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The Challenges Faced by Hemodialysis Patients in Maintaining Quality of Life: A Scoping Review

Rana A. M. Albatta[1], *Fitri Arofiati*[2]

[1,2]Master of Nursing, Postgraduate Department, Universitas Muhammadiyah Yogyakarta, Indonesia

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CORRESPONDING AUTHOR

***Corresponding author, email:**

fitri.arofiati@umy.ac.id

ABSTRACT

Background: Chronic kidney disease (CKD) affects 9.1% of the global population and is a major cause of mortality. Hemodialysis, the primary treatment for end-stage renal disease (ESRD), sustains survival but creates significant psychological, physical, social, and clinical challenges that reduce quality of life.

Methods: This scoping review followed Arksey and O'Malley's framework, Joanna Briggs Institute (JBI) methodology, and PRISMA-ScR guidelines. Six databases: Scopus, Sage, PubMed, Springer, Emerald and ScienceDirect from the period of 2019 to 2024 were searched for studies on adult hemodialysis patients addressing quality of life. Ten studies met the inclusion criteria and were charted and thematically analyzed.

Results: The studies (n = 10) were conducted in Asia, the Middle East, and South America, with 12–271 participants. Four challenge domains were identified: (1) psychological challenges; depression and anxiety were the most frequent predictors of poor quality of life; (2) physical challenges; fatigue, pain, anemia, and dialysis-related complications limited daily functioning and work; (3) social challenges; isolation, stigma, and caregiver burden reduced participation; and (4) clinical challenges; comorbidities, infections, and adherence issues further worsened outcomes.

Conclusion: Hemodialysis patients face complex, overlapping burdens. Multidisciplinary interventions that integrate psychological care, symptom control, social support, and stigma reduction are needed. Future research should use longitudinal and interventional approaches to improve long-term patient outcomes.

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INTRODUCTION

According to the Global Burden of Disease (GBD) 2017 study, chronic kidney disease (CKD) affected approximately 9.1% of the global population, corresponding to 697.5 million cases worldwide. It's prevalence is high among older adults and women (1). CKD is currently the 12th leading cause of death worldwide, accounting for more than 1.2 million deaths each year (2). This growing prevalence places a substantial burden on both health systems and individuals across the globe. Consequently, understanding the multifaceted challenges faced by CKD patients, particularly those undergoing hemodialysis, is essential for improving care and outcomes.

As CKD progresses to end-stage renal disease (ESRD), hemodialysis becomes the primary treatment option. While hemodialysis is lifesaving, it imposes profound challenges that affect multiple aspects of patients' lives (3). These challenges extend beyond medical management to encompass physical, psychological, and social domains, creating multidimensional stress that patients must adapt to in daily life (4).

Fatigue is one of the most common and distressing symptoms experienced by hemodialysis patients, affecting 60–80% of individuals. It contributes to weakness, poor treatment adherence, missed dialysis sessions, depression, and significant financial burdens for both patients and society (5–7). Nutritional challenges further complicate care, with energy and protein deficiencies reported in 52–92% and 32.3–81% of patients, respectively (8). Although restrictions on fluid and sodium intake are medically necessary, they often reduce the enjoyment of food and social eating. When poorly managed, these restrictions can lead to complications such as hypertension and edema (9,10). Beyond physical health, the psychological burden of hemodialysis is substantial. Patients frequently report anxiety about their health and families, uncertainty about the future, and depressive symptoms linked to a perceived loss of control over their bodies. These factors collectively undermine long-term motivation, treatment adherence, and overall well-being (11–13).

Hemodialysis treatment schedules require a significant time commitment, leaving patients with limited opportunities for social interaction. Many of them report experiencing social isolation and reduced participation in daily activities (14). While family support can alleviate these challenges, not all patients benefit from it. A lack of support can lead to feelings of alienation and diminish overall quality of life (15). The impact of CKD and hemodialysis rarely affects a single domain; instead, physical, psychological, and social challenges interact in complex ways (16). For instance, chronic fatigue can limit mobility, leading to social isolation, which in turn exacerbates depression (17). Similarly, dietary restrictions not only affect physical health but also influence social experiences and emotional well-being. This interplay underscores the need for an integrated approach to understanding and addressing these challenges (18).

Although research has examined many aspects of hemodialysis, individual studies often focus on single challenges, such as fatigue, within specific populations or regions. This underscores the need for more integrative research that synthesizes these perspectives to achieve a broader understanding (19). While individual challenges are well documented, there is limited evidence on how these issues interact to affect overall quality of life. A comprehensive synthesis mapping these multidimensional challenges within a unified framework across diverse settings is therefore still needed (20).

This scoping review aims to address these gaps by offering a comprehensive perspective on the multifaceted challenges faced by hemodialysis patients worldwide. It further seeks to highlight the interconnectedness of physical, psychological, and social difficulties, and to identify areas where targeted interventions can improve health outcomes and quality of life.

METHOD

This study adopts a scoping review approach, following the guidelines outlined by the Joanna Briggs Institute (JBI) and the PRISMA-ScR guidelines for scoping reviews (21,22). A scoping review design is particularly appropriate for examining broad and interconnected challenges and highlighting areas requiring further targeted investigation (23). Given that the aim of this study was to explore and map the range of challenges rather than to assess the effectiveness of a specific intervention, this approach was considered more appropriate than a systematic review. The review was conducted to map the breadth of existing evidence from both quantitative and qualitative research. In contrast to systematic reviews, which focus on narrowly defined questions and predetermined study designs, scoping reviews encompass a wider range of literature and research approaches. The process is iterative and reflexive, allowing researchers to revisit stages such as identifying search terms, selecting studies, and charting data to ensure comprehensive coverage. By doing so, scoping reviews offer an evolving synthesis of knowledge while remaining inclusive of diverse forms of evidence and methodological traditions (24).

We conducted this scoping review following the five-step methodological framework proposed by Arksey and O'Malley (2005), which consists of 1) identifying the research questions, 2) identifying relevant studies, 3) selecting studies, 4) charting the data, and 5) collating, summarizing, and reporting the results.

Stage 1: Identifying the research question

The research question should be directly linked to the review's objectives and provide clarity and coherence throughout the review (25). This review employs the PCC (Population, Concept, Context) framework developed by the Joanna Briggs Institute (23). In this study, the PCC framework consists of 1) Population: adults with end-stage renal disease receiving hemodialysis, 2) Concept: challenges, barriers, or difficulties in maintaining quality of life, and 3) Context: hemodialysis treatment settings across different healthcare systems and geographical locations.

Guided by the PCC framework, the objectives of this review were translated into a focused research question. Formulating this question ensured alignment between the conceptual framework and the methodological steps of study selection, data extraction, and evidence synthesis. Accordingly, the following research question was identified: What are the challenges faced by hemodialysis patients in maintaining quality of life?

Stage 2: Identifying relevant studies

To identify relevant studies, we employed several keywords informed by our research questions. These terms, derived from Medical Subject Headings (MeSH), were combined as follows: "Challenges" OR "Difficulties" AND "hemodialysis" OR "haemodialysis" OR "Dialysis" AND "Quality of life" OR "QoL" AND "Patients". The academic articles were sourced from six international research databases: Sage, PubMed, ProQuest, ScienceDirect, Emerald, and Scopus from 2019 to 2024. Additionally, a hand search was conducted to identify relevant articles cited in studies included in the database searches.

Stage 3: Study selection

For article selection, the following inclusion criteria were applied: 1) articles published in English, 2) research focusing on the quality of life, 3) studies employing qualitative or quantitative methods, 4) studies involving CKD patients undergoing hemodialysis treatment, and 5) publications from the past 5 five years. The exclusion criteria were: 1) non-English articles, 2) review papers, 3) intervention-based studies, and 4) articles for which the full text was unavailable.

A comprehensive search was conducted across all previously selected databases, and screening the reference lists of the included studies yielded an initial retrieval of 1,716 records. After the removal of duplicates, 1,691 articles remained for title and abstract screening. Mendeley Desktop was used as a reference management tool to facilitate this process. Two reviewers screened independently, using the predefined exclusion criteria to remove studies with irrelevant titles or abstracts. Eighty-five articles were retrieved for full-text evaluation. Seventy-four of these were reviewed independently and categorized into three exclusion categories: 1) irrelevant study design, 2) wrong population, and 3) wrong outcomes. Ten articles met the inclusion criteria and were retained for the final analysis. Study selection was guided by research questions rather than by reviewers' appraisal judgment, as outlined by Arksey and O'Malley (2005). Figure 1 displays the whole selection process.

Stage 4: Charting the data

At this stage of the review, a summary chart was developed to organize the main information drawn from the selected articles. Within the context of systematic reviews, this step is commonly known as data extraction. The chart captures both broad study characteristics and details specific to the research focus (24). For this review, data were extracted from 10 articles. Microsoft Excel was used to manage the chart, which included entries such as author, year of publication, country, research design, sample size, challenge type, and outcome. The extent of information recorded was determined through consensus between the two authors.

Stage 5: Collating, summarizing, and reporting the results

In a scoping review, the results are not formally synthesized in the way they are in systematic reviews. Instead, the findings can be organized and presented through different strategies, such as grouping them into themes that emerge across the included studies. These themes are shaped by recurring concepts within the literature and are structured in relation to the research questions (24).

RESULTS AND DISCUSSION

1. Study selection

The process of selecting articles followed the PRISMA-ScR flow diagram, as shown in

Figure 1 PRISMA-ScR Flow Diagram. A total of 1,716 records were identified from six databases (Scopus = 456; Sage = 15; PubMed = 209; Springer = 15; Emerald = 258; ScienceDirect = 760) and additional references (n = 3). After the removal of 25 duplicates, 1,691 records were screened by title and abstract, resulting in the exclusion of 1,606 records. Eighty-five reports were sought for full-text retrieval, of which 11 could not be obtained. The remaining 74 reports were assessed for eligibility; 12 were excluded due to irrelevant study design, 16 due to unsuitable population, and 36 due to irrelevant outcomes. Ultimately, 10 studies were included in the review, and their characteristics are summarized in **Error! Reference source not found.**

