



# Healthcare Seeking Behaviour of Patients with Chronic Kidney Disease in the Tamale Teaching Hospital, Ghana

Agatha Lekuu <sup>a</sup> and Adadow Yidana <sup>b\*</sup>

<sup>a</sup> *Department of Global and International Health, School of Public Health, University for Development Studies, Ghana.*

<sup>b</sup> *Department of Social and Behaviour Change, School of Public Health, University for Development Studies, Ghana.*

## **Authors' contributions**

*This work was carried out in collaboration between both authors. The conception of the study and its design was done by authors AL and AY. The data collection was done by author AL. Data analysis and interpretation were done by authors AL and AY. The manuscript drafting and interpretation were done by authors AL and AY. Both authors read and approved the final manuscript.*

## **Article Information**

DOI: 10.9734/JAMMR/2023/v35i205175

### **Open Peer Review History:**

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/104218>

**Original Research Article**

**Received: 14/06/2023**

**Accepted: 18/08/2023**

**Published: 22/08/2023**

## **ABSTRACT**

**Background:** The burden of chronic kidney disease (CKD) is increasing globally, and the trend has been projected to continue due to the increasing incidence of diabetes and hypertension among the population. Considering CKD is a chronic condition, it necessitates ongoing monitoring and treatment, and all healthcare workers. The objective of the study is to establish the healthcare-seeking behavior of patients with chronic kidney disease in the Tamale Teaching Hospital.

**Methods:** The study employed a descriptive study design was adopted following a qualitative research method. The study selected ten participants for the interview. An interview guide was used to elicit information from the participants. the data was analyzed using content analysis, where themes were formed.

\*Corresponding author: E-mail: [a.yidana@uds.edu.gh](mailto:a.yidana@uds.edu.gh), [adadowy@yahoo.com](mailto:adadowy@yahoo.com);

**Results:** Participants exhibited varied knowledge relating to their conditions which in a way influenced their health-seeking behaviour. Overall, the participants express positive knowledge and attitude towards their condition and which envisages that it translates into positive healthcare-seeking behavior. Most participants stated that they don't have any alternative source to seek healthcare services related to CKD. Very few of them would like to seek herbal treatment in addition to the care they receive from the hospital. Almost all the CKD patients were having difficulty in paying for the healthcare services they are receiving at the hospital.

**Conclusion:** The participants revealed positive health-seeking behaviour, and have developed good faith and trust in healthcare providers. Their major challenge has to do with paying for their healthcare needs as CKD patients. It is thus recommended that health insurance packages should be created for CKD patients.

The paper has contributed to increasing knowledge of the health-seeking behaviour of people living with chronic kidney disease and the financial difficulty they go through, and the need for action to be taken to help chronic kidney disease patients.

*Keywords: Healthcare-seeking; chronic kidney disease; patients; behaviour.*

## 1. INTRODUCTION

### 1.1 Background

The burden of chronic kidney disease (CKD) is increasing globally. Experts have projected that the trend will continue due to the increasing incidence of diabetes and hypertension among the population [1]. CKD is a non-communicable disease that encompasses a variety of physiological problems linked to poor renal function and a persistent decline in the glomerular filtration rate (GFR) [2-3]. This may span from modest renal dysfunction to total kidney failure [4]. People with stage 3 or 4 CKD are generally thought to have moderate to severe renal impairment [4]. The global prevalence of CKD in all phases is reportedly 9.1% [5], with the mortality rate due to CKD expected to rise by 14% by 2030, and may result in 11.5 million deaths [6]. The situation in Africa regarding the incidence of CKD is not different [7]. The prevalence of kidney disease in the general population in Africa is 15.8% with 36.1% of high-risk persons having the disease [8-10]. This is projected to put pressure on health infrastructure if the right measures are not put in place to check the trend [11]. The increasing prevalence of CKD in Sub-Saharan Africa is due to chronic glomerulonephritis in combination with non-communicable diseases such as hypertension and diabetes mellitus [7]. Others have linked CKD to an increase in morbidity and mortality, as well as a poor influence on the quality of life [2].

