DOI: 10.5152/turkjnephrol.2025.25991

Original Article

Turkish Journal of Nephrology

Family Support, Depression, and Health-Related Quality of Life of Hemodialysis Patients

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ABSTRACT

Background: Patients who have been medically diagnosed with kidney failure require lifelong hemodialysis treatment unless they undergo a kidney transplant. Therapy dependence and lifestyle changes have an impact on patients' depression rates and overall health-related quality of life. Family support is an essential factor in managing the burden of chronic kidney disease (CKD). This study aimed to determine the relationship between family support and depression in the health-related quality of life of hemodialysis patients at Panembahan Senopati Hospital, Bantul, Yogyakarta, Indonesia.
Methods: This was a cross-sectional, quantitative correlation study. The sampling technique used was consecutive sampling, with 185 respondents. The instruments used were the Perceived Social support-Family (PSS-Fa) questionnaire, Kidney Disease Quality of Life Short From (KDQOL SF-36), Beck Depression Inventory II, and demographic data. The relationship between family support and depression was assessed using the Kendall Tau correlation test, and the relationship between family support and quality of life was calculated using the Kendall Tau correlation test.
Results: There was no significant association between family support and health-related quality of life (P = .262). However, family support was significantly associated with depression (P = .040), and a strong relationship was found between health-related quality of life and depression (P = .000)
Conclusion: Family support plays an essential role in reducing depression by providing emotional and social resources. Efforts to reduce depression in CKD patients can significantly improve health-related quality of life. However, the impact of family support on the health-related quality of life of hemodialysis patients varies.
Keywords: Chronic kidney disease, depression, family support, health-related quality of life, hemodialysis,

Corresponding author: Diyah Candra Anita ✉ diyah.candra@unisayogya.ac.id **Received:** March 27, 2025 **Revision Requested:** April 27, 2025
Last Revision Received: June 3, 2025 **Accepted:** June 4, 2025 **Publication Date:** July 1, 2025

Cite this article as: Anita DC, Alfrizki ES, Suprayitno E, Fadlilah S, Wantonoro W. Family support, depression, and health-related quality of life of hemodialysis patients. *Turk J Nephrol.* 2025;34(3):195-200.

INTRODUCTION

Chronic kidney disease(CKD) is a significant global health problem, with a prevalence of more than 10% of the world's population, or approximately 843.6 million people. The mortality rate due to CKD is expected to increase by 41.5% by 2040.[1] Chronic kidney disease is a progressive and irreversible condition of kidney function in which there is a failure of the body's ability to maintain a balance of fluid and electrolyte metabolism, resulting in uremia. Kidney failure occurs if the GFR value is <15 mL/min/1.73 m^2, thus requiring dialysis or kidney transplantation.[2]

Hemodialysis patients often face physical and psychological challenges, including a reduced quality of life due to chronic diseases, as they require repeated treatments. The psychological impacts that arise include anxiety, stress, and depression.[3] The most crucial psychological problem in hemodialysis patients is depression. Depression must be adequately treated because

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it affects the continuation of treatment, worsens clinical symptoms, and increases the chance of complications.[4] Hemodialysis patients experience depression 13.1%-76.3% more frequently compared to patients who undergo kidney transplantation.[5]

Health-related quality of life (HRQoL) is essential in assessing hemodialysis patients' well-being.[6] Factors such as chronic fatigue, limitations in daily activities, and the emotional impact of the hemodialysis process can affect an individual's perception of their HRQoL. Social support, especially from family, is a key element in improving the HRQoL of patients. Studies show that emotional support and information provided by families can help patients cope with psychological distress and better accept their condition.[7]

Although various studies have shown the importance of family support in improving the HRQoL of hemodialysis patients, several research gaps still need to be explored further. First, most studies only highlight the direct relationship between family support and HRQoL without exploring how depression as a mediating variable can affect these relationships.[8] Second, many studies focus more on the dimensions of emotional and informational support, while other aspects, such as instrumental and evaluative support, are often overlooked.[9] The purpose of this study was to determine the relationship between family support, depression, and HRQoL of hemodialysis patients at Panembahan Senopati Hospital Bantul, Indonesia.

