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ORIGINAL RESEARCH

Quality of life in patients with stage 5 chronic kidney disease and type 2 diabetes: A cross-sectional study

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Abstract
Diabetic Chronic Kidney Disease is a complication of diabetes marked by a progressive decline in kidney function. When kidney function falls below a glomerular filtration rate (GFR) of 15 ml/min (Stage 5), patients require renal replacement therapies, such as hemodialysis. This condition can significantly impact a patient's quality of life. This study aims to identify patient characteristics, assess quality of life, and explore the relationship between patient characteristics and quality of life in individuals with Type 2 Diabetes Mellitus complicated by Stage 5 Chronic Kidney Disease at RSUP Dr. Kariadi Semarang. The research used a cross-sectional design and the KDQoL-SF36 questionnaire for data collection. Results indicate that the patient group was predominantly elderly (90.7%), male (62.8%), married (88.37%), and primarily educated at the primary or secondary level (74.42%). A majority were unemployed (53.49%) and had an income greater than 3.000.000 IDR (62.79%). Most patients had been diagnosed with CKD Stage 5 for ≤12 months (62.79%), were receiving monotherapy for diabetes management (58.14%), and had more than one comorbidity (90.7%). The overall quality of life was rated favorably, with an average score of 72.09%. The study concludes that, while the quality of life is generally favorable, it is not significantly influenced by the specific patient characteristics examined. No correlation was found between these characteristics and the quality of life in patients with Type 2 Diabetes Mellitus and Stage 5 Chronic Kidney Disease at RSUP Dr. Kariadi Semarang.

Keywords: Cross-sectional study; kidney disease; prevention; quality of life; type 2 diabetes

Introduction

Diabetes is a significant public health issue characterized by high morbidity and mortality rates (Rwegerera et al., 2018). Diabetes is a chronic condition caused by elevated blood glucose levels due to the body's inability to produce insulin or use it effectively. According to the International Diabetes Federation (IDF), approximately 537 million adults aged 20–79 years were living with diabetes in 2021, a number projected to rise to 643 million by 2030. Indonesia ranks fifth globally and has the highest prevalence of diabetes in Southeast Asia, with 19.5 million people affected. The IDF predicts this figure will increase to 28.6 million by 2045 (IDF, 2021). Furthermore, diabetes is a degenerative disease that cannot be cured but can be managed. It is often referred to as the "mother of diseases" due to its potential to cause severe complications, including Chronic Kidney Disease (CKD) (Nur et al., 2015). CKD involves a progressive decline in kidney function, which, once impaired, cannot return to normal (Siregar et al., 2012). Patients with a Glomerular Filtration Rate (GFR) of less than 15 ml/minute often require renal replacement therapy such as hemodialysis (Wahyuni et al., 2018). Beyond physical complications, patients may also face psychosocial challenges such as self-judgment, social stigma, exclusion, rejection, and discrimination (Browne et al., 2014).The primary goal of diabetes therapy is to reduce complications, improve life expectancy, and enhance quality of life (Dipiro et al., 2008). Quality of life encompasses an individual's perception of their overall health, including physical, psychological, and social dimensions. A low quality of life among diabetes patients is linked to poor treatment adherence, disease progression, and an increased risk of cardiovascular mortality (Adriaanse et al., 2016). Recognizing these challenges, service models have been developed to identify factors that influence the quality of life in patients with diabetes and CKD.

Pharmacists play a vital role as part of the healthcare team in managing diabetes. Their responsibilities include screening high-risk patients, assessing health conditions and treatment adherence, providing education to empower self-management, referring patients to other healthcare professionals as needed, and monitoring treatment outcomes (Campbell, 2002). These contributions are crucial in improving patient care and outcomes. Previous studies have examined the quality of life in patients with diabetes and CKD stage 5 (Hong et al., 2021; Wahyuni et al., 2018). However, many of these studies fail to account for comorbidities that may affect quality of life. The quality of life (QoL) of patients with diabetes and kidney disease is of paramount importance because it directly impacts their physical, psychological, and social well-being (Hong et al., 2021). Diabetes, particularly Type 2 Diabetes (T2D), often leads to complications such as CKD, which severely disrupts daily life. Physical symptoms, such as fatigue, pain, and the burden of frequent hemodialysis, can limit patients' ability to work, engage in social activities, and maintain independence (Alshammari et al., 2024). Moreover, these physical limitations can lead to a loss of self-worth, increased dependency on caregivers, and a diminished sense of control over their lives. Addressing QoL in these patients goes beyond merely managing the disease—it involves creating care plans that consider their overall well-being, enabling them to live with dignity and purpose despite the challenges (Soleymanian et al., 2017). Psychological factors also play a critical role in the QoL of patients with diabetes and kidney disease. The chronic nature of these conditions, coupled with the need for lifelong treatments such as insulin therapy and dialysis, often results in emotional distress, anxiety, and depression (Shen et al., 2022). These mental health challenges can reduce treatment adherence, exacerbate disease progression, and lower overall health outcomes. For instance, patients who experience depression are less likely to follow dietary restrictions, take prescribed medications, or attend regular dialysis sessions, further complicating their health conditions. Prioritizing mental health through counseling, peer support groups, and holistic care approaches can significantly improve the emotional resilience and coping abilities of these patients **(Figure 1)**.

