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Research Article

The Relationship between the Long-Time Undergoing Hemodialysis with Self Concept in Chronic Kidney Disease (CKD) Stadium III Patients

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Abstrak

Background: Hemodialysis therapy in patient chronic kidney disease that takes a long time, have complications, and require patient compliance. This condition will provide physiological and psychological stressors of patients which can affect the self-concept of patients.

Objectives: The purpose study to determine of relationship between the long-time undergoing hemodialysis with self-concept in chronic kidney disease (CKD) stadium III patients on Hospital X Denpasar

Methods: This research uses the method cross sectional. Sampling technique used non-probability was purposive sampling. Sample in this study were 51 respondents. The analysis used rank spearman

Results: The study result obtained majority have a underwent hemodialysis for >24 months of 45,1% and majority have a medium self-concept categories of 52,9%. Based on rank spearman result obtained p-value = 0.015 < 0.05 meant it can be concluded that there was the relationship between the long-time undergoing hemodialysis with self-concept in chronic kidney disease (CKD) stadium III patients on Hospital X Denpasar

Conclusion: Therefore for health care workers are advised to provide health promotion about the importance of self concept in patient CKD

Keywords: long-time undergoing hemodialysis, self-concept, chronic kidney disease

Introduction

Chronic Kidney Disease (CKD) is a global public health problem with increased prevalence and incidence of kidney failure, poor prognosis, and high costs. The prevalence of CKD increases with

the increasing number of the elderly population and the incidence of diabetes mellitus and hypertension. About 1 in 10 of the global population experiences CKD at some stage.¹

The World Health Organization (WHO) released data on the growth in the number of chronic kidney failure in the world in 2013 increased by 50% from the previous year and in the United States the incidence rate of *Chronic Kidney Disease* increased by 50% in 2014 and every year 200,000 Americans undergo hemodialysis.² The incidence of kidney failure in the world globally is more than 500 million people and who have to undergo hemodialysis is about 1.5 million people.³ It is estimated that the number of CKD sufferers in Indonesia is around 70,000 people and those undergoing hemodialysis 10,000 people.⁴ Riskesdas said the prevalence of *Chronic Kidney Disease* based on diagnosis in Indonesia reached 713.783 million people or 0.38% of the total population of Indonesia and kidney disease treatment ranked as the second-largest financing of BPJS health after heart disease. The highest data in north Kalimantan province was 0.64% followed by North Sulawesi province at 0.53% while Bali province was 0.44% or 12,092 people.⁵

Kidney disease can be prevented and overcome and the possibility to get effective therapy will be greater if known earlier. One therapeutic option for CKD patients is hemodialysis (HD). Hemodialysis is performed to remove certain metabolic remnants of toxins from human blood circulation, such as excess ureum, creatinine, uric acid, and other substances through semipermeable membranes. CKD patients undergo hemodialysis process two to three times a week, where each time hemodialysis takes an average of four to five hours and it is done for many years.⁶

Patients with chronic kidney failure who undergo hemodialysis often experience changes, both physically and psychologically such as, feelings of fear, anxiety, and helplessness. In addition, patients often experience impaired self-concept as well as impaired body image and have difficulty accepting themselves due to changes that occur in kidney failure.⁷ Nursalam said, a person who experiences a disease will experience stages of psychological reactions due to changes in both physical and function. The first reaction is denial, anger, bargaining, acceptance, and the last is depression.⁸ Clients undergoing Hemodialysis will experience psychosocial changes that can affect his or her concept in everyday life. Patients with chronic kidney failure who undergo hemodialysis often experience changes, both physically and psychologically such as, feelings of fear, anxiety and helplessness. In addition, patients often experience impaired self-concept as well as impaired body image and have difficulty accepting themselves due to changes that occur in kidney failure.⁷ Nursalam said, a person who experiences a disease will experience stages of psychological reactions due to changes in both physical and function. The first reaction is denial, anger, bargaining, acceptance, and the last is depression.⁸ Clients undergoing Hemodialysis will experience psychosocial changes that can affect his or her concept in everyday life.

