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Research Article

Hemodialysis Patients: Factors Affecting Adherence to Treatment

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Abstract

Aims: Chronic kidney disease is a chronic and permanent kidney function decline characterized by a high glomerular filtration rate. Hemodialysis to treat chronic kidney disease is cleaning blood using a machine-assisted dialyzer carried out routinely. Aim: This study aims to determine the factors that influence therapy adherence in hemodialysis patients.

Methods: This research is a quantitative study using a cross-sectional study design. This study used convenience sampling on 150 undergoing hemodialysis patients. The End Stage Renal Disease-Adherence Questionnaire (ESRD-AQ) was used to evaluate adherence. Independent variables were knowledge, social support, and motivation. Data analysis used Spearman correlation and logistic regression.

Results: The results showed that the average age of the patients was 51.51, with most of them being male (57.3%). The results of the bivariate analysis showed that there was a relationship between social support and therapy adherence (p-value 0.017), there was a relationship between knowledge and therapy adherence (p-value 0.000), and there was a relationship between motivation and therapy adherence (p-value 0.018). The most influencing factor is motivation (p-value 0.002).

Conclusion : The study found that knowledge, motivation, and social support significantly correlate with therapy adherence, with motivation being the most influencing factor. Nurses can improve awareness of adherence and use this as a reference for future research on CKD patients' hemodialysis therapy.

Keywords:
Adherence, Hemodialysis, Motivation

INTRODUCTION

The kidneys are essential organs for fluid balance, prevent waste buildup, maintain the stability of electrolytes (sodium, potassium, and phosphoric acid) and strong bones, and produce hormones and enzymes that help regulate blood pressure and red blood cells. A high glomerular filtration rate is a symptom of chronic kidney disease, defined by a persistent deterioration in kidney function (1). The prevalence of chronic kidney disease (CKD) is rising quickly, with 15% of adults in the United States, or 37 million people, having the chronic renal disease (2). Health database from 2018 shows that 713,783 persons in Indonesia had chronic kidney disease, which is 0.38 percent of the country's 252,124,458 total population. Data from the Indonesian Renal Registration show that 15,128 people in West Java have chronic kidney disease, making it the third most common in Indonesia, with a prevalence of 0.3 percent (3)

As the treatment for CKD, hemodialysis is a blood purification procedure with a dialyzer or an artificial kidney. This medication should benefit those with chronic renal disease because it will increase their lifetime and improve their quality of life. However,

this treatment cannot reverse kidney function or compensate for the decrease in the kidney's ability to manufacture endocrine hormones (4). The severity of renal failure determines how often a patient must get hemodialysis. Patients with CKD typically receive three to four hours of hemodialysis twice a week. (5)

According to data from (6), there were 14,796 new hemodialysis patients in West Java in 2018, with the 45–54 age group accounting for most patients. The total number of persons with chronic renal disease receiving hemodialysis each year increased in 2019–2020, with a rise in mortality of 24% (74 of 304 people) compared to the previous 14%, according to data gathered from the inpatient room at one of Hospital in Bandung City (40 out of 277 individuals). Besides the hemodialysis treatment, CKD patients can enhance their health and well-being by taking their medications as prescribed. Hemodialysis patients often struggle with non-adherence habits, affecting many aspects of their care, such as nutrition, fluid intake, and prescription regimens. The majority of hemodialysis patients, it is thought, do not adhere to the entire dialysis procedure (7).

According to previous studies, patients with CKD show good adherence to the hemodialysis program (>50%) (8,9). A person's level of understanding also influences the ability to participate in therapy programs. For example, in a study by (1), which included 30 patients with chronic kidney disease, 14 patients (46.7%) had high knowledge, 12 patients (40 patients with chronic kidney disease) had sufficient knowledge, and four patients (13.3%) had insufficient knowledge (p-value: 0.001).

Respondents with a high level of knowledge are generally better equipped to handle themselves when faced with obstacles (10). Understanding facilitates a patient's ability to assimilate information, fostering a positive attitude toward following the specified course of therapy. Knowledge can be shaped by non-formal education and experiences, including reading, talking to hemodialysis patients, and advising medical professionals. Knowledge strongly influences a person's health behavior; their beliefs and information dictate their behaviors.