Ghana has a 13.3% prevalence rate and the epidemiological transition is blamed on the adoption of Western lifestyles with changes in nutrition, growing urbanization, coupled with the

aging population [7,12]. Though a number of CKD patients may progress to a severe stage that will require them to use dialysis, a number of patients die as a result of associated cardiovascular diseases [13-14]. Considering CKD is a chronic condition, it necessitates ongoing monitoring and treatment, and all healthcare workers, particularly nurses, have critical responsibilities in providing care and education to patients, and they must encourage patients to take an active role in their disease treatment [10,15-16]. Around 5–10 million, people die each year as a result of kidney illness. Likewise, the number of Disability Adjusted Life Years (DALYs) associated with renal illness has risen from 19 million in 1990 to 33 million in 2013 [17-18]. Among the therapy options accessible to patients, a kidney transplant is the gold standard. It is the primary treatment option in LMICs where the expense of treatment is a significant barrier [10,19].

Individuals engage in health-seeking behavior in reaction to the symptoms they are experiencing. It refers to particular actions (also known as the hierarchy of resorts) and includes what is done and why it is done [20]. Several elements, such as the individual's educational and economic status, the extent to which he or she is concerned about the symptom, his or her beliefs about the cause and nature of diseases, past experiences with health care services, and perceptions about quality and efficiency of health care services, have been shown to influence the decision about when and where to seek health care [20]. The intended health-seeking behavior for a person is to seek help from a trained healthcare professional in a formally recognized healthcare environment following an episode of

illness [17]. The objective of the study is to establish the healthcare-seeking behavior of patients with chronic kidney disease in the Tamale Teaching Hospital.

## 2. METHODOLOGY

### 2.1 Study Area

The study was conducted at the Tamale Teaching Hospital. The Tamale Teaching Hospital (TTH) was commissioned in 1974 as a Regional Hospital to provide the much-needed medical referral center for the Northern sector of the country and also provide comprehensive health services to the people of Tamale and its environs. The Hospital previously operated from the premises of the old Central Hospital.

The Hospital is located in the eastern part of the Tamale Metropolis, on the main Hospital Road, and has a land area of about four hundred and ninety thousand (490,000m<sup>2</sup>) square meters. The Hospital has since 2009/2010 been accredited by the Ghana College of Physicians and Surgeons to undertake post-graduate training in Obstetrics & Gynaecology, Paediatrics, and Surgery.

### 2.2 Study Design

In this study, a descriptive study design was adopted following a qualitative research method (with emphasis on phenomenological study). A qualitative study was considered suitable since it would allow the researcher to understand the health-seeking behaviors of patients with CKD on a deeper level [21]. The phenomenological study, a method of inquiry originating in philosophy and psychology, focuses on articulating how people experience phenomena, and it culminates in how many people encounter the same phenomenon [22]. It enables participants to discuss how their thoughts, feelings, and personal experiences impact how they interpret a certain issue [21]. In order to examine the health-seeking behaviors of CKD patients, which was the goal of this study, phenomenology was used.

### 2.3 Study Population

The study population is all patients suffering from chronic kidney disease in the Tamale Teaching Hospital.

### 2.4 Sampling Technique and Sample Size

Simple random sampling will be applied in selecting participants for the study. In this

sampling method, each member of the population will have exactly equal chance of being selected. The objective was to improve the precision of the sample by reducing sampling error. The sample size for the study was 10.

### 2.5 Inclusion Criteria

The study included the following entities.

People who have had CKD for about 6 months and above.

### 2.6 Exclusion Criteria

The study excluded the following individuals.

Patients who have had CKD less than 6 months ago.

### 2.7 Data Collection Technique

The study used a qualitative approach to gather the data, which allowed the researcher to choose a small number of participants for in-depth interviews [23]. Before authorization was obtained to conduct the study at the institution, approved letters were issued to the required authorities, and periodic follow-ups were conducted. After speaking with the respondents to reach an understanding, in-depth interviews were scheduled for them to attend at a time that was convenient for them. The length of the in-depth interviews ranged from 10 to 25 minutes.

