



Concept of Self-Efficacy Analysis in CKD Patients Undergoing Hemodialysis

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Abstract. The prevalence of chronic kidney disease (CKD) patients undergoing Hemodialysis is increasing day by day. The long duration and risks of undergoing a hemodialysis program are reasons for CKD patients to routinely participate in this hemodialysis program. A high level of self-efficacy is needed so that CKD patients who need a hemodialysis program can feel comfortable and motivated to undergo this therapy. The aim of this concept analysis is to analyze the concept of self-efficacy in CKD patients undergoing a hemodialysis program. The method applied is using the 8-step guide from Walker and Avant. The results of the analysis of attributes of the concept of self-efficacy in CKD patients include serum urea creatinine levels, IDWG levels, fluid intake restrictions, training programs or exercise and duration of hemodialysis in CKD patients. Antecedents of the concept of self-efficacy in CKD patients include knowledge, stress level, financial factors and spiritual support - family. Meanwhile, the consequences of self-efficacy in CKD patients are health status, behavior changes, self-management and quality of life. The need for understanding and putting high self-efficacy in CKD patients undergoing HD, for sure, has a huge impact on the quality of life and prognosis of the disease. High self-efficacy will also increase self-motivation and life expectancy in CKD patients.

Keywords: Self Efficacy, CKD, Hemodialysis, Quality of Life, Analysis Concept.

1. Introduction

Chronic Kidney Disease or CKD occurs when the kidneys are no longer able to work as they should, namely transporting the body's metabolic waste which is usually eliminated through urine. In this disorder, there is an accumulation of body fluids, resulting in impaired renal excretion and an impact on endocrine and metabolic functions, fluids, electrolytes and acid base disorders [1], [2]. One of the most common signs and symptoms in CKD patients is edema in the extremities and throughout the body, and complaints of very minimal urine production.

according to data from the United States Renal Data System (USRDS) in 2018 in America there was an increase in CKD of 13.8% in 2016. Meanwhile in Indonesia the incidence of CKD also increased by 0.38% when compared to 2013 data [2]. The increasing number of

CKD incidents is certainly a serious problem both for the world of health and other related sectors.

End-stage CKD patients usually need Kidney Replacement Therapy (KRT) in the form of kidney transplantation, hemodialysis or Peritoneal Dialysis (PD). It is hoped that KRT can prevent the worsening of the CKD condition experienced so that it will improve the quality and life expectancy of CKD patients [3]. For some CKD patients, the hemodialysis therapy program is an option for financial and procedural reasons.

The problems that arise when CKD patients undergo a hemodialysis program are related to compliance with the hemodialysis program. Compliance with CKD patients in undergoing a hemodialysis program greatly determines how good the prognosis of the disease is. In addition, the complaints felt by several CKD patients undergoing hemodialysis are the side effects they experience and the high cost of treatment which will ultimately have an impact on the quality of life and health care of the patient [4].

One factor that influences on CKD patient compliance in undergoing hemodialysis is how good the CKD patient's level of self-efficacy is. Self-efficacy can be interpreted as if an individual has confidence or belief that he can achieve a result, then that individual will be more active in managing himself so that he will be able to control his health condition [5]. Self-efficacy is also very important in ensuring better self-care so that it can improve the quality of life related to their health conditions, especially in CKD patients undergoing hemodialysis.

Several studies show that self-efficacy is related to changes in behavior for the better, such as compliance in undergoing hemodialysis, communication, problem solving and support systems in patients with chronic diseases, one of which is CKD. Research from Sarita Shah concluded that self-efficacy in hemodialysis patients is influenced by knowledge related to self-management in undergoing a hemodialysis program. [6]. The more the patient understands and has good knowledge, the self-efficacy of the patients will automatically increase in undergoing the hemodialysis program.

Patients who undergo self-efficacy training will also have better knowledge and attitudes in undergoing the hemodialysis program compared to patients who do not receive self-efficacy training [7]. Another opinion also states that it is necessary for CKD patients to have good family support in undergoing a hemodialysis program because family support will increase the patient's self-efficacy [8], [9]. With good self-efficacy, it is hoped that CKD patients undergoing hemodialysis will have a good quality of life and be able to maintain their disease condition better and under control.

