



Analyzing the Concept of Self-Management in Hemodialysis Patients with Chronic Kidney Disease

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Abstract. Haemodialysis is a therapy that functions as filtration, removing waste substances from the body's metabolism that should be expelled by the kidneys. Complications arising from haemodialysis often result from suboptimal patient self-management. Therefore, self-management is administered to motivate patients to undergo the treatment program. This concept analysis aims to explore self-management in Chronic Kidney Disease (CKD) patients undergoing haemodialysis, utilizing Walker and Avant's 8-step approach. The results of the attribute analysis of the Self-Management concept in CKD patients encompass Interdialytic Weight Gain (IDWG), haemoglobin levels, and the duration of haemodialysis. Antecedents of self-management in CKD patients include knowledge, stress levels, and support systems. Consequences of self-management in CKD patients involve changes in health status, behaviour, and the overall quality of life. Heightened self-management also correlates with increased motivation and life expectancy in CKD patients. In conclusion, self-management positively influences CKD patients undergoing haemodialysis. The concept analysis is expected to serve as a recommendation in academic and healthcare settings, aiming to enhance the quality of life for patients undergoing haemodialysis.

Keywords: Hemodialysis, Self-Management, CKD.

1. Introduction

Chronic Kidney Disease (CKD) is a gradual and permanent decline in kidney function, leading to metabolic and electrolyte imbalance in the body [1]. Damage to the kidneys causes problems with the body's strength and abilities. As a result, daily activities are disrupted and the body feels weak quickly [2].

Around 800 million people worldwide, constituting approximately 10% of the global population, experience CKD. In Indonesia, the prevalence of CKD has risen by 0.38% since 2013. The increase in people with hypertension and diabetes mellitus is the main cause of CKD (Ministry of Health of the Republic of Indonesia, 2018). The prevalence of CKD in Central Java Province appears to be lower than the national prevalence. Data in 2019 showed that 1,243 people died due to CKD [3].

End-stage renal disease (ESRD) patients, who CKD, can undergo treatment with dialysis. Dialysis as a routine treatment therapy is considered safe and effective enough to improve the quality of life of patients with CKD [4]. A critical concern during hemodialysis is the Interdialytic Weight Gain (IDWG), where patients experience a rise in fluid volume and body weight between dialysis sessions. IDWG serves as an indicator for regulating fluid intake during interdialytic periods and assessing patient compliance with fluid management during hemodialysis therapy [5].

Treatment for chronic kidney failure patients is a challenging problem for patient welfare and a burden on global health services, because this is one of the main expenses of the health care system [6]. This reinforces the notion of self-care by promoting active individual participation in preventing, controlling, and managing chronic illnesses, thereby enhancing quality of life and reducing healthcare expenses. Engaging individuals in self-care necessitates acquiring additional knowledge, motivation, and skills to effectively manage their health [7]. Kidney failure patients undergoing hemodialysis must receive a program, one of which is limiting fluid intake, because excessive fluid intake can result in weight gain. Preventive efforts to prevent an increase in interdialytic weight loss (IDWG) can be done by providing self-care management interventions.

The concept of self-care involves individuals assuming responsibility for promoting health, preventing diseases, and managing treatment. In accordance with LeBlanc who stated that self-care is an activity carried out by a person to improve health, restore health, prevent disease and limit disease [8]. Self-care is defined as activities that a person carries out independently or in collaboration with professionals with the aim of maintaining health, preventing and treating disease [9].

Prior research titled "Concept Analysis of Self-care in the Elderly Population with Chronic Illness" revealed that self-care is intricately linked with various other concepts, including "coping, compliance, empowerment, active participation, self-management, self-monitoring, and self-efficacy" [7]. Concept analysis focuses and clarifies self-care management in patients with chronic diseases. Meanwhile, research that focuses on self-management in chronic kidney failure in general has never been carried out and needs to be improved.

Fluid intake restriction programs that do not run optimally are often associated with low self-management. This shows that all treatment methods need continuity with other aspects which include, diet by paying attention to foods that are taboo and recommended for CKD patients, early ambulation, and treatment [10]. The aim of managing fluid restrictions is to prevent oedema, wet crackles in the lungs, and shortness of breath caused by excessive fluid [11]. Apart from that, the recommended diet is to maintain a balanced nutritional content. Regular treatment and early ambulation provide a relaxing effect on CKD patients.

Social support given to CKD patients can have a good impact on the emergence of self-efficacy in patients and influence quality. This social support can be provided by family members or health workers at the hospital (Yeroh, 2022). Having support from the family has been proven to improve the quality of care for patients so that it can influence the patient's quality of life [12].