Figure 1. Illustration of resilience (*courtesy of pexels.com*).

The dimensions of QoL are equally significant for patients living with diabetes and kidney disease. These conditions often lead to social isolation due to stigma, physical constraints, or the time-intensive nature of treatments like hemodialysis (Hong et al., 2021). Fostering a supportive environment through patient education, community engagement programs, and multidisciplinary care teams can help patients rebuild social connections

and improve their sense of belonging (Hole et al., 2020). Ensuring a high QoL for patients with diabetes and kidney disease requires a comprehensive approach that addresses their physical, emotional, and social needs, ultimately empowering them to lead fulfilling lives. Additionally, prior research often relies on general quality-of-life questionnaires that are not specific to CKD stage 5. To address these gaps, this study utilizes the Kidney Disease and Quality of Life Short Form 36 (KDQoL-SF36) questionnaire. This instrument offers distinct advantages, including its specificity to kidney disease, its coverage of relevant domains, and its integration of items from the SF-36 for a more comprehensive assessment of quality of life in RSUP Dr. Kariadi Semarang provides care for CKD stage 5 patients through its Hemodialysis Unit. Patients with CKD stage 5 often experience severe complications requiring hemodialysis, which significantly impacts their quality of life. Therefore, pharmacists contribute significantly by managing medications, educating patients, and ensuring adherence to treatment plans, particularly for patient with T2D and its comorbidities during medication refills. Continuous improvement of hemodialysis services, including enhanced involvement of pharmacists, is essential for optimizing patient outcomes and overall well-being. This study focuses on diabetes patients with stage 5 CKD at RSUP Dr. Kariadi Semarang, aiming to assess their quality of life and explore how patient characteristics relate to it.

Method

We used analytical design with cross-sectional data to provide a snapshot of the population at a specific point in time. The study population comprised patients with T2D and CKD stage 5 undergoing hemodialysis at RSUP Dr. Kariadi Semarang. Eligible study participants were those aged 18 years or older, not pregnant, and willing to provide informed consent by completing the study questionnaire. Patients were excluded if they failed to complete the questionnaire or if their medical records were unavailable, illegible, or incomplete. A total of 43 participants were involved in the study. The study received ethical approval from the Health Research Ethics Commission of the Faculty of Medicine, Universitas Diponegoro, Indonesia (No. 520/EC/KEPK/FK-UNDIP/X/2023). Data collection was conducted over five months, from November 2023 to March 2024, utilizing validated tools including the KDQoL-SF36 questionnaire, a patient medical records extraction form, and a structured interview questionnaire. QoL was assessed using the KDQoL-SF36, a validated tool specifically designed to evaluate QoL in individuals with end-stage renal disease (ESRD) or CKD stage 5, especially those undergoing hemodialysis. The KDQoL-SF36 integrates the generic SF-36 questionnaire, providing a comprehensive evaluation of QoL. Scores range from 0 to 100, where higher scores reflect better QoL. A score ≤50 was classified as poor QoL, while scores >50 indicated good QoL, based on established benchmarks (Gebrie et al., 2022).

The study variables included patient demographics and characteristics such as gender, age, educational attainment, marital status, employment, economic status, duration of CKD stage 5, type of antidiabetic therapy, and comorbidities associated with T2D and CKD stage 5. Data were collected through direct patient interviews, cross-referenced with medical records to ensure accuracy and completeness. This approach provided a robust dataset for analysis. Statistical analysis was conducted using IBM SPSS version 26. Descriptive statistics were used to summarize and describe the characteristics of the study population. To evaluate the relationship between independent variables and QoL, bivariate analysis was conducted using the Chi-Square Test, with the Fisher Test applied as an alternative for variables with small sample sizes. To adjust for potential confounders, multivariate analyses, including multiple and logistic regression models, were employed. These analyses were essential in identifying the independent effects of variables on QoL while controlling for the influence of other factors. The concept of QoL in this study was aligned with the WHOQOL Group's definition (1995), which views QoL as an individual's subjective assessment of their position in life in relation to their goals, expectations, and the context of their culture and value systems. This comprehensive approach allowed for a nuanced understanding of how demographic, clinical, and socioeconomic factors interplay to shape patients' QoL outcomes. This study contributes to the growing body of knowledge on the QoL of patients with T2D and CKD stage 5, offering critical insights for healthcare providers and policymakers. The findings are expected to inform interventions aimed at improving health outcomes and addressing the factors that most significantly impact QoL in this vulnerable population.

