Study of the Elements Affecting the Patients' Quality of Life During Hemodialysis

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KEYWORDS	ABSTRACT
Quality of Life; Renal Dialysis; Motivation	Background: Patients receiving hemodialysis have a low quality of life because from both the health issues associated with their condition and the lifelong nature of their treatment. This research attempted to determine the variables influencing hemodialysis patients' quality of life. Utilizing a cross-sectional methodology and correlational design, the study, involving 100 respondents at the Sidoarjo Regional General Hospital, with 80 participants selected through simple random sampling. Quality of life was the dependent variable, while independent factors were age, length of hemodialysis, knowledge, pain perception, and motivation. A questionnaire was used to gather data, and the Spearman Rank test was used to evaluate it. Age ($p=0.114$), pain perception ($p=0.549$), hemodialysis time ($p=0.001$), education ($p=0.003$), and motivation ($p=0.003$) correlated with quality of life. The study concluded that hemodialysis patients need assistance, resources, and health education to improve their quality of life.

1. Introduction

Medication alone cannot treat end-stage renal disease; patients must undergo kidney replacement treatment, such as hemodialysis, to operate [1]. The quality of life for hemodialysis patient's declines, as individuals endure disease-related health challenges and long-term treatment, which can diminish their enthusiasm for life and impact both their physical and psychological well-being [5]. Hemodialysis is a prolonged treatment required for patients with chronic renal disease. Depending on the patient's residual renal function, two to three times a week, for five to six hours, this therapy is provided [12]. These patients also struggle with fear of death, despair, financial distress, and difficulty keeping a job. This dependence on dialysis equipment can lead to a sense of lost freedom, significantly impacting the patient's quality of life (Jos, 2016; D'Onofrio et al., 2017; Sajadi et al., 2021; Mait, Nurmansyah and Bidjuni, 2021).

According to the World Health Organization [6], approximately 1.5 million people worldwide undergo hemodialysis for chronic kidney failure, with the incidence rate rising by 8% annually. Data from Riskesdas (2018) indicates that 0.38% of Indonesia's population of 252,124,458 suffers from chronic kidney failure, amounting to 713,783 individuals. The Indonesian Renal Registry (IRR, 2018) reports a yearly increase in hemodialysis patients, with 66,433 new cases, 132,242 active patients, and 6,898 deaths in 2018. In East Java province, 23.14% of individuals over 15 with kidney failure are undergoing hemodialysis (Kemenkes 2018). Hemodialysis patients often have a reduced quality of life, feeling resigned to their illness, and experiencing fatigue, pain, anxiety, and a lack of motivation for recovery [8-11]. Hemodialysis therapy significantly impacts their quality of life, causing muscle cramps, nausea, vomiting, and lowered blood pressure. Additionally, the need for weekly scheduled hemodialysis procedures limits their activities, which further worsens their quality of life by gradually deteriorating their physical and emotional problems [44] [13-15]. The length of hemodialysis, age, education, and family support are some of the variables that impact quality of life [16-18]. These results correlate with the findings of research conducted by Sari and Az (2020), which showed that patients suffering from chronic renal failure had an improved quality of life when their hemodialysis therapy was extended in duration. More than half of the participants (50.4%) had a pessimistic perception of their situation, according to research by Hartati Pratiwi et al. (2020). This negative perception can further diminish the patient's quality of life, leading to increased complications, higher hospitalization rates, and greater mortality among hemodialysis patients [45]. A good quality of life for patients is achieved by maintaining their health through healthier lifestyle changes and accepting their disease, minimizing its impact on their physical and psychological well-being [22]. Improving these patients' quality of life

requires a multifaceted strategy that involves the patients' interaction as well as assistance from social workers, family, and medical experts. Family members are essential in assisting and motivating the patient during hemodialysis therapy, while nurses are essential in providing education to help patients attain a better quality of life.

2. Methodology

Study Design

To investigate the associations between variables seen or measured at a particular moment in time, a cross-sectional technique is used in the correlational analytical study design. In this research, quality of life is the dependent variable, the independent variables include age, hemodialysis duration, knowledge, disease perception, and motivation [21]. This study was carried out in the Sidoarjo Regional General Hospital [46].

Data collection procedures

All 100 patients at Sidoarjo Regional General Hospital undergoing hemodialysis made up the study's population. A sample of eighty respondents was selected using simple random sampling processes. There was a questionnaire used as the research instrument.

Data analysis

This investigation used SPSS to perform the Spearman Rank test. When applying a significance threshold of $\alpha = 0.05$ to the Spearman Rank test findings, it was concluded that the hypothesis was accepted if α was less than 0.05.

Ethical considerations.

The research was given ethical permission number 893.3/063/438.5.2.1.1/2023 after it completed an ethical assessment at the KEPK Sidoarjo Regional General Hospital.

