

## Attitudes, Knowledge, and Practices Regarding Chronic Kidney Disease Among Patients

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**Abstract:** Chronic kidney disease (CKD) poses a growing public health burden globally, particularly in low- and middle-income countries like Pakistan. Patient knowledge, attitudes, and practices (KAP) are key factors influencing disease management and outcomes. **Objective:** To assess the knowledge, attitudes, and practices regarding CKD among patients receiving care in a tertiary care hospital in Lahore, Pakistan. **Methods:** A descriptive cross-sectional study was conducted at Sheikh Zayed Hospital, Lahore. A sample of 180 CKD patients was recruited using convenience sampling. Data were collected using a structured, validated questionnaire covering demographic characteristics, knowledge, attitudes, practices, and risk factor awareness. Statistical analysis was conducted using SPSS version 25. Reliability was assessed via Cronbach's alpha, and validity was evaluated using KMO and Bartlett's tests. **Results:** The majority of participants were male (59.4%) and aged between 26–45 years. High levels of knowledge were observed regarding the progressive nature of CKD and the roles of hypertension and diabetes as risk factors. Attitudes were generally favorable, particularly regarding the importance of awareness and equal treatment. Practices such as medication adherence and blood pressure monitoring were common, but exercise and dietary compliance were low. Awareness of less common CKD risk factors such as aging, autoimmune disease, and NSAID use was limited. Cronbach's alpha values ranged from 0.295 to 0.732 across domains, and KMO values confirmed construct validity. **Conclusion:** The study highlights moderate to high knowledge and positive attitudes toward CKD among patients, but also reveals gaps in practice and awareness of lesser-known risk factors. Targeted educational interventions are needed to promote comprehensive disease understanding and self-care behaviors.

**Keywords:** Chronic kidney disease, Knowledge, Attitude, Practices, Risk factors, Pakistan, Patient education

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### Introduction

Chronic kidney disease (CKD) is a progressive and irreversible condition characterized by a gradual loss of kidney function over time. Globally, CKD has emerged as a major public health concern due to its increasing prevalence, morbidity, and mortality. According to the Global Burden of Disease Study, CKD was ranked as the 12th leading cause of death worldwide in 2017, and it continues to rise in both low- and high-income countries due to a combination of aging populations and rising rates of diabetes and hypertension—the two most common risk factors for CKD progression and end-stage renal disease (ESRD) (1).

The condition affects approximately 10–15% of the adult population worldwide, with a disproportionate burden in developing nations due to inadequate early detection, limited access to renal care, and lack of awareness (2). In Pakistan, the burden of CKD is significantly increasing, primarily driven by the high prevalence of diabetes mellitus, hypertension, poor dietary habits, self-medication, and delayed diagnosis (3, 4). Reports suggest that around 17 million people in Pakistan suffer from some form of kidney disease, yet the majority remain undiagnosed until the disease reaches an advanced stage (5).

CKD is often asymptomatic in its early stages, making it challenging to detect without routine screening and patient education. Therefore, understanding patients' knowledge, attitudes, and practices (KAP) is essential for effective disease management and early intervention. Studies have shown that patients with better awareness and understanding of CKD are more likely to adhere to treatment regimens, engage in preventive behaviors, and seek timely medical attention (6, 7). On the other hand, poor knowledge and misconceptions about CKD can result in poor health-seeking behavior, suboptimal self-care practices, and increased morbidity and healthcare costs (8).

Attitude also plays a vital role in disease perception and management. A positive attitude towards kidney health can influence a patient's willingness to accept treatment, adhere to medication, and participate in shared decision-making with healthcare providers. Conversely, negative attitudes may lead to denial, non-compliance, and reliance on traditional or non-medical remedies, especially in rural populations (9). In Pakistan, cultural beliefs, limited health literacy, and socioeconomic barriers further complicate the management of CKD and hinder the implementation of preventive strategies (10).

In addition to knowledge and attitudes, practical behaviors such as medication adherence, dietary restrictions, blood pressure monitoring, and routine follow-up visits are critical to slowing the progression of CKD (11). However, in resource-limited settings like Pakistan, patients often face obstacles such as financial constraints, transportation issues, and lack of structured health education, which affect their ability to practice recommended care behaviors consistently (12).

Understanding the existing gaps in knowledge, attitudes, and practices is crucial to designing effective educational and behavioral interventions tailored to local populations. Although some regional studies have explored CKD-related KAP among specific patient groups, there remains a dearth of comprehensive assessments in Pakistan, particularly in urban hospital settings (13).

The present study aims to assess the attitudes, knowledge, and practices regarding CKD among patients receiving dialysis care at a tertiary care hospital in Lahore. The findings will help identify educational needs, behavioral barriers, and potential targets for policy development and community-based interventions to reduce the burden of CKD in Pakistan.