Results

According to table, most patients in this study are elderly, making up 90.70% of the sample **(Table 1)**. Male patients account for 62.8%, outnumbering females. The majority have education levels ranging from elementary to secondary (74.42%). Most patients are unemployed (53.49%), with 62.79% earning less than 3.000.000 IDR per month. Most patients have been suffering from stage 5 CKD for less than 12 months and have multiple comorbidities, with hypertension being the most common. The table shows the patients' quality of life. Among the 43 patients, the average quality of life score was 57.72 (SD = 12.24), indicating significant variation and a generally

low quality of life. Patients categorized as having a 'Good' quality of life had a mean score of 63.58 (SD = 8.94), reflecting less variation and a higher average. In contrast, those with a 'Bad' quality of life had a mean score of 42.61 (SD = 2.82), indicating consistently low quality. A total of 31 patients (72.09%) had a good quality of life, while 12 patients (27.91%) had an impaired quality of life **(Table 2)**. Another table reveals that most respondents reported poor quality of life in areas such as symptoms, the effects and burden of kidney disease, employment status, and sexual function. In the effects of kidney disease domain, 95.53% of patients reported poor quality of life, while 60.47% reported poor quality regarding the burden of the disease **(Table 3)**. The employment status domain also showed high levels of poor quality of life (81.40%). Observations indicated that patients who were still working (20 patients) were in better physical condition, as they could attend hemodialysis independently. In contrast, non-working patients were more likely to feel fatigued. The sexual function domain also showed that 86.05% of patients had poor quality of life.

Table 1. Profile of the participants.

Profile	Frequency	
	Amount	**Percentage (%)**
Age		
Adults (26 – 45 years)	4	9.30
Elderly (≥46 years)	39	90.70
Type of Sex		
Male	27	62.8
Female	16	37.2
Marital status		
Unmarried	5	11.63
Married	38	88.37
Level of education		
Low - intermediate	32	74.42
High	11	25.58
Employment Status		
Unemployed	23	53.49
Work	20	46.51
Economic Status		
Low (<3.000.000 IDR)	27	62.79
High (≥3.000.000 IDR)	16	37.21
Long-term Suffering from CKD *stage* 5		
≤12 months	27	62.79
>12 months	16	37.21
Type of Antidiabetic Therapy		
Monotherapy	25	58.14
Combination	18	41.86
Disease Comorbidities		
1 comorbid	4	9.30
>1 comorbid	39	90.70

Table 2. Quality of life analysis.

Quality of Life	Amount	Percentage (%)
Good (mean score = 63.58 + 8.94)	31	72.09
Bad (mean score = 42.61 + 2.82)	12	27.91
Total (mean score = 57.72 + 12.24)	43	100

A general survey using the SF-36 questionnaire found that poor quality of life was most evident in physical function, physical role, emotional role, pain, and general health. Many patients reported limitations in physical activities like heavy lifting and walking long distances. In the physical role domain, 93.02% of patients had a poor quality of life. Most patients indicated that physical health issues arose after starting hemodialysis, affecting their daily activities. The emotional role domain showed that 74.42% of patients had poor quality of life, while 55.81% reported pain. In the general health domain, 58.14% of patients rated their quality of life as poor. To analyze the

relationship between patient characteristics and quality of life, statistical tests were conducted. Results showed that none of the patient characteristics significantly related to quality of life **(Table 4)**. A multivariate analysis was performed, including four independent variables: age, economic status, duration of CKD, and comorbidities, based on a sample size calculation (Altman, 1991). The multiple regression analysis indicated no significant effects ($P < 0.05$) on quality of life. Model diagnostics confirmed that all criteria were met (Afifi et al., 1996; Cohen et al., 2003) **(Table 5)**. Additionally, logistic regression was used to explore the relationship between quality of life status (good or bad) and the independent variables. Similar to the multiple regression analysis, none of the variables showed a significant relationship ($p > 0.05$) **(Table 6)**.

Table 3. Quality of life based on KDQoL-SF36 domain.

Domain	Quality Life	
	Good	**Bad**
Related Domains Disease Kidney		
Symptoms	2 (4.65%)	41 (95.35%)
Effect of kidney disease	2 (4.65%)	41 (95.35%)
Burden of kidney disease	17 (39.53%)	26 (60.47%)
Work status	8 (18.60%)	35 (81.40%)
Cognitive function	40 (93.02%)	3 (6.98%)
Quality of social interaction	42 (97.67%)	1 (2.33%)
Sexual function	6 (13.95%)	37 (86.05%)
Sleep	26 (60.47%)	17 (39.53%)
Social support	37 (86.05%)	6 (13.95%)
Dialysis staff encouragement	42 (97.67%)	1 (2.33%)
Patient Satisfaction	28 (65.12%)	15 (34.88%)
SF-36 Survey Domain		
Physical functioning	20 (46.51%)	23 (53.49%)
Role-physical	3 (6.98%)	40 (93.02%)
Role-emotional	11 (25.58%)	32 (74.42%)
Energy/fatigue	25 (58.14%)	18 (41.86%)
Emotional well being	34 (79.07%)	9 (20.93%)
Social function	23 (53.49%)	20 (46.51%)
Pain	19 (44.19%)	24 (55.81%)
General Health	18 (41.86%)	25 (58.14%)