3. Results and discussion

Table 1. Distribution of Frequency Depending on Respondent Features

No.	Characteristics	Frequency(f)	Percentage (%)
1.	**Age (years)**		
	26 - 35	13	16.3
	36 - 45	20	25
	46 - 55	25	31.3
	56 - 65	15	18.8
	>66	7	8.8
2.	**Gender**		
	Male	44	55
	Female	36	45
3.	**Education**		
	Base	21	26.3
	Intermediate	51	63.8
	College	8	10
4.	**Work**		
	Doesn't work	49	61.3
	Government employees	6	7.5
	Farmer	6	7.5
	Private	19	23.7
5.	**Long time undergoing hemodialysis**		
	<12 month	28	35
	12-24 month	31	38.8
	>24 month	21	26.3
6.	**Knowledge**		
	Not enough	17	21.3
	Enough	29	36.3

	Good	34	42.5
7.	**Perception of disease**		
	Negative	42	52.5
	Positive	38	47.5
8.	**Motivation**		
	Low	3	3.8
	Currently	7	8.8
	Tall	10	12.5
	Very high	60	75
9.	**Quality of Life**		
	Bad	6	7.5
	Currently	40	50
	Good	34	42.5
	Total	80	100

Nearly half (31.3%) of the 80 respondents were between the ages of 46 and 55, as seen in Table 1. Most (63.8%) had finished high school, and the majority (55%) were male. A significant portion (61.3%) were unemployed, including housewives and fishermen. About half (42.5%) had adequate understanding of their disease, and for 12 to 24 months, almost half (38.8%) had been doing hemodialysis. Half (50.0%) reported having an average quality of life, whereas the vast majority (75.0%) had very high motivation, and the majority (52.5%) had an unfavorable opinion of their disease.

Table 2. Variable-specific cross-tabulation

variable		Quality of Life						Total	%	p-value
		Bad		Currently		Good				
		N	%	N	%	N	%			
Age (years)	26-35	0	0	8	10	5	6.3	13	16.3	*P=* 0.114 r=0.178
	36-45	2	2.5	12	15	6	7.5	20	25	
	46-55	3	3.7	12	15	10	12.5	25	31.2	
	56-65	1	1.3	7	8.7	7	8.7	15	18.7	
	>66th	0	0	1	1.3	6	7.5	7	8.8	
Long time undergoing hemodialysis	<12 month	3	3.7	21	26.3	4	5	28	35	*P=* 0.001 r=0.361
	12-24 month	1	1.3	13	16.2	17	21.2	31	38.7	
	>24 month	2	2.5	6	7.5	13	16.3	21	26.3	
Knowledge	Not enough	3	3.7	13	16.2	1	1.3	17	21.2	*P=* 0,003 r=0,323
	Enough	2	2.5	12	15	15	18.7	29	36.2	
	Good	1	1.3	15	18.7	18	22.5	34	42.5	
Perception of disease	Negative	1	1.3	26	32.5	15	18.7	42	52.5	*P=* 0,549 r=0,068
	Positive	5	6.3	14	17.5	19	23.7	39	47.5	
Motivation	Low	2	2.5	1	1.3	0	0	3	3.8	*p-value* 0,003 r=0,330
	Currently	0	0	7	8.7	0	0	7	8.7	
	Tall	0	0	7	8.7	3	3.7	10	12.5	
	Very high	4	5	25	31.3	31	38.7	60	75	

According to the cross-tabulation of age and quality of life in Table 2, a p-value of 0.114 suggests that there is not a statistically significant link between these two variables. There is a very modest association shown by the correlation coefficient, r = 0.178. In contrast, hemodialysis duration affects quality of life (p=0.001). Hemodialysis duration and quality of life are positively and marginally correlated (r = 0.361). Quality of life and knowledge are related substantially, as shown by the cross-

tabulation p-value of 0.003. A positive and rather strong correlation is shown by the correlation coefficient, which is r = 0.323. In contrast, a cross-tabulation p-value of 0.549 shows no significant relationship between disease perception and quality of life. The quality of life and impression of disease are correlated extremely weakly, as shown by the correlation coefficient of r = 0.068.

A substantial correlation was found between motivation and quality of life, as shown by the cross-tabulation that produced a p-value of 0.003. The quality of life and motivation for patients receiving hemodialysis are positively correlated, as shown by the correlation value of r = 0.333. Research showed the greatest incidence was between 46 and 55 years of age, which is often considered as a productive age range. It is hoped that patients in this age range can effectively engage in activities while undergoing hemodialysis therapy. This age group often strives for recovery and maintains a positive outlook on life, possibly due to their roles as primary family providers. However, hemodialysis patients' quality of life is unrelated to their age, according to statistical research (p=0.114).