According to the previous study, 102 (82.3%) respondents reported high levels of motivation, whereas 22 (17.7%) reported having low levels of motivation but better compliance levels 84 (81.6%) (8). Motivation and hope are two factors that can promote patient compliance. What inspires or urges someone to act in order to accomplish a specific objective is known as motivation. For people to behave well, they must be highly motivated; else, they will not be able to do anything. The desire to finish tasks more quickly is a significant motivator and is regarded as necessary (11)

Additionally, there is a strong correlation between social support and contacts with hemodialysis patients (r= 0.328), indicating that positive support received by patients will result in excellent patient compliance. The statistical analysis demonstrated a substantial correlation between social support and compliance (p-value 0.007) (12). The positive impact of social support on regimen adherence is well known. Due to elderly patients' fear of losing their loved ones and having their families reject them, older patients are more likely to seek assistance during HD installation. Patients who have just finished hemodialysis treatment show higher levels of adherence when they have more social support. For patients with social support from a spouse, parent, friend, or coworker, Statistics show that health rates were also higher in our neighborhood. Patients with CKD receiving HD may occasionally face new obstacles because of a lack of social or familial support (13).

The success of hemodialysis depends on patient compliance. Hemodialysis patients have difficulty controlling control, with fluid non-adherence rates ranging from 10% to

60%, diet non-adherence rates ranging from 2% to 57%, and dialysis time delays from 19% to 9%. The success of hemodialysis depends on patient compliance. Hemodialysis patients have difficulty with restriction management, with fluid non-adherence rates ranging from 10% to 60%, diet non-adherence rates from 2% to 57%, and delayed dialysis times from 19% to 9%. The fluid intake of respondents that adhere to fluid limitations is 27 (32%), while the non-compliant respondents are 57 (68%). Most survey participants do not adhere to fluid limitations (14). Patients with chronic kidney disease who reported being adherent to their diets comprised 47 respondents (73.4%), while those with chronic kidney failure who reported being non-adherent to their diets were 17 respondents (26.6%). Based on the explanations and previous studies, the researchers are interested in examining the influence factors of hemodialysis patients' adherence to therapy.

METHODS

Study Design and Sample
This study uses quantitative research with a cross-sectional design performed in two hemodialysis centers in West Java in 2022. The inclusion criteria were a minimum age of 18 and a history of receiving hemodialysis for at least three consecutive months. Patients were aware of their treatment regimen. The exclusion criteria were physical disabilities and mental disorders. The sample size of 150 was calculated using G-Power.

Instrument
Every participant answered the following three questionnaires through a 20-minute interview: the personal data questionnaire included demographic characteristics, and the End Stage Renal Disease-Adherence Questionnaire (ESRD-AQ) was used to evaluate adherence.

Data Analysis
This study uses distribution frequency and tendency central in univariate analysis. Furthermore, Spearman's correlation coefficient was used to evaluate the association between adherence and the other continuous variables. The multivariate analysis uses logistic regression. The ethical approval for this study was obtained from the Research Ethics Committees of STIKep PPNI Jabar with the number: III/003/KEPK-SLE/STIKEP/PPNI/JABAR/I/2023.

RESULTS

Table 1.
Demographic Characteristics of Hemodialysis Patients (n: 150)

Variable	Mean±SD n (%)	r	p-value
Age	51.51±12.831		
Gender			
Male	86 (57.3)		
Female	64 (42.7)		
Therapy Adherence			
Adherence	138 (92.0)		
Non-adherence	12 (8.0)		
Social Support			
High	132 (88.0)	0.195	0.017*
Moderate	18 (12.0)		
Motivation		0.193	0.018*
High	145 (96.7)		

Low	5 (3.3)		
Knowledge			
High	143 (95.3)	0.518	0.000*
Low	7 (4.7)		

*correlation with therapy adherence using significance level <0.05

Table 1 shows that the average age of the respondents is 51.51 years old, with a standard deviation value of 12.831. The table also shows 86 (57.3%) of respondents are male. Respondents who adhere to therapy are 138 people (92%), and those who do not are 12 (8%). Based on the social support of the respondents, it showed that respondents with high social support were 132 people or (88%) and respondents with moderate social support were 18 people or (12%). Respondents motivation of respondents 145 people (96.7%) with high motivation, and respondents with low motivation are five people or (3.3%) with a median value of 146.00 (SD=3.852). Based on the results of respondents' knowledge, it shows that respondents with high knowledge are 132 people or (88%) and respondents with low knowledge are 18 people or (12%) with a median value of 10.00 (SD=1.153).