Based on the results of preliminary studies at RS X, total data on CKD patients who underwent hemodialysis in 2019 as many as 184 people and who underwent routine hemodialysis as many as 98 people. In February 2020 the number of patients undergoing regular HD as many as 102 people and based on the study obtained as many as 46 patients diagnosed with stage III CKD and undergoing routine HD in Hospital X. Based on the results of interviews conducted to 10 respondents invited to get as many as seven respondents felt embarrassed because they were attached to their body hoses and based on the spread of questionnaires from 10 respondents most respondents experienced self-concept disorders in the moderate category with an average score of 63.2%. Based on the data shows patients undergoing hemodialysis experience impaired self-concept, the efforts that have been done by nurses so far only by providing support to families and patients but still do not show maximum change. Based on the phenomenon and data that have been outlined, it makes the basis for researchers to know the long-term relationship of undergoing hemodialysis with self-concept in patients with *chronic kidney disease* (CKD) stage III at Hospital X Denpasar.

Methods

The research design used in this study was descriptive correlative with a cross-sectional research design. Duration of hemodialysis and self-concept were measured using a questionnaire that had been tested for validity and reliability. The study was conducted at the Hemodialysis Polyclinic of RS X Denpasar which was held from November 2020 to December 2020. The sample of this study was selected by 51 respondents using a non-probability sampling technique with purposive sampling based on predetermined inclusion and exclusion criteria. The data were analyzed using the Spearman rank test

Results

The analysis obtained the following results:

Table 1. Characteristics of Respondents Based on The Length of Time Of Hemodialysis

Long Time undergoing HD	F	%
<12 Months	12	23,5
12-24 Months	16	31,4
>24 Months	23	45,1
Total	51	100

Table 2. Characteristics of Respondents Based on Self-Concept

Self-Concept	F	%
Good	20	39,2
Sufficient	27	52,9
Bad	4	7,8
Total	51	100

Table 3. Analysis of His Long-Term Relationship With Self-Concept In Patients With *Chronic Kidney Disease* (CKD) stage III

Long Time undergoing HD	Self-Concept						Total	r	p-value	
	Good		Sufficient		Bad					
	f	%	f	%	f	%				
<12 Months	7	13,7	4	7,8	1	2,0	12	23,3		
12-24 Months	9	17,6	6	11,8	1	2,0	16	31,4		
>24 Months	4	7,8	17	33,3	2	3,9	23	45,1		
Total	20	39,2	27	52,9	4	7,8	51	100,0	0,339	0,015

The results of the *Spearman Rank* statistical test between the old variable undergoing hemodialysis with self-concept obtained nilair-count = 0.339 and $p\text{-value} = 0.015$ where $p < \alpha (0.05)$ then H_0 is rejected. This means that there is a long-term relationship of hemodialysis with self-concept in patients with *Chronic Kidney Disease* (CKD) stage III in Hemodialisa Polyclinic HOSPITAL X Denpasar with low positive relationship strength, as much as 33.9% of husband support is related to the level of kecemasan and as much as 76.1% related to other factors of the relationship.

Discussion

Husband's Supportive Relationship With Primigravida's Mother's Anxiety

The results of the study based on the results of observations of the duration of undergoing hemodialysis in *patients chronic kidney disease* (CKD) stage III who undergo HD regularly in polyclinic hemodialysis RS X obtained most respondents have undergone hemodialysis with a period of >24 months as many as 23 respondents (45.1%). Campbell divides the length of hemodialysis therapy into 3 i.e., less than 12 months, 12-24 months, and more than 24 months (Campbell Walsh, 2012). The duration of hemodialysis in one cycle takes 4-5 hours which is done 2-3 times each week but also depends on the needs of the patient. Patients undergoing long periods of HD will have different levels of desires and will affect the patient's self-concept.⁹