### 2.8 Brief Description of Data Collection Tools

A semi-structured interview guide was used to conduct in-depth interviews. Language specialists used a back-to-back translation process to translate the guide from English into the native tongue. As a result of this method, the interview guide was translated from English into the local language by a language expert who is also fluent in the local tongue, then from the local language back into English by a different expert. The two conversions were then compared, and in cases where there were discrepancies, a third language expert served as a mediator as the language experts discussed the issue. This was done to guarantee consistency in the data collection methods. The in-depth interview guide also addressed topic areas like the substances used by participants, their health needs, sickness characteristics, factors impacting the continuance of drug use, and their health-seeking behavior

and practices, in addition to recording the participants' demographic data.

## 2.9 Data Processing and Data Management

Participants were asked for their consent before the interviews were audio recorded. Instead of using names, participants were given individual codes, and each interview started by mentioning the number on the interview guide. This ensured that the data gathered and analyzed belonged to the correct participant. All interviews took place in languages that the participants could understand. After each interview, field notes were quickly taken and turned into a data record. The initial interviewee's reactions to the interview were documented in the field note, along with any pertinent observations about the respondent's behavior, body language, and emotions that were missed by the digital recording. The research team had only restricted access to the data that had been collected, which was kept on the lead investigator's personal computer. Audio recordings were deleted immediately after they were transcribed.

## 2.10 Data Analysis

To become conversant with the data, the recorded interviews were listened to roughly three times. The transcripts of the recorded interviews were then double-checked for consistency by two different individuals. Deductive and inductive analysis were both used in the thematic analysis [22]. Based on the goals of the study and the topics covered in the interviews, a codebook including the various codes to be utilized was created. After reviewing the coding, various categories were created and then combined to create themes.

## 3. RESULTS

### 3.1 Demographic Characteristics of Participants

All the participants were residing in urban areas, with 80% of them having lived there since they were born. In terms of sex, 60% were male who were within the age group of 20-40 years. As regard their educational attainment, 80% of the participants had secondary education, and 90% indicated they were married. Almost all participants had at least a child and 60% earn a

monthly income of GHC 1000 and above (Table 1).

### 3.2 The Knowledge and Attitudes of Patients toward Chronic Kidney Disease

Participants' views about their knowledge and attitude toward CKD were extremely diverse. Some of them spoke of wanting to be in charge of their conditions with a deep interest in knowing everything about it. However, some had contrary interest with a desire to shield themselves from the flood of health information about CKD, either by actively limiting the information input or by passively receiving it while they wait for the healthcare professional to offer it. There were some who were not sure what their responsibilities as patients were, whether they needed to ask questions or they just needed to wait for answers from the healthcare professional.

Participants who were identified as actively seeking knowledge about CKD stated how they used any resource they could get information from including the Internet and consulting doctors. They exhibited the desire for good information about CKD.

*I read (about my diseases!) and found it interesting. This is intriguing to me. It becomes more interesting to know about the illnesses you have...". (Female patient)*

Participants who use the internet to seek knowledge appeared to be cautious about what material they accessed and are aware of the dangers of misinformation and information overload. They discussed how the online resources are evaluated and how they selected the right websites they any time they want to look for health-related information.

*I read Mayo clinic article on CKD or something comparable or other publications; there is enough material out there... It should be fine if you find good pages, in my opinion. I go online for similar information regarding my diagnosis because I am aware of it... (Male participant).*

For those who are skeptical and do not want to know much about their conditions for reasons best known to them, in contrast to active health knowledge seekers. These participants either preferred to concentrate on the "present" and the

"good things in life" rather than the CKD and potential long-term issues. They believed that the healthcare providers would provide adequate information; as a result, they did not see the need to look up or read about a health condition. They reported that focusing too much on their health conditions will make them feel bad psychologically.

