

## Relationship Between Health Locus of Control (HLC) and Self Management in Chronic Kidney Disease Patients Undergoing Hemodialysis

Wirdhatul Jannah Asrin<sup>1</sup> Bayhakki<sup>2</sup> Syeptri Agiani Putri<sup>3</sup>

Nursing Study Program, Faculty of Nursing, Universitas Riau, Pekanbaru City, Riau Province, Indonesia<sup>1,2,3</sup>

Email: [wirdhatul.jannah1889@student.unri.ac.id](mailto:wirdhatul.jannah1889@student.unri.ac.id)<sup>1</sup> [bayhakki@lecturer.unri.ac.id](mailto:bayhakki@lecturer.unri.ac.id)<sup>2</sup> [syeptriagianiputri@lecturer.unri.ac.id](mailto:syeptriagianiputri@lecturer.unri.ac.id)<sup>3</sup>

### Abstract

Chronic Kidney Disease (CKD) is a progressive and irreversible global public health problem that causes functional/structural abnormalities of the kidneys for > 3 months. Hemodialysis is a kidney replacement therapy that can cause physical and psychological stress that will affect the quality of life. Aims to determine the relationship between HLC and self-management in CKD patients undergoing hemodialysis at Arifin Achmad Hospital, Riau Province. This study uses a correlational description design with a cross sectional study approach. The results of the analysis using the Pearson test found that there was a relationship between internal HLC and partnership, problem solving, and emotional management, but no relationship was found with self care in CKD patients undergoing hemodialysis. There is no relationship between chance HLC and powerful others HLC with self-management indicators, namely partnership, problem solving, self care, and emotional management of CKD patients undergoing hemodialysis.

**Keywords:** Chronic Kidney Disease, Health Locus of Control (HLC), Hemodialysis, Self-Management



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### INTRODUCTION

Chronic Kidney Disease (CKD) or chronic kidney disease is a public health problem worldwide that is progressive and irreversible so that it can cause uremia (Moshki et al., 2021). Chronic kidney disease is an abnormality of kidney function and structure that occurs for more than 3 months which is characterized by the appearance of albuminuria, abnormalities in urine sediment, electrolytes, histology, and a decrease in the glomerular filtration rate (GFR) <60 mL/minute/1.73m<sup>2</sup> (Forbes & Gallagher, 2020). The incidence of chronic kidney disease continues to increase throughout the world, especially in countries that have moderate to low incomes and have limited resources. The high burden of medical expenses for patients with chronic kidney disease is responsible for the alarming risk of death (Ameh et al., 2020).

According to WHO (2020), it was found that 7 of the 10 main causes of death in the world in 2019 were non-communicable diseases which accounted for 74% of global mortality. One of them is kidney disease which is ranked 10th where the death rate has increased from 813,000 in 2000 to 1.3 million in 2019. There has been an increase in the prevalence of chronic kidney disease in Indonesia since 2013 by 2% then in 2018 it rose to 3.8% as many as 713,783 (Ministry of Health of the Republic of Indonesia, 2019). Data obtained from the medical records of Arifin Achmad Hospital in Riau Province, the number of patients with chronic kidney disease has increased from 2,572 in 2019, 2,862 in 2020, and in 2021 data found 2,865 outpatients and 344 inpatients. Then the data obtained from patients undergoing hemodialysis in 2022 totaled 1,647 patients, this has increased compared to 2021 which totaled 1,501 patients.

Hemodialysis therapy is one of the most common treatments for patients with chronic kidney disease due to the high cost of having a kidney transplant (Tuloli et al., 2019). Patients

with chronic kidney disease undergo hemodialysis 2-3 times a week which will take 4-5 hours for each therapy (Goran 2021). Hemodialysis will replace kidney function so that it will be able to maintain the body's homeostasis (Wahyuni et al., 2018). According to research by Marianna & Astutik (2018) explaining that a person undergoing hemodialysis will experience physiological stress such as hypotension, muscle cramps, nausea and vomiting, and the most common is experiencing headaches or dizziness. Apart from that, it will also have an impact on the psychology of patients such as experiencing stress because they have to undergo hemodialysis for life, controlling nutritional intake and diet, limiting fluids, limiting activities, and decreasing social life (Wahyuni et al., 2018).