MATERIAL AND METHODS

This research method uses a quantitative correlation method with a cross-sectional design. The number of samples using consecutive sampling techniques was calculated by the Slovin formula, with a margin of error of 5%, and the results obtained were 185 respondents. The inclusion criteria in this study were respondents ≥18 years old who were on hemodialysis for at least 3 months. Data collection was conducted from January to March 2024. Subjects who presentedconsecutively and met the research criteria were included until the number of samples calculated using the Slovin formula was reached. Data were collected through structured interviews, questionnaires, and electronic medical records. Written informed consent was obtained from the patients who agreed to participate in the study.

MAIN POINTS

- Family support is high, but it does not necessarily improve the quality of life of hemodialysis patients. These findings challenge the notion that social support always positively impacts health-related quality of life.
- Family support plays a more significant role in reducing depression than improving quality of life. These findings highlight the importance of emotional support in the psychological well-being of patients.
- Depression has been shown to have a significant impact on the quality of life of hemodialysis patients. This result suggests that mental health should be their primary care focus.
- The study provides a new perspective on the psychosocial dynamics of hemodialysis patients, emphasizing that although family support is high, other factors may further determine their quality of life.
- These results open up new opportunities for psychosocial-based interventions that are more effective in improving patient well-being.

The research instrument consisted of a family support questionnaire using PSS-Fa (Perceived Social Support-Family Scale), which comprised 20 questions, with alpha Cronbach validity and reliability test scores of 0.91 and 0.93. The depression questionnaire used BDI II (Beck Depression Inventory II), which comprised 21 question items tested for validity by confirmatory factor analysis, and the reliability test with alpha Cronbach obtained a result of 0.80. To measure HRQoL, the researchers used KDQOL SF-36 (Kidney Disease Quality of Life), which comprised 36 items tested for construct validity through confirmatory factor analysis and reliability with an alpha Cronbach of 0.88.

The data analysis used was univariate and bivariate. Univariate analysis was conducted to determine the characteristics of respondents, the level of family support, the level of depression, and the level of HRQoL. Bivariate analysis used Kendall's Tau test because the data scale of the 3 variables is ordinal, and the number of samples is more than 50. Kendall's Tau test is used to determine the relationship between family support and depression level, family support and HRQoL, and the relationship between depression level and HRQoL. The Ethics Commission of Aisyiyah University of Yogyakarta has approved the study protocol with reference number 1866/KEP–UNISA/I/2024 (Date: 29.01.2024).

RESULTS

Table 1 presents the demographic and clinical characteristics of 185 respondents in this study. Most respondents were 45-59 years old (54.1%, n = 100), and more than half were men (54.6%, n = 101). Regarding education, most respondents had their last level of education as senior high school (38.9%, n = 72) and were married (82.7%, n = 153). All respondents in this study were recorded as having health insurance provided by the Indonesian government (100%, n = 185). From the clinical aspect, more than half of the respondents (57.8%, n = 107) had undergone hemodialysis therapy for more than 2 years.

Table 2 shows that the majority of respondents in this study have high family support (91.9%, n = 170), health-related quality of life/HRQoL in the moderate category (65.9%, n = 122), and do not experience depression (80%, n = 148). Based on the respondents' answers to the PSFa questionnaire (Table 3), the highest family support was found in the instrumental support domain (χ = 3.63), while the lowest was emotional support (χ = 3.30). In Table 4, the HRQoL variable measured using KDQoL SF-36, the highest average score was in the mental health aspect (χ =