CKD is defined as the presence of kidney damage characterized by abnormal albumin excretion or decreased kidney function seen by examination of glomerular filtration rate (LFG) of less than 60ml/min/1.73m², with or without any kidney damage lasting more than 3 months.^{10,11} CKD occurs due to tissue injury, some of the kidney tissue causes a reduction in kidney mass, which then results in the process of adaptation in the form of hypertrophy in the structure and function of the renal nephron that causes the GFR to decrease.¹² In LFG below 15% there will be more serious symptoms and complications, and patients already need dialysis therapy or commonly called hemodialysis (HD).¹¹ The main purpose of HD is to replace kidney function so that it is able to maintain the body's homeostasis. For CKD patients, hemodialysis can control uremia symptoms and maintain survival. So patients with CKD must undergo hemodialysis throughout their lives that last three times a week 3-4 hours once therapy.¹¹ But HD that requires a long time will result in the emergence of several health problems, one of which provides physiological and psychological stressors.¹² The longer the patient undergoes HD is inversely proportional to the patient's self-concept, it is due to a decrease in body physiological function that will result in the patient's body image decreased.¹³

The results of the study in line with Wahyuni's research, P (2018), hasil research showed that of 31 patients with diabetes mellitus who underwent hemodialysis, most respondents had undergone hemodialysis for >12 months as many as 17 people (54.8). The physical impact felt by DM patients undergoing hemodialysis of weight gain, dry-looking skin, and the presence of a double lumens tool installed makes the patient feel inferior when meeting with others.¹⁴ In line with the research of Mayuda, A (2017), the research of 44 respondents to chronic kidney disease who undergo hemodialysis was obtained as many as respondents had undergone hemodialysis < 5 years, namely as many as 28 respondents (63.6%) while those undergoing hemodialysis > 5 years as many as 16 respondents (36.4%). The process of hemodialysis therapy that requires long-term will affect various aspects of life. Patients will experience impaired concentration, thought processes to disruptions in social relationships. All these conditions will cause a decrease in the quality of life of patients.¹⁵

The results of the study were also supported by Bayhakki's research (2017), research from 34 who underwent hemodialysis obtained 20 respondents (58.8%) who underwent hemodialysis for 12-24 months, 9 respondents (26.5%) who underwent hemodialysis for 25-35 months and there was one respondent who had undergone hemodialysis >61 months. CKD patients tend to experience weight gain caused by the inability of the kidneys to work optimally which causes excess volume of fluid in the body so that hemodialysis therapy is needed. The longer pasesin undergo hemodialysis it will cause an impact one of them psychologically.¹⁶

Based on the results of research penelliti assumes CKD patients will experience a decrease in kidney function that causes the kidneys can not work optimally if not handled properly will cause the body to experience excess volume of fluid. Efforts that can be done one of them by doing hemodialysis. Hemodialysis that is done not only enough once will usually be done 2-3 times a week with a duration of 3-4 hours once therapy. The high number of long-standing hemodialysis shows that most hemodialysis patients are able to survive long enough even in a condition of kidneys that do not function properly and various health problems due to kidney damage experienced. Seeing the

length of undergoing hemodialysis therapy will have an impact on the health of the patient's body both physiologically and psychologically.

Self-Concept in *Patients with Chronic Kidney Disease (CKD) stage III*

Research result based on measurement of self-concept value in *patients chronic kidney disease (CKD) stage III* who undergo hemodialysis in polyclinic hemodialysis RS X obtained most respondents have self-concept in the moderate category as many as 27 respondents (52.9%) and obtained as many as four respondents (7.8%) who are in the bad category. The decreased self-concept in patients is caused by kidney disease that causes patients to undergo hemodialysis regularly. Changes in self-concept in CKD patients are caused by the patient no longer being able to meet the expectations of his family and his environment, which will cause tension and conflict.¹⁷

Self-concept is all the ideas, thoughts, beliefs, and stances that individuals know about themselves and influence individuals in relating to others.¹⁸ Self-concept is divided into several parts, including self-identity, self-image, self-ideal, self-role, and self-esteem. Each individual has a range of fluctuating self-concepts that are adaptive to maladaptive caused by several influencing factors such as education, developmental level, culture, resources, experiences, age, and stressors,¹⁸

One of the factors that affect self-concept is the existence of internal factors, namely self-confidence and self-worth, the greater the resources that individuals have, their influence on positive self-concept.¹⁹ Chronic kidney failure patients who undergo hemodialysis therapy with negative body image from the results of the study obtained by researchers because the patient feels bad things about him, feels afraid of his current state, does not want to talk about the limitations of the body during pain, can not accept himself as is, refuses to talk about his condition this makes sufferers feel less confident and there is a sense of hopelessness. This is because the patient is less able to accept the changes that occur in his body because of the condition he experiences that cause embarrassment and fear of the condition of his body.