Self-management is no longer commonplace in health services and it has been explained that self-management in CKD patients is still complex. Whether or not self-management of CKD patients is achieved depends on each individual patient because a good understanding is obtained based on experience and information that is often provided, although health service workers always evaluate three things, namely nutritional status, fluid compliance and self-care.

2. Objective

This concept analysis seeks to refine the theoretical definition of self-management in CKD and to identify articles discussing the characteristics, precursors, and outcomes associated with the concept of self-care.

3. Method

Concept analysis, following the framework of Walker and Avant, serves to elucidate the definition of concepts. Literature reviews draw from diverse sources such as books, journals, libraries, and online repositories. Secondary data, sourced primarily from reputable national and international journals, form the basis of this analysis. Researchers searched for published articles using the help of 3 databases, namely Science Direct, PubMed and Google Scholar. The health sciences metadata system utilizes Medical Subject Heading (MeSH) to categorize articles, journals, and books. Articles pertaining to self-management in chronic kidney disease (CKD) patients were identified using specific MeSH terms. Selected articles, published between 2019 and 2023, underwent independent review by team members. Literature synthesis was employed to identify relevant attributes, which were illustrated through model cases, borderline cases, related cases, and contrary cases. The study proposes an elucidation of antecedents and consequences associated with self-management. Theoretical and operational definitions are examined, providing a basis for enhancing understanding of self-management in CKD patients.

3.1 Identify Self-Management in CKD

The self is all of a person's assumptions, attitudes and feelings towards himself and a whole psychological process that controls behaviors and self-adjustment. Management is an effort made by a person to achieve goals through the process of optimizing human, material and financial resources [13]. Self-management is an individual's effort to plan, focus attention and evaluate the activities carried out. Self-management is a procedure where individuals

regulate their own behavior, changing maladaptive behaviour to adaptive [14]. CKD is a progressive and irreversible condition wherein the kidneys are unable to adequately perform their functions, leading to an inability of the body to maintain metabolism and electrolyte fluid balance [1].

Therefore, self-management in CKD is an individual's ability to control one's condition through the experience provided which involves self-regulation skills in fluid restriction, problem solving and finding a way out.

3.2 Attribute Determinants and Definitions

This literature offers foundational insights into the concept of analysis. Building upon these ideas, the author conducts a review of additional literature to identify and reinforce other notions related to antecedents, consequences, alternative terms, and related concepts within the context of application, drawing data from cited references.

In CKD patients there are three things that need to be remembered in self-management. The first is the process of limiting fluids. Second is self-control to comply with the diet program. This second process can be obtained through the process of adaptation and experience during illness. Third treatment plan. The following is a description of the attributes of self-management in CKD patients.

The level of compliance with fluid restrictions whether it is optimal or not can be seen from the weight gain between dialysis times. If the IDWG increase is mild, it is still considered safe, but if the IDWG increases more than 3.5% of dry body weight, various complications will occur, such as hypertension, dialytic hypotension, heart failure, pulmonary edema and pleural effusion. The main cause of the increase in IDWG in CKD patients undergoing hemodialysis is due to lack of exposure to information and self-confidence regarding fluid restrictions [15]. The patient's task as a self-manager in the process of limiting fluids is to control the sensation of thirst. This can be achieved by complying with a fluid restriction program through providing education, cognitive behavior therapy and relaxation therapy. Apart from self-management, patient self-efficacy is also needed to support ongoing self-management to achieve the desired results. Therefore, all definitions of the fluid restriction process balance all methods ranging from medication, fluid restriction, controlling thirst to stress management.

Management of CKD patients in the final stages, apart from hemodialysis, also includes a long-term diet. Diet for CKD patients aims to prevent nutritional deficiencies and maintain and improve nutritional status, so that patients can carry out normal activities and also maintain fluid and electrolyte balance to avoid accelerated deterioration in kidney function. A low protein diet will reduce the buildup of nitrogen waste by minimizing the symptoms that occur. This diet therapy only helps slow the progression of chronic kidney failure. Supplements such as iron, folic acid, calcium and Vitamin D may be necessary. In patients with chronic renal failure, the focus of nutritional therapy can be to avoid excessive electrolyte intake from food because electrolyte levels can increase due to decreased renal clearance [16].

The treatment plan adhered to by CKD patients is a parameter for measuring success in treating CKD patients. Each individual must be able to incorporate changes in life style and other behavior into a daily routine. During the treatment period, a person will apply the information obtained to create skills development as an external aspect to gain self-confidence during treatment [17].

3.3 Identify Antecedents and Consequences

The need for information about chronic kidney failure greatly influences a person's knowledge and understanding of the disease they are experiencing and also influences decision making to change a person's behavior [18]. Apart from information needs, treatment is also the basis for self-management. The basic information given to patients is specifically based on that person's needs.