Discussion

Exploring patient characteristics is crucial as they may serve as predictors for quality of life assessments. Age significantly influences the incidence of chronic diseases, particularly in adults, due to factors such as exposure to illness, lifestyle choices, and changes in immune system responses (Rustandi et al., 2018). In this study, a predominance of male patients was observed, aligning with epidemiological findings from India, which reported that 61% of CKD patients were male, while females constituted 39% (Singh et al., 2013). Furthermore, women generally demonstrate greater health awareness and adherence to treatment regimens compared to men, which can positively impact their health outcomes (Pranandari et al., 2015). The majority of participants in this study were married, comprising 88.37% of the sample. Research indicates that individuals who are single, divorced, or widowed experience higher morbidity and mortality rates compared to their married counterparts (Han et al., 2014). Higher education levels are associated with increased knowledge and self-management capabilities in addressing health issues (Panma, 2018). Patients with higher economic status typically enjoy better quality of life due to improved access to healthcare, enhanced job and educational opportunities, and higher income levels, all of which contribute to better physical and mental health outcomes (Nutakor et al., 2023). The adaptation process to hemodialysis therapy varies among patients, influenced by symptoms, complications, and the demands of a lifelong treatment regimen. This variability affects the overall quality of life (Sari et al., 2022). The predominant antidiabetic therapy utilized in this cohort was monotherapy, accounting for 58.14%. The selection of therapy is influenced by the etiology of diabetes mellitus and the pharmacological approaches to its management (Musnelina et al., 2021). The relationship between hypertension and kidney health is well-established; hypertension often triggers kidney disease and failure, while compromised kidney function can exacerbate hypertension, leading to further renal damage (Dipiro et al., 2021).

Table 4. Bivariate analysis.

Patient characteristics	Bad quality of life	Good quality of life	*p*
Age			1.000*
Adults (26 – 45 years)	11	28	
Elderly (≥46 years)	1	3	
Type of sex			0.737*
Male	7	20	
Female	5	11	
Marital status			0.300*
Unmarried	0	5	
Married	12	26	
Level of education			0.467*
Low - intermediate	8	24	
High	4	7	
Employment status			0.692**
Unemployed	7	16	
Work	5	15	
Economic status			0.484*
Low (<3.000.000 IDR)	9	18	
High (≥3.000.000 IDR)	3	13	
Length of time suffering from CKD			0.484*
≤12 months	9	18	
>12 months	3	13	
Type of antidiabetic therapy			0.713**
Monotherapy	6	20	
Combination	6	11	
Disease comorbidities			0.255*
1 comorbid	12	27	
>1 comorbid	0	4	

*) Fisher's exact test, **) Chi square test.

Table 5. Multivariate analysis.

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	56.924	3.094		18.397	.000
	Economic Status	-3.193	4.082	-.128	-.782	.439
	Long Term Suffering from CKD Stage 5	3.004	4.082	.120	.736	.466
	Disease Comorbidities	8.242	6.815	.198	1.209	.234
	Age group	1.154	6.815	.028	.169	.866

a: Dependent variable: quality of life score.

Table 6. Logistic Regression Analysis.

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Age (1)	-.524	1.269	.171	1	.680	.592
	Economic Status (1)	-.804	.808	.990	1	.320	.448
	Long Term (1)	-1.010	.780	1.675	1	.196	.364
	Disease Comorbidities (1)	-20.720	19836.595	.000	1	.999	.000
	Constant	23.192	19836.595	.000	1	.999	11802534592.637

a: Variable(s) entered on step 1: Age, economic status, long-term, comorbidities.

Quality of life assessments revealed that 95.53% of patients experienced various physical symptoms that adversely affected their daily lives. This may be attributed to Dialysis Disequilibrium Syndrome (DDS), characterized by neurological symptoms that can occur during or immediately after hemodialysis. If left untreated, DDS can lead to severe neurological manifestations such as nausea, vomiting, headaches, dizziness, seizures, and even coma (Mistry et al., 2019). Fluid restrictions, a common strategy to prevent complications in CKD patients undergoing hemodialysis, were reported to disturb most patients (Angraini et al., 2016). Additionally, many patients reported reduced capacity for work and travel, corroborating previous studies that indicated a significant impact of chronic illness on physical activity and occupational functioning (Fadilah et al., 2016). In the work status domain, 81.40% of patients reported poor quality of life. Observations indicated that patients who were still employed (20 patients) exhibited better physical condition, as evidenced by their ability to attend hemodialysis sessions independently. Conversely, non-working patients were more likely to experience fatigue, attributed to decreased hemoglobin levels associated with CKD, which impairs their ability to perform daily activities optimally (Panma et al., 2018). The sexual function domain also reflected a high prevalence of poor quality of life, with 86.05% of patients affected. CKD patients often experience neurohormonal disorders that reduce blood flow to the genital organs, leading to sexual dysfunction. Prior studies have noted that hemodialysis patients frequently report diminished sexual desire, a situation further complicated by the demands of hemodialysis that hinder sexual activity and satisfaction (Jundiah et al., 2020) **(Figure 2)**.