Appropriate treatment is needed to improve the quality of life for sufferers of chronic kidney disease so that it will reduce dependence on other people and be able to meet their daily needs, one of which is by increasing self-management abilities (Simanjuntak & Lombu, 2018). Self-management is an individual's ability to protect his health with various actions or treatment methods that are thought to be able to reduce side effects or consequences that arise while suffering from an illness. Currently, self-management is still a world concern, because many chronic kidney disease sufferers are found who do not carry out self-management properly (Malinda et al., 2022). There are several indicators that will affect a person's level of self-management, namely the nurse-patient relationship, ability to perform self-care, ability to solve problems, and emotional management (Mailani, 2022). According to research conducted by Simanjuntak & Lombu (2018) in patients with chronic kidney disease undergoing hemodialysis at Rasyida Hospital in Medan, the results showed that 85 out of 165 respondents had poor self-management (53.9%). The majority of patients with poor self-management are usually caused by feelings of boredom due to disease conditions, financial factors, and psychosocial health factors such as experiencing stress which causes patients to lose enthusiasm for treatment (Febriani et al., 2020).

According to Dogonchi et al. (2022), one of the factors that can contribute to increasing behavior related to one's health is Health Locus of Control (HLC). Health Locus of Control (HLC) is one of the psychological aspects in patients with chronic kidney disease who are undergoing therapy which often goes undetected and gets little attention so that the goal of optimal disease treatment is not achieved (Suryani et al., 2021). Health Locus of Control (HLC) is a belief concept in which individuals manage their health development based on control by their own behavior (internal HLC) or controlled by other people and fate that occurs (powerful others HLC and chance HLC). The existence of these differences in beliefs is caused by judgments and experiences that occurred during his life, which will lead to different attitudes or behavior (Antari, 2020).

Someone with a high Health Locus of Control (HLC) will have the drive to make decisions to improve the quality of their health status for the better (Rosita et al., 2021). The higher the Internal Health Locus of Control (HLC) in chronic kidney disease patients, it will affect their behavior in improving health such as exercising, dietary compliance, and carrying out health checks. Vice versa if a person's external Health Locus of Control (HLC) score is higher, then behavior in maintaining health tends to be lower (Moshki et al., 2021). Based on previous research by Rosita et al. (2021) which was conducted on patients with chronic kidney disease undergoing hemodialysis, the results showed that 35 out of 62 respondents had a low internal health locus of control (HLC). This could happen because the respondent was unsure of the success of limiting fluid intake on their own. Then 39 out of 62 respondents had a low external Health Locus of Control (HLC) because respondents did not believe in the power of other people in monitoring fluid restriction intake.

On January 13, 2023 researchers conducted pre-research at the Arifin Achmad Hospital in Riau Province to collect data and interview chronic kidney disease patients undergoing hemodialysis. Some patients did not have good self-management because 5 out of 8 patients said they had not been able to control fluid restriction intake and 7 out of 8 patients had not complied with the rules for the type of food consumed. All patients complained of difficulties complying with several rules when they had to undergo hemodialysis routinely and were also caused by the perceived side effects. In addition, 7 out of 8 patients said they did not really want to discuss their health conditions or problems that occurred with health workers because it had become a habit in their life so they thought there was nothing to talk about anymore. Then regarding their beliefs, 6 out of 8 patients said that everything that happened to their health condition was caused by themselves having to comply with several rules and willingness to routinely undergo treatment and hemodialysis. From the explanation above the researcher aims to see the relationship that exists in the Health Locus of Control (HLC) dimension with several indicators that will affect the self-management of chronic kidney disease patients undergoing hemodialysis.

## RESEARCH METHODS

This type of research is a quantitative study using a correlational descriptive design with a cross sectional study approach. Data collection techniques in this study used the Multidimensional Health Locus of Control (HLC) questionnaire form C and the Hemodialysis Self-Management Instrument (HDMI) questionnaire. This research was conducted in the Diagnostic and Therapy Installation Hemodialysis Unit at Arifin Achmad Hospital, Riau Province. The population in this study were all chronic kidney disease patients undergoing hemodialysis with a total sample of 58 people using a purposive sampling technique. Data analysis in this study used univariate analysis and bivariate analysis using the Pearson Product Moment correlation test ( $\alpha=0.05$ ), if the p value  $\leq \alpha$  it can be concluded that there is a relationship between the independent and dependent variables ( $H_0$  is rejected).

## RESEARCH RESULTS AND DISCUSSION

### Research Result

**Table 1. Frequency Distribution of Respondent Characteristics**

No.	Respondent Characteristics	Total (N)	Percentage (%)
1.	<b>Age</b>		
	18-25 year	6	10,3%
	26-45 year	17	29,3%
	46-65 year	35	60,3%
2.	<b>Gender</b>		
	Male	31	53,4%
	Female	27	46,6%
3.	<b>Education</b>		
	Elementari School	6	10,3%
	Junior High School	9	15,5%
	Senior High School	22	37,9%
	D3/S1/S2	21	36,2%
4.	<b>Work</b>		
	civil servant	4	6,9%
	Farmer	1	1,7%
	Private employees	11	19%
	Entrepreneur/trader	6	10,3%
	Housewife	10	17,2%
	Doesn't Work	26	44,8%

5	Hemodialysis Duration		
	<12 Mounth	13	22,4%
	1-5 year	33	56,9%
	>5 year	12	20,7%

Based on table 1, it was found that the majority of respondents who underwent hemodialysis were in the range of 45-65 years, as many as 35 respondents (60.3%). This is in line with the research by Firmansyah, Fadraersada, & Rusli (2018) which showed that the majority of patients undergoing hemodialysis were in the age range of 46-65 years (63.2%). Increasing age will cause a decrease in organ function, one of which is kidney function due to a reduced number of nephrons and the inability of the tubules to reabsorb and concentrate. Kidney ability will begin to decrease after the age of 30 and will continue to decrease by up to 50% at the age of 60 (Salami, 2021).

The results showed that the majority of respondents were male, 31 respondents (53.4%). In line with the research of Muliani, Jundiah, H H K, Megawati, & Said (2021) that the majority of patients undergoing hemodialysis are male than female. Men experience a faster decline in the GFR rate, have unhealthy lifestyles such as alcohol consumption, smoking, and have irregular eating patterns, and have higher creatinine levels than women. The results of this study indicate that the majority of the respondents' educational level is SMA as many as 22 respondents (37.9%). In line with previous research, that the majority of patients undergoing hemodialysis had high school education (36.2%) who had sufficient knowledge regarding their health. The higher the level of education of patients undergoing hadiadialysis, the more knowledge they have about disease conditions and the treatment management they receive (Ratnasari et al., 2022).

The results of this study indicate that the majority of respondents who underwent hemodialysis did not have a job as many as 26 respondents (44.8%). In line with the research by Ernawati, Diani, & Hasby Pri (2019) that the majority of respondents did not work (56.7%) because they had to undergo routine dialysis which would interfere with their work and were unable to work optimally due to frequent fatigue and other side effects. The results of this study showed that the majority of patients who underwent hemodialysis for 1-5 years were 33 respondents (56.9%). In line with the research of Malinda et al. (2022) found that most patients undergoing hemodialysis were for 1-5 years (44.3%). Patients who have been undergoing hemodialysis for a long time tend to be more accustomed to controlling their behavior and adjusting to their disease conditions. In addition, patients who have been undergoing hemodialysis for a long time know more about various information related to their disease conditions so that they are better able to carry out self-management properly.

**Table 2. Health Locus of Control (HLC) of Patients Undergoing Hemodialysis**

Variable	Mean±SD	Min-Max
<b>Health Locus of Control (HLC)</b>		
Internal HLC	27,00±2,240	21-31
Chance HLC	20,31±3,695	11-30
Powerful others HLC	26,41±2,377	20-31

Based on table 2, it is known that the internal HLC has a higher average score (27.00) than the chance HLC (20.31) and other powerful HLC (26.41). In line with research by Antari (2020), patients with terminal renal failure who routinely undergo hemodialysis have an average internal HLC score (29.35) higher than chance HLC (27.95) and powerful others HLC (27.95). Patients who routinely undergo hemodialysis have a tendency to control themselves in managing their health conditions. The patient will use a coping mechanism that focuses on the problem so that he will try to manage full control of his condition.

**Table 3. Self Management Categories of Patients Undergoing Hemodialysis**

Variable	Frequency (f)	Percentage (%)
<b>Self management</b>		
Good	11	19%
Not Good	47	81%

Based on table 3 it is known that most of the respondents who underwent hemodialysis had poor self-management of 47 people (81%). These results are in line with the research of Sinurat et al., (2022) which found that 53.9% of respondents had poor self-management. The existence of a feeling of saturation with the disease experienced will affect patient compliance in managing their health conditions as well as a lack of perspective on self-management itself quickly and effectively.

**Table 4. Pearson Correlation Test on HLC dimensions with Self Management indicators**

Variable	Partnership		Problem solving		Self care		Emotional Management	
	R	P value	R	P value	R	P value	R	P value
<b>Internal HLC</b>	0,413	0,001	0,314	0,016	-0,104	0,438	0,269	0,041
<b>Chance HLC</b>	0,188	0,158	-0,096	0,472	-0,047	0,728	-0,058	0,663
<b>Powerful Others HLC</b>	0,152	0,255	0,233	0,079	0,094	0,485	0,253	0,055

Based on table 4, the results of bivariate data analysis between internal HLC and partnership found that there was a positive relationship with moderate correlation strength between internal HLC and partnership (nurse-patient relationship) in chronic kidney disease patients undergoing hemodialysis (p value = 0.001; r = 0.413 ). In line with Fatah's research (2019) which shows that self-control in a person will affect interpersonal communication so as to create good relationships. Communication relationships with nursing staff are a part of patient self-management which is the key so that the treatment process can be optimal (Purba et al., 2018).

There is a positive relationship with a weak correlation strength between internal HLC and problem solving (attitude in solving problems) in chronic kidney disease patients undergoing hemodialysis (p value = 0.016; r = 0.314). In line with the research results of Sa'pang, Linggi, Kulla, & Patattan (2022) explains that the belief that a person has will be able to improve his self-management, namely by the ability of the individual to make decisions and make choices and determine several effective ways to achieve his related goals disease condition.

There was no relationship between internal HLC and self care in chronic kidney disease patients undergoing hemodialysis (p value = 0.438; r = -0.104). The results of this study are not in line with research conducted by Asri, Widayati, & Aini (2020) which shows that there is an internal relationship between HLC and the self-care behavior of people with type-2 DM. Someone will depend on themselves and have an awareness of the importance of health so that it will lead to good self-care behavior. The existence of several factors such as age, education, knowledge, emotional aspects, and duration of illness will also affect the patient's self-care. There is a positive relationship with a weak correlation strength between internal HLC and emotional management of chronic kidney disease patients undergoing hemodialysis (p value = 0.041; r value = 0.269). In line with Hernanda's research (2020), which explains that there is an influence on the ability to control oneself on negative emotions that exist in a person. The ability to control oneself or self-control will make a person more calm in facing all unpleasant situations so that the emotions that arise will remain under control.



The results of bivariate data analysis on the HLC chance found that there was no relationship between the HLC chance and the partnership indicator (p value = 0.158; r = 0.188), problem solving (p value = 0.472 ; r = -0.096), self care (p value = 0.728 ; r = -0.047), and emotional management (p value = 0.663 ; r = -0.058). Suryani et al., (2021) also supports the results of this study that adherence to chronic kidney disease patients is not affected by the chance of HLC. Someone who is chance-oriented HLC will have the belief that the illness that is being suffered is a form of trial or calamity so that they will assume that everything that happens is not caused by oneself or others but by destiny. Individuals with chance HLC believe that taking any action that is considered to improve their health status does not have a significant impact.

The results of bivariate data analysis on powerful others HLC found that there was no relationship between chance HLC and partnership indicators (p value = 0.255; r = 0.152), problem solving (p value = 0.079; r = 0.233), self care (p value = 0.485; r = 0.094), and emotional management (p value = 0.055; r = 0.253). The results of this study are not in line with the research of Adhanty, Ayubi, & Anshari (2021) which states that there is a relationship between powerful others HLC and dietary compliance in people with type 2 DM. Individuals with powerful others HLC believe that a person's health condition can be influenced by other people who have influences such as health workers (doctors or nurses) and people around them (family or friends). It is also influenced by several factors such as age, gender, level of education, occupation, and duration of illness. The existence of social support from both family and health workers will also be able to influence the management of a person's illness (Khomsatun & Sari, 2022).

A person who is oriented towards a Health Locus of Control (HLC) is one of several things that will influence which health behavior a person will perform (Wallston et al., 1994). From the results of this analysis it can be seen that internal HLC is one of several factors that will influence a person's self-management behavior. Managing chronic disease in patients with chronic kidney disease needs to be carried out as long as the patient is undergoing hemodialysis which includes establishing good relationships with health workers, carrying out self-care properly, being able to solve problems encountered, and being able to manage emotions well. Good self-management as a form of patient involvement to solve problems in carrying out their health care, controlling their disease, and making lifestyle changes or adjustments to be able to coexist with their chronic disease so that it will improve the quality of life (Ma et al., 2022).

## **CONCLUSION**

The conclusion from the results of this study was that there was a relationship between internal HLC and partnership, problem solving, and emotional management, but no relationship was found between internal HLC and self care in chronic kidney disease patients undergoing hemodialysis. There is no relationship between the chance dimension of HLC and the other powerful dimensions of HLC with indicators of self management, namely partnership, problem solving, self care, and emotional management of chronic kidney disease patients undergoing hemodialysis. It is hoped that future researchers will be able to find other factors that will affect the self-management of chronic kidney disease patients undergoing hemodialysis.

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