The implementation of self-management needs to be supported by an effective support system in order to improve the health status of CKD patients. Improving self-management can be considered if there is patient attitude, behavior, self-confidence, family support from both emotional and financial aspects, social support and health literacy. A significant influence was stated by Maneesri who found that CKD patients with hypertension who had positive behavior and adhered to available treatment could reduce both systolic and diastolic blood pressure [19]. These results are supported by other researchers who state that social support interventions are considered effective in improving self-management in CKD patients. A study shows that the social support in question is family support, how the family can manage food processing, the environment, routine use of health services and emotional processing [20]. Apart from support from family, other researchers found that health literacy can also increase both systolic and diastolic blood pressure if the patient carries out health literacy well (Usman et al., 2018). Interaction continuously built by health service providers and families can help patients develop problem-solving skills and indirectly provide a sense of security and confidence to patients.

Knowledge

Reporting knowledge of medication function, disease process, and planned treatment program is necessary to support self-management in patients.

Psychological

The psychological distress that was found reported that the frequency of hemodialysis was related to the level of stress because the patient felt anxious because the CKD he was experiencing could not be cured and had to experience various complications, both physical

Health Insurance

Financial and insurance problems become obstacles in self-management. Someone with a low income will tend to think about their economic survival rather than the disease they are suffering from. The high price of medicine, healthy food choices and limited quality services are among the limitations [9].

Spiritual

Spirituality is part of the quality of life as a source of human coping and adaptation to problems or illnesses that cannot be cured. Spirituality is an important element in clinical care for hemodialysis patients by creating hope and increasing a person's motivation regarding business or the meaning of life. Spiritual health includes two concepts of satisfaction with God and existential well-being [12].

Communication

The role of nurses that can increase the percentage of self-management in CKD patients includes carrying out effective communication, providing information and education (KIE) regarding the benefits of self-care and counseling, which means officers help clients in fulfilling self-care, choose and decide on the type of treatment that can be carried out at any time. according to their abilities, besides that it can make clients feel more satisfied [20].

Clinical

The severity of the disease, side effects of treatment and decreased cognitive function affect a person's self-management. Limited physical activity supports symptoms that interfere with CKD patients' self-management efforts [21].

Self-efficacy

Self-efficacy will shape the patient's long-term beliefs so that it greatly influences the behavior formed in patients with chronic disease conditions. Self-efficacy is a component that can improve self-management and patient health outcomes. Increasing patient self-efficacy is an effective way to maintain the continuity of self-management implementation in patients with chronic diseases [22].

Consequences

The outcomes of self-management in CKD patients largely mirror those seen in chronic diseases overall. In the self-management of chronic kidney failure, these outcomes are consolidated into three categories: behavioral changes, enhanced self-efficacy, and improved clinical results.

Improving clinical outcomes is one method that can be used to evaluate the success of self-management programs for chronic diseases such as kidney failure. Clinical outcomes that can be evaluated in self-management include IDWG, complications, fatigue, anxiety and blood pressure.

The findings of the research indicate a significant relationship between self-management and self-efficacy. As self-management and self-efficacy increase, the maintenance of quality of life and improvement in patient behavior are observed. Consequently, self-efficacy emerges as a consequence of self-management.

3.4 Concept of Analysis Model

Other studies in the literature measure the success of self-management by changes in behavior. This behavior is demonstrated by the ability to overcome health problems, relationships with service personnel and self-care [9].

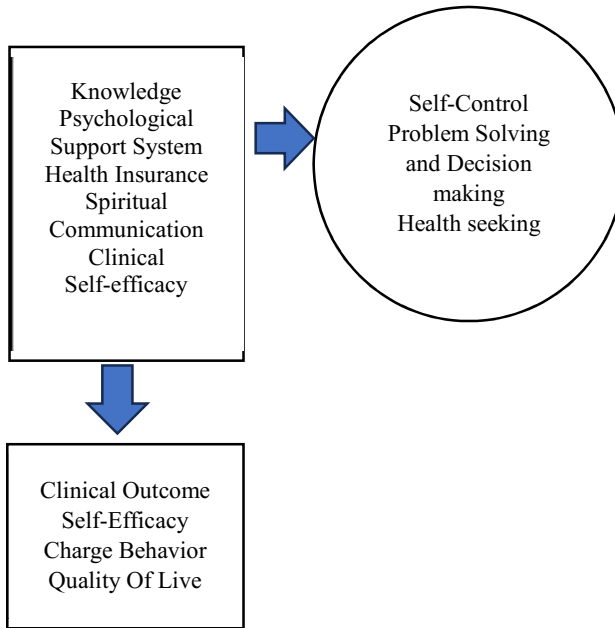


Fig 1. Concept analysis model

3.5 Case Study

Model Case

Mrs. 52-year-old S was taken by his family to the hospital to undergo dialysis. Patients undergo routine dialysis twice a week, Mondays and Thursdays in the Hemodialysis Room. The patient said he often complained of thirst and edema, so he was advised to limit fluids and go on a diet.

While at Mrs. S carried out all the activities recommended by the nurse. Patients now often control complaints of thirst and regularly receive education regarding fluid restrictions. Sometimes Mrs. S felt unable to control his thirst, especially during dry weather, but the patient immediately managed it by chewing ice cubes. After 3 months, Mrs. S knows that the IDWG value is more than 3% of the dry weight.

This case accommodates all the attributes of the concept. Appropriate individual achievements are established in this case. The patient follows the nurse's and medical instructions to continue the process of carrying out the fluid restriction program by

controlling his thirst. Apart from that, the patient was involved in problem solving in making decisions by chewing ice cubes and routinely continued to search for sources of information about CKD via the internet and discussed with nurses when he underwent hemodialysis.

Border Case

Mrs. 52-year-old S was taken by his family to the hospital to undergo dialysis. Patients undergo routine dialysis twice a week, Mondays and Thursdays in the Hemodialysis Room. The patient said he often complained of thirst and edema, so he was advised to limit fluids and go on a diet.

While at Mrs. S carried out all the activities recommended by the nurse. Patients now often control complaints of thirst and regularly receive education regarding fluid restrictions. Sometimes Mrs. S felt unable to control his thirst, especially during dry weather, but the patient immediately managed it by chewing ice cubes.

Borderline cases do not contain all the attributes of the concept. The patient follows the nurse's and medical instructions to continue the process of carrying out the fluid restriction program by controlling his thirst. Apart from that, the patient was involved in problem solving in making decisions by chewing ice cubes and routinely continued to search for sources of information about CKD via the internet and discussed with nurses when he underwent hemodialysis. In this concept, the patient tries to control thirst and undergoes an IDWG examination.

Related Cases

Mrs. 52-year-old S was taken by his family to the hospital to undergo dialysis. Patients undergo routine dialysis twice a week, Mondays and Thursdays in the Hemodialysis Room. The patient said he often complained of thirst and edema, so he was advised to limit fluids and go on a diet.

While at Mrs. S carried out all the activities recommended by the nurse. Patients now often control complaints of thirst and regularly receive education regarding fluid restrictions. Sometimes Mrs. S felt unable to control his thirst, especially during dry weather, but the patient immediately managed it by chewing ice cubes. After 3 months, Mrs. S knows that the IDWG value is more than 3% of the dry weight.

If Mrs. S succeeded in reducing complaints of thirst, the activities carried out were more inclined towards compliance than self-management. He only followed the doctor's instructions by taking medication regularly. He did not continue the fluid restriction program or demonstrate self-management attributes in the form of self-monitoring, problem solving and making appropriate decisions according to his knowledge.

Conflicting Cases

The opposite case does not clarify the attribute. Mrs. 52-year-old S was taken by his family to the hospital to undergo dialysis. Patients undergo routine dialysis twice a week, Mondays and Thursdays in the Hemodialysis Room. The patient said he often complained of thirst and edema, so he was advised to limit fluids and go on a diet.

While at Mrs. S did not carry out all the activities recommended by the nurse. In fact, patients do not control complaints of thirst and only take medication if they feel a complaint. He said that he was not confident due to suffering from chronic kidney failure and was not compliant with all treatment.

3.6 Empirical References

Concept measurement relies on empirical references. Goal setting can be assessed through patient self-reporting of personalized goals. The successful application of this concept lies in the patient's ability to adhere to a fluid restriction program effectively by managing thirst, adhering to dietary guidelines, and maintaining long-term treatment as a habit. Self-control engagement can be evaluated through observing patient behavior, considering patient preferences, personal goals, and physical outcomes such as thirst control and Interdialytic Weight Gain (IDWG). Problem-solving and decision-making skills can be measured by assessing patients' responses to signs of edema. Treatment-seeking behavior can be evaluated by assessing patients' understanding of chronic kidney failure. The outcomes of self-management can be gauged through laboratory results, physical examinations, changes in behavior, self-efficacy, and quality of life assessments.

4. Conclusion

Preliminary definitions, precursors, characteristics, and outcomes of CKD self-management have been discovered. Further examination and future investigations are necessary as this concept progresses. Clear delineation of significant concepts can amplify the effectiveness of forthcoming research endeavors. Defining this concept in detail can serve as a pivotal cornerstone in elucidating the theory of self-management in CKD.

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