



QUALITY OF LIFE AND STRESS ADAPTATION MODELS IN PATIENTS WITH CHRONIC KIDNEY DISEASE: A LITERATURE REVIEW

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ABSTRACT

Background: Chronic kidney disease can cause physiological and psychological stress. Adaptation to changes related to disease conditions is an essential component in managing chronic kidney disease. Failure to adapt can decrease the quality of life in patients with chronic kidney disease. This study aimed to identify the factors that affect quality of life and stress adaptation in patients with chronic kidney disease. **Methods:** Systematic reviews using the PRISMA protocol and the JBI Critical Appraisal Tool were used to determine eligible articles from four electronic databases (PubMed, Google Scholar, Proquest, and DOAJ). Inclusion criteria include patients with chronic kidney disease quality of life, published in Indonesian and English in the last five years (2019 - 2023). **Result:** 14 articles were obtained according to the criteria. Factors that affect the quality of life in patients with chronic kidney disease are age, comorbidities, socioeconomic status, income, coping, anxiety and depression, family support, and drug use. Positive self-acceptance, self-efficacy, and increased self-management skills can enhance the disease adaptation process, positively impacting patients' quality of life with chronic kidney disease. **Conclusion:** Patient adaptation to disease processes and management changes must be made to improve treatment outcomes. Nurses can develop nursing interventions based on appropriate stress adaptation models to increase the patient's ability to adapt to disease management to improve the results of care services and ultimately improve the quality of life of patients with chronic kidney disease.

Keywords: Adaptation; Quality of life; Chronic Kidney Disease

INTRODUCTION

Chronic kidney disease (CKD) can cause physiological and psychological stress. CKD is a progressive decline in the kidneys and a clinically irreversible syndrome characterized by failure of the kidneys to excrete fluids, filter waste products and remove excess from the body (Lee & Son, 2021). CKD is a health problem associated with decreased quality of life and increased mortality, especially in

the terminal phase, called end-stage renal disease (ESRD) (Mixon et al., 2023).

Many factors can affect the quality of life of patients with CKD. The results showed that the main factors were disease and complications of the disease itself (MCEWAN et al., 2021). Several previous studies have stated that there are several factors associated with CKD patients' low quality of life, including gender, low education, lack of a partner, and comorbid



diseases. (Krishnan et al., 2020). While the ability to self-care is a factor that can improve the quality of life (Manto et al., 2020). Poor health status is associated with a more inferior quality of life in patients on dialysis. Poor health status is related to low self-care abilities (Skoumalova et al., 2022). Good ability to control depression and high education can potentially improve self-management and self-efficacy in pre-ESRD patients (Lai et al., 2021).

Factors affecting QoL not only by medical conditions but also by various sociodemographics Low QoL is associated with several demographic characteristics, including age, gender, low education, low income, presence of diabetes, unemployment, and reduced kidney function (Oh et al., 2019). In elderly CKD patients, female patients have a lower health-related QoL early in the disease, but males experience a more rapid decline in health-related QoL over time (Chesnaye et al., 2022). Low economic status or low income is significantly associated with poor quality of life (Tannor et al., 2019).

Perception of stress is closely related to self-reliance and quality of life of patients with CKD (García-Martínez et al., 2021). CKD patients are vulnerable to psychological pressure. Screening programs in follow-up visits can help assess and assist in the early diagnosis of psychiatric illnesses, including depression and anxiety. Treatment of depression and anxiety will improve the patient's quality of life (Alshelleh et al., 2022).

Self-management is vital in managing chronic diseases such as CKD (Al Sawad et al., 2022). Self-care is the implementation of individual activities related to fulfilling needs in maintaining life, health and well-being. If patients carry out self-care effectively, it can help individuals develop their potential (Hartweg & Metcalfe, 2022) and increase life expectancy and quality of life to prevent disease severity (Nguyen et al., 2018).

The results of previous research indicate that the adaptation model

developed for CKD patients undergoing dialysis is effective for increasing physiological compliance, especially fluid intake and creatinine levels, as well as psychological adaptation responses that include self-concept, role function, and interdependence. This model can be applied to clinical settings to guide nurses in providing health education for CKD patients (Agustiyowati et al., 2019). Wellness and self-management programs focus on changing patients' awareness of the disease and enhancing their personal self-efficacy achievement strategies that address motivation to change motivation-enhancing plans, behavior modification, and emotional and stress management issues. (Ouyang et al., 2022). Therefore, this study aims to identify the factors that affect the quality of life and the stress adaptation model used by patients with chronic kidney disease.

METHODS

This research is a systematic literature review using the PRISMA protocol and the JBI Critical Appraisal Tool to determine eligible articles. The researcher took articles from four electronic databases (PubMed, Google Scholar, ProQuest, and DOAJ). Inclusion criteria include the quality of life of chronic kidney disease patients, published in Indonesian and English in the last five years (2018 - 2023), with the keywords "quality of life," "chronic kidney disease," and "stress adaptation model." The next stage is to select articles according to the criteria published five years until 2023 in full text, English, and Indonesian to prepare this systematic review based on Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). Finally, there are 30 articles (Google Scholar 12 articles, Proquest 6 articles, DOAJ 6 articles, Pub Med 6 articles). Fourteen articles match the researcher's required criteria (**Figure 1**). After the review, the data was extracted as relevant topic codes and qualitatively categorized by the

researcher to find the main theme. Meta-synthesis analyzed data using compare,

contrast, criticize, and synthesis approaches.

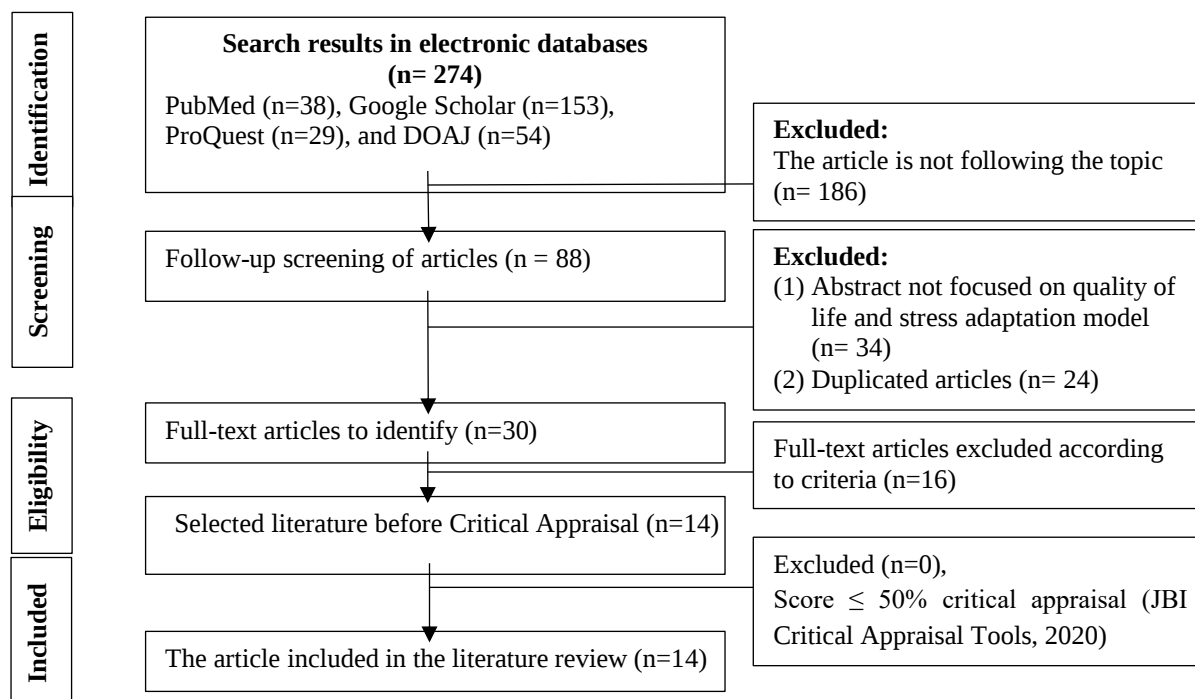


Figure 1. Study Selection based on the PRISMA flow chart

RESULTS

The research results obtained 14 articles that meet the research criteria. After the review, the data was extracted as relevant topic codes and qualitatively categorized by the researcher to find the main theme. Factors that affect the quality of life in patients with chronic kidney disease are female gender, comorbidities, socioeconomic status, income, coping,

anxiety and depression, family support, positive self-acceptance, self-efficacy, and increased ability self-management can improve the disease adaptation process, which has a positive impact on the quality of life of patients with chronic kidney disease. The research results reviewed in more detail can be seen in Table 1.

Table 1. Summary of research on the quality of life and stress adaptation models in CKD patients

No	Author (s) (Year)	Purpose of study	Methods (Design, Subject, Variable, Instruments, and Analysis)	Main Finding
1	Nguyen et al. (2018)	To examine the relationship between HRQoL and CKD	D: Descriptive analytic S: 2,796 CKD patients V: Health Related QOL, CKD severity, Sociodemographic I: Instrumen EuroQoL EQ-5D-3L; 4-variable MDRD estimated glomerular filtration rate (eGFR) equation and albuminuria quantified by a spot urinary albumin/creatinine ratio A: Descriptive statistics, uji χ^2 , and multivariable Tobit models	Sociodemographic factors affect the severity of chronic kidney disease, including differences in age, gender, income, marital status, ethnicity, religion, and level of education. The severity of CKD is associated with reduced quality of life and life expectancy.
2	Oh et al. (2019)	To identify the relationship between HRQoL and the progression of CKD in pre-dialysis patient	D: Prospective cohort study S: 1622 patients with CKD V: Health-related quality of life and CKD progression I: KDQOL-SF36, laboratory measurements, and sociodemographic questionnaire A: Student's t-test, Mann-Whitney U test, R test	HRQOL is a multi-dimensional measurement (a physical component summary (PCS) and a mental component summary (MCS) that is affected not only by the medical condition but also by various sociodemographic factors. Low PCS was associated with several demographic factors, including age, sex, low education, low income, diabetes, unemployment, anemia, and decreased renal function. HRQOL is a significant independent risk factor for CKD progression. It can identify a group of patients at high risk of CKD progression by measuring HRQOL in patients with CKD. Identifying high-risk patients may provide preventive benefits to individuals regarding their health and socioeconomic aspects.
3	Tannor et al.(2019)	To assess QOL in patients with moderate to advanced CKD (not on dialysis) and establish its determinants	D: Cross-sectional, observational study S: 202 patients with CKD V: Quality of life I: Sociodemographic questionnaire, clinical and laboratory test, RAND 36-Item Health Survey A: Chi-square test, Mann Whitney U test, multiple linear regression	Generally, QOL in CKD patients with moderate to advanced CKD is poor. The mental component summary scores were significantly worse than the physical component summary scores. Poor determinants of QOL are low economic status, patients with stage 5 CKD and anemia.
4	Krishnan et al. (2020)	To determine factors related to overall and domain-specific QoL	D: Prospective cohort study S: 1696 patients with CKD V: Quality of life I: Sociodemographic questionnaire, clinical information, EQ-5D-3L questionnaire A: Multiple linear regression	Factors that affect the quality of life of patients with chronic kidney failure include female sex, education, loss of a partner and comorbidities.



No	Author (s) (Year)	Purpose of study	Methods (Design, Subject, Variable, Instruments, and Analysis)	Main Finding
5	Manto et al. (2020)	To know the effectiveness of self-care management to improve the quality of life in patients with chronic renal failure with hemodialysis	D: Deskriptif analytic, cross-sectional S: 12 patients with CKD V: Self-care management, quality of life I: Questionnaire, A: Fisher's exact test	Good self-care management skills can improve the quality of life of chronic kidney patients
6	MCEWAN et al. (2021)	To estimate the impact of CKD progression and incidence of events on the quality of life of patients	D: A linear hierarchical multivariable regression S: 4.170 patients with CKD V: Quality of life, impact of disease, health status I: EQ- 5D-5L questionnaire A: Multiple linear regression	The severity of CKD has a significant effect on quality of life. The higher the severity, the lower the quality of life of CKD patients. The presence of comorbid diseases and complications is associated with a decrease in quality of life. Interventions that can delay the progression of chronic kidney disease may improve the quality of life and reduce the burden of chronic kidney disease.
7	Lai et al. (2021)	To evaluate the association of depression and anxiety with self-management and self-efficacy in patients with pre-ESRD	D: Cross-sectional study S: 112 patients with pre-ESRD V: Depression, anxiety, self-efficacy, and self-management I: HADS, CKD-SE, and CKD-SM) questionnaire A: Spearman's rank correlation and logistic regressions	Depression can reduce self-efficacy and self-management abilities. Patients with a high level of education have better self-efficacy and self-management abilities than patients with lower education
8	Skoumalova et al. (2022)	To assess the relationship of health literacy to health-related quality of life in dialysis patients.	D: Cross-sectional study S: 542 dialysis patients V: Health literacy, quality of life, sociodemographics, and comorbidity I: Kidney Disease Quality of Life-Short Form (KDQoL-SF), Health Literacy Questionnaire (HLQ), Charlson Comorbidity Index (CCI) A: Generalised Linear Models	There is a significant relationship between health literacy and quality of life (physical and mental component summary) in dialysis patients, adjusted for age, sex, education, and CCI. Patients with low health literacy have a lower physical and mental component summary than patients with high health literacy. Patients with moderate health literacy have a lower mental component summary than patients with high health literacy. Health literacy is associated with physical and mental HRQoL.
9	Alshelleh et al. (2022)	To assess the association of mental health (depression and anxiety) with the quality of life of patients with CKD and the correlation of socio-demographics or laboratory and metabolic profile	D: Cross-sectional study S: 103 patients with CKD V: Depression, anxiety, quality of life I: Sociodemographic data, brief clinical and laboratory parameters, Patient Health Questionnaire (PHQ-9, Generalized Anxiety Disorder (GAD-7), WHOQOL-BREF questionnaire. A: Independent samples t-test and Mann Whitney-U test, Spearman's rank-order correlation test	CKD patients were vulnerable to psychological pressure. Most CKD patients experienced depression (58.3%) and anxiety (50.5%). Depression and quality of life have a negative, strong and significant relationship. The higher the depression, the lower the quality of life of CKD patients. Based on sociodemographics, only marital status has a significant relationship with depression. There is a negative correlation between anxiety and quality of life. Female patients have higher anxiety scores than males. Patients who were not working had lower physical function scores than others. Patients with higher serum



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				hemoglobin have higher physical and psychological scores.
10	García-Martínez et al. (2021)	To identify how resilience, health-related quality of life, and sociodemographic, clinical, and hemodialysis routine-related variables are related to perceived stress in patients with chronic kidney disease	D: Cross-sectional study S: 144 patients with CKD V: Perception of stress, quality of life, and resilience I: Sociodemographic, HD Routine-Related, and Clinical Data, PSS-10, KDQOL-36), and CD-RISC A: Independent samples t-test, ANOVA One-Way, Spearman's rho, Multiple regression analysis	Resilience and HRQoL were the main predictors of perceived stress among patients undergoing HD for over six months. Among the sociodemographic factors analyzed in this study, only employment status was related, with greater stress perception observed in the unemployed and those engaged in domestic work. The remaining sociodemographic, routine HD and clinical variables were not shown to be associated with perceived stress in this population.
11	Mixson et al. (2023)	To determine the relationship between increased complications of CKD with sleep pattern disturbances.	D: Cross-sectional study S: 980,142 patients V: Sleep disorder, Mortality in End- Stage Renal Disease Patients I: Sociodemographic data, International Classification of Disease (ICD)-9 or ICD-10 codes, Centers for Medicare and Medicaid Services (CMS) 2746 Form—ESRD Death Notification A: Descriptive statistics, Cox proportional hazards (CPH) modeling	High prevalence of sleep disturbances in patients with ESRD. Sleep disturbances lead to increased development of CKD and complications and death.
12	Chesnaye et al.,(2022)	To determine the quality of life of CKD patients between CKD patients with male and female gender	D: Observational prospective cohort study S: 421 patients with CKD V: Quality of life, sociodemographic, clinical and comorbidity I: HRQOL SF-36 A: Linear mixed models	Among elderly patients with advanced CKD, it has been shown that women have lower health-related QoL at initial diagnosis. But men experience a more rapid decline in health-related QoL over time.
13	Ouyang et al., (2022).	To explore how self-management intervention works and its effectiveness on the Chinese CKD population	D: Ambispective intervention cohort study S: 1,200 patients with CKD V: Self-management program for patients with chronic kidney disease (SMP-CKD) I: Composite clinical endpoints (doubling of serum creatinine level, ESKD, loss of renal function, death, major cardiovascular or cerebrovascular events during the 5-year follow-up, self-management behavior questionnaire and HRQoL questionnaire A: Chi-square test/Fisher's exact test, Mann-Whitney U-test/Student's t-test, log-rank test, Cox proportional hazards model/competitive risk model, and growth mixture models and	Self-management program for patients with chronic kidney disease (SMP-CKD) intervention based on Social Cognition Theory in CKD patients can improve the quality of life of CKD patients and slow down development and improve psychological well-being and overall quality of life.



No	Author (s) (Year)	Purpose of study	Methods (Design, Subject, Variable, Instruments, and Analysis)	Main Finding
			group-based trajectory models (GBTM)	
14	Agustiyowati et al., (2019).	To evaluate the effectiveness of Roy's adaptation model towards physiological and psychological adaptation responses among patients with CKD undergoing pre-dialysis	D: Quasy-experimental study S: 70 patients with CKD V: Roy's adaptation model intervention for CKD, physiological adaptation response I: The questionnaire is a Likert scale from 1 to 4, A: Chi-square, independent t-test, paired t-test, and general linear model	Roy's adaptation model, developed for CKD patients undergoing pre-dialysis, is effective for improving physiology, especially fluid intake and creatinine levels, as well as psychological adaptation responses that include self-concept, role function, and interdependence. This model can be applied to clinical settings to guide nurses in providing health education for CKD patients.

DISCUSSION

Chronic kidney disease can cause physiological and psychological stress. It can cause the quality of life of patients with kidney failure to decrease. The results of several studies state that factors that can affect the quality of life of patients with chronic kidney disease are disease conditions and health status, sociodemographics and psychosocial conditions of CKD patients. Disease factors, health conditions, and comorbid diseases are the main factors affecting quality of life. Poor health conditions (Oh et al., 2019; Skoumalova et al., 2022), the presence of comorbid disease (Krishnan et al., 2020), like diabetes (Oh et al., 2019) can reduce the quality of life of CKD patients, and increase mortality from the disease (Gebrie et al., 2022).

Sociodemographic factors that can affect the quality of life include age, gender,

education level, income and employment status, and socioeconomic (Oh et al., 2019; Tannor et al., 2019). Older age, female sex, low education, no partner (Krishnan et al., 2020), chronic kidney disease patients experience a decrease in the quality of life at the beginning of the disease, and men will experience a reduction in the quality of life at the end of the term (Chesnaye et al., 2022). Low socioeconomic status can reduce the quality of life of CKD patients (Tannor et al., 2019). Low education is associated with limited information, resulting in the inability to manage the disease, which decreases the quality of life (Krishnan et al., 2020; Oh et al., 2019; Ouyang et al., 2022).

In addition, psychosocial conditions also affect the quality of life of people with diabetes. These psychosocial factors include anxiety, depression, self-efficacy, and self-care or self-management abilities.



Psychosocial conditions, such as stress (García-Martínez et al., 2021), anxiety disorders and depression can also cause a decrease in quality of life (Alshelleh et al., 2022), associated with decreased self-management abilities (Al Sawad et al. 2022). Inability to perform self-care (Manto et al., 2020), depression, failure to self-management, and low self-efficacy (Lai et al., 2021) can reduce quality of life. The inability to manage stress can impact poor disease management (Ouyang et al., 2022), thus causing failure in self-care, which can reduce the quality of life (Hartweg & Metcalfe, 2022).

The ability to manage stress in the face of illness and its management can improve lifestyles, thereby reducing disturbances in daily life, such as sleep disturbances (Mixson et al., 2023), giving a person hope for a positive outcome, thereby increasing life expectancy (Nguyen et al., 2018), which has a positive impact on quality of life. Therefore, adaptation to changes in connection with the disease is essential for patients to carry out.

The results of previous studies stated that the adaptation model based on the Roy Adaptation Model developed for CKD patients undergoing pre-dialysis is an effective model for improving the patient's physiological condition, especially fluid intake and creatinine levels, as well as psychological adaptation responses that include self-concept, role function, and interdependence (Agustiyowati et al., 2019). This model can be applied to clinical settings to guide nurses in providing health education for CKD patients. The analysis results show that educational factors are one of the main factors in the self-care of CKD patients, apart from, of course, the sociodemographic and psychosocial conditions of CKD patients. The hope is that patients become more adaptive to the disease and its management, improve self-management skills, improve physical and mental health and ultimately positively

impact the quality of life of patients with chronic kidney disease.

CONCLUSION

Patients with CKD must adapt to the disease process and management to improve treatment outcomes. Nurses can develop interventions based on appropriate stress adaptation models to increase the patient's ability to adapt in disease management to improve the outcome of care services and ultimately improve the quality of life of patients with chronic kidney disease. The results of this literature review can become reference material for education and health agencies in treating patients with chronic kidney disease. Follow-up research should identify other factors related to the quality of life of patients with chronic kidney disease, forms of coping that have been accepted both from the family and other social groups, as well as patient knowledge related to the disease received so that the treatment strategy obtained is following the conditions and needs of the patient.

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