*... I make a point of focusing on the here and now. I've experienced enough issues with hypertension and diabetes. Being alive makes me happy. I feel that if I stay in the same environment and learn too much, it becomes a lot like (pause). Interviewer: Do*

*you feel ill now? "Yes, I believe my illness is becoming worse... (Male participant).*

It's not like every participant sought to learn everything there was to know about their health. When expressing how much information required for themselves.

*I would simply stop asking questions. Because I believe it to be sufficient for me..., (Male participant)*

*...I am approaching 60 years old; knowing everything is not that essential to me... (Female participant)*

**Table 1. Demographic characteristics of participants**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Place of residence</b>		
Urban	10	100.0
Period of stay		
10	1	10.0
11	1	10.0
Since birth	8	80.0
<b>Gender</b>		
Female	4	40.0
Male	6	60.0
<b>Age</b>		
20-40	6	60.0
41-60	4	40.0
<b>Level of education</b>		
No education	2	20.0
Secondary	3	30.0
Tertiary	5	50.0
<b>Religion</b>		
Christian	4	40.0
Muslim	6	60.0
<b>Marital status</b>		
Married	9	90.0
Single	1	10.0
<b>Number of children</b>		
0	1	10.0
1-2	3	30.0
3+	6	60.0
<b>Monthly income</b>		
Less than 1000	4	40.0
1000-2000	3	30.0
2001 +	3	30.0
<b>Household head</b>		
Brother	1	10.0
Father	1	10.0
Husband	4	40.0
Self	4	40.0
<b>Duration of disease</b>		
1-2	6	60.0
3+	4	40.0

There were some who indicated that they relied on healthcare professionals to tell them important details about their health conditions. Some of them acknowledged having limited understanding of their conditions, but went on to explain that they had decided to wait and trust the healthcare professionals to inform them when needed, to avoid always wondering and worrying.

*...No, but because I don't want to think about it, I've decided not to become familiar with it. I am aware that the nephrologist is keeping an eye on me, so I don't need to worry about it.*

*Interviewer: Do you ask any questions? "Very infrequently, as I am certain that the nephrologist will inform me if there is something I should be aware of. I don't read any books. (Female participant)*

The uncertainty about what was expected of them as patients in terms of knowledge about their conditions was another factor why some didn't actively seek out information or ask questions about CKD. A male patient stated that he knew nothing about CKD and that he only had brief meetings with the nephrologist:

*... I don't know if it is required that the patients should ask questions to gain knowledge... (Male participant).*

### 3.3 The Availability and Use of Different Healthcare Services among Patients

Participants appeared to feel secured and lowered their conversational threshold for health-related topics because they saw the same healthcare professional at each meeting. It was simple to inquire about anything because of the informal language used. A good relationship was defined in a variety of ways, including the ability of the patient and healthcare provider to communicate in terms of daily life, the patient's low barrier to asking questions and discussing health issues, their level of agreement, and the patient's prior positive interactions with the healthcare provider.

One patient claimed that after seeing a different nephrologist, she gained greater knowledge about her condition. She claimed that the new nephrologist was better at explaining the changes in kidney function and giving more time

for questions than the previous one, which helped patients grasp the condition better:

*I feel he is teaching a lot more... he is more open to questioning... He explains and illustrates the evolution of renal function for me using straightforward language. Indeed, I feel as though I could stay longer if I so desired... (Female participant)*

It was welcomed that you could speak informally and crack jokes, which made it simple to discuss health issues:

*...to her (the nephrologist), anything goes... I felt like we have a great connection, and I felt free to ask her anything. I ask her if there is anything I should be worried about, and she responds. Even if she doesn't know, she will. (Male participant)*

The participants further indicated that they are satisfied with the kind of healthcare services rendered to them and would not like to seek any additional treatment elsewhere.

