subjectivity.

CONCLUSIONS

The quality of life of hemodialysis caregivers varies, with social and physical dimensions being more vulnerable while psychological and environmental dimensions are relatively well maintained. Higher education and family closeness support quality of life, while long treatment duration reduces it. Continuous interventions in the form of education and psychosocial support are important for maintaining the well-being of caregivers while ensuring the quality of patient care.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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