Figure 2. Illustration of hemodialysis (*courtesy of pexels.com*).

A general survey utilizing the SF-36 questionnaire indicated that poor quality of life was primarily associated with physical functioning, role physical, role emotional, pain, and general health. Most patients reported limitations in engaging in intensive physical activities, such as heavy lifting and long-distance walking. However, some patients indicated they could still perform light activities, like bathing and dressing, unless they had impaired motor function (Simorangkir, 2021). In the physical domain, 93.02% of patients reported poor quality of life, with many stating that health issues following hemodialysis hindered their ability to complete various tasks. They expressed that their activities often took longer to finish than desired (Simorangkir, 2021). In the emotional role domain, 74.42% of patients reported poor quality of life, which may stem from stress, depression, or anxiety related to the discomfort experienced during hemodialysis. Such emotional disturbances can impede a patient's ability to effectively complete tasks, leading to suboptimal performance (Simorangkir, 2021). The pain domain revealed that 55.81% of patients experienced a poor quality of life due to various factors, including painful procedures during hemodialysis (e.g., venipuncture and cold sensations), surgical interventions for vascular access, and acute complications such as muscle cramps and headaches. Pain syndromes, including ischemic extremities, musculoskeletal disorders,

and neuropathic conditions, also contribute to the discomfort experienced by patients undergoing hemodialysis (Gerogianni, 2023). In the general health domain, which reflects individuals' perceptions of their overall health, 58.14% of patients reported a poor quality of life. Although most patients held a positive view of their health, they often felt that their condition was no better than that of others and frequently experienced illness, leading to a lower quality of life in this domain (Simorangkir et al., 2021). As summarized in table, the majority of patients (72.09%) were classified as having a good quality of life, while 27.91% were classified as having a poor quality of life **(Table 3)**.

This study measured quality of life on a scale of 0-100, with scores above 50 indicating good quality of life and scores of 50 or below indicating poor quality. The average quality of life score among the 43 patients was 57.72 (SD = 12.24), suggesting considerable variation and a generally low quality of life. Regression analysis was employed to assess the influence of various independent variables on quality of life; however, no statistically significant relationships were identified. Factors such as age, type of antidiabetic therapy, duration of CKD, economic status, comorbidities, sex, marital status, education level, and employment status did not demonstrate significant effects, as indicated by p-values greater than 0.05. Similarly, logistic regression findings did not reveal significant relationships, with odds ratios indicating minimal or no influence. Despite the comprehensive analysis, the absence of significant findings may be attributed to the exclusion of critical factors, such as medical services, particularly the frequency of follow-up care and the number of hemodialysis sessions. These variables are known to significantly impact patient outcomes and quality of life, yet they were not included in this study. It is plausible that considering these health services would yield more pronounced effects on quality of life. Additionally, various factors beyond those studied may influence patients' quality of life. Researchers posit that elements such as adjustment and adaptation, psychosocial support from family and friends, coping mechanisms, medication adherence, therapeutic responses, effective disease management, and overall life satisfaction can directly and indirectly affect quality of life. Effective coping strategies are known to enhance quality of life and promote positive behaviors. Conversely, inappropriate coping strategies may diminish quality of life and lead to psychological distress (Asafitri et al., 2019). Family support plays a vital role in the mental health of hemodialysis patients, as strong familial support positively impacts both physical and psychological well-being. Patients who receive adequate support often feel valued and cared for, which can enhance their quality of life (Simbolon, 2019). Regular hemodialysis, alongside a healthy lifestyle and appropriate dietary practices, can further improve quality of life. Patients must continue their medication regimen for other comorbid conditions, and healthcare teams strive to optimize the effectiveness of therapies to enhance patient quality of life (Muliani et al., 2022).

The findings of this study carry significant implications for healthcare management. While most patients demonstrated good quality of life with appropriate care, some still experienced poor quality of life. This underscores the necessity for healthcare teams to identify ways to enhance hemodialysis services. Recognizing patient characteristics that influence quality of life can develop personalized strategies, including improved education, medication management, and monitoring of high-risk individuals. These insights can be integrated into healthcare systems to refine decision-making, resource allocation, and care plans, ultimately enhancing the well-being of patients with CKD and diabetes. Moreover, caregivers and family members are crucial in supporting patients with stage 5 CKD undergoing hemodialysis by providing physical assistance, emotional support, and coordination of care, ensuring adherence to treatment schedules and medication regimens. Family caregivers are often the primary source of support for chronically ill patients, and the impact of dialysis extends beyond the patient to affect the entire family (Hejazi et al., 2021). Therefore, interventions that offer appropriate social support to patients are essential (Nirmalasari et al., 2022).

Conclusion

This cross-sectional study highlights the significant impact of stage 5 CKD and type 2 diabetes on patients' quality of life. The findings indicate that a substantial proportion of patients experience poor quality of life across various domains, including physical functioning, emotional well-being, and sexual health. Factors such as age, sex, marital status, education level, and economic status were examined, yet no statistically significant relationships were identified with quality-of-life outcomes. The study underscores the complexity of managing CKD and diabetes, revealing that while many patients maintain a good quality of life, a notable segment continues to struggle with debilitating symptoms and emotional challenges. The results emphasize the need for healthcare providers to adopt a holistic approach in care management, addressing not only the physical aspects of the diseases but also the psychological and social dimensions impacting patients' well-being. Future research should consider additional variables, such as access to healthcare services and psychosocial support, to further elucidate their roles in enhancing quality of life for this vulnerable population.

References

Adriaanse, M.C., Drewes, H.W., van der Heide, I., Struijs, J.N., Baan, C.A. (2016). The impact of comorbid chronic conditions on quality of life in type 2 diabetes patients. Quality of Life Research, 25(1), 175-182. https://doi.org/10.1007/s11136-015-1061-0

Afifi, A.A., Clark, A. (1996). Computer-aided multivariate analysis. London: Chapman & Hall.

Alshammari, B., Alkubati, S. A., Alrasheeday, A., Pasay-An, E., Edison, J. S., Madkhali, N., Al-Sadi, A. K., Altamimi, M. S., Alshammari, S. O., Alshammari, A. A., & Alshammari, F. (2024). Factors influencing fatigue among patients undergoing hemodialysis: a multi-center cross-sectional study. The Libyan journal of medicine, 19(1), 2301142. https://doi.org/10.1080/19932820.2023.2301142

Altman, D.G. (1991). Practical statistics for medical research. London: Chapman & Hall/CRC.

Angraini, F., Putri, A.F. (2016). Pemantauan intake output cairan pada pasien gagal ginjal kronik dapat mencegah overload cairan. Jurnal Keperawatan Indonesia, 19(3), 152-160. https://doi.org/10.7454/jki.v19i3.475

Asafitri, R.N., Aini, F., Galih, Y. (2019). Hubungan mekanisme koping dengan kualitas hidup pada penderita diabetes melitus tipe 2 di RS Roemani Semarang. Journal of Holistics and Health Sciences, 8(7), 127-136. https://doi.org/10.35473/jhhs.v1i1.11

Browne, J.L., Ventura, A., Mosely, K., Speight, J. (2014). "I'm not a druggie, I'm just a diabetic": A qualitative study of stugma from the perspective of adults with type 1 diabetes, BMJ Open, 4(7), 1–10. https://doi.org/10.1136/bmjopen-2014-005625

Campbell, R.K. (2002). Role of the pharmacist in diabetes management. American Journal of Health-System Pharmacy, 59(9), S18-S21. https://doi.org/10.1093/ajhp/59.suppl_9.S18

Cohen, J., Cohen, P., West, S.G., Aiken, L.S. (2003). Applied multiple regression/ correlation analysis for the behavioral sciences Third ed. Mahwah, New Jersey: Lawrence Erlbaum Associates, Inc.

Dipiro, J.T., Talbert, R.L., Yee, G.C., Matzke, G.R., Wells, B.G., Michael, P.L. (2008). Pharmacotherapy: A Pathophysiologic Approach (7th Edition). McGraw-Hill Company.

Dipiro, J.T., Yee, G.C., Posey, M., Haines, S.T., Nolin, T.D., Ellingrod, V. (2021). Pharmacotherapy: A Pathophysiologic Approach. (11th Edition). McGraw-Hill Company.