Based on the description of the problem above, the aim of this analysis concept is to explain what attributes are related to the concept of self-efficacy in CKD patients undergoing hemodialysis programs and formulate a new concept model based on the antecedents and consequences of this analysis concept.

2. Method

The Walker and Avant analysis concept method was used in creating a manuscript for the concept of self-efficacy analysis in CKD patients undergoing a hemodialysis program. There are 8 steps, namely 1) choosing the concept to be analyzed, 2) explaining the aims and objectives of the analysis, 3) identifying all uses of the concept, 4) determining the attributes that define the concept, 5) building or identifying a case model: identifying cons, borderlines, discovery relationships, valid cases, 6) identifying antecedents and consequences related to the concept, 7) determining empirical references and 8) making a final definition of the concept [10], [11].

After the analysis concept has been determined, reference sources are searched for from the electronic data base in the form of articles relevant to the topic of this concept using search keywords that have been determined by the researcher. The electronic databases used to search for articles on this concept are Google Scholar, PubMed, and DOAJ. The process of screening articles that have been found is carried out by a team of reviewers who are guided by the inclusion and exclusion criteria for article searches. Articles that are included in the inclusion criteria are those that have topics relevant to this concept in the form of full text in English or Indonesian, publication year between 2018 - 2023.

3. Results And Discussion

It is hoped that this analysis of the concept of self-efficacy will be able to formulate a new theory or concept related to self-efficacy in CKD patients undergoing hemodialysis. The steps in analyzing the concept of self-efficacy are as follows:

3.1. Choosing a concept

In this analysis the concept chosen is related to the analysis of the concept of self-efficacy in CKD patients undergoing hemodialysis. A frequently encountered phenomenon is that there are many factors that are reasons for CKD patients not making decisions about hemodialysis therapy. These reasons will ultimately affect the self-efficacy of CKD patients so that they are reluctant or unwilling to undergo a hemodialysis program as one of the therapies they should do.

3.2. Choosing the objective of the analysis concept

The purpose of writing this self-efficacy analysis concept is to explore it in more depth, including identifying attributes, antecedents, and consequences related to the concept of self-efficacy in CKD patients undergoing hemodialysis programs.

3.3. Identifying the use of each concept analyzed

The meaning of the word "self" in the Big Indonesian Dictionary (KBBI) is a person (separate from others). William D. Brooks conveys another view regarding the concept of self as "those physical, social, and psychological perceptions of ourselves that we have derived from experiences and our interactions with others". So, self-concept is our views and feelings about ourselves. This perception of self can be psychological, social and physical [12]. The definition of efficacy according to the Oxford dictionary is the ability to produce a desired or intended result or the ability to produce something in accordance with desires. The Merriem Webster dictionary has another definition where the meaning of the word efficacy is "the power to produce an effect" or the power to produce a certain influence. Self-efficacy is defined as a person's belief in his or her ability to organize and carry out a series of actions necessary to complete a particular task [13].

CKD, which is defined as chronic kidney disease, is a condition of progressive and irreversible decline in kidney function which is characterized by fluid accumulation and uremia as well as a decrease in the glomerular filtration rate in the blood [14]. Hemodialysis is a kidney replacement therapy that is capable of excreting metabolic waste products and maintaining fluid and electrolyte balance through a semipermeable membrane that can act as an artificial kidney [15], [16].

Clinically, hemodialysis can prolong survival time and improve the quality of life of CKD patients. However, the success of the hemodialysis process is largely determined by compliance in undergoing a series of management of CKD patients undergoing hemodialysis [17]. Self-efficacy in CKD patients undergoing hemodialysis is a self-confidence in CKD patients to want and feel the need to undergo a hemodialysis program in the hope of getting a better quality of life and being able to control their disease condition.

3.4. Identifying the attributes of the self-efficacy concept in CKD patients undergoing hemodialysis

Determining the attributes of self-efficacy analysis was obtained from searching several articles relevant to the topic of this manuscript. In the concept of self-efficacy analysis in CKD patients undergoing hemodialysis, there are several attributes that are relevant and suitable for more in-depth analysis. Attributes related to the concept of self-efficacy analysis in CKD patients are urea and creatinine serum levels, Interdialytic Weight Gain (IDWG) levels, fluid intake restrictions, physical activity training and duration of the hemodialysis program.

Serum urea and creatinine levels are one of the main references for how serious the patient's kidney problems are. Apart from that, urea and creatinine levels are determining factors whether CKD patients need hemodialysis therapy or not. Damage to the kidneys certainly causes metabolic waste in the form of urea and serum creatinine to accumulate. In CKD

patients there will be an increase in serum urea and creatinine levels of more than 100% so hemodialysis is necessary to reduce the symptoms of uremia and the prognosis of the disease will also improve [18].

A complaint that may be felt by CKD patients undergoing hemodialysis is pain. The need to teach patients about pain management techniques is a very helpful intervention in reducing pain complaints in patients. CKD patients undergoing hemodialysis are very vulnerable to experiencing chronic pain complaints so they need to have good self-efficacy to be able to control and tolerate the pain complaints they feel [19]. High self-efficacy will have an impact on good health behavior in controlling perceived chronic pain so that CKD patients will also have lower levels of psychological stress and a higher quality of life.

Interdialytic Weight Gain (IDWG) is often found in patients with CKD where there is an increase in the amount of fluid which causes weight gain as a basis for determining the amount of fluid received during the interdialytic period [20]. This increase in IDWG can cause various complications and lead to death in CKD patients. The need for high self-efficacy in CKD patients in controlling IDWG is very important, one of which is limiting daily fluid intake.

Restricting fluid intake in CKD patients is something that really needs to be considered by both CKD patients and also medical personnel who provide care to these CKD patients. Patients undergoing prolonged hemodialysis tend to have a low level of compliance with fluid intake restrictions [21]. Providing education regarding the need to limit fluid intake is one intervention that can be given to CKD patients. However, fluid restriction interventions for CKD patients are often very difficult to implement. This is because the patient's knowledge and motivation are low, which will have an impact on their self-efficacy in limiting fluid intake. Moreover, consumption of diuretic drugs is also a reason for CKD patients not to comply with limiting their fluid intake.

Physical activity training and self-care for CKD patients undergoing hemodialysis are also things that influence the self-management of CKD patients. By regularly doing physical exercise and self-care, CKD patients will have better self-management so that the patient's quality of life will also improve [7], [22].

The next attribute of self-efficacy in CKD patients is related to the duration of hemodialysis experienced. The duration of the hemodialysis program undertaken by CKD patients is related to the patient's level of self-efficacy in undergoing hemodialysis. Patients who have a long duration of hemodialysis and experience undergoing hemodialysis will have a higher level of self-efficacy compared to CKD patients who have a short duration of hemodialysis [4].

3.5. Identifying Case Studies

Creating a case model is an attempt to explain each characteristic of the concept in the exemplary case. Cases can come from facts that occur in the environment, literature or the result of the author's construction [10], [23]. The case model formed from the analysis of the concept of self-efficacy in CKD patients undergoing hemodialysis comes from the attributes that have been formulated in this concept, including serum urea and creatinine levels, Interdialytic Weight Gain (IDWG), fluid intake restrictions, physical activity training and duration. hemodialysis program.

Model cases

Mr. S, 65 years old, was diagnosed with CKD stage 5 and is currently undergoing hemodialysis. The patient came with complaints of shortness of breath, panting, the extremities appeared edematous and the breath smelled of ketones. The patient's family said that the patient had a history of uncontrolled high blood pressure. Level of urea creatinine serum: When examined the patient had a urea level of 156.2 mg/dl and serum creatinine 8.54 mg/dl. IDWG Level: The patient's extremities appear swollen and the patient's urine appears to be leaking a little during the HD program. The patient said that this was his fifth hemodialysis program. The patient said he was able to accept the condition and the treatment he had to do to maintain the stability of his condition. Restricting fluid intake: This includes limiting what you drink. Physical activity and exercise: The patient also said that when he returned from hemodialysis his body would be fresher and complaints of tightness and swelling would decrease so he would routinely do physical activities such as exercise according to his ability every day. Duration of hemodialysis: The patient's family also said that the patient received a routine hemodialysis schedule once a week with a duration of approximately 4 hours.

Based on this case model, it can be seen that patient Mr. S already has good self-management and self-efficacy, so he can undergo the hemodialysis program well. With conditions like this, of course patient Mr. S will be able to improve his quality of life and health status.

Borderline Cases

Mr. S, 65 years old, was diagnosed with CKD stage 5 and is currently undergoing hemodialysis. The patient came with complaints of shortness of breath, panting, the extremities appeared edematous and the breath smelled of ketones. The patient's family said that the patient had a history of uncontrolled high blood pressure. The nurse checked the laboratory results, namely the level of urea creatinine serum from Mr. S: When examined the patient had a urea level of 156.2 mg/dl and serum creatinine 8.54 mg/dl. The patient said that this was his fifth hemodialysis program. The patient said he was able to accept the condition and the treatment he had to do to maintain the stability of his condition.

Restricting fluid intake: Mr. S said he understood the advice and recommendations of doctors and nurses to limit the number of fluids they should consume. However, sometimes the patient drinks tea and fruit juice whenever he wants without the family's knowledge. **Physical activity and exercise:** The patient also said that when he returned from hemodialysis his body would be fresher and complaints of tightness and swelling would decrease so he would regularly do physical activities such as exercise according to his ability every day. **Duration of hemodialysis:** The patient's family also said that the patient received a routine hemodialysis schedule once a week with a duration of approximately 4 hours.

Based on this case model, it can be seen that the patient Mr. S already has some self-management that is in accordance with the attributes of self-efficacy analysis in CKD patients. It's just that sometimes patients forget to limit fluid intake which they should adhere to.

Contrary cases

Mr. S, 65 years old, was diagnosed with CKD stage 5 and is currently undergoing hemodialysis. The patient came with complaints of shortness of breath, panting, the extremities appeared edematous and the breath smelled of ketones. The patient's family said that the patient had a history of uncontrolled high blood pressure. The nurse checked the laboratory results, those are the level of urea creatinine serum from Mr. S: When examined the patient had a urea level of 156.2 mg/dl and serum creatinine 8.54 mg/dl. While at the hospital, Mr. S was always given an explanation by doctors and nurses about how to maintain his health condition by limiting fluid intake, carrying out regular physical activity and undergoing a hemodialysis program according to a mutually agreed schedule.

Mr. S family said that when at home the patient refused to follow the family's advice to exercise regularly every morning and limit his fluid intake. He often drinks tea, fruit juice and water as he please without restriction. Every time the hemodialysis schedule comes, Mr. S says he doesn't want to go to the hospital. The patient feels bored with the treatment he has had to do so far.

3.6. Identifying Antecedents and Consequences

Antecedents

Antecedents are criteria that are formulated before a concept is defined. The level of self-efficacy in CKD patients has a correlation with their self-management and quality of life. The higher the level of self-efficacy in CKD patients undergoing hemodialysis, of course they will have good self-management skills so they will achieve a much better quality of life compared to CKD patients with low self-efficacy. Antecedents in the concept of self-efficacy analysis in CKD patients undergoing hemodialysis are knowledge, stress level, financial factors, spiritual and family support.

Knowledge is often related to how well CKD patients understand receiving hemodialysis program interventions and also knowledge regarding the disease they suffer from. One of the benchmarks for knowledge is the education level of CKD patients. The higher the patient's education, it is hoped that they will have high knowledge so that they will have high self-efficacy in undergoing hemodialysis [24], [25]. In this way, the quality of life of CKD patients will also increase compared to patients who have lower knowledge.

CKD patients who are just about to undergo hemodialysis will face a phase of excessive stress and worry compared to CKD patients who have undergone hemodialysis several times. This is in accordance with the concept of self-efficacy, one of the determining factors is experience. CKD patients, especially those undergoing hemodialysis, need to practice stress management so they can improve coping and self-efficacy [26].

Financial factor is one of the reasons that CKD patients often complain about, so they are reluctant to undergo hemodialysis. This financial capability is related to financial support or financing while undergoing treatment and hemodialysis. Nurses need to educate patients and families to be able to utilize existing health facilities more efficiently and effectively, one of which is by utilizing health insurance such as Indonesian Health Insurance (BPJS).

Spiritual and family support is very influential on the level of self-efficacy in CKD patients [9]. The family or people around the patient need to support and provide great motivation, so that the patient is inspired and ultimately the level of self-efficacy in undergoing hemodialysis will increase. Spiritual therapy is very effective given to CKD patients in order to increase self-efficacy in undergoing hemodialysis [27].

Consequences

Consequences are everything that will result, and are a consequence that comes from this concept. Consequences can be specific or more general and can be positive and negative [28]. In the concept of self-efficacy analysis in CKD patients undergoing hemodialysis, the resulting consequences are health status, behavior changes, self-management and quality of life.

CKD patients who have high self-efficacy will certainly feel the need for optimal health status. Health status includes how well CKD patients maintain their health condition, reduced need for hospitalization and the ability to control physiological conditions such as controlled urea creatinine levels, controlled IDWG levels and fluid intake consumed according to the patient's needs and clinical condition.

CKD patients with a high level of self-efficacy tend to have a good mindset and good knowledge, which will influence their behavior. Positive behavioral changes will certainly have an impact on self-management and also the patient's quality of life.

3.7. Identifying Empirical References

Empirical reference is actual data whose presence indicates the occurrence of a concept and can be used to recognize the characteristics or attributes that form a concept [10], [11]. In the concept of self-efficacy analysis, CKD patients undergoing hemodialysis are assessed using a standardized instrument, namely using the Chronic Kidney Disease Self-Efficacy (CKD-SE) assessment questionnaire which consists of several questions to obtain information from respondents or CKD patients. The chronic kidney disease self-efficacy (CKD-SE) instrument consists of 25 question items consisting of aspects (Autonomy: 8 questions, Self-Integration: 7 questions, Problem Solving: 6 questions, and Seeking Social Support: 4 questions).

3.8. Identifying The Analysis Concept Model

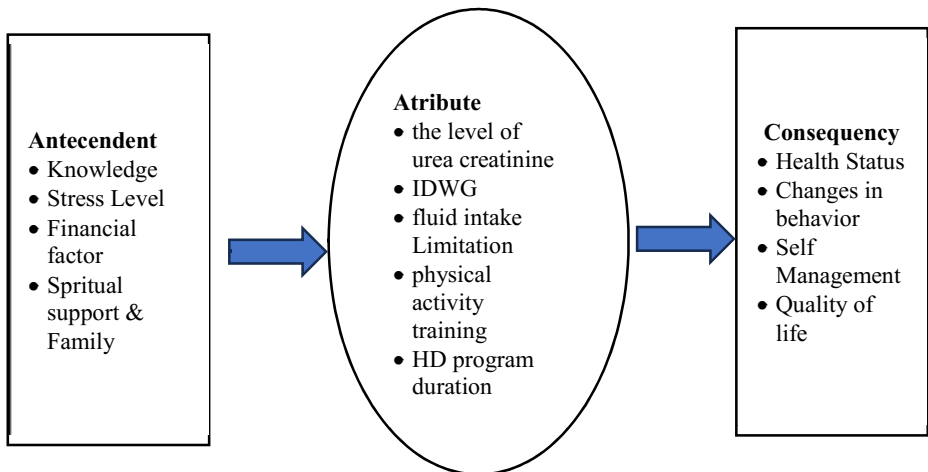


Fig 1. Conceptual model of self-efficacy analysis in CKD patients

4. Conclusions

The concept of self-efficacy in CKD patients undergoing hemodialysis needs to be analyzed deeper because it can be seen what factors influence and are related to the self-efficacy of CKD patients. Based on the results of this self-efficacy concept analysis, nurses will be able to provide appropriate and effective interventions and also need to provide certain system support related to the problems complained of by CKD patients who are undergoing a hemodialysis program.

Authors' Contributions

The contribution of the main researcher as the initiator and conceptualizer of this analysis, while the other researchers assisted in the preparation and writing of this article.

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