*... I'm ok with the current treatment. I will be fine by God's grace. ... I will like not to resort to any other treatment means... (Female participant)*

On the other hand, it appeared to be challenging for participants to navigate the healthcare system and get a clear picture of their health problems because of their encounters with a decentralized healthcare system. Concerning illnesses, several participants mentioned having a complex health status. Even though health professionals monitor the health condition of many patients, some patients considered being taken care of by nephrologists at the hospital. A female participant expressed doubt about consulting any health professional following a terrible experience with obtaining antibiotics that were too strong.

*... Consequently, I chose not to enquire much from any health professional about my condition. I consult a nephrologist whenever I encounter certain difficulties.*

Some participants mentioned that their conditions are spiritually related. They are not seeing any improvement in their condition and would therefore add traditional/herbal treatment to that which they are currently receiving in the hospital.

*... The disease is worrying me too much. I don't feel fine. ... I think is spiritual because I have never seen some before... (Male participant)*

*... I don't see the current healthcare to be working because I can't even urinate as I am sitting. ... I will mix the dialysis with herbal treatments to see if I will feel better than this condition. (Male participant)*

### **3.4 Factors Influencing Care-Seeking Behaviors of Patients with CKD**

The factors affecting the healthcare-seeking behavior of participants were almost geared toward one direction. Almost all participants indicated that their major challenge was financial difficulty. Concerning dialysis, they are required to do about 3 times a week but can only afford one to two times a week. One male participant articulated a heartfelt statement.

*... I didn't know that I had such a disease because I was just sick in Navrongo and what I saw next was that I was in Tamale Teaching Hospital. .... I have financial challenges and I had to reduce the number of dialyzes to once a week. (Male participant)*

*Financial, ... as of now I need another catheter but can't afford it. I need a permanent catheter. The temporal catheter is GHC 600 but the permanent one is about GHC 1,600. (Male participant)*

Some participants also had experienced the breaking down of the dialysis machines at the hospital. They indicated their discomfort in having to wait till it gets to their turn to undergo dialysis.

*Financial issues my sister..., sometimes too the dialysis machines break down. When it happens like that you will have to be waiting in pain until it gets to your turn... we are suffering. (Male participant)*

## **4. DISCUSSION**

Patients with CKD may have varied behavioral patterns in seeking healthcare, as seen by the variation in how they responded to having knowledge relating to their condition. Addressing an issue relating to one's ability to deal with a chronic illness involves two major prevalent strategies: confronting and distancing [24].

Confronting is referred to as an "issue-focused" strategy that entails getting involved in helping to solve or lessen the problem. Distancing, on the other hand, is an "emotion-focused" strategy designed to control negative feelings related to the issue, like anxiety and fear [25]. The latter strategy is defined as an effort to minimize, dismiss, and avoid the disease to prevent negative emotions [24].

Overall, participants expressed positive knowledge and attitude towards their condition, which could translate into a positive healthcare-seeking behavior. An integrated patient-centered strategy, will enable patients to better self-manage their condition and can address the challenges that causes CKD patients to experience unfavorable treatment results [26-27]. Majority of participants in this study had at least secondary school education, which reflected in their quest to seek knowledge and the positive attitude towards the healthcare-seeking about their condition. Thus, the higher the educational level of participants, the more they know their condition [28].

Most CKD patients are experiencing comorbidities and are linked to unfavorable health outcomes [29]. The participant's hospitalization rates, illness progression, and healthcare expenses are all higher in fragmented healthcare systems compared to cohesive care as patients see diverse healthcare professionals with varied specialties [26]. Prior qualitative research with CKD patients [30-31], indicated difficulty with fragmentation and inconsistency in health advice as well as choosing which healthcare practitioner to contact with various health conditions [24]. The patients recommended the use of coordinated treatment, patient education, and self-management assistance to lessen the effects of fragmentation [30]. The study's findings, however, indicate that different patients have different levels of interest in learning about their disease, and few others would rather remain in the dark.