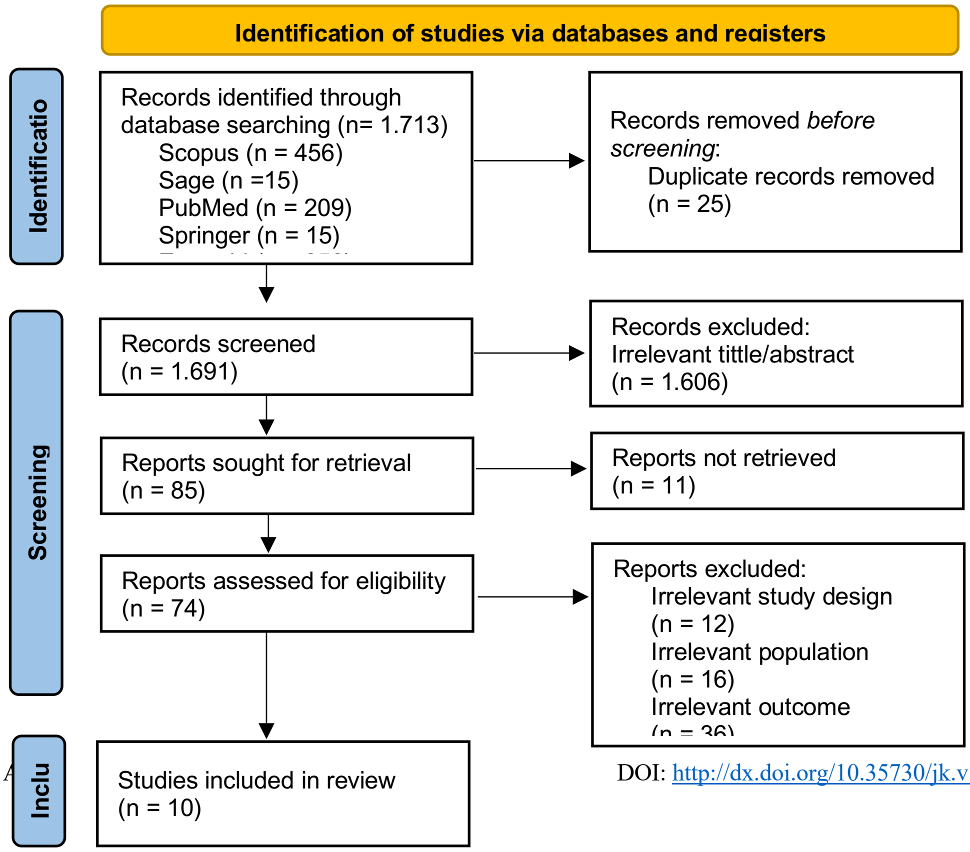

Figure 1 PRISMA-ScR Flow Diagram

2. Study characteristics

The included studies were published between 2020 and 2024, and conducted in Palestine, Brazil, India, Ethiopia, Indonesia, Saudi Arabia, China, and Jordan. Most used a cross-sectional design (n = 9), with one qualitative study. Sample sizes ranged from 12 to 271 participants, with mean ages typically in the 30s to 60s. Several studies had more male participants, while others reported balanced gender groups. Quality of life was most often assessed using validated instruments such as the KDQOL-SF-36, with some studies also incorporating measures of depression, social support, or spirituality. A summary of the included studies, including design, sample size, main challenge theme, and outcomes, is presented in **Error! Reference source not found.**.

Table 1 Extraction Data from Studies

No	Author (Year); Country	Study Design	Sample Size	Main Challenge Themes	Outcome
1	(26); Indonesia	Cross-sectional	239 patients	Psychological, Social - depression influenced QOL; family support and spirituality as coping	Depression predicted poor QOL among women; spirituality improved coping.
2	(27); Saudi Arabia	Cross-sectional	101 patients	Psychological - depression, anxiety, cognitive impairment, somatic symptoms	Anxiety and cognition issues reduced QOL; marriage was protective.
3	(28); Palestine	Cross-sectional	93 patients	Physical, Social - impaired physical/psychosocial factors, age, gender, occupation	QOL was significantly impaired; physical & psychosocial issues were strong predictors.
4	(29); China	Cross-sectional	190 patients	Psychological, Clinical - depression, anxiety, somatization, diabetes, biochemical factors	Psychological distress was strongly associated with reduced QOL across domains.
5	(30); Brazil	Cross-sectional	108	Physical, Social - loss of employment, fatigue, anemia, scheduling conflicts	Employment declined from 78.9% to 39.8%; employed patients had better QOL.
6	(31); Jordan	Cross-sectional	70	Psychological, Physical - depression, fatigue, somatic symptoms, low physical functioning	Depression and physical impairment reduced overall QOL; highlighted psychosocial support need.
7	(32); Palestine	Cross-sectional	271	Physical & Socioeconomic - comorbidities (diabetes, hypertension), age, income, education	Lowest scores in physical role, work status, and emotional role; overall low QOL.
8	(10); Brazil	Cross-sectional	183	Clinical / Psychological - infections, anemia, edema, cramps, low medication adherence, depression	Depression and complications (pain, weakness) reduced QOL across multiple domains.
9	(33); India	Cross-sectional	110	Social & Self-Management - poor social support, weak self-management practices	mean QOL score was 56.3; lowest in social relations domain; better support/self-management improved QOL.
10	(34); Ethiopia	Cross-sectional	12	Financial / Social / Psychological - cost of dialysis, inaccessibility,	Six themes: seriousness of disease, financial

				restricted lifestyle, dependency, psychological distress	constraints, restricted life, dependency, psychological distress.

1.1.1. Error! Reference source not found. Psychological Challenges

Psychological difficulties were the most frequently reported challenges across the included studies. (26) (n = 239, Indonesia) found that depression was a significant predictor of poor quality of life, particularly among women, while spirituality served as a coping factor. (27) (n = 101, Saudi Arabia) reported high rates of depression, anxiety, cognitive impairment, and somatic symptoms, with anxiety and cognition issues independently predicting lower quality of life. Similarly (29) (n = 190, China) showed that depression, anxiety, somatization, and phobic anxiety were associated with poor quality of life, especially among patients with comorbid diabetes. (31) (n = 70, Jordan) emphasized the combined impact of depression and physical impairment on quality of life. While (33) (n = 110, India) highlighted poor self-management and weak social support as sources of emotional distress. Furthermore, (34) (n = 12, Ethiopia) described psychological distress, hopelessness, and dependency from patient narratives.

1.1.2. Physical Challenges

Physical limitations were commonly described and included fatigue, anemia, pain, cramps, and dialysis-related symptoms such as edema and infections. (10) (n = 183, Brazil) identified frequent complications that impaired functional capacity. (32) (n = 271, Palestine) reported that the lowest quality-of-life scores in the physical role and work status domains, influenced by comorbidities such as diabetes and hypertension. (30) (n = 108, Brazil) highlighted fatigue, anemia, and loss of stamina as major barriers to maintaining employment, while (31) (n = 70, Jordan) emphasized fatigue and somatic symptoms as central impairments.

1.1.3. Social Challenges

Social challenges were reported across multiple contexts. (33) Ramesh et al. (n = 110, India) found that low social support and weak self-management were strongly associated with lower quality-of-life scores in the social domain. (28) (n = 93, Palestine) identified gender, occupation, and socioeconomic status as significant predictors of psychosocial outcomes. (30) (2023; n = 108, Brazil) documented a steep decline in employment after starting dialysis, with employed patients reporting better quality of life. (34) (2021; n = 12, Ethiopia) described dependency and restricted lifestyle as major social burdens.

1.1.4. Clinical Challenges

Clinical comorbidities and treatment complications further reduced quality of life. (32) (n = 271, Palestine) found that diabetes and hypertension significantly affected both physical and mental health scores. (10) (n = 183, Brazil) noted that adherence difficulties and complications such as anemia and infections compounded the burden of illness. (29) (n = 190, China) identified comorbid diabetes, biochemical disturbances, and longer dialysis duration as predictors of poorer mental health and quality of life. Similarly, (27) (n = 101, Saudi Arabia) highlighted how psychosocial disorders interacted with comorbidities and duration of dialysis to negatively affect outcomes.

Collectively, the findings indicate that psychological and physical challenges are the most consistently reported determinants of reduced quality of life, while social and clinical factors frequently interact to intensify this burden. Across different geographical contexts, the evidence demonstrates a consistent pattern of multidimensional vulnerability, suggesting that quality of life in hemodialysis patients is shaped by overlapping and interdependent domains rather than by isolated factors.

DISCUSSION

Psychological difficulties emerge as the most frequently reported challenge across the included studies. Emotional stress, anxiety, and depression are identified as common challenges faced by hemodialysis patients. These psychological difficulties are primarily associated with the long-term nature of hemodialysis treatment. Several studies, including (26–28,31), found that depression and anxiety are the most common psychiatric disorders among hemodialysis patients, with higher prevalence rates compared to the general population (35). Studies by (10,30,34) found that hemodialysis patients frequently experience hopelessness and helplessness relate to illness. (36) also found that depression is highly prevalent among hemodialysis patients, with 50% experiencing severe depression and 43.34% reporting moderate depression. This high prevalence of psychological distress is associated with feelings of hopelessness and a perceived loss of control over their condition. The findings underscore the necessity of psychological interventions to address mental health issues, as they play a crucial role in improving the quality of life for hemodialysis patients.

Physical challenges, identified in the majority of studies reviewed, primarily include fatigue, chronic pain, and limitations imposed by strict treatment protocols (30–32). Physical limitations significantly impair daily activities, restrict employment opportunities, and adversely affect patients' overall quality of life. (37) also found that hemodialysis patients frequently experience issues such as muscle weakness. These physical symptoms often cluster together, producing a cumulative symptom burden that makes it difficult for patients to maintain a normal lifestyle. As a result, the quality of life for these patients is substantially diminished. (10,34). revealed that hemodialysis patients endure a great number of physical symptoms, including weakness, pain, muscle cramping, and sleep disturbances, that significantly impair quality of life and limit patients' ability to lead active and meaningful lives. Another systematic review and meta-analysis by (6) indicated that patients on renal dialysis experience a high symptom burden, for example, fatigue, disturbance in sleep, and other physical challenges. These symptoms negatively impact their quality of life. The findings underscore the need for more sophisticated management protocols to alleviate such burdens and further enhance the health of hemodialysis patients to promote a more productive and interactive life.

Several studies reported social challenges among hemodialysis patients, including reduced participation in family and social activities, leading to loneliness and isolation. (10,28) unveiled the long process of dialysis that disrupts daily routine activities, making it difficult for patients to participate in social events, thus leading to social withdrawal and greater emotional distress. This isolation further aggravates emotional distress, with patients feeling disconnected and experiencing a poorer quality of life. Another study by (14) identified that the time-consuming nature of maintaining hemodialysis significantly disrupts daily activities, leading to social withdrawal. This isolation further aggravates emotional well-being, with patients likely to feel disconnected from social interaction, negatively impacting the overall quality of life. According to (33), it has been found from a study that the additional burden experienced by family members, e especially the caregivers, frustrates and leads to emotional burnout and weakens familial relationships. Self-stigma and feelings of shame frequently emerge due to the stigma related to chronic kidney diseases. In accordance with this (38) found that patients with chronic renal failure as well as their caregivers experiencing burden and family stress which require emotional load management such as fatigue, physical exhaustion, tension, and anxiety. This cumulative burden can compromise family relationships frequently resulting in caregiver frustration and emotional exhaustion.

Additionally, the stigma of chronic kidney disease is also responsible for self-stigma and feelings of shame on the part of patients as well as their families. (10,28) suggested that stigma contributes to patient isolation. These social problems not only affect the emotional well-being of the patient but also complicate their treatment compliance and quality of life. Consistent with the findings of a study by (39), research indicates that stigma significantly affects the quality of life of patients on maintenance hemodialysis, and this is linked with most domains of the SF-36 scale. Internalized stigma is related to uremic pruritus and the duration of hemodialysis treatment. Such social issues might discourage patients from disclosing their condition. In extreme situations, this may hinder medication compliance, thus affecting their overall quality of life.

Clinical concerns, though reported in a smaller proportion of studies, remain an important part of the hemodialysis burden. (10,29) highlight the broad clinical concerns suffered by individuals on hemodialysis. (10) report complications such as anemia, infections, and pain that worsen both physical and psychological status, resulting in reduced quality of life (QOL). A systematic review conducted by (40) reported that hemodialysis patients often develop complications such as anemia, infection, and pain, which significantly aggravate both their physical and psychological state. These complications result in a lower quality of life (QOL) in chronic kidney disease patients. (29) emphasize the notably high prevalence of mental health issues, such as depression and anxiety, in these patients, which also significantly affect their QOL. Some of the most significant risk factors for poorer mental health are comorbidities such as diabetes, hypertension, and heart disease, along with social determinants such as marital status and educational level. It is in line with systemic review and meta-analysis by (41) which reported that MHD patients experience extreme psychological distress in the form of anxiety and depression, which is harmful to their health-related quality of life (HRQOL). Additionally, comorbidities, such as diabetes and heart disease, and dialysis-related complications, such as pain and fatigue, also exacerbate these issues.

CONCLUSION

This scoping review shows that hemodialysis patients face multidimensional challenges affecting their quality of life, including psychological distress, physical symptoms, social isolation, and clinical complications. Moreover, psychological and physical burdens were most frequently reported, social and clinical factors often compounded these difficulties. Current research is limited by cross-sectional designs and reliance on self-reported measures, highlighting the need for longitudinal and interventional studies. A holistic, multidisciplinary approach is essential to improve not only survival but also the overall well-being and lived experiences of patients undergoing hemodialysis.

RECOMMENDATIONS

Improving the quality of life of hemodialysis patients requires holistic care that integrates psychological support, effective symptom management, and strong family and social support systems. Expanding access to dialysis services, encouraging interdisciplinary teamwork, and reducing stigma are also essential. Future research should prioritize longitudinal and interventional studies to better address patients lived experiences and long-term needs.

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AUTHOR CONTRIBUTION

RA and FA conceptualized the study, carried out the scoping review, organized the methodologies, screened manuscripts from multiple databases, drafted the results, and submitted the manuscript. All written content produced by RA and FA is entirely original.

CONFLICT OF INTEREST

The authors confirm that they have no conflicts of interest related to the authorship or publication of this article.

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