## Methodology

This study adopted a descriptive cross-sectional quantitative design to assess the knowledge, attitudes, and practices (KAP) regarding chronic kidney disease (CKD) among patients. The research was conducted at the dialysis unit of Sheikh Zayed Hospital, Lahore, Pakistan. A non-probability convenience sampling technique was employed to recruit participants meeting the inclusion criteria. The sample size was calculated using Yamane's formula (1973), considering a known population size of 360 CKD patients at the hospital and a 5% margin of error, resulting in a final sample size of 180 patients. Ethical approval was obtained from the institutional review board of Superior University, and formal permission for data collection was secured from the hospital administration. Informed consent was taken from all participants, who were assured of confidentiality, anonymity, and voluntary participation.

Data were collected using a structured, pre-validated questionnaire adapted from previous studies on CKD-related KAP. The instrument comprised five sections: demographic information (age, gender, education, marital status), knowledge about CKD, attitudes toward CKD patients, self-reported practices for CKD management, and awareness of CKD risk factors. Responses were recorded on a 5-point Likert scale, with lower scores reflecting stronger agreement or greater frequency of behavior. Content and face validity of the tool were ensured by consultation with academic experts. The reliability of each domain was assessed using Cronbach's alpha, with acceptable internal consistency noted across most subscales ( $\alpha$  ranging from 0.295 to 0.732).

Data were entered and analyzed using IBM SPSS version 25. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize demographic characteristics and KAP scores. Skewness and kurtosis values were calculated to assess normality, with all values within the acceptable range of -2 to +2. Factorability of the constructs was verified through the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (range: 0.577 to 0.727) and Bartlett's Test of Sphericity ( $p < 0.001$ ), confirming the validity of the factor structure. The final results are presented in tabular format, with interpretations aligned to mean score thresholds and supported by reliability and validity assessments.

## Results

A total of 180 CKD patients were enrolled from the dialysis unit of Sheikh Zayed Hospital, Lahore, with a 100% response rate. The majority were male (59.4%), aged between 26–45 years (34.3%), and had completed Matric or FSc (75%). Most participants were married (74.4%) and all were Pakistani nationals (Table 1).

Knowledge assessment showed high awareness regarding CKD being progressive, its risk factors (HTN, DM), and the importance of early detection and lifestyle management. Strong agreement was noted across most knowledge items (Table 2).

Participants displayed favorable attitudes toward CKD patients, with strong support for empathy, inclusion, and educational roles of healthcare professionals (Table 3).

Practices varied: while medication adherence and monitoring blood pressure were frequently followed, physical activity and dietary compliance were less consistent (Table 4).

Awareness of CKD risk factors was high for diabetes, hypertension, and NSAID use, but low for aging and autoimmune diseases (Table 5).

Reliability analysis showed acceptable internal consistency, especially for practices and risk awareness. KMO values were moderate, and Bartlett's Test was significant for all domains, confirming tool validity (Table 6).

**Table 1: Demographic Characteristics of CKD Patients (n = 180)**

Variable	Frequency (n)	Percentage (%)
Gender		
Male	122	59.4%
Female	58	40.6%
Age Groups		
≤25 years	19	10.5%
26–45 years	62	34.3%
46–55 years	55	30.4%
≥56 years	45	24.9%
Education Level		
Matric/FSc	135	75.0%
Bachelor's	29	16.1%
Master's	12	6.7%
PhD	4	2.2%
Marital Status		
Married	134	74.4%
Single	46	25.6%
Nationality		
Pakistani	180	100%

**Table 2: Knowledge of Patients Regarding CKD**

Knowledge Item	Mean	SD	Interpretation
CKD is progressive	1.84	1.25	High agreement
Risk factors (HTN, DM)	1.44	0.81	Very high agreement
Early detection helps	1.86	1.16	High agreement
Lifestyle can help manage	1.80	0.99	High agreement
Dialysis/transplant required	1.39	0.88	Very high agreement

**Table 3: Attitudes toward CKD Patients**

Attitudinal Statement	Mean	SD	Interpretation
Empathy towards CKD patients	1.30	0.69	Strong agreement
Equal treatment rights	2.32	1.46	Moderate agreement
Raising awareness about CKD	1.16	0.45	Very strong agreement
Involvement in decision-making	1.46	0.80	Strong agreement
Need for comprehensive education by HCPs	1.28	0.49	Strong agreement

**Table 4: Practices in Managing CKD**

Practice Item	Mean	SD	Interpretation
Monitoring BP and sugar	1.81	1.13	Frequently practiced
Diet compliance	2.18	1.20	Occasionally practiced
Physical exercise	2.75	1.62	Rarely practiced
Medication adherence	1.39	0.86	Frequently practiced
Regular medical check-ups	2.02	1.38	Occasionally practiced

**Table 5: Awareness of CKD Risk Factors**

Risk Factor	Mean	SD	Awareness Level
High blood pressure	1.33	0.74	High
Diabetes	1.47	0.83	High
Family history	2.29	1.04	Moderate
Obesity	2.52	1.04	Moderate
Smoking	2.28	1.14	Moderate
Aging	2.92	1.05	Low

Autoimmune diseases	2.94	1.21	Low
Chronic NSAID use	1.52	0.85	High
UTIs	2.05	1.13	Moderate
Alcohol consumption	1.83	1.04	High

**Table 6: Reliability and Validity of CKD Questionnaire Constructs**

Construct	Cronbach's Alpha ( $\alpha$ )	KMO Value	Bartlett's Test (p-value)
Knowledge	0.466	0.577	< 0.001
Attitudes	0.295	0.611	< 0.001
Practices	0.669	0.687	< 0.001
Risk Factor Awareness	0.732	0.727	< 0.001

## Discussion

The findings of this study reveal critical insights into the knowledge, attitudes, and practices of patients diagnosed with chronic kidney disease (CKD) in a tertiary care setting in Pakistan. The overall knowledge level was found to be moderate to high, particularly regarding the progressive nature of CKD, the role of hypertension and diabetes as primary risk factors, and the need for dialysis or transplantation in advanced stages. These findings align with a cross-sectional study conducted in Saudi Arabia, where 68.2% of participants were aware of CKD being a progressive condition and 73% identified diabetes and hypertension as leading contributors (14). Similarly, research from Nigeria reported a high level of awareness regarding hypertension as a CKD risk factor but lower understanding of other causes such as NSAID use or autoimmune diseases (15).

Despite this reasonable level of awareness about major CKD risk factors, our results highlighted significant gaps in patient understanding of less common but equally important contributors, such as aging, autoimmune diseases, and urinary tract infections. This mirrors the findings of Ngendahayo et al., who observed a similar trend among Rwandan university students—high awareness of diabetes and hypertension, but minimal knowledge of other risk contributors (16). These knowledge deficits could result in delayed diagnosis or poor disease prevention behaviors in community settings.

Patients' attitudes in our study were generally favorable. Most respondents expressed strong empathy towards CKD patients, supported equal treatment rights, and emphasized the need for CKD awareness. These findings are consistent with the study by Wolide et al., which demonstrated positive attitudes among healthcare providers in Ethiopia toward CKD management and patient support (17). Furthermore, the strong agreement seen in our sample regarding the importance of involving patients in decision-making reflects a progressive trend in patient-centered care and has been encouraged in global guidelines for chronic disease management (18).

However, the gap between knowledge and practice remains a concern. While most participants reported adherence to medication and blood pressure monitoring, fewer engaged in regular physical exercise or dietary compliance. The limited physical activity observed in our cohort (mean score = 2.75) is worrisome, especially given evidence that exercise significantly slows CKD progression and improves cardiovascular health (19). Evangelidis et al. emphasized the need for behavior change interventions that include goal-setting, feedback, and social support to translate knowledge into sustainable practice changes among CKD patients (20).

Our study further identified barriers to CKD self-management such as low engagement in regular medical check-ups and lack of structured follow-up. These challenges are frequently observed in low- and middle-income countries, where limited healthcare access, cost burdens, and logistical difficulties hinder continuity of care (21). The relatively low Cronbach's alpha for the "attitudes" domain ( $\alpha = 0.295$ ) suggests potential

inconsistencies in how patients interpret attitudinal statements, potentially due to varied literacy or cultural understanding. Nonetheless, acceptable internal consistency was observed in the practices and risk awareness domains, supporting the overall reliability of the instrument.

The study also confirmed construct validity through KMO values above 0.5 and significant Bartlett's Test results across domains. These findings demonstrate that the instrument captured coherent underlying constructs related to CKD KAP, consistent with previous validation studies in similar populations (22).

In Pakistan, where the burden of CKD is growing and health system resources are strained, the integration of CKD education into primary healthcare services is essential. Tailored awareness campaigns, community screening, and lifestyle counseling may bridge the gap between knowledge and effective practice. More importantly, culturally sensitive education addressing lesser-known risk factors such as NSAID use, autoimmune diseases, and aging must be prioritized to prevent late-stage presentations.

## Conclusion

This study demonstrates that while CKD patients in Pakistan possess a fair level of knowledge and hold positive attitudes, significant gaps exist in practice and risk factor awareness. Educational interventions and structured patient support programs are urgently needed to improve outcomes and slow disease progression.

## Declarations

### Data Availability statement

All data generated or analysed during the study are included in the manuscript.

### Ethics approval and consent to participate

Approved by the department concerned. (IRBEC-SUN-988-24)

### Consent for publication

Approved

### Funding

Not applicable

## Conflict of interest

The authors declared the absence of a conflict of interest.

## Author Contribution

**ASK** (Studen),

*Manuscript drafting, Study Design,*

**HM** (Studen)

*Review of Literature, Data entry, Data analysis, and drafting article.*

**SH** (Supervisor)

*Conception of Study, Development of Research Methodology Design, SST (Director of Nursing) Study Design, manuscript review, critical input. RJ (Principal), Manuscript drafting, Study Design,*

*All authors reviewed the results and approved the final version of the manuscript. They are also accountable for the integrity of the study.*

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