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Analysis of Factors Affecting the Quality of Life of Chronic Kidney Disease Patients Undergoing Hemodialysis

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Abstract

Background: Chronic Kidney Disease (CKD) is a progressive and irreversible decline in kidney function, affecting more than 10% of the world's population with prevalence increasing every year.

Objective: This study aims to analyze the factors that affect the quality of life of CKD patients undergoing hemodialysis.

Methods: This research is a quantitative study with a cross-sectional design. The study population included all patients undergoing hemodialysis as many as 168 people, with a sample of 124 patients selected using consecutive sampling technique. The instrument used was a questionnaire that included Fatigue Assessment Scale (FAS), Hemodialysis Adequacy, Beck Depression Inventory (BDI-II), The End Stage Renal Disease Adherence Questionnaire (ESRD-AQ), and Kidney Disease Quality of Life (KDQOL-SFTM). Data analysis was performed using SPSS.

Results: Most respondents (62.9%) had a good quality of life, most patients (51.6%) experienced fatigue, and more than half of the respondents had adequate hemodialysis adherence scores (52.4%). Most patients had mild depression (42.7%) and the majority (63.7%) were compliant with treatment.

Conclusion: Factors affecting the quality of life of CKD patients undergoing hemodialysis include education level, employment status, gender, age, marital status, fatigue, hemodialysis adequacy, depression, and medication adherence.

Keywords: Chronic kidney disease, fatigue, hemodialysis, medication adherence, quality of life

INTRODUCTION

Chronic kidney disease (CKD) is a progressive and irreversible decline in kidney function, with more than 10% of the world's population affected and its prevalence increasing every year (1, 2). Projected to be the fifth leading cause of death by 2040 (3), the prevalence of CKD in Indonesia reached 8.6%, with an estimated 713,783 cases and an increase of 41.4% by 2025 (4, 5). Most patients require hemodialysis or kidney transplantation for survival and better quality of life (6).

Hemodialysis is the most commonly used renal replacement therapy, accounting for 69% of all renal therapy and 89% of all dialysis. Research shows 62.61% of hemodialysis patients experience fatigue, anxiety, depression, and various health problems that affect quality of life (7). In addition, hemodialysis reduces control of daily activities, leads to loss of independence, early retirement, and financial stress, thus reducing the quality of life of CKD patients (8).

According to Ashing-Giwa's CM-HRQoL Theoretical-Conceptual Model, quality of life is influenced by macro and micro factors. Macro factors include socio-economic (employment status, education level), demographic (gender, age, marital status), cultural, and medical services. Micro factors include disease-specific (fatigue, hemodialysis adequacy), general health condition, health beliefs and knowledge, and psychological (depression) (9, 10, 11).

Research shows that the quality of life of CKD patients undergoing hemodialysis is influenced by education and employment status (12, 13). Men have a better quality of life than women (9). The elderly tend to have poorer quality of life (10). Marital status also affects quality of life, with patients who are divorced or without a spouse having a lower quality of life (13). Fatigue is common and negatively impacts patients' quality of life (14).

Specific factors such as hemodialysis adequacy affect the quality of life of CKD patients. There is a relationship between hemodialysis adequacy and quality of life, where adequate hemodialysis improves quality of life (15). In addition, depression also affects the quality of life of CKD patients undergoing hemodialysis. Many patients experience anxiety and depression, which worsens their quality of life (11, 16, 17). Low medication adherence also has a negative impact on patients' quality of life (18).

OBJECTIVE

This study aims to determine the analysis of factors that affect the quality of life of patients undergoing hemodialysis.

METHODS

This type of research is a quantitative study with a cross-sectional design to determine the description of factors that affect the quality of life of patients undergoing hemodialysis conducted in April-May 2024. The population in the study were all patients undergoing hemodialysis totaling 168 people. The sample in this study amounted to 124 with consecutive sampling technique. Prior to data collection, permission was given and obtained from respondents. The questionnaire was used to collect data on respondent characteristics consisting of socioeconomics and demographics, Fatigue Assessment Scale (FAS), Hemodialysis Adequacy, Beck Depression Inventory (BDI-II) questionnaire sheet, The End Stage Renal Disease Adherence Questionnaire (ESRD-AQ), and Kidney Disease Quality of Life (KDQOL-SFTM). The questionnaire instruments used have been tested for validity and reliability and the results obtained that the instrument is valid and reliable. Ethical approval has been obtained from the Ethics Committee of the Faculty of Nursing, Andalas University (No.264.laiketik/KEPKFKEPUNAND). Data were analyzed using SPSS software. The analysis included descriptive statistical tests such as frequency distribution and percentages.