Sarastika et al.'s (2019) research, the absence of an association between hemodialysis patients' age and quality of life, as shown by the aforementioned research, is in line with the findings of our current investigation. This suggests that the disease can affect individuals of all ages, and as people age, their kidney function tends to decline, leading to reduced kidney efficiency. Furthermore, the impact of the disease can vary across age groups depending on factors such as occupational exposure, lifestyle habits, and substance abuse [23]. Additionally, the survey discovered that just 1.3% of the 15 respondents, who were between the ages of 56 and 65, reported having a low quality of life. The quality of life often decreases as one ages. This discovery is consistent with the results of Mailani (2017), who states that elderly people often have lower life satisfaction and are more likely to experience depression. They may feel fatigued and resigned, lacking motivation to continue with hemodialysis therapy. Additionally, between the ages of 40 and 80, kidney function deteriorates, increasing the risk of kidney failure [25]. Table 2 shows a link between hemodialysis duration and life quality. A favorable and high link exists between hemodialysis treatment duration and quality of life (r = 0.361). As patients continue with hemodialysis, they become more aware of the importance of adherence to the treatment, experience its benefits, and feel more comfortable with their physical condition. This improved understanding and regular treatment can enhance their ability to perform daily activities, positively impacting their overall quality of life [26,27]. As patients reach a stage of acceptance and comprehend the significance of regular hemodialysis, Sarastika et al. (2019) verify the findings of this research and indicate that patients who get hemodialysis for a longer duration are more likely to comply with the treatment. Furthermore, Kusuma's study (2022) indicates the length of hemodialysis might affect patients with chronic kidney failure's quality of life. Those who have been on hemodialysis for over 12 months often enter a phase of advanced adaptation, becoming accustomed to the limitations and complications associated with long-term treatment. The time of hemodialysis affects quality of life. Each individual requires varying amounts of time to adjust to the challenges and long-term therapy associated with hemodialysis. Consequently, the quality of life for chronic kidney failure patient's changes depending on how long it takes them to adapt to each stage of the hemodialysis treatment process [29].

Statistical analysis found a p-value of 0.003, knowledge is strongly linked to life quality. According to the study's findings, around half of the respondents possessed extensive expertise. This increased knowledge is attributed to the education provided by healthcare workers during hemodialysis therapy. Such knowledge can shape attitudes and behaviors related to treatment adherence. By enhancing their understanding of the treatment and accepting their condition, individuals can improve their quality of life [30,31]. The findings of this study align with those of Kurniawati & Asikin (2018), which indicates that knowledge and life quality are significantly correlated, with higher knowledge levels correlating with improved quality of life. Most respondents had secondary education, with 51 individuals (63.8%) having this level of education, facilitating their access to new information. This supports Notoatmodjo's (2014) assertion that higher education generally leads to greater knowledge. Patient knowledge encompasses their understanding of health information, including details about their condition,

medication management, and self-care [34]. The cross-tabulation of quality of life and pain perception produced a p-value of 0.549, as shown in Table 2. According to this, patients receiving hemodialysis at Sidoarjo Regional Hospital do not significantly correlate their quality of life with their perception of pain. The findings of this investigation are in line with those of Pratiwi et al. (2019), who discovered no connection between hemodialysis patients' quality of life and their assessments of their diseases. However, other research, such as that by Wahl et al. (2014), is a substantial correlation between the sense of pain and life quality. Hemodialysis patients who have negative views about their condition may have worse quality of life, higher rates of morbidity, and less successful treatment results.

Patients often have a negative perception of their illness because chronic kidney disease is incurable and the prospect of lifelong hemodialysis can be discouraging. Patients need to maintain their composure and self-assurance, as maintaining these attitudes can help them lead a fulfilling life. A person's ideas regarding their illness are referred to as their perception of it, including their views on symptoms, causes, and self-management capabilities [37]. Negative perceptions can lead to diminished hope and increased anxiety about their illness for patients undergoing hemodialysis [20]. The quality of life and motivation study findings show a p-value of 0.003, suggesting a substantial association between the two variables for hemodialysis patients. The Sidoarjo Regional General Hospital patients' motivation and quality of life are positively correlated, as shown by the correlation value of r = 0.330. According to Damayantie et al. (2022) and Hidayat & Muflihatin (2021), encouraging hemodialysis patients increases their self-assurance in their ability to recover and improves their quality of life. These findings are consistent with the results of this research. Similarly, Rizky Sulymbona et al. (2020) noted that motivation drives individuals to take actions toward achieving specific goals. Personal aspirations are important components to enhance motivation for an improved standard of life, such as the wish to overcome illness that affects daily activities, and social support, particularly emotional encouragement from family and friends, it improves the standard of life [41,42].

4. Conclusion and future scope

Age and quality of life do not significantly correlate with each other. However, the Sidoarjo Regional General Hospital patients' quality of life is strongly correlated with their knowledge, motivation, perception of discomfort, and length of time receiving hemodialysis. To enhance patient self-acceptance and encourage adherence to regular hemodialysis therapy, it is essential to offer ongoing education and counseling in the hemodialysis unit. This approach can help improve patients' quality of life.
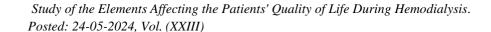
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Conflict of interest

This manuscript does not have any conflicts of interest.

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