Concept Analysis

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Self- Management of Patients with Early Chronic Kidney Disease: A Concept Analysis

Rita Dwi Hartanti[1*], Krisna Yetti[2], Sri Yona[2]

[1]Department of Nursing, Faculty of Health Sciences, Muhammadiyah University of Pekajangan Pekalongan, Central Java 51172, Indonesia

[2]Faculty of Nursing, University of Indonesia, Prof. Bahder Street, Depok, West Java 16424, Indonesia

**Corresponding Author's Email: ritadwihartanti85@gmail.com*

ABSTRACT

Background: Self-management is the management of care in patients with chronic diseases to prevent disease complications and slow the progression of CKD, especially in early CKD patients. Although self-management is critical, there is still a lack of clarity regarding the conceptualisation of self-management in early CKD patients. Concept analysis is needed to understand better the concept and meaning of self-management in early CKD patients. **Objectives:** The concept analysis aimed to clarify the concept of self-management in early CKD patients by identifying its antecedents, attributes, and consequences. Methods: The method used Walker and Avant's concept approach through eight steps of analysis to explore the antecedents, attributes, and consequences of the concept of self-management analysis of early CKD patients. **Results:** Antecedents of self-management in early CKD patients include partnerships with healthcare professionals, problem-solving, self-care, and psychological management. Attributes of this concept include active participation in health care, the ability to manage and care for chronic diseases, and the development of health behaviour in CKD. Consequences of self-management in early CKD patients include caring ability, self-care, independence in carrying out care, and compliance in carrying out health care. **Conclusion:** This concept analysis can guide nurses in providing self-management interventions in early CKD patients. In addition, this concept can also be used as a guideline for developing self-management intervention programmes in kidney health nursing care.

Keywords: Chronic Kidney Diseases; Concept Analysis; Self-Management

INTRODUCTION

Chronic Kidney Disease (CKD) is defined as functional and structural abnormalities of the kidneys, which are present for more than three months and are characterised by a reduction in the glomerular filtration rate (GFR) (Ouyang *et al*., 2022). Chronic kidney disease (CKD) is a health problem of global society, with the prevalence and incidence continuing to increase with a poor prognosis every year (Almutary & Tayyib, 2022; Tsai *et al*., 2021). The prevalence of CKD is estimated to be more than 850 million people worldwide (Farrell & Vassalotti, 2024). The prevalence of CKD is projected to increase by 16.7% among adults worldwide in 2030 (Almutary & Tayyib, 2022). A 3.8% prevalence of CKD increased in Indonesia in 2018 (Hustrini, 2023). CKD progression can cause various disease complications, high morbidity, high mortality, and economic burden, especially in CKD that progresses into end-stage renal disease (ESRD) (Cui *et al*., 2023; Kelepouris *et al*., 2023). The death rate from this disease reaches five million patients per year worldwide. CKD is estimated to be the fifth leading cause of death in the world by 2040 (Luyckx *et al*., 2021). Management of CKD in the early stages is very important to prevent complications, prevent the progression of ESRD, and prevent morbidity and mortality (Delatorre *et al.*, 2021). The proper management strategy, especially in early CKD, is to carry out self-management (Moreels *et al*., 2024; Niu *et al*., 2021).

Self-management is the individual's active care of chronic illness (Ouyang *et al*., 2022). Self-management includes symptoms, lifestyle, medication, and psychological management (Davison *et al*., 2024). Self-management is essential for CKD patients, especially in early CKD (Thanachayanont *et al*., 2021). Self-management of CKD patients helps slow the progression of their' disease (Lin & Hwang, 2020). In addition,

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self-management of CKD patients effectively improves health status, increases self-efficacy, increases self-management abilities, reduces the risk of disease complications, and improves patients' quality of life (Kalantar-Zadeh *et al*., 2021).

Many studies in the literature discuss self-management in CKD. However, there is a lack of clarity regarding the concept of self-management in early CKD patients. So, the researcher wants to clarify the concept of self-management by conducting an analysis. Concept analysis is a methodological approach and the first conceptual basis for developing the concept of self-management. This study uses the Walker and Avant (2005) concept analysis method to systematically clarify the concept of early CKD self-management and provide a theoretical basis for future self-management interventions.

METHODOLOGY

This study has applied the method of analysing the concept of self-management to early CKD patients. This aims to clarify the concept of self-management in early CKD patients. In this analysis, Walker and Avant's concept analysis approach is used because this approach can be applied to determine the divergence and convergence of a concept toward top-level results by clarifying the concept. The Walker and Avant approach provides a simple, easy-to-understand, comprehensive conceptual understanding. The Walker and Avant concept analysis approach consists of eight steps, including 1) selecting a concept, 2) determining the objective of the analysis, 3) identifying the definition and use of the concept, 4) defining attributes, 5) identifying case models, 6) identifying borderline, related, artificial and invalid cases, 7) identifying antecedents and consequences, and 8) identifying empirical references (Walker & Avant, 2005).

Self-management in nursing has many concepts and phenomena. In addition, many terms and concepts in self-management have not been analysed and measured objectively. Therefore, the characteristics of self-management in early CKD must be studied by adding some literature on health, psychology, and education to identify it. In addition, literature findings related to the concept were conducted using PubMed, ProQuest, Web of Sciences, EBSCO, Google Scholar, and Scopus databases from 2018 to 2024. Searches were performed using AND OR using the keywords “self-management”, “self-care”, “self-care management”, “early chronic kidney disease”, and “chronic kidney disease”. The search strategy resulted in the retrieval of 295 articles, of which 11 met the inclusion criteria. The inclusion criteria are 1) articles written in English, 2) articles that have full text, 3) papers containing a definition of self-management, and 4) reporting the findings of all studies related to the concept of self-management. The process of searching for articles and selecting inclusion criteria is illustrated in the flowchart (Figure 1).

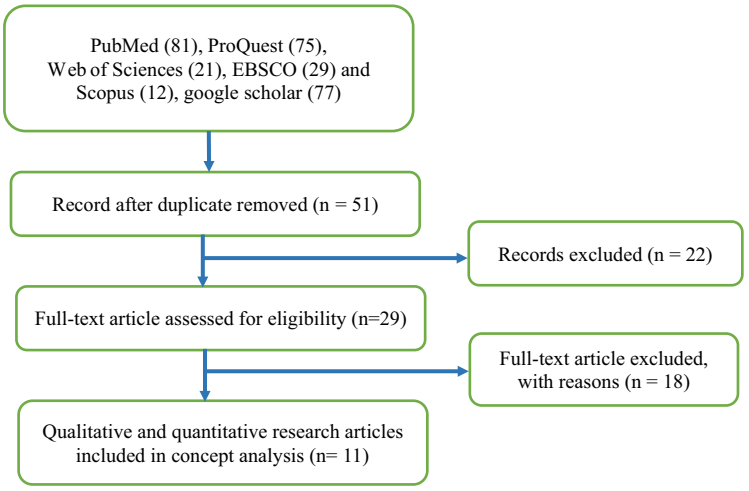

Figure 1: A Flowchart Detailing the Article Search and Inclusion Process

Ethical Considerations

Ethical approval was not required in this study described according to the Ethical Review Authority because there were no human participants involved in the project.

RESULTS

Concept Analysis of Self-Management in Early Chronic Kidney Disease Patients

Selecting the Concept

The concept analysis process starts with selecting a concept to be analysed (Walker & Avant, 2005). The concept selected is self-management in early CKD patients. Self-management in nursing is defined as active care management carried out dynamically, interactively, and iteratively, requiring patients to develop multidimensional strategies to overcome their daily health problems (Sezer, Çavuşoğlu & Düzova, 2021). Self-management is the management of care for chronic disease conditions, including lifestyle management, medication management, self-care behaviour, and psychological management (Mott, 2021). In reality, the breadth of the concept of self-management in early CKD patients results in an unclear definition, limited use of terms, and limited explanation of its attributes and components. Furthermore, there are also limitations in explaining the attributes and components of early CKD self-management. Therefore, self-management was chosen considering the importance of its use and management in early CKD.

Determination of Analysis Objectives

The concept analysis aims to explain and establish meaning and to determine the use of attributes in model cases, borderline cases, and related cases. It also explains antecedents and consequences based on empirical references, such as theoretical ethical definitions and operational self-management of early CKD.

Definition and Use of the Concept of Self-Management

The definition of self-management uses a literature approach in several fields of science, including nursing, psychological health, and education. Table 1 shows the literature review that determines the meaning of self-management in early CKD patients. Self-management in nursing is defined as an individual's ability to manage chronic disease care, including symptom management, lifestyle, physical activity, and psychological (Moreels *et al*., 2024; Ouyang *et al.*, 2022). On the other hand, self-management of early CKD patients means the patient's ability to care for their disease condition independently (Ouyang *et al.*, 2022). Meanwhile, in psychology, self-management implies the ability to motivate oneself to manage thoughts, feelings, and behaviour in achieving well-being (Kim & Cruz, 2021). Self-management in education is defined as improving personal abilities and developing various aspects of life ideally (Zhao, Ren & Yang, 2023). Based on this review, it can be concluded that the definition of self-management in early CKD is the individual's ability to carry out disease care to achieve well-being actively. Self-management in early CKD patients aims to increase patient independence in treatment (Havas, Douglas & Bonner, 2018; Ozieh & Egede, 2022), reduce the risk of complications, and slow the progression of kidney disease (Peng *et al*., 2019) (Table 1).

Defining Attributes

Walker and Avant (2005) stated that attributes are characteristics of a concept that are repeatedly identified in the references. The process of identifying attributes by grouping keywords or characteristics with similar meanings, then clustering and labelling them based on the meaning found (Walker & Avant, 2005) Based on several reviews and analyses of the definition of self-management, the author found three attributes in self-management of early CKD patients. The three attributes include individual active participation efforts, the ability to manage and care for chronic diseases, and the development of healthy behaviour strategies.

Active participation in self-management involves the ability to manage and carry out care independently and includes improving their health knowledge and healthcare decision-making skills (Moreels *et al*., 2024; Sezer, Çavuşoğlu & Düzova, 2021). The second attribute is the ability to manage and care for chronic diseases, which consists of monitoring symptoms of illness, healthy lifestyle modifications (Nguyen, Douglas & Bonner, 2019; Ozieh & Egede, 2022), doing physical activity and exercise, medication management, and psychological and emotional management (Peng *et al.*, 2019; Suarilah & Lin, 2022). The ability to manage and care in self-management of early CKD patients is helpful in improving the ability to carry out self-management, preventing other disease complications (Kelepouris *et al.*, 2023), and improving the patient's quality of life (Moreels *et al.*, 2024). The third attribute is developing healthy behaviour strategies, including decision-making skills and the use of resources and social support. The development of behavioural strategies

aims to improve patients' adaptive behaviour towards their chronic diseases (Chuang *et al.*, 2021; Sezer, Çavuşoğlu & Düzova, 2021).

Table 1: The Concept Definition of Self-Management

No	References	Scope	Definition *Self-Care Management*
1	Sezer, Çavuşoğlu & Düzova, 2021	Nursing	Self-management is a patient's ability to maintain health by developing multidimensional strategies and increasing knowledge, skills, and health behaviours.
2	Moreels *et al*. (2024)	Nursing	Self-management is the management of chronic diseases, including medical management, emotional management, and role management.
3	Mailani *et al*,. 2023)	Nursing	Self-management is the patient's physical and psychological involvement in improving health and the ability to manage symptoms of illness and prevent complications of the disease.
4	Lin & Hwang, (2020)	Nursing	Self-management is the patient's ability to manage symptoms, lifestyle, and patient psychology to prevent the disease from worsening.
5	Ouyang *et al.* (2022)	Nursing	Self-management is maintaining health through managing physical and psychological conditions related to chronic disease.
6	Garnett *et al*. (2018)	Nursing	Self-management is disease management, which consists of health management planning (by a healthcare provider), behavioural strategies (disease management), and patient participation in care planning.
7	Sahely *et al.* 2023)	Education	Self-management empowers individuals with knowledge, skills, and self-confidence to improve patients' functional abilities in everyday life.
8	Zhao, Ren & Yang, 2023	Education	Self-management in education involves managing learning processes and behaviours by setting personal goals, managing time and resources, monitoring progress, identifying individual strengths, and adjusting strategies to achieve success.
9	Kim & Cruz, 2021	Psychology	In psychology, self -management is the skill of responding to various situations adaptively by regulating thoughts, emotions, and behaviour.
10	Cardol *et al.* (2023)	Psychology	Self-management is the ability to regulate oneself, set goals, monitor and evaluate oneself, and solve problems to achieve well-being.

A Case Model

Writing case models provides examples of using concepts to clarify them. In this article, a case model used the concept of self-management in a patient with early CKD by showing all attributes obtained from the concept.

A Case Borderline

A borderline case is an example of the use of most of the attributes defined by all the concepts (Walker & Avant, 2005).

A 50-year-old man has a history of kidney stones since five years ago and suffers from CKD stage 2. A month after undergoing surgery to remove kidney stones, his condition improved. Currently, the patient is self-managing by regulating the amount of drinking, eating, and taking medication regularly, according to the advice of doctors and nurses. The patient is enthusiastic about self-management independently because he wants to get well soon. The case above is an example where not all attributes are being used. In the case above, only two attributes are used to explain self-management, namely, the ability to care for the disease and develop a treatment strategy. The patient routinely takes medication and manages his diet independently after undergoing treatment.

A Related Case

Related cases show ideas that are almost the same as the central concept but different when examined further (Walker & Avant, 2005). A 57-year-old woman has a history of kidney stones and diabetes mellitus since, 10 years ago. She has implemented self-management strategies by dieting and controlling blood sugar. She does self-management optimally. However, she admitted that she had difficulty managing anxiety. When consulting a nurse, the nurse taught her stress management to manage her emotions. The related case above shows the use of the same attributes, participatory efforts, and behavioural strategies of self-management through stress management to overcome the anxiety felt by the patient.

An Opposite Case

The reverse situation presents a contrast to the original case (Walker & Avant, 2005), where self-management lacks any essential attributes. A 62-year-old woman has a history of diabetes mellitus and was diagnosed with stage 3 CKD. She admitted that she had no appetite since being diagnosed with CKD, and all food tasted bland. In addition, she also doubted her illness because she felt that she had implemented a healthy lifestyle and felt that her condition was currently good. She also said that she was able to control her blood sugar levels. However, she admitted that she had difficulty managing her diet. The patient also stated that she had never had a routine check-up. From the case above, it is explained that the three attributes of self-management were not implemented properly. In the case above, the patient did not participate well in her self-management, did not take good care of her illness, and did not develop caring behaviours, as evidenced by her inability to control her diet and treat her disease.

Antecedents

The antecedent is events that occurred before the concept (Walker & Avant, 2005). Antecedents to the concept of self-management include partnerships with healthcare professionals, problem-solving, self-care, and psychological management. Collaboration with health workers in self-management is helpful in building positive patient perceptions about treatment and care for chronic disease conditions, lifestyle changes, and patient activities. Self-management abilities will increase with partnerships with health workers (Cui *et al.*, 2025; Liao *et al.*, 2021). Problem-solving is the application of knowledge and skills to achieve the goals of chronic care. Self-management is the practice of caring for and managing illness. When a sick individual is stable, then he is better able to maintain his health and care for himself (Hessler *et al.*, 2019). Management of psychological conditions is a person's action to regulate emotions or manage situations. This ability includes managing feelings, calming oneself, and releasing oneself from anxiety, depression, or offence with the aim of training and achieving emotional balance. In patients with CKD in the early stage, controlling emotion relates to physical change, weakness, and emotional changes as changes in health conditions (Escudero-Lopez *et al.*, 2024).

Consequence

The consequence is a state that occurs as a result of a concept event (Walker & Avant, 2005). The consequences expected from implementing self-management are the caring ability, self-care, independence in carrying out care, and compliance in carrying out health care. Self-management in early CKD patients is beneficial in increasing life expectancy, improving disease symptoms, reducing the use of renal replacement therapy (Lin & Hwang, 2020), improving the quality of patients life (Moreels *et al.*, 2024) and slowing the progression of CKD (Ouyang *et al.*, 2022). The attachment between antecedents, attributes, and consequences can be seen in Figure 2.

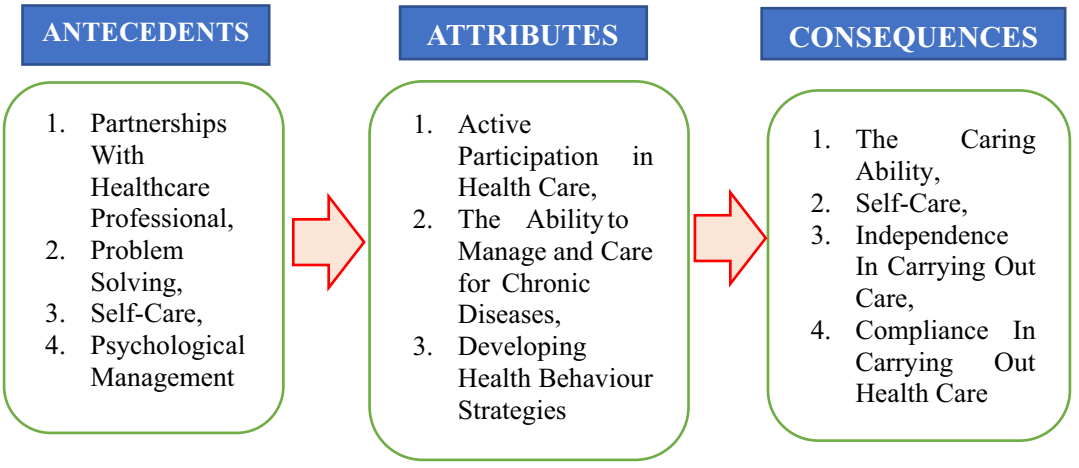

Figure 2: Antecedents, Attributes and Consequences of Self-Management in Early-Stage CKD Patients

An Empirical Reference

Empirical reference is how to determine the existence of a concept, develop concept instruments, and define concept attributes. The empirical reference used to measure early CKD patient self-management consists of 4 dimensions; self-integrity, problem-solving, social support, and adherence to a therapy regimen (Dingwall *et al*., 2019) .

DISCUSSION

The concept of self-management in early CKD patients plays a role in the development of nursing interventions and current and future nursing research. The definition of the concept is used to clarify the concept of self-management in early CKD patients by explaining its antecedents, defining attributes, and defining its consequences using the Walker and Avant analysis approach. Based on the concept analysis, Self-management in early CKD patients is defined as an individual's ability to perform health care independently, which includes the ability to manage and carry out care according to the disease, actively participate in independent self-management and the ability to develop care strategies in early CKD care.

Caring ability is a person's ability to manage the illness they are experiencing (Moreels *et al*., 2024). This concept analysis shows that self-care is an antecedent of self-care ability. Self-care in early CKD patients includes monitoring symptoms, healthy lifestyle modification, activity management, medication management, and psychological management (Ouyang *et al*., 2022; Ozieh & Egede, 2022). Monitoring and evaluating disease symptoms are the process of identifying disease progression, carried out to determine appropriate actions during treatment (Peng *et al*., 2019). Lifestyle management is also part of the antecedents of self-care, which is the ability to manage and carry out care. Lifestyle management in early CKD patients consists of several aspects, including diet management, activity management, and smoking cessation (Ozieh & Egede, 2022). The ability to care for disease in self-management of early CKD patients requires active participation from the patient.

Active participation in early CKD patient self-management is an attribute of the concept. Active participation is the direct and proactive involvement of patients in managing their health conditions (Moreels *et al*., 2024). This active participation includes increasing knowledge and increasing treatment compliance. (Yeboah & Hollis, 2024), and the ability to make care decisions (Billany *et al*., 2023). Active participation effectively reduces the risk of complications, increases self-efficacy, improves quality of life, and improves patients' ability to perform self-management (Moreels *et al*., 2024). The ability to develop care strategies includes the ability to analyse care needs, formulate care intervention strategies, and the ability to utilise health resources. The ability to create care strategies has a problem-solving antecedent (Dinh & Bonner, 2023). This concept analysis has implications for care in early-stage CKD patients. Effective self-management can prevent CKD progression, improve quality of life, and prevent complications. Nurses play a role in improving patients' ability to perform early CKD self-management independently.

Limitation

This concept analysis's limitation is that no empirical research (qualitative and quantitative) has been conducted to clarify the benefits of self-management in early CKD patients. In addition, this concept analysis still uses literature outside the field of nursing and health, so it has a broad meaning in creating a new operational definition of self-management in early CKD patients.

Conclusion

This concept analysis identifies three attributes of self-management in early CKD patients: active participation in healthcare, the ability to manage and care for chronic diseases, and developing health behaviours in CKD. In addition, self-management in early CKD patients includes the ability to care for and comply with health care. This concept analysis can be used to improve evidence-based self-management interventions in early CKD patients. The results of the concept analysis show the need for self-management program interventions for early CKD patients through comprehensive nursing care. There is a need to explore and develop self-management programmes in early CKD patients based on theoretical perspectives through various studies and longitudinal studies to improve evidence-based self-management interventions in early CKD patients.

Conflict of Interest

The authors declare that they have no conflicts of interest for this study.

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