The study identified that various aspects of healthcare-seeking behavior, including disclosing health problems, talking about health issues, and actively engaging with healthcare professionals, depended on having a positive relationship with healthcare providers. That is, most participants stated that they don't have any alternative source to seek healthcare services related to CKD. However, very few of them would like to seek herbal treatment in addition to the care they

receive from the hospital. The value of the partnership between patients and healthcare professionals has been studied in the past in a variety of healthcare settings. These investigations revealed that the working alliance between patients and healthcare professionals plays a significant role in CKD patients' behavior in seeking healthcare and is a reliable indicator of their adherence to treatment and quality of life [32-33]. Previous research has shown that healthcare workers' disinterest and arrogance affect the healthcare-seeking behavior of CKD patients [34,24].

Furthermore, the study found that almost all the CKD patients were having difficulty in paying for the healthcare services they are receiving at the hospital. The CKD patients were burdened with the cost of undergoing dialysis, the cost of other medications, and the inpatient cost. The healthcare-seeking behavior of patients is determined by their financial capacity. Although CDK patients may be willing to pay for services, the ability to do so may not be available [35]. Unsurprisingly, it has been discovered that economic burden is a barrier to seeking healthcare and that it might place an excessive financial burden on some people [36]. Costs of care in the early stages of CKD are linked to comorbid disorders, the growing prevalence of diagnosed disease, treatment of disease development, and inpatient stays linked to the after-effects of many comorbid conditions [37].

## 5. CONCLUSION

The study identified that the healthcare-seeking behavior of the majority of CKD patients was appropriate. The patients had good knowledge and attitude about CKD as they indicated that they actively use written resources, the internet, and consultations with doctors to get a general awareness of their health conditions and circumstances. The participants exhibited positive and trustworthy relationships with healthcare professionals that led to greater situational control of their condition. Generally, participants would not like to use any alternative source of treatment for CKD aside from the treatment they receive at the hospital. However, very few would want to combine herbal treatment with the treatment they receive at the hospital. Primarily, the factor that influences the healthcare-seeking behavior of CKD patients was money. That is, almost all participants had financial difficulty and could therefore not receive

the required treatment procedures for their condition.

## ETHICAL APPROVAL AND CONSENT TO PARTICIPATE

The research protocol was submitted to the University for Development Studies Institutional and Ethical Review Committee. Approval was granted after the review. Informed consent was obtained in writing and was in line with the Institutional and Ethical Review Committee.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

1. Ahn J-W, Lee SM, Seo YH. Factors associated with self-care behavior in patients with pre-dialysis or dialysis-dependent chronic kidney disease. *PLoS ONE*. 2022;17(10):e0274454. Available:https://doi.org/10.1371/journal.pone.0274454
2. Mahajan A, Amelio J, Gairy K, Kaur G, Levy RA, Roth D, Bass D. Systemic lupus erythematosus, lupus nephritis, and end-stage renal disease: A pragmatic review mapping disease severity and progression. *Lupus*. 2020;29(9):1011-1020. DOI: 10.1177/0961203320932219 Epub. PMID: 32571142; PMCID: PMC7425376.
3. Zeba Z, Fatema K, Sumit AF, Zinnat R, Ali L. Early screening of chronic kidney disease patients among the asymptomatic adult population in Bangladesh. *J Prev Epidemiol*. 2020;5(1):e10. DOI: 10.34172/jpe.2020.10
4. Ghelichi-Ghojogh M, Fararouei M, Seif M, et al. Impact of social and clinical factors on the diagnostic delay of chronic kidney disease: An evaluation study. *Int Urol Nephrol*. 2022;54:1603–1612. Available:https://doi.org/10.1007/s11255-021-03037-9
5. Bikbov MM, Zainullin RM, Kazakbaeva GM, et al. chronic kidney disease in Russia: The Ural eye and medical study. *BMC Nephrol*. 2020;21:198. Available:https://doi.org/10.1186/s12882-020-01843-4