Table 1. Respondent Characteristics

Respondent Characteristics		Frequency (F)	Percentage (%)
Age, years	20-44	42	22.7
	45-59	100	54.1
	≥60	43	23.2
Gender	Male	101	54.6
	Female	84	45.4
Qualification	Elementary school	55	29.7
	Junior high school	31	16.8
	Senior high school	72	38.9
	Diploma/bachelor's degree	27	14.6
Work	Does not work	81	43.8
	Trader	16	8.6
	Farmer	12	6.5
	Government employees	12	6.5
	Self-employed	20	10.8
	Army and police	3	1.6
	Laborelr	41	22.2
Marital status	Single	13	7.0
	Married	153	82.7
	Divorced	6	3.2
	Widow	13	7.0
Insurance	No insurance	0	0.0
	Government health insurance	185	100.0
Duration of hemodialysis, years	≤ 2	78	42.2
	> 2	107	57.8

79.83), while the topic with the lowest score was physical restriction (χ = 46.49). The measurements using the BDI-II showed that the most complained problems were the physiological or vegetative aspects (χ = 162.00, Table 5), which included changes in sleep patterns, appetite, and loss of interest in sexual activity. Meanwhile, the aspect with the lowest score was motivational (χ = 34.00, Table 5), which included pessimism and suicidal thoughts.

Table 6 presents the bivariate analysis results, which show no relationship between family support and HRQoL, with a *P*-value of .262. However, a weak association was found between family support and depression (*P*-value of .040, τ = 0.147). In addition, Table 6 also shows a moderate relationship between depression and HRQoL (*P*-value of .000, τ = 0.425).

DISCUSSION

Most CKD patients (54.1%, Table 1) were aged 45-59 years. Kidney function tends to decrease gradually after age 40. Previous studies[10] have indicated that pre-elderly individuals have a higher risk of hypertension, diabetes, and heart disease, conditions commonly associated with CKD. Most patients were male (54.6%; Table 1), which may be associated with testosterone's

Table 2. The Level of Family Support, Depression, and Quality of Life

Variable		Frequency (F)	Percentage (%)
Family support levels	Low family support	1	0.5
	Moderate family support	14	7.6
	High family support	170	91.9
Health-related quality of life levels	Low quality of life	16	8.6
	Moderate quality of life	122	65.9
	High quality of life	47	25.4
Depression levels	Major depression	5	2.7
	Moderate depression	10	5.4
	Mild depression	22	11.9
	Not depressed	148	80.0

potential role in kidney deterioration.[11] Testosterone may influence CKD progression by increasing TGF-β production (linked to renal fibrosis) and reducing nitric oxide (NO) production, possibly impairing vascular function. In contrast, estrogen may offer protective effects.[12]

Regarding education level, most patients had a secondary school background (38.9%; Table 1), possibly reflecting limited access to health information and healthcare. This is commonly observed in populations with lower socioeconomic status, who may also face barriers to quality services, regular checkups, and healthy lifestyle practices.[13] Unemployment was also prevalent (43.8%, Table 1). Factors potentially associated include reduced physical capacity, standard in advanced CKD (e.g., fatigue, dyspnea), and the demanding nature of dialysis schedules.[14] Additionally, emotional and physiological burdens such as depression and anxiety may impact employment. Medical restrictions may also contribute to limited work opportunities.[15]

Table 3. Family Support's Domain

Family Support Domain	Question Number	Mean
Instrumental support	1, 11, 14, 17	3.63
Informational support	4, 6, 10, 15	3.54
Assessment support	2, 7, 9, 13, 16, 18	3.30
Emotional support	3, 5, 8, 12,19, 20	3.30

Table 4. Variable of Health-Related Quality of Life

Quality of Life Variable	Question Number	Mean
Physically function	3, 4, 5, 6, 7, 8, 9, 10, 11, 12	48.33
Physically limitation	13, 14, 15, 16	46.49
Body pain	21, 22	75.15
General Health	1, 2, 33, 36	57.73
Vitality	23, 27, 29, 31	65.96
Social function	20, 32	73.88
Emotional limitation	17, 18, 19	64.82
Mental health	24, 25, 26, 28, 30	79.83

