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REGRESSION ANALYSIS OF NURSING AGENCY, SELF-CARE DEMAND, AND SELF-CARE AGENCY ON QUALITY OF LIFE AMONG PATIENTS WITH CHRONIC KIDNEY DISEASE

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ABSTRACT

Background: Chronic Kidney Disease (CKD) is a progressive condition that significantly reduces patients' quality of life (QoL) in physical, psychological, and social aspects. Nursing agency, self-care demand, and self-care agency are considered important determinants influencing patient outcomes. **Objective:** This study aimed to analyze the effects of nursing agency, self-care demand, and self-care agency on QoL among CKD patients, including the mediating role of self-care agency. **Methods:** A quantitative cross-sectional study with correlational, multiple linear regression, and mediation analysis was conducted among 223 CKD patients at Haji Medan Public Hospital. Data were collected using validated instruments: Nursing Agency Scale, Self-Care Demand Scale, Self-Care Agency Instrument, and WHOQOL-BREF. Statistical analysis was performed using SPSS. **Results:** The mean scores were 4.17 ± 0.49 for nursing agency, 3.06 ± 0.71 for self-care demand, 3.26 ± 0.67 for self-care agency, and 3.02 ± 0.67 for quality of life. Nursing agency showed a significant positive correlation with QoL ($r = 0.214$; $p = 0.001$), as did self-care agency ($r = 0.238$; $p < 0.001$). Self-care demand was not significantly associated with QoL ($r = 0.061$; $p = 0.361$). Regression analysis confirmed nursing agency ($\beta = 0.1733$; $p = 0.004$) and self-care agency ($\beta = 0.1810$; $p = 0.001$) as significant predictors of QoL, while self-care demand was not significant ($\beta = -0.0200$; $p = 0.798$). **Conclusion:** QoL in CKD patients is primarily influenced by nursing agency and self-care agency, while self-care demand has no significant effect. Strengthening nursing support and patient self-management capacity is essential to improving outcomes.

Keywords: Chronic Kidney Disease, Nursing Agency, Self-care Agency, Quality of Life, Self-care Demand

INTRODUCTION

Chronic Kidney Disease (CKD) is a progressive and irreversible condition characterized by a gradual decline in kidney function, which can lead to disturbances in fluid balance, electrolyte regulation, and metabolic waste removal. This condition not only affects physiological health but also impacts patients' overall well-being and functional status. CKD patients often experience physical and psychological burdens, including fatigue, pain, sleep disturbances, and emotional stress, which contribute to a decline in health-related quality of life (HRQoL) (Senanayake et al., 2020; Kefale et al., 2019). Therefore, quality of life has become an important outcome indicator in chronic disease management. Self-care plays a crucial role in CKD management. Self-care agency refers to an individual's ability and motivation to perform health-maintaining behaviors, while nursing agency reflects the professional support provided by nurses through education, counseling, and care assistance (Hendrik et al., 2019; Armstrong et al., 2022). However, the demands of self-care activities do not always directly influence quality of life, as outcomes depend on patients' coping ability and support systems (Chuang et al., 2021). Although previous studies have examined these variables separately, limited research has explored the simultaneous effects of nursing agency, self-care demand, and self-care agency on quality of life among CKD patients, particularly in developing-country settings. Therefore, this study aims to analyze the influence of these factors on the quality of life in CKD patients. This study, therefore, aims to investigate the predictive associations among nursing agency, self-care demand, self-care agency, and quality of life in CKD patients through regression analysis. The results are anticipated to provide evidence-based implications for designing holistic nursing interventions that enhance patient empowerment, strengthen self-care abilities, and improve quality of life in individuals with CKD.

METHODS

A quantitative multi-method design is a structured research approach that combines several quantitative techniques within one study to examine a phenomenon from different perspectives. This design strengthens the validity and explanatory depth of the findings by enabling researchers to identify relationships, test predictive models, and examine direct or indirect effects among variables. In this study, the design is appropriate for exploring complex variables related to chronic kidney disease (CKD), including nursing agency, self-care demand, self-care agency, and quality of life. The study applies three connected methods: correlational design, regression analysis, and mediation analysis, which together support a systematic analysis aligned with the theoretical framework.

The research was conducted at Haji Medan Public Hospital. This site was purposively chosen because it manages a large number of CKD patients receiving regular treatment and follow-up care, making it a suitable setting for obtaining an adequate and representative study population. The study participants consisted of CKD patients undergoing treatment at the selected hospital. A purposive sampling technique was applied based on predetermined inclusion and exclusion criteria established by the researchers. Eligible respondents were individuals diagnosed with

CKD, aged 18 years and above, classified as stage 3 or higher, receiving outpatient nephrology services, and capable of effective communication. willing to provide informed consent, and able to complete the research instrument independently or with minimal assistance. Patients presenting with severe cognitive impairment or unstable clinical conditions were excluded to preserve the validity and reliability of the study findings. The sample size was determined using the Slovin formula/power analysis, resulting in a total of 223 participants.

RESULT

Levels of Nursing Agency, Self-Care Demand, Self-Care Agency, and Quality of Life.

Table 1. Descriptive Statistic of Study Variables

Variable	Mean	SD	Interpretation
Nursing Agency	4.17	0.49	Satisfied
Self-Care Demand	3.06	0.71	Moderately
Self-Care agency	3.26	0.67	Moderately
Quality of life	3.02	0.67	Moderately

The analysis revealed that the respondents' level of nursing agency obtained a mean score of 4.17, interpreted as satisfied. Meanwhile, self-care demand (3.06), self-care agency (3.26), and quality of life (3.02) were all interpreted as moderate.

These results indicate differences in the respondents' experiences regarding professional nursing support, the challenges associated with CKD management, their capacity to carry out self-care practices, and their overall well-being.

Linear and Monotonic relationship between the quality of life of the respondents and the variables.

Table 2: Correlation Between WHOQol-Bref Scores And Study Variables

Variable Relationship	Test	r Value	p Value
WHOQOL BREF – Nursing Agency	Pearson r	0.214	0.001
WHOQOL BREF – Self-Care Demand	Pearson r	0.061	0.361
WHOQOL BREF – Self-Care Agency	Pearson r	0.238	<0.001

The findings demonstrated a significant positive association between nursing agency and quality of life ($r = 0.214$, $p = 0.001$), implying that stronger nursing support and professional care contribute to better quality of life among respondents.

A nursing agency is defined as nurses' ability to provide comprehensive care through education, emotional assistance, counseling, and clinical guidance in managing illness (Armstrong et al., 2022). In patients with chronic kidney disease, nurses have an important role in educating patients about their illness and encouraging adherence to prescribed treatments, thereby helping improve health outcomes and overall quality of life (Lightfoot et al., 2022)

A significant correlation was also observed between self-care agency and quality of life ($r = 0.238$, $p < 0.001$), indicating that patients with a higher capacity to manage their condition, make appropriate health decisions, and engage in positive health behaviors are more likely to

Experience improved quality of life. Self-care agency refers to an individual's competence and motivation to perform health-maintaining and illness-management activities (Hendrik et al., 2019). On the other hand, self-care demand showed no significant relationship with quality of life ($r = 0.061$, $p = 0.361$), suggesting that the amount of required self-management responsibilities does not independently determine patients' perceived quality of life**.** While CKD imposes numerous self-care responsibilities, the impact of these demands may depend on patients' ability to cope with them and the support they receive from healthcare providers (Chuang et al., 2021).

Predictive relationship between the quality of life of the respondents and the variables

Table 3: Multiple Regression Analysis of Factors Associated with Quality of Life

Predictor	B	P Value	Significant
Nursing Agency	0.1733	0,004	Significant
Self-Care Demand	-0.0200	0.798	Not Significant
Self-Care Agency	0.1810	0.001	Significant

The results indicate that nursing agency significantly predicts quality of life ($\beta = 0.1733$, $p = 0.004$), suggesting that greater nursing support and professional care are associated with improved patient quality of life. Nursing agency refers to the professional role of nurses in delivering education, emotional support, counseling, and individualized care to assist patients in effective health management (Armstrong et al., 2022).

Likewise, self-care agency was found to be a significant predictor of quality of life ($\beta = 0.1810$, $p = 0.001$), implying that patients with higher levels of ability, motivation, and confidence in managing their condition tend to experience better quality of life. Self-care agency is defined as an individual's capability to engage in health-promoting behaviors and make appropriate decisions regarding disease management (Hendrik et al., 2019). In the context of chronic kidney disease (CKD), patients who have stronger self-care abilities are better able to follow dietary restrictions, manage fluid intake, monitor their symptoms, and actively participate in treatment plans. These proactive behaviors are essential in improving health outcomes and in reducing both the physical and psychological burden associated with chronic illness (Almutary & Tayyib, 2021). In contrast, self-care demand did not significantly predict quality of life ($\beta = -0.0200$, $p = 0.798$), indicating that the number of required self-care activities alone does not have a meaningful impact on patients' overall well-being. Although CKD imposes complex treatment requirements, the negative impact of these demands can be reduced when patients receive adequate professional support and possess strong self-care abilities (Chuang et al., 2021).

Mediating Relationship between The Quality Of Life Of The Respondents

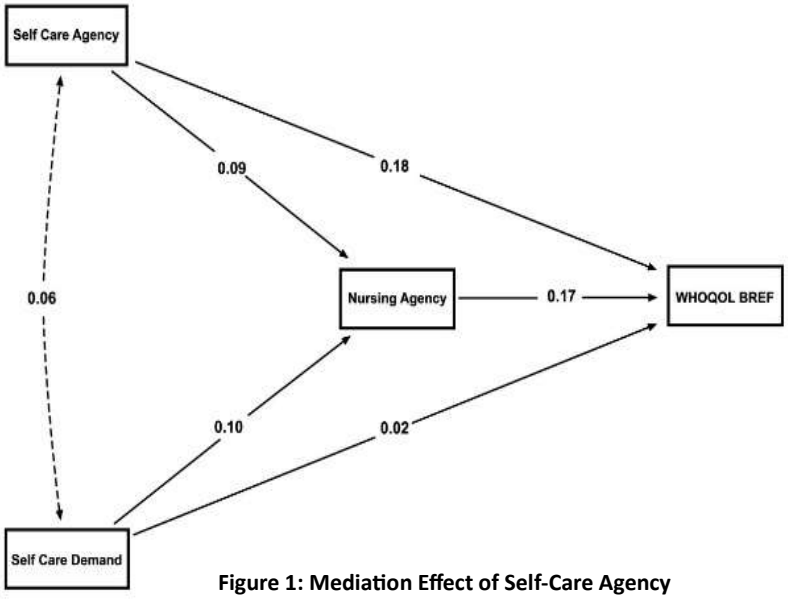

Figure 1: Mediation Effect of Self-Care Agency

The mediation model examined the interrelationships among self-care demand, nursing agency, self-care agency, and quality of life (WHOQOL-BREF) among respondents with chronic kidney disease. Based on the structural paths shown in the model, several relationships can be observed that explain how these variables interact to influence quality of life. First, the model indicates that the self-care agency has a direct positive effect on quality of life (β = 0.18). This finding supports the theoretical view that individuals with stronger abilities, knowledge, and confidence in managing their health tend to experience better well-being. Self-care agency enables patients to actively engage in health-promoting behaviors such as medication adherence, dietary management, and symptom monitoring, which are essential for the long-term management of chronic kidney disease (Hendrik et al., 2019). Second, the model also demonstrates that nursing agency has a direct positive influence on quality of life (β = 0.17).

This result highlights the critical role of nurses in supporting patients with chronic conditions. Nursing agency refers to the professional capacity of nurses to provide education, guidance, counseling, and emotional support that enable patients to better manage their illness (Armstrong et al., 2022). The model further indicates that self-care demand has a minimal direct effect on quality of life (β = -0.02), suggesting that the burden of disease-related responsibilities alone does not necessarily determine patients' well-being. Chronic kidney disease requires numerous daily self-care tasks, including medication management, dietary restrictions, and dialysis schedules, which can become overwhelming for patients (Chuang et al., 2021).

DISCUSSION

The findings of this study indicate that nursing agency and self-care agency play important roles in improving the quality of life (QoL) among patients with Chronic Kidney Disease (CKD). Descriptive results showed that nursing agency was perceived as satisfactory, while the self-care agency and QoL were at a moderate level, reflecting the ongoing challenges faced by CKD patients in adapting to long-term disease management.

The nursing agency demonstrated a significant positive relationship and predictive effect on QoL. This finding highlights the essential role of nurses in providing education, emotional support, counseling, and individualized care. Such interventions enhance patients' understanding of their condition, strengthen treatment adherence, and improve psychological and social well-being, ultimately contributing to better QoL. Similarly, a self-care agency was significantly associated with and predictive of QoL.
Patients with higher self-care agency are more capable of managing medications, dietary restrictions, fluid control, and symptom monitoring. These abilities enable better adaptation to chronic illness and support improved overall well-being.

In contrast, self-care demand showed no significant relationship or predictive effect on QoL. This suggests that the burden of self-care tasks alone does not directly determine patients' quality of life. Instead, its impact depends on patients' capabilities and the support they receive from healthcare professionals. Overall, the results emphasize that improving QoL in CKD patients requires strengthening both nursing agency and self-care agency. Therefore, nursing interventions should focus not only on clinical care but also on patient empowerment through education, guidance, and continuous support to enhance self-management capacity.

CONCLUSIONS

This study concludes that nursing agency and self-care agency are significant predictors of quality of life (QoL) in patients with Chronic Kidney Disease (CKD), while self-care demand shows no significant effect. These findings indicate that QoL is primarily influenced by effective nursing support and patients' self-care capability rather than the burden of care tasks. Strengthening both factors is essential to improving patient outcomes.

Healthcare providers should enhance nursing agency through patient-centered care, including education, counseling, and continuous support, while also strengthening self-care agency through structured self-management and empowerment programs. Healthcare systems are encouraged to integrate comprehensive CKD management programs combining professional nursing support and patient empowerment strategies. Future research should use longitudinal or multi-center designs and include additional variables such as disease severity, treatment modality, and psychosocial support to better understand QoL determinants in CKD patients.

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CONFLICT OF INTEREST AND FUNDING DISCLOSURE

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AUTHOR CONTRIBUTIONS

Suherni contributed to all aspects of this research, including conceptualization, data curation, formal analysis, investigation, methodology, project administration, resources, software, supervision, validation, visualization, writing the original draft, and reviewing and editing the final manuscript.

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