6. Aseneh JB, Kemah BLA, Mabouna S, et al. Chronic kidney disease in Cameroon: A scoping review. *BMC Nephrol.* 2020;21:409. Available:<https://doi.org/10.1186/s12882-020-02072-5>
7. Tannor EK, Norman BR, Adusei KK, et al. Quality of life among patients with moderate to advanced chronic kidney disease in Ghana - a single centre study. *BMC Nephrol.* 2019;20:122. Available:<https://doi.org/10.1186/s12882-019-1316-z>
8. Kaze AD, Ilori T, Jaar BG, et al. Burden of chronic kidney disease on the African continent: A systematic review and meta-analysis. *BMC Nephrol.* 2028;19:125. Available:<https://doi.org/10.1186/s12882-018-0930-5>
9. Ene-Iordache B, Perico N, Bikbov B, Carminati S, Remuzzi A, Perna A, et al. Chronic kidney disease and cardiovascular risk in six regions of the world (ISN-KDDC): A cross-sectional study. *Lancet Glob Health.* 2016;4(5):307-319 e307-19. Available:[https://doi.org/https://doi.org/10.1016/s2214-109x\(16\)00071-1](https://doi.org/https://doi.org/10.1016/s2214-109x(16)00071-1)
10. Boima V, Agyabeng K, Ganu V, Dey D, Yorke E, Amisah-Arthur MB, et al. Willingness to pay for kidney transplantation among chronic kidney disease patients in Ghana. *PLoS ONE.* 2020;15(12):e0244437. Available:<https://doi.org/10.1371/journal.pone.0244437>
11. Matsha TE, Erasmus RT. Chronic kidney disease in sub-Saharan Africa. *The Lancet Global Health.* 2019;7(12):e1587-e1588.
12. Costello KL. Social information behaviors in the context of chronic kidney disease: Information seeking and disclosure in online support groups, A dissertation submitted to the faculty at the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the School of Library and Information Science. The University of North Carolina at Chapel Hill ProQuest Dissertations Publishing. 2015;2015:3719734.
13. Wruck W, Boima V, Erichsen L, Thimm C, Koranteng T, Kwakyi E, et al. Urine-based detection of biomarkers indicative of chronic kidney disease in a patient cohort from Ghana. *Journal of Personalized Medicine.* 2022;13(1):38.
14. Webster AC, Nagler EV, Morton RL, Masson P. chronic kidney disease. *Lancet.* 2017;389:1238-1252
15. Karadag Ezgi, Samancioglu Baglama RN, Sevgin RN. The Effect of Aromatherapy on Fatigue and Anxiety in Patients Undergoing Hemodialysis Treatment: A Randomized Controlled Study. *Holistic Nursing Practice.* 2019;33(4):222-229. DOI: 10.1097/HNP.0000000000000334
16. Almutary H, Tayyib N. Translation, Adaptation, and Validation of Chronic Kidney Disease Self-Management and Knowledge Instruments for People at Pre-Dialysis Stage in the Arab World. *Clinical Nursing Research.* 2021;30(8):1231-1240. DOI: 10.1177/10547738211006242
17. Ward F, Holian J, Murray PT. Drug therapies to delay the progression of chronic kidney disease. *Clin Med (Lond).* 2015;15(6):550-7. DOI: 10.7861/clinmedicine.15-6-550 PMID: 26621944; PMCID: PMC4953257.
18. Liyanage T, Ninomiya T, Jha V, Neal B, Patrice HM, Okpechi I, et al. Worldwide access to treatment for end-stage kidney disease: A systematic review. *Lancet.* 2015;385:1975-1982.
19. Kumela-Goro K, Wolide AD, Dibaba FK, Fufa FG, Garedow AW, Tufa BE, Bobasa EM. Patient Awareness, Prevalence, and Risk Factors of Chronic Kidney Disease among Diabetes Mellitus and Hypertensive Patients at Jimma University Medical Center, Ethiopia; *BioMed Research International.* 2019;Article ID 2383508:8. Available:<https://doi.org/10.1155/2019/2383508>
20. Bello AK, Alrukhaimi M, