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Self-Care, Cultural Practices, and Adaptation in Chronic Kidney Disease Management: A Rural Philippine Case Study

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***Abstract*—** Chronic kidney disease (CKD) remains a growing public health concern in low-resource and rural settings, where self-care capacity, cultural beliefs, and healthcare access strongly influence disease outcomes. This study examined self-care behaviors, cultural practices, and adaptive responses among patients with CKD undergoing hemodialysis in a rural Philippine province. A descriptive quantitative design was used, involving 40 adult hemodialysis patients recruited from four dialysis centers. Data were collected using a structured questionnaire covering demographics, lifestyle-related self-care behaviors, traditional health practices, and healthcare utilization. Findings revealed mixed patterns of adaptation: while most patients reported dietary modification, regular monitoring of blood pressure and blood sugar, and engagement in physical activity, high consumption of salty and sugary foods and widespread self-medication persisted. Cultural reliance on herbal remedies and delayed consultation with nephrology specialists were common. Overall, adaptation to CKD was partial and shaped by socioeconomic constraints and cultural norms. The study underscores the need for nursing-led, culturally sensitive interventions to strengthen self-care and improve CKD management in rural communities.

***Keywords*—** chronic kidney disease; self-care behaviors; cultural practices; hemodialysis; rural health.

I. INTRODUCTION

Chronic kidney disease (CKD) is a major and growing global health problem, contributing substantially to premature mortality, disability, and cardiovascular complications (Bikbov et al., 2020; Ene-Iordache et al., 2020; Matsushita et al., 2022). Global analyses continue to show increasing CKD burden across regions, with a large share attributable to modifiable risks such as hypertension, diabetes, excess body weight, and unhealthy dietary patterns (GBD 2023 Chronic Kidney Disease Collaborators, 2025; Mills et al., 2021). Clinically, CKD is often under-recognized until later stages, and delayed diagnosis limits opportunities for early intervention and progression prevention (Chen, Knicely, & Grams, 2019; Chow, Kwan, & Li, 2023).

Evidence consistently identifies hypertension and diabetes as dominant contributors to CKD incidence and progression (Gallacher, Pugh, & Dhaun, 2019; Koye et al., 2020; Skolnik & Style, 2021). Metabolic risk clustering—obesity, dyslipidemia, and poor glycemic control—further accelerates renal decline and increases cardiovascular risk (Kovesdy, Furth, & Zoccali, 2021; Roy et al., 2021; Fabris et al., 2025). In addition, CKD risk and outcomes vary by sex and gender, reflecting biological differences, comorbidity patterns, and care access, which together influence progression and mortality (Carrero et al., 2018; Ricardo et al., 2019; Oh et al., 2023).

Beyond clinical drivers, CKD is shaped by social determinants and inequities. Deprivation and low socioeconomic status are repeatedly associated with higher CKD risk, faster progression, and poorer access to preventive services (Grant et al., 2023; Tannor, Onu, & Okpechi, 2022; Zeng et al., 2018). Barriers such as limited affordability, transportation constraints, and fragmented service delivery particularly affect rural and low-income populations (Lazar & Davenport, 2018; Chironda & Bhengu, 2019; Lopez & Ramirez, 2023). These challenges contribute to gaps in early detection and consistent follow-up care—issues reported globally and within resource-limited settings (Chow et al., 2023; Nagib et al., 2021; Nguyen, Le, & Tran, 2022).

Lifestyle factors remain central targets for prevention and nursing-led intervention. Systematic reviews and population-level evidence link smoking, unhealthy diet, and physical inactivity with incident CKD and progression (Kelly et al., 2021; Yin et al., 2022). Diet-specific evidence also highlights increased CKD risk with poor dietary patterns and high consumption of processed foods and sugar-sweetened beverages, which

contribute to weight gain and cardiometabolic disease (Chen et al., 2022; Neelakantan et al., 2021; Juul & Monteiro, 2021). At the same time, public knowledge of CKD is often limited, which reduces screening uptake and delays lifestyle modification (Gheewala et al., 2018; Kumar, Singh, & Sharma, 2021; Iroegbu, Lewis, & Matura, 2022).

In many low-resource settings, CKD risk is also shaped by non-traditional and environmental exposures, including occupational heat stress and agrochemical exposure, which are increasingly recognized in CKD of unknown etiology (CKDu) (Chapman et al., 2019; Rao et al., 2023; Priyadarshani, de Namor, & Silva, 2023). Studies have reported associations between pesticide exposure and CKDu, and experimental evidence has raised concern about nephrotoxic effects from mixed environmental contaminants (Alvand et al., 2023; Babich et al., 2020; Gunarathna et al., 2018). These findings strengthen the need to understand CKD within local ecological, occupational, and cultural contexts, particularly in rural communities.

Cultural beliefs and informal care practices strongly influence how patients interpret symptoms, choose remedies, and engage with the health system. Qualitative and cross-sectional studies have documented reliance on herbal/traditional remedies among CKD-affected populations and noted potential links between such practices and kidney function outcomes (Komariah et al., 2023; Kalyesubula, Najjuka, & Nankabirwa, 2021). Self-medication is also a recognized risk behavior that may expose individuals to nephrotoxic agents and delay appropriate clinical management (Dizon & Morales, 2024). For patients already receiving hemodialysis, adherence and adaptive coping are shaped by psychosocial burden, treatment constraints, and the availability of supportive services (Kustimah et al., 2019; Osuna et al., 2023). Together, these realities underscore the importance of nursing frameworks that prioritize self-care capacity, culturally congruent care, and patient adaptation in chronic illness management (Hartweg, 1991; Leininger, 2002; Roy & Andrews, 2022).

In the Philippines and across Southeast Asia, CKD is an escalating public health concern, with advanced CKD commonly attributed to diabetes and hypertension, and with rural populations facing persistent access barriers (Hustrini et al., 2024; Tang et al., 2020; Vanholder et al., 2021). Community-based prevention approaches and improved utilization of CKD management services have been emphasized as practical pathways to reduce progression and treatment burden, particularly where early detection and continuity of care remain inconsistent (Cruz, Salunga, & Abad, 2021; Cruz & Hernandez, 2022; Velasco, Garcia, & Ong, 2023). However, there remains a need for nursing-focused evidence that integrates (1) patient self-care behaviors, (2) culturally rooted practices, and (3) adaptive responses within the lived realities of rural hemodialysis populations.

Accordingly, this study generated locally grounded and internationally relevant insights for nursing practice and community health interventions by pursuing the following objectives: (1) to describe the demographic profile and self-care behaviors of patients with CKD undergoing hemodialysis, including diet, medication use, physical activity, and health-seeking practices; (2) to identify cultural beliefs and traditional health practices influencing CKD management and healthcare utilization; and (3) to assess patient adaptation to CKD in relation to lifestyle modification and access to healthcare services, and to derive nursing-led, culturally sensitive intervention recommendations.

II. METHODOLOGY

This study employed a descriptive quantitative research design to examine self-care behaviors, cultural practices, and adaptive responses among patients with CKD undergoing hemodialysis in a rural Philippine province. The design was appropriate for generating a detailed profile of the study population and describing patterns of behavior, healthcare utilization, and adaptation without manipulating variables. The study was conducted in four hemodialysis centers—comprising government and private facilities—located in geographically rural municipalities. A total of 40 respondents were included using purposive convenience sampling, targeting adult patients who were clinically stable and able to provide informed responses at the time of data collection.

Data were collected using a structured, researcher-administered questionnaire developed through a review of relevant literature and previously validated instruments. The questionnaire consisted of three sections: (1) demographic and socioeconomic characteristics; (2) self-care behaviors and lifestyle practices, including diet, medication use, physical activity, and health-seeking behavior; and (3) cultural

practices, healthcare utilization, and indicators of adaptation to CKD. Content validity was established through expert review by a nephrologist, a public health nurse, and a research adviser, and minor revisions were made to improve clarity and relevance. A pilot test was conducted among dialysis patients not included in the final sample to ensure comprehensibility and reliability of the instrument.

Data collection took place prior to hemodialysis sessions to minimize respondent fatigue and cognitive burden. Ethical approval and institutional permissions were secured before data gathering, and written informed consent was obtained from all participants. Confidentiality and anonymity were strictly maintained. Data were encoded and analyzed using descriptive statistical techniques, including frequency counts, percentages, and ranking, which were appropriate for addressing the study objectives. The findings were interpreted in relation to self-care behaviors, culturally influenced practices, and patterns of adaptation to chronic illness, with the aim of informing nursing-led, culturally sensitive interventions in rural and resource-limited settings.

III. RESULTS & DISCUSSION

Demographic Profile and Self-Care Behaviors of Patients with Chronic Kidney Disease Undergoing Hemodialysis

Table 1 illustrates that the majority of patients undergoing hemodialysis were middle-aged adults, with the largest proportion belonging to the 35–44-year age group, followed by those aged 45–54 and 25–34 years. This finding is notable because it reflects a relatively young dialysis population, indicating that CKD in this rural setting affects individuals during their economically productive years.

Similar patterns have been reported in low- and middle-income countries, where delayed detection, poor risk factor control, and limited access to preventive care contribute to earlier disease progression and premature dependence on renal replacement therapy.

The presence of CKD in younger and middle-aged adults underscores the long-term social and economic consequences of the disease, including loss of productivity, financial strain, and increased caregiving demands.

Table 1. *Demographic Characteristics of Patients with CKD Undergoing Hemodialysis (n = 40)*

Variable	Category	f	%
Age (years)	18–24	1	2.5
	25–34	8	20.0
	35–44	14	35.0
	45–54	9	22.5
	55–64	8	20.0
Sex	Male	29	72.5
	Female	10	25.0
	Prefer not to say	1	2.5
Civil Status	Single	15	37.5
	Married	23	57.5
	Widowed	2	5.0
Monthly Income	< ₱10,957	25	62.5
	₱10,958–21,914	7	17.5
	₱21,915–43,828	5	12.5
	₱43,829–76,669	3	7.5
Educational Attainment	Basic education	31	77.5
	Higher education	9	22.5

The predominance of male respondents aligns with epidemiological evidence indicating higher CKD prevalence, faster progression, and greater likelihood of dialysis initiation among men. Biological factors, such as sex-related differences in kidney physiology, may contribute to this pattern; however, behavioral and social determinants—including higher rates of risk behaviors, delayed health-seeking, and occupational exposures—are also likely contributors. From a nursing perspective, this highlights the importance of gender-

responsive health education, particularly in addressing lifestyle modification and early engagement with kidney health services among men in rural communities.

Socioeconomic characteristics further contextualize self-care capacity among the respondents. The majority reported low monthly income, with more than half earning below the minimum income threshold. Financial constraints are well documented as barriers to sustained self-care, medication adherence, and routine healthcare utilization. In resource-limited settings, low income often forces patients to prioritize immediate household needs over preventive health behaviors, contributing to delayed consultation and suboptimal disease management. This economic vulnerability likely influences patients' reliance on informal care practices and limits their ability to access nutrition counseling, specialized services, and consistent follow-up care.

Educational attainment among respondents was predominantly limited to basic education, which may directly affect health literacy and the ability to understand complex CKD management instructions. Lower educational levels have been associated with reduced awareness of disease progression, dietary restrictions, and medication safety, all of which are critical to effective self-care in CKD. While basic education may allow participation in general health programs, it may not sufficiently equip patients to interpret laboratory results, adhere to renal diets, or recognize early warning signs of complications. This finding reinforces the need for nurse-led education strategies that are simplified, culturally appropriate, and adapted to varying literacy levels.

The demographic profile presented in Table 1 reveals a population whose self-care behaviors are shaped by age-related responsibilities, gender dynamics, economic hardship, and limited educational opportunities. These factors interact to influence how patients manage chronic kidney disease and engage with healthcare services. Understanding this demographic context is essential for designing culturally sensitive and feasible nursing interventions that strengthen self-care capacity, promote early health-seeking behavior, and support adaptive responses to chronic illness in rural settings.

Socioeconomic characteristics further contextualize self-care capacity among the respondents. The predominance of low monthly income observed in this study reflects a well-documented association between socioeconomic disadvantage and poorer CKD outcomes. Multiple studies have demonstrated that individuals with low income face substantial barriers to healthcare access, including limited affordability of medications, transportation difficulties, and reduced capacity to engage in preventive care and regular follow-up (Grant et al., 2023; Tannor et al., 2022; Zeng et al., 2018). In rural settings, these barriers are often amplified by geographic isolation and fragmented service delivery, increasing the likelihood of late-stage CKD diagnosis and dependence on dialysis (Lazar & Davenport, 2018; Chironda & Bhengu, 2019). Economic vulnerability may also drive reliance on informal care practices and delay engagement with professional healthcare services, thereby constraining effective self-management and adaptive coping.

Educational attainment among respondents was predominantly limited to basic education, a factor that has been consistently linked to lower health literacy and reduced engagement in chronic disease self-management. Studies across diverse populations have shown that limited education is associated with poor understanding of CKD progression, dietary restrictions, and medication safety, all of which are essential components of effective self-care (Gheewala et al., 2018; Iroegbu et al., 2022; Nguyen et al., 2022). Inadequate health literacy has also been associated with lower participation in screening programs and delayed health-seeking behavior (Kumar et al., 2021; Chow et al., 2023). These findings underscore the importance of nursing-led educational interventions that are tailored to patients' literacy levels, use clear and culturally appropriate messaging, and reinforce practical self-care skills. Strengthening patient education in this manner may enhance adaptive responses to CKD and support sustained engagement with healthcare services, particularly in rural and resource-limited contexts.

Table 2 demonstrates that several high-risk self-care behaviors remain prevalent among patients with chronic kidney disease (CKD) despite their dependence on hemodialysis. The most frequently reported behavior was the regular consumption of salty or processed foods, followed by intake of sugary foods and beverages. These dietary patterns are particularly concerning given their well-established role in worsening hypertension, metabolic dysfunction, and cardiovascular risk, all of which accelerate CKD progression. The persistence of such behaviors suggests that while patients may be aware of their condition, translating knowledge into

sustained dietary modification remains a challenge, particularly in rural and low-income contexts where food choices are often constrained by affordability and availability.

Table 2. *Self-Care Behaviors of Patients with CKD Undergoing Hemodialysis (n=40)*

Self-Care Indicator	f	%
Consumes salty/processed food 3–4× per week	30	75.0
Consumes sugary foods/beverages regularly	24	60.0
Uses OTC medications without consultation	28	70.0
Uses NSAIDs without medical advice	24	60.0
Engages in ≥30 min physical activity ≥3×/week	31	77.5
Smokes cigarettes / uses tobacco	13	32.5
Drinks alcoholic beverages	29	72.5

Medication-related self-care practices also revealed potentially harmful patterns. A substantial proportion of respondents reported using over-the-counter medications and NSAIDs without medical consultation, behaviors that pose direct nephrotoxic risks. These findings suggest gaps in medication literacy and access to professional guidance, reinforcing the likelihood of self-directed symptom management rather than coordinated care. Conversely, engagement in regular physical activity was relatively high, indicating a degree of adaptive self-care behavior that may reflect functional capacity, occupational demands, or culturally embedded routines such as walking. However, this positive behavior coexisted with frequent alcohol consumption and continued tobacco use among a notable proportion of respondents, underscoring the coexistence of protective and harmful behaviors within the same individuals. This mixed pattern highlights the complexity of self-care in CKD, where adaptation is often partial rather than comprehensive.

The dietary patterns observed in this study are consistent with extensive evidence linking high sodium intake, processed foods, and sugar-sweetened beverages to increased risk of CKD progression and cardiovascular complications. Systematic reviews and cohort studies have demonstrated that unhealthy dietary patterns significantly contribute to renal decline, while diets high in ultra-processed foods and sugary beverages exacerbate hypertension, obesity, and metabolic stress (Chen et al., 2022; Kelly et al., 2021; Juul & Monteiro, 2021; Neelakantan et al., 2021). These findings align with global public health recommendations emphasizing sodium reduction and healthier dietary choices as central components of CKD prevention and management (World Health Organization, 2024). The persistence of poor dietary habits among dialysis patients suggests that dietary counseling alone may be insufficient without sustained, culturally tailored nursing support.

Similarly, the widespread practice of self-medication and unsupervised NSAID use observed in this study mirrors findings from other low- and middle-income settings, where limited healthcare access and cost concerns drive reliance on over-the-counter drugs. Previous studies have documented strong associations between self-medication practices and renal injury, particularly with NSAIDs, which are known to impair renal perfusion and accelerate kidney damage (Dizon & Morales, 2024; Chen, Knicely, & Grams, 2019). While engagement in physical activity reflects positive self-care behavior, evidence suggests that the benefits of exercise may be undermined when combined with persistent smoking and alcohol use, both of which have been linked to CKD progression and poorer health outcomes (Kelly et al., 2021; Yin et al., 2022; Xing et al., 2022). Together, these studies support the need for integrated, nursing-led self-care interventions that address not only individual behaviors but also the social, cultural, and structural factors influencing patients' ability to sustain healthy practices.

Cultural Beliefs and Traditional Health Practices Influencing Chronic Kidney Disease Management

Table 3 highlights the substantial influence of cultural beliefs and traditional health practices on the management of chronic kidney disease (CKD) among patients undergoing hemodialysis. The majority of respondents reported using herbal or traditional remedies, indicating that culturally embedded health practices remain a primary component of illness management even after initiation of renal replacement therapy. This reliance on traditional remedies suggests that biomedical treatment is often complemented—or at times preceded—by culturally familiar approaches that

are perceived as accessible, affordable, and aligned with personal beliefs. While such practices may provide psychological reassurance, they also raise concerns regarding delayed engagement with formal healthcare and potential exposure to nephrotoxic substances.

The frequent use of over-the-counter medications and NSAIDs without prescription further underscores a pattern of self-directed care rooted in convenience and perceived efficacy. These practices may reflect limited access to healthcare providers, financial constraints, or prior experiences that shape health-seeking behavior. Notably, nearly half of the respondents reported delaying consultation with a nephrologist, a behavior that may contribute to late referral and accelerated disease progression.

In contrast, the relatively low prevalence of Chinese medicine use suggests that traditional practices in this setting are primarily localized rather than imported, emphasizing the importance of understanding community-specific cultural norms when designing interventions. Collectively, these findings demonstrate that cultural beliefs and informal care practices play a critical role in shaping treatment decisions and adaptation to CKD in rural communities.

Table 3. *Cultural Beliefs and Traditional Health Practices Influencing CKD Management*

Cultural / Traditional Practice	f	%
Uses herbal or traditional remedies	29	72.5
Uses over-the-counter drugs before consulting provider	28	70.0
Uses NSAIDs without prescription	24	60.0
Uses Chinese medicine	3	7.5
Delays consultation with nephrologist	17	42.5

The reliance on herbal and traditional remedies observed in this study is consistent with findings from other low-resource and culturally diverse settings. Studies have shown that patients with CKD frequently turn to traditional medicine prior to or alongside formal treatment, often due to cultural beliefs, accessibility, and economic considerations (Komariah et al., 2023; Kalyesubula et al., 2021).

While these practices are culturally meaningful, research has raised concerns about their potential association with impaired kidney function and delayed diagnosis, particularly when remedies contain nephrotoxic compounds or are used without professional guidance (Rao et al., 2023; Priyadarshani et al., 2023).

These findings reinforce the importance of culturally congruent nursing care that acknowledges traditional beliefs while promoting safe and evidence-based practices.

Similarly, the widespread use of over-the-counter drugs and NSAIDs without medical supervision aligns with literature identifying self-medication as a common but risky behavior among individuals with chronic illnesses. Previous studies have demonstrated that unsupervised NSAID use is strongly associated with acute kidney injury and accelerated CKD progression (Chen, Knicely, & Grams, 2019; Dizon & Morales, 2024). Delayed consultation with nephrology specialists has also been identified as a significant barrier to optimal CKD management, particularly in rural and underserved populations (Chow et al., 2023; Park & Santos, 2024). Together, these studies underscore the need for nursing-led, culturally sensitive interventions that integrate patient education, early referral pathways, and respectful engagement with traditional health practices to improve CKD outcomes in rural settings.

Adaptation to Chronic Kidney Disease: Lifestyle Modification and Healthcare Utilization

Table 3 illustrates that most patients undergoing hemodialysis demonstrated adaptive lifestyle behaviors in response to chronic kidney disease (CKD).

A large proportion reported implementing dietary modifications, regularly monitoring blood pressure and blood sugar, and maintaining physical activity, suggesting active engagement in behaviors aimed at preserving health and preventing further complications.

These adaptive responses indicate that once CKD reaches an advanced stage requiring dialysis, patients may become more receptive to lifestyle-related health advice, particularly those behaviors that are routinely reinforced by healthcare providers during treatment encounters.

Table 3. Patient Adaptation to CKD in Relation to Lifestyle Modification and Healthcare Utilization

Adaptive Behavior	f	%
Dietary modification implemented	35	87.5
Monitors blood pressure/blood sugar	33	82.5
Maintains regular physical activity	31	77.5
Aware of CKD-specific dietary restrictions	13	32.5

Despite these positive adaptations, awareness of CKD-specific dietary restrictions remained notably low, with fewer than one-third of respondents demonstrating adequate knowledge. This finding suggests that adaptation among patients is selective rather than comprehensive, with greater adherence to general lifestyle advice than to disease-specific management strategies. While patients may comply with broadly understood recommendations such as exercise and monitoring vital signs, the complexity of renal dietary management—requiring restriction of sodium, potassium, phosphorus, and fluid intake—may exceed patients' health literacy or be inadequately emphasized during clinical encounters. This gap reflects an important area where nursing interventions can strengthen adaptive capacity through focused education and ongoing reinforcement.

Evidence from multiple studies supports the finding that patients with CKD often demonstrate partial adaptation to lifestyle modification, particularly in behaviors that are visible, measurable, and reinforced within healthcare settings. Regular monitoring of blood pressure and blood sugar is widely recognized as a cornerstone of CKD management, especially given the strong links between hypertension, diabetes, and renal decline (Gallacher et al., 2019; Koye et al., 2020; Skolnik & Style, 2021). Similarly, engagement in physical activity has been shown to improve cardiovascular health and functional capacity among individuals with CKD, contributing to better overall outcomes when integrated into routine care (Kelly et al., 2021; Yin et al., 2022).

In contrast, several studies have documented persistent gaps in dietary knowledge and adherence among patients with CKD, particularly in low-resource and rural settings. Limited awareness of renal-specific dietary restrictions has been associated with lower health literacy and inadequate patient education, which may undermine long-term disease control despite other positive behaviors (Gheewala et al., 2018; Reyes & Chua, 2022; Nguyen et al., 2022). Barriers such as socioeconomic constraints, food availability, and insufficient nutritional counseling further complicate dietary adherence (Grant et al., 2023; Tannor et al., 2022). These findings highlight the critical role of nursing-led, patient-centered education that emphasizes practical, culturally appropriate dietary guidance to support full adaptation to chronic kidney disease and optimize health outcomes.

IV. CONCLUSIONS

This study highlights that the management of CKD among patients undergoing hemodialysis in a rural Philippine setting is shaped by a complex interaction of self-care behaviors, cultural beliefs, and adaptive responses to chronic illness. While many patients demonstrated positive adaptive behaviors—such as dietary modification, regular monitoring of blood pressure and blood sugar, and engagement in physical activity—these practices were often incomplete and inconsistent. High consumption of salty and processed foods, frequent self-medication, and continued use of potentially nephrotoxic agents indicate persistent gaps between knowledge, behavior, and sustained self-care, particularly in the context of socioeconomic constraints and limited health literacy.

Cultural beliefs and traditional health practices emerged as influential factors in CKD management. The widespread reliance on herbal remedies, over-the-counter medications, and delayed consultation with nephrology specialists underscores the continued importance of culturally embedded health practices even after initiation of dialysis. Although these practices may provide a sense of familiarity and accessibility, they also pose risks for delayed care and adverse renal outcomes when not integrated with formal healthcare guidance. Overall, the findings suggest that patient adaptation to CKD is often partial, with greater adherence to general lifestyle recommendations than to disease-specific management, highlighting the need for nursing interventions that address both cultural context and self-care capacity.

To improve CKD management and patient outcomes in rural and resource-limited settings, nursing-led, culturally sensitive interventions should be strengthened and prioritized. Community and facility-based nurses should implement simplified, literacy-appropriate education programs emphasizing renal-specific dietary management, safe medication use, and early consultation with nephrology services. Integrating discussions of traditional and herbal practices into routine patient education—rather than discouraging them outright—may promote trust and safer decision-making. Additionally, regular reinforcement of self-care behaviors during dialysis visits, coupled with referral pathways for nutrition counseling and primary care follow-up, can support sustained adaptation to CKD. Health systems should further support these efforts by ensuring continuity of care, improving access to preventive education, and empowering nurses to lead context-responsive interventions tailored to the needs of rural CKD populations.

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