Self-concept is very dynamic because it constantly changes along with new perceptions and experiences. Individuals who deny the existence of body defects, do not accept their bodies as they are, and feel anxious usually have a negative self-concept. In everyday life, such as in social circles when they interact with others they refuse to talk about their body limitations and feel worried about the condition of their bodies that cause despair. In the conditions and situations experienced by chronic kidney failure patients undergoing this hemodialysis therapy that ultimately makes them have a negative self-concept.¹⁹

In line with the results of Nugroho's research (2018), the research of 50 respondents was obtained by some respondents with adaptive self-concept as many as 33 respondents (66%) while there were as many as 17 respondents (34%) who had maladaptive self-concept. Negative self-concept in patients undergoing hemodialysis is caused because respondents experience physical problems, such as weakness, itching on the skin, thin hair, weight loss (malnutrition) and also experiencing psychosocial problems such as silence, not wanting to meet others, feeling disappointed, hopeless, embarrassed and useless accompanied by lack of hesitation and confidence.²⁰

Wakhid research (2019), as research shows that of the 85 respondents studied, most respondents had negative self-concept as many as 52 respondents (61.2%). The state of dependence on hemodialysis machines results in changes in the life of patients with terminal kidney failure who perform hemodialysis therapy. Changes that occur such as financial problems, difficulty in maintaining a job, disappearing sexual urges and impotence, depression due to chronic pain, feelings of disappointment and hopelessness.²¹

Supporting research conducted by Fitriyanti (2014), research shows that according to most respondents have a negative self-concept of 41 people (67.2%), and patients undergoing hemodialysis experience depression which is as many as 50 people (82%). People with chronic kidney failure who have a negative self-concept will tend to be pessimistic about the situation they

experience, hate themselves, are unable to appreciate and accept their condition, always think negatively, close themselves, and avoid when interacting with others.²²

Based on the results of research, researchers assume self-concept affects aspects of life including relationships, functional abilities, and health status. Everyone has a positive and negative view of themselves on the physical, emotional, intellectual, and functional dimensions that will change at any time depending on the situation. Chronic diseases such as CKD that require undergoing hemodialysis can affect a person's self-concept to stressors and affect a person's self-concept.

His Long-Term Relationship With Self-Concept In Patients with *Cronic Kidney Disease* (CKD) Stage III

The results of the *Spearman Rank* statistical test between the old variable undergoing hemodialysis with the self-concept obtained the value $p\text{-value} = 0.015$ where $p < \alpha$ (0.05) then H_0 was rejected. This means a long-term relationship of hemodialysis with self-concept in patients with *Cronic Kidney Disease* (CKD) stage III at RS X. The value of $r\text{-calculate} = 0.339$ means that there is a relationship with weak positive relationship strength, as much as 33.9% of the length of undergoing hemodialysis with self-concept and as much as 76.1% related to other factors. Kis the strengthening of a medium positive relationship meaning that one variable increases, another variable increases. The weak relationship seen from the $r\text{-calculated}$ value ranges from 200-399, meaning the old variable undergoing hemodialysis with self-concept has only a relationship of 20-39%, and the rest relates to other factors such as age, education, and work that affect self-concept in patients *chronic kidney disease* (CKD) stage III.

Thomas (2013) says hemodialysis is a way to remove metabolic waste products in the form of solutions (ureum and creatinine) and water present in the blood through semipermeable membranes or so-called dialysis. Hemodialysis works similarly to the kidneys in the body where blood flow in hemodialysis full of toxins and nitrogen waste is diverted from the patient's body to the dialyzer where the blood is cleaned and then returned to the patient's body (Brunner & Suddarth, 2013). Hemodialysis therapy is generally done as much as 2 times a week with each Hemodialysis for 5 hours or 14 as much as 3 times a week with each hemodialysis for 4 hours (Suwitra, 2014). Pranoto (2010) divides the length of hemodialysis therapy into 3 i.e., less than 12 months, 12-24 months, and more than 24 months. Patients who undergo hemodialysis for more than 10 years then have a kidney transplant has worse outcomes compared to patients who have had a kidney transplant who previously did hemodialysis therapy in a shorter time, then it is not uncommon for patients who undergo hemodialysis will experience a decrease in self-concept (Campbell Walsh, 2012).

Self-concept is a way of one's view of oneself as a whole as a result of observation of oneself in the past and the present (Hurlock, 1980). Stuart & Sudeen (1998), states that self-concept consists of five other parts of self-identity, self-image, self-ideal, self-role, and self-esteem where the range of individuals there is a self-concept fluctuating along with the range of self-concept responses that are adaptive to maladaptive. The self-concept of each individual will be different depending on how the individual's output in responding to the stressors he gets, individuals who are able to deal with the stressor cenderung have adaptive self-concept and vice versa. Self-concept is influenced by several factors, according to Suliswati (2005) one of which is caused by a decrease in body function and the use of tools. CKD patients tend to experience a decrease in kidney function and not a few who have to undergo hemodialysis therapy for many years, it causes patients to experience a decrease in self-concept caused by the stressor received, and not infrequently the response received becomes maladaptive.

Based on the results of observations during the study, most respondents had undergone hemodialysis >24 months and had a self-concept in the moderate category of 17 respondents (33.3%). This is because people with chronic kidney failure who have long undergone hemodialysis therapy feel inferior to their current physical state that makes them feel like a failure, often criticize themselves, feel useless and pessimistic and cause the patient's self-concept to decrease. However,

there was one respondent (2.0%) who underwent hemodialysis <12 months but had a self-concept in the bad category. This is due to respondents of the female sex and is in the age category of 36-45 years (Late Adulthood) which is included in the productive age. Based on the results of questionnaires respondents feel embarrassed and lack confidence with their current condition. In line with the theory put forward by Tarwoto & Wartona (2013), age is one of the individual factors in overcoming accepted stressors.

The results of Purawati's research, H. (2019), the results of data analysis using *spearman rank* tests between the variables of the length of time undergoing hemodialysis with quality of life are $0.000 < 0.006$. Long undergoing hemodialysis therapy has an influence on the quality of life. Each patient has a different time in adapting to the changes experienced both in terms of physical and psychological so that the patient's self-concept tends to decrease which will be accompanied by a decrease in quality of life, so it takes a different time from each individual to adapt.²³

Vina's research, (2017), the results of data analysis with the *Pearson Product Moment* test, then obtained a value of 0.001. Dialysis activities that are routinely undertaken by kidney failure patients will have an impact on the loss of hope that will trigger the onset of depression. Depression arises due to significant and prolonged changes to the psychological state as well as a decrease in the physical ability of the patient.²⁴

Supporting research conducted by Wahyuni, P (2018), hasil data analysis using the *Chi-Square* test obtained a p-value of 0.022, The quality of life of HD patients often decreases because patients have to change their regular life habits. Especially for patients who are undergoing hemodialysis for the first time, then many changes that occur both in terms of physical that can trace the self-concept to the individual.¹⁴

Based on the results of research, researchers assume that the long stress of undergoing hemodialysis will have an impact on the patient's self-concept. CKD patients require patients to undergo long hemodialysis therapy that can result in changes both in terms of physical and psychological patients. But not a few patients who undergo hemodialysis for the first time will experience a drastic decrease in self-concept that will change their life habits during this time, not to mention the installation of hemodialysis tools such as double lumen and AV-Shunt that provide poor body image of patients so as to reduce the patient's self-concept.

Conclusion

The results of a long-standing analysis of hemodialysis with self-concept using the *spearman rank* test, there is a significant relationship between the length of undergoing hemodialysis and self-concept in patients with *Chronic Kidney Disease* (CKD) Stage III.

Conflict of Interest Declaration

In this research is independent of the conflict of interest of both individuals and organizations

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