Table 5. Beck's Symptom Categorization

Categorization	Symptoms (question number)	Total Score (n = 185)	Mean
Affective	Sadness (Q.1) Loss of pleasure (Q.4) Indecisiveness (Q.13) Crying (Q.10)	61 67 49 50	56.80
Motivational	Pessimism (Q.2) Suicidal thoughts (Q.9)	62 6	34.00
Cognitive	Loss of interst (Q.12) Concentration difficulties (Q.19)	34 63	48.50
Cognitive distortions	Past failures (Q.3) Guilty feeling (Q.5) Punishment feeling (Q.6) Self-dislike (Q.7) Self-criticalness (Q.8) Worthlessness (Q.14)	46 82 34 55 54 43	52.30
Behavioral	Agitation (Q.11) Loss of energy (Q.15) Irritability (Q.17) Tiredness or fatigue (Q.20)	72 130 56 170	107.00
Physicological or vegetative	Changes in sleep (Q.16) Changes in appetite (Q.18) Lost of interest in sex (Q.21)	197 111 179	162.00

Some occupations may not accommodate individuals with CKD due to infection risk, physical limitations, or exposure to harmful environments. In this study, 57.8% of respondents had undergone hemodialysis for over 2 years (Table 1). As a progressive condition, CKD often requires lifelong management. Hemodialysis helps remove waste and excess fluid from the body, thereby improving survival,.[16]

Many respondents were married (82.7%, Table 1) and reported high family support (91.9%, Table 2). Family support plays a key role in patient care. Spouses often act as primary caregivers.[17] In this study, instrumental support scored highest (3.63), followed by informational (3.54) and emotional and assessment support (3.30, Table 3). Marriage may provide better support through stability and shared involvement in medical decisions.[18] Family presence can foster emotional resilience and improve adherence to treatment.[19] Prior studies show that family caregivers often help patients monitor symptoms,[20] maintain treatment schedules,[21] and provide motivation during difficult periods.[22]

HRQoL, measured using the KDQoL SF-36, reflects physical, mental, social, and environmental well-being.[23] Most participants (65.9%) had moderate HRQoL (Table 2). The lowest scores were found in physical function (48.33) and physical restriction (46.49), likely due to fatigue, frailty, or limited mobility from dialysis (Table 4). Enhancing HRQoL may require tailored

Table 6. Bivariate Test with Kendall Tau

Bivariate Test	Correlation Coefficient	Sig. (2-tailed)	Interpretation
Family support vs health-related quality of life	0.080	0.262	Hypothesis rejected; no correlation
Family support vs. depression level	0.147	0.040	Hypothesis accepted: weak relationship between 2 variables
Depression vs health-related quality of life	0.425	0.000	Hypothesis accepted: a reasonably strong relationship between 2 variables

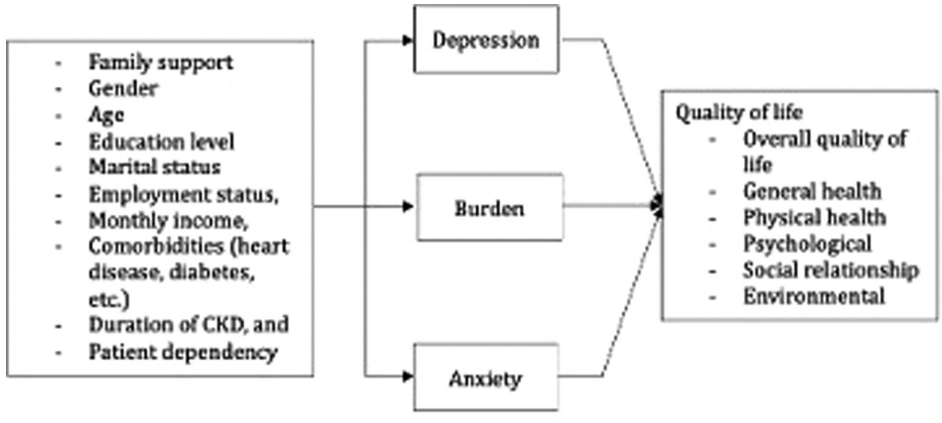

Figure 1. Conceptual Framework.

physical programs and multidisciplinary care.[24] No significant association was found between family support and HRQoL (*P*-value = .262, Table 6), indicating that other factors such as health status, education, or access to care may have a more substantial influence. Prior studies suggest that family support may affect HRQoL indirectly through physiological or existential pathways.[25]

Depression is a mood disorder involving sadness, loss of interest, and various cognitive or physical symptoms. In this study, 80.0% of hemodialysis patients were not depressed (Table 2), which may relate to protective factors such as social support, spiritual beliefs, medical care, or adaptive coping. Analysis of BDI II domains (Table 5) showed that psychological symptoms (162.00) were most prominent, followed by behavioral (107.00), affective (56.80), cognitive distortion (52.30), cognitive (48.50), and motivational (34.00). These findings suggest that physical complaints may be more influential on mood than emotional or cognitive components. This aligns with prior studies indicating that fatigue and somatic symptoms often accompany mild depressive states in CKD patients, though the presence of family and community support may reduce their impact.[26]

Family support was statistically associated with depression levels (*P* = .040, Table 6), although the correlation was weak (r = 0.147, Table 6), indicating a modest contribution. Family involvement may be related to reduced emotional distress and function as a psychological buffer.[18] However, other variables such as comorbidities, treatment duration, sleep quality, socioeconomic conditions,[15] and coping strategies may have a stronger relationship with depression among hemodialysis patients.[27]

This study also found a significant relationship between depression levels and HRQoL (*P* = .000, r = 0.425; Table 6), indicating a moderate correlation. Depression may be related to lower motivation and impairing functioning across physical, emotional, and social domains, thus influencing the perception of HRQoL. While family support was not directly associated with HRQoL, its relationship with depression may indicate an indirect role (Figure 1). Mental health, in turn, appears to be an essential factor related to HRQoL in CKD patients.[28]

These findings have implications for clinical practice, particularly regarding multidisciplinary approaches to mental health support and quality of life in CKD care. Routine depression screening in patients with reduced HRQoL is advisable. Interventions aimed at managing depression, including cognitive behavioral therapy and appropriate pharmacologic treatment, may be associated with improvements in HRQoL.[29] Incorporating family involvement into counseling and care programs may offer added benefits. Physical activity and holistic strategies also warrant attention, as they may relate to mental health and HRQoL outcomes.[30]

Limitations of this study include the omission of external factors such as comorbidities and medication use, which can affect depression and HRQoL—additionally, the cross-sectional design limits causal inference. Findings should be interpreted cautiously, and future longitudinal research is recommended to explore these associations better.

This study found high levels of family support and moderate HRQoL among hemodialysis patients. Depression was generally low, and family support showed a weak but statistically significant relationship with depression levels. No significant relationship was found between family support and HRQoL. Depression, however, was moderately associated with HRQoL. These findings suggest that while family support may contribute to mental well-being, other factors play a more substantial role in shaping HRQoL and depression among CKD patients.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author.

Ethics Committee Approval: This research has obtained ethical approval from the Health Research Ethics Committee of Aisyiyah University of Yogyakarta, Indonesia (Date: 29.01.2024, Number: 1866/KEP–UNISA/I/2024).

Informed Consent: Written informed consent was obtained from patients who agreed to take part in the study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – D.C.A., E.S.A.; Design – D.C.A., E.S.A.; Supervision – E.S., S.F., W.W.; Resources – E.S.A.; Materials – E.S.A.; Data Collection and/or Processing – E.S.A.; Analysis and/or Interpretation – D.C.A., E.S.A.; Literature Search – D.C.A.; Writing Manuscript – D.C.A.; Critical Review – E.S., S.F., W.W.; Other – E.S.A.

Acknowledgments: The authors would like to thank Santoso, A.Md. Kep, Kristiana Ari Gunawan, Danik Sri Maharani, and Vidiya Ambarwati for their assistance and cooperation during the start of this research.

Declaration of Interests: The authors have no conflict of interest to declare.

Funding: The authors declared that this study has received no financial support.

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