RESULTS

Table 1. Frequency Distribution of Characteristics of Respondents Undergoing Hemodialysis (n=124)

Characteristics	(f)	(%)
Education Level		
Primary Education	32	25.8
Secondary Education	54	43,5
Higher Education	38	30.6

Employment Status		
Employed	19	15.3
Not Working	105	84,7
Gender		
Male	54	43.5
Female	70	56.5
Age		
Adults (19-59 years)	97	78.2
Elderly (60+ years)	27	21.8
Marriage Status		
Not Married	18	14.5
Married	92	74.2
Widower/Widow	14	11.3

Based on table 1, it can be seen that almost half (43.5%) of the respondents have secondary education, almost all (84.7%) respondents are not working, most (56.5%) respondents are female, almost all (78.2%) respondents are adults (19-59 years old) and most (74.2%) respondents have married marital status.

Table 2: Frequency Distribution of Factors Affecting the Quality of Life of Respondents Undergoing Hemodialysis (n=124)

Variables	(f)	(%)
Quality of Life		
Good	78	62.9
Bad	46	37.1
Fatigue		
No Fatigue	26	21.0
Fatigue	64	51.6
Severe Fatigue	34	27.4
Hemodialysis Adequacy		
Adequate	65	52.4
Not Adequate	59	47.6
Depression		
No Depression	38	30.6
Mild	53	42.7
Moderate	24	19.4
Severe	9	7.3
Medication Adherence		
Compliant	79	63.7
Non-compliant	45	36.3

Based on table 2, it can be seen that most (62.9%) respondents have a good quality of life, most (51.6%) respondents experience fatigue, most (52.4%) respondents have adequate hemodialysis adequacy scores, almost half (42.7%) of respondents experience mild depression, most respondents (63.7%) are compliant with medication during hemodialysis.

DISCUSSION

1. Respondent Characteristics

Education Level

Almost half (43.5%) of CKD patients had a secondary education level, which is consistent with the research of Simorangkir et al. (2021) which found that most (51.5%) CKD patients had a secondary education level (19). Education plays an important role as a social determinant of health, with significant influence on health knowledge, awareness, access to health services, and healthy lifestyles (20). Higher education is generally associated with healthier lifestyles that can reduce the risk of CKD-causing factors such as hypertension and diabetes (19). However, higher education may also be associated with occupational stress and unhealthy lifestyles, which should be considered in approaches to the prevention and management of CKD.

Employment Status

Almost all (84.7%) CKD patients in this study did not work, in line with the findings of García et al. (2013) which showed that most (77%) of CKD patients did not work (21). Employment status is strongly associated with productivity and physical health, which is a major concern for CKD patients as the disease often causes fatigue, weakness and a range of other symptoms that limit daily activities (22). Patients undergoing hemodialysis often lose their productive years due to poor health conditions, making it difficult for them to maintain employment (23). As many as 65% of CKD patients report that their physical health interferes with most of the time they spend working and doing other activities.

Gender

Most (56.5%) of CKD patients were female, which is in accordance with Lim & Kwon's study (2023) which found that 53% of CKD patients were female (13). Gender may influence CKD risk through various mechanisms, including the role of hormones. In women, a decrease in estrogen levels at menopause may increase the risk of CKD (24). Unhealthy lifestyles, such as smoking and caffeine consumption, as well as other factors such as unhealthy diet, physical inactivity and higher stress in women also increase the risk of CKD. In addition, women are more susceptible to urinary tract infections and contraceptive-related health problems and pregnancy, which can increase the risk of kidney damage (25).

Age

Most (78.2%) of CKD patients were adults (19-59 years old), in accordance with research by Rammang (2023) which found most (67.6%) patients were in the age range of 46-60 years (26). Age is an important factor influencing the incidence of CKD, with an increased risk in older people as they are more likely to have chronic diseases such as diabetes and hypertension, which are major risk factors for CKD (10). Age is also associated with a decline in renal filtration rate and Renal Blood Flow starting from the age of 40, which contributes to the increased risk of CKD with age.

Marital Status

Most (74.2%) of CKD patients in this study had married marital status, in line with the study which found that almost all (79.9%) patients were married (18). Marital status can provide important social support for patients, which can help them manage the burden of chronic diseases such as CKD (27). However, marriage can also be a source of stress that can trigger or worsen health conditions, including the risk of chronic kidney disease (28).

2. Factors Affecting the Quality of Life of Respondents Undergoing Hemodialysis

Quality of Life

Most (62.9%) CKD patients had a good quality of life. These results support research by Irene et al. (2022) which found that almost half (47%) of patients had a good quality of life (29). Quality of life is a multidimensional parameter that indicates a patient's physical, psychological, and social well-being, and is particularly important for those with chronic diseases such as CKD as it reflects the extent to which patients feel hope, purpose, and meaning in their lives (28, 10). CKD affects various aspects of patients' lives, including fatigue, weakness, pain, nausea, and itching, which can cause discomfort and limit their daily activities. In addition, uncertainty of prognosis, fear of complications, and financial pressure due to medical expenses can lead to stress, anxiety, and depression, ultimately reducing the overall quality of life of CKD patients (31).

Fatigue

Most (51.6%) CKD patients experience fatigue, which is in accordance with the research of Wahyudi & Rantung (2024) which found that almost all (75%) CKD patients experience fatigue (32). Fatigue is an overwhelming subjective feeling that can affect daily activities and reduce a patient's physical and social endurance (26). Fatigue affects 20%-91% of CKD patients with prevalence increasing with disease stage. CKD patients often develop lactic acidosis more quickly than healthy controls, which can lead to muscle fatigue, high plasma lactate levels and altered respiration, all contributing to feelings of fatigue that interfere with their daily activities (33).

Hemodialysis Adequacy

Most (52.4%) CKD patients have adequate hemodialysis adequacy scores, in accordance with the research of Novinka et al. (2022) who found that almost all (76%) CKD patients had adequate hemodialysis adequacy scores (15). Hemodialysis adequacy is important to ensure that patients remain in optimal condition, with controlled uremia symptoms and better quality of life (34). Adequate hemodialysis helps prevent serious complications and improves the stability of patients' health conditions, allowing them to better carry out their daily activities (35).

Depression

Almost half (42.7%) of CKD patients in this study experienced mild depression, in line with the study of Mohamed et al. (2023) who found that almost half (37.5%) of CKD patients experienced mild depression (36). Depression is a common psychological disorder among CKD patients undergoing hemodialysis, often triggered by chronic physical conditions and prolonged mental stress. Symptoms of depression include feelings of moodiness, hopelessness, and unhappiness, as well as somatic symptoms such as anorexia and decreased blood pressure, all of which can worsen patients' perception of their quality of life. It is important to identify and treat symptoms of depression in CKD patients to improve their overall quality of life (16, 17).

Medication Adherence

Most CKD patients (63.7%) were compliant in undergoing treatment during hemodialysis, in accordance with the findings of Kusniawari (2018) which showed 56.7% of CKD patients were compliant in undergoing treatment. Adherence to medication is very important to ensure the success of hemodialysis therapy and prevent serious complications that can worsen the patient's health condition (37). High adherence to hemodialysis schedule is associated with improved quality of life, as it helps in maintaining fluid and electrolyte balance and reducing uncomfortable symptoms during the treatment process (38).

CONCLUSIONS

Most CKD patients undergoing hemodialysis have a good quality of life. The main factors affecting their quality of life are education level, employment status, gender, age, marital status, fatigue, hemodialysis adequacy, depression, and medication adherence. Interventions focusing on health education and psychosocial support are needed to improve patients' quality of life.

CONFLICT OF INTEREST

The authors declare no potential conflict of interest in connection with the research, authorship and/or publication of this article.

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