Fadilah, N., Wijayanti, D., Tumini. (2016). Peningkatan kualitas hidup pasien hemodialisa ditinjau dari perilaku caring perawat di RSUD dr. Soetomo Surabaya. Jurnal Kesehatan MANARANG, 2(1), 26-32. https://doi.org/10.33490/jkm.v2i1.10

Gebrie, M.H., Asfaw, H.M., Bilchut, W.H., Lindgren, H., Wettergren, L. (2022). Psychometric properties of the kidney disease quality of life-36 (KDQOL-36) in Ethiopian patients undergoing hemodialysis. Health Qual Life Outcomes, 20(1), 1-9. https://doi.org/10.1186/s12955-022-01932-y

Gerogianni, G. (2023). Factors affecting pain in hemodialysis and non-pharmacological management. Cureus, 15(2), 1-4. https://doi.org/10.7759/cureus.35448

Han, K.T., Park, E.C., Kim, J.H., Kim, S.J., Park, S. (2014). Is marital status associated with quality of life? Health Qual Life Outcomes, 12(1), 1-10. https://doi.org/10.1186/s12955-014-0109-0

Haryani, S., Misniarti. (2016). Masalah kebutuhan seksual pada pasien gagal ginjal kronik yang menjalani terapi hemodialisa. Jurnal Media Kesehatan, 9(1), 23-29.

Hejazi, S.S., Hosseini, M., Ebadi, A., Majd, H.A. (2021). Components of quality of life in hemodialysis patients from family caregivers' perspective: a qualitative study. BMC nephrology, 22(379), 1-10. https://doi.org/10.1186/s12882-021-02584-8

Hole, B., Hemmelgarn, B., Brown, E., Brown, M., McCulloch, M. I., Zuniga, C., Andreoli, S. P., Blake, P. G., Couchoud, C., Cueto-Manzano, A. M., Dreyer, G., Garcia Garcia, G., Jager, K. J., McKnight, M., Morton, R. L., Murtagh, F. E. M., Naicker, S., Obrador, G. T., Perl, J., Rahman, M., … Caskey, F. J. (2020). Supportive care for end-stage kidney disease: an integral part of kidney services across a range of income settings around the world. Kidney international supplements, 10(1), e86–e94. https://doi.org/10.1016/j.kisu.2019.11.008

Hong, Y. S., Kim, H., Zhao, D., & Cho, A. (2021). Chronic Kidney Disease on Health-Related Quality of Life in Patients with Diabetes Mellitus: A National Representative Study. Journal of clinical medicine, 10(20), 4639. https://doi.org/10.3390/jcm10204639

Hong, Y. S., Kim, H., Zhao, D., & Cho, A. (2021). Chronic Kidney Disease on Health-Related Quality of Life in Patients with Diabetes Mellitus: A National Representative Study. Journal of clinical medicine, 10(20), 4639. https://doi.org/10.3390/jcm10204639

Hong, Y.S., Kim, H., Zhao, D., Cho, A. (2021). Chronic Kidney Disease on Health-Related Quality of Life in Patients with Diabetes Mellitus: A National Representative Study. J Clin Med, 10(20), https://doi.org/10.3390/jcm10204639

International Diabetes Federation. (2021). IDF Diabetes Atlas. www.diabetesatlas.org

Jundiah, R.S., Megawati, S.W., Muliani, R., Khatimah, N.I.H. (2020). Gambaran fungsi seksual dan kondisi psikologis pasien penyakit ginjal kronis yang menjalani hemodialisis. Jurnal Keperawatan 'Aisyiyah, 7(2), 19-25. https://doi.org/10.33867/jka.v7i2.210

Mistry, K. (2019). Dialysis disequilibrium syndrome prevention and management. Int J Nephrol Renovasc Dis,12, 69–77. https://doi.org/10.2147/IJNRD.S165925

Muliani, R., Fauziah, L.A., Sumbara. (2022). Komorbiditas dan lama menjalani hemodialisis dengan kualitas hidup pada klien yang menjalani hemodialisis. Window of Health: Jurnal Kesehatan, 5(2), 533-544. https://doi.org/10.33096/woh.v5i02.24

Musnelina, L., Mutiara, W., Rianti, A. (2021). Pengukuran kualitas hidup pasien diabetes melitus tipe 2 dengan penyakit penyerta hipertensi menggunakan SF-36. Sainstech Farma, 14(2), 63. https://doi.org/10.37277/sfj.v14i2.832

Nirmalasari, N., Sari, I.W.W. (2022). Caregiver's burden among families of hemodialysis patient: a cross-sectional study. NurseLine Journal, 7(1), 58-63. https://doi.org/10.19184/nlj.v7i1.29100

Nur, S., Toharin, R., Cahyati, W.H., et al. (2015). Hubungan modifikasi gaya hidup dan kepatuhan konsumsi obat antidiabetik dengan kadar gula darah pada penderita diabetes melitus tipe 2 di RS QIM Batang tahun 2013. Unnes Journal of Public Health, 4(2), 153-161. https://doi.org/10.15294/ujph.v4i2.5193

Nutakor, J.A., Zhou, L., Larnyo, E., Addai-Danso, S., Tripura, D. (2021). Socioeconomic status and quality of life: an assessment of the mediating effect of social capital. Healthcare (Switzerland), 11(5), 1-12. https://doi.org/10.3390/healthcare11050749

Panma, Y. (2018). Hubungan karakteristik individu dengan kualitas hidup pasien hemodialisis. Buletin Kesehatan, 2(1), 80-91. https://doi.org/10.36971/keperawatan.v2i1.37

Peipert, J.D., Nair, D., Klicko, K., Schatell, D.R., Hays, R.D. (2019). Kidney disease quality of life 36-item short form survey (KDQOL-36) normative values for the United States dialysis population and new single summary score. Journal of the American Society of Nephrology, 30(4), 654-663. https://doi.org/10.1681/ASN.2018100994

Pranandari, R., Supadmi, W. (2015). Faktor risiko gagal ginjal kronik di unit hemodialisis RSUD Wates Kulon Progo. Majalah Farmaseutik, 11(2), 316-320. https://doi.org/10.22146/farmaseutik.v11i2.24120

Rustandi, H., Tranado, H., Pransasti, T. (2018). 'Faktor-faktor yang mempengaruhi kualitas hidup pasien chronic kidney disease (CKD) yang menjalani hemodialisa di ruang hemodialisa. Jurnal Keperawatan Silampari (JKS), 1(2), 32-46. https://doi.org/10.31539/jks.v1i2.8

Rwegerera, G.M., Mosomo, T., Gaenamong, M., Oyewo, T.A., Gollakota, S., Rivera, Y.P., et al. (2018). Health-related quality of life and associated factors among patients with diabetes mellitus in Botswana. Alexandria Journal of Medicice, 54(2), 111–118. https://doi.org/10.1016/j.ajme.2017.05.010

Sari, S.P., Az R, Maulani. (2022). Hubungan lama hemodialisis dengan kualitas hidup pasien penyakit ginjal kronik di ruang hemodialisa Rumah Sakit Bhayangkara Kota Jambi. Jurnal Ilmiah Ners Indonesia, 3(2), 54-62. https://doi.org/10.22437/jini.v3i2.20204

Shen, Y., Chen, Y., Huang, S., Yao, X., Kanwar, Y. S., & Zhan, M. (2022). The Association between Symptoms of Depression and Anxiety, Quality of Life, and Diabetic Kidney Disease among Chinese Adults: A Cross-Sectional Study. International journal of environmental research and public health, 20(1), 475. https://doi.org/10.3390/ijerph20010475

Simbolon, N.A. (2019). Hubungan antara dukungan sosial keluarga dengan kualitas hidup pasien hemodialisis di unit hemodialisis RSUP H. Adam Malik Medan tahun 2019. Politeknik Kesehatan Medan. http://repo.poltekkes-medan.ac.id/xmlui/handle/123456789/2064

Simorangkir, R., Andayani, T.M., Wiedyaningsih, C. (2021). Faktor-faktor yang berhubungan dengan kualitas hidup pasien penyakit ginjal kronis yang menjalani hemodialisis. Jurnal Farmasi dan Ilmu Kefarmasian Indonesia, 8(1), 83-90. https://doi.org/10.20473/jfiki.v8i12021.83-90

Singh, A.K., Farag, Y.M.K., Mittal, B.V., Subramanian, K.K., Reddy, S.R.K., Acharya, V.N., et al. (2013). Epidemiology and risk factors of chronic kidney disease in India – results from the SEEK (Screening and Early Evaluation of Kidney Disease) study. BMC Nephrology, 14(1), 1–10. https://doi.org/10.1186/1471-2369-14-114

Siregar, C.T. (2012). Buku ajar manajemen komplikasi pasien hemodialisa. Deepublish.

Soleymanian, T., Kokabeh, Z., Ramaghi, R., Mahjoub, A., & Argani, H. (2017). Clinical outcomes and quality of life in hemodialysis diabetic patients versus non-diabetics. Journal of nephropathology, 6(2), 81–89. https://doi.org/10.15171/jnp.2017.14

The WHOQOL Group. (1995). The World Health Organization quality of life assessment (WHOQOL): Position paper from the World Health Organization. Soc Sci Med, 41(10), 1403-1409. https://doi.org/10.1016/0277-9536(95)00112-K

Wahyuni, P., Miro, S., Kurniawan, E. (2018). Hubungan lama menjalani hemodialisis dengan kualitas hidup pasien penyakit ginjal kronik dengan diabetes melitus di RSUP Dr. M Djamil Padang. Jurnal Kesehatan Andalas, 7(4), 480-485. http://dx.doi.org/10.25077/jka.v7i4.905

Author's perspective

Key points

- Patients with CKD and T2D often coexist, affecting patients' physical, emotional, and social well-being.
- The significant impact of stage 5 CKD and type 2 diabetes on patients' quality of life.
- The need for healthcare providers to adopt a holistic approach in care management.

Potential areas of interest

- What are the primary factors influencing quality of life in patients with stage 5 CKD and T2D?
- How does the KDQoL-SF36 questionnaire effectively capture the multidimensional aspects of QoL?
- What interventions can improve QoL for patients living with the CKD stage 5 and T2D?

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