Based on table 4, the results of the bivariate analysis using Spearman on the social support variable with therapy adherence, the correlation coefficient value was 0.195 with a significant level of 0.017 (p <0.05), indicating that there was a significant relationship between social support and therapy adherence.

Based on the level of knowledge of the results of bivariate analysis using Spearman on the knowledge variable with therapy adherence, the correlation coefficient value was 0.518 with a significant level of 0.000 (p <0.05), indicating that there was a significant relationship between knowledge and therapy adherence.

Based on the motivation of the bivariate analysis results using Spearman on the motivational variable with therapy adherence, the correlation coefficient value was 0.193 with a significant level of 0.018 (p <0.05), indicating a significant relationship between motivation and therapy adherence.

Table 2.
Factors Affecting Adherence to Treatment in Hemodialysis Patients (n: 150)

Variable	B	p-value
Motivation	5.013	0.002*
Social Support	-0.192	0.917
Knowledge	25.939	0.999

Table 2. shows that after statistical testing using logistic regression, the motivation variable is a factor that influences adherence to hemodialysis therapy (p-value 0.002) with a Beta of 5.013.

DISCUSSION
Overview of hemodialysis therapy compliance

Adherence is the patient's obedience to clinical recommendations from the doctor who provides the treatment. The patient compliance showed by undergoing hemodialysis on time according to the schedule. The patient does not feel bored with his condition undergoing hemodialysis therapy and can feel the benefits of the dialysis program (15)

Based on research results regarding adherence to hemodialysis therapy, the median value was 1200.00. A similar study involving 124 hemodialysis patients stated that 75% of their respondents adhered to the therapy program (8). According to the researcher's assumption, improving their ability to adhere to their treatment is essential to treat hemodialysis patients effectively. Because if the patient does not comply with the hemodialysis therapy, it will harm the patient and cause various diseases that will interfere with his quality of life.

Knowledge Overview
This study's level of knowledge is comprehending hemodialysis therapy programs (food consumption, drugs, and hemodialysis). The higher the knowledge about hemodialysis, the higher compliance in hemodialysis therapy programs. According to (10), respondents with a high level of knowledge tend to be better able to manage themselves when facing challenges. Patients with sufficient knowledge find it easier to receive information, which leads to a positive attitude about sticking to the recommended therapy. Non-formal education and experiences like reading, interacting with hemodialysis patients, and counseling health workers can help shape knowledge. One's knowledge has a significant impact on one's health behavior; A person will act depending on his thoughts and the knowledge he has.

According to the researcher's assumption, knowledge is essential in hemodialysis therapy. The higher the knowledge level, the higher the adherence to hemodialysis therapy. The role of nurses also affects the level of knowledge because the more often nurses provide education about hemodialysis therapy, the more patient knowledge will be, and they will be more compliant with the therapy they are undergoing.

Overview Social support
Paying attention to patients, assisting when patients are taking treatment, and giving proper affection to patients are emotional support that will give patients good social support (16). The better the support given to the patient, the higher the quality of life of patients undergoing hemodialysis therapy. Quality of life can be in physical, psychological, social, and environmental relationships (11)

The results showed that 132 (88%) had high social support, and 18 (12%) had low social support, with a median value of 7.00. These results are in line with research conducted by (16) that respondents who have good social support are 30 (63.8%), respondents who have sufficient social support are 15 (31.9%), while respondents who have social support than 2 (4.2%).

According to the researcher's assumption, this good social support can support and motivate patients so that it will create enthusiasm for participating in the hemodialysis therapy program. Older patients are more likely to seek help during HD therapy because they fear losing love and being rejected by their families.

Motivational Picture
According to (11), motivation is something that encourages or encourages a person to achieve the desired goals. The role of nurses and families here is needed to achieve good motivation in a hospital so that there are good results.

Based on the study's results, 145 respondents (96.7%) had high motivation, while as many as five (3.3%) had low motivation, with a median value of 146.00. This study shows that the frequency of respondents with high motivation is higher than respondents with low motivation. The results of the previous study (15) showed that as many as 58 respondents (84.1%) had high motivation, and as many as 11 respondents (15.9% had low motivation.

Age Overview
Age is related to a person's maturity level, which means increasing maturity or maturity both psychologically and spiritually, and they will be increasingly able to carry out their duties. The results of this

study obtained an average age of 51.51 with a Standard Deviation of 12.831. This study is in line with research (17) that most respondents are elderly >51 years.

One of the factors that affect a person's health is age. Kidney function will decrease by about 1% every year when the degenerative process begins to make physiological and biochemical changes in the body over 30 years (18). According to the researcher's assumption, the older a person gets, the more problems he will experience, especially related to his health condition. This result was due to a decline in the whole body's function.

Gender Overview

Gender is a biological sign that distinguishes humans based on male and female groups. Gender refers to a person's behavior and appearance according to gender. This study found 86 male respondents (57.3%) and female respondents were 64 (42.7%). This study's results align with research conducted by (17) that as many as 22 respondents (75.9%) are male.

Based on the researchers' assumptions, male respondents experienced more chronic kidney failure due to lifestyle factors and eating patterns than male respondents who like to smoke, stay up late and drink coffee. An excellent lifestyle to prevent kidney disease is drinking water regularly and exercising regularly.

Relationship between knowledge and adherence to hemodialysis therapy

A person's knowledge of something can influence or impact his behavior, and that knowledge can form certain beliefs so that someone behaves according to these beliefs or desired beliefs. Based on the research, the Spearman statistical test obtained a correlation coefficient (r) of 0.518 and a p-value of 0.000 < (0.05). The results showed a significant relationship between knowledge and adherence to hemodialysis therapy. This study is in line with research (19), which states a relationship between knowledge and adherence to hemodialysis therapy with a p-value = 0.001.

Relationship of Social Support with Adherence to hemodialysis therapy

Based on the research, the Spearman statistical test obtained a correlation coefficient (r) of 0.195 and a p-value of 0.017 < (0.05). The results showed a significant relationship between social support and adherence to hemodialysis therapy. This study's results align with research conducted by (16), which obtained a p-value of 0.014. This result indicates a significant relationship between social support and adherence to therapy in hemodialysis patients.

Poor social/family support is sometimes a source of new problems for adherence to CKD undergoing hemodialysis. Friends and family have a role in influencing changes in the patient's lifestyle. However, social support can positively influence and predict adherence to the regimen. Another factor that affects compliance is social support, where social support is a situational factor that can affect commitment to behavior change while undergoing hemodialysis. (13)

Relationship between motivation and adherence to hemodialysis therapy

Based on the research, the Spearman statistical test obtained a correlation coefficient (r) of 0.193 and a p-value of 0.018 < (0.05). The results showed a significant relationship between motivation and adherence to hemodialysis therapy. This result is also in line with research conducted by (8), who obtained a p-value of 0.000 from this study, showing a relationship or influence between motivation and compliance with chronic kidney failure patients undergoing hemodialysis therapy programs.

This study stated that respondents with high motivation to undergo hemodialysis therapy programs feel happy when the dialysis schedule arrives, satisfied after the dialysis process is carried out, excited after dialysis, and always pay attention to the food eaten daily according to the instructions. High motivation from respondents can encourage or increase compliance in undergoing

hemodialysis therapy programs. Based on the researcher's assumptions, hemodialysis patients need motivation or encouragement from the surrounding environment because, with this motivation, the patient will feel happier, so that patient will obey his therapy.

Factors Affecting Adherence to Treatment

From the bivariate discussion, which is all related, the logistic regression analysis proves that motivation is the most influencing factor (p-value 0.002). Research conducted by (8) obtained a p-value of 0.000 from this study showing a relationship or influence between motivation and compliance with chronic kidney failure patients in hemodialysis therapy programs. The results of this study are the same as research (Setyawati et al., 2020), which shows that as many as 58 respondents (84.1%) have high motivation, and as many as 11 respondents (15.9% have low motivation.

One of the things that can encourage patient compliance is motivation and hope. Motivation motivates or encourages someone to take action to achieve a specific goal. Better behavior requires high motivation to be able to achieve anything (11).

CONCLUSION

Following the study's result, the researchers can conclude that knowledge, motivation, and social support significantly correlate with therapy adherence. The most influencing factor with therapy adherence using logistic regression showed that the most influencing factor was motivation.

Nurses can provide an understanding of therapeutic adherence to increase awareness of the importance of implementing compliance in undergoing recommended therapy which aims to minimize the symptoms felt in CKD patients undergoing hemodialysis. The results of this study can be used as a reference for future researchers if researchers are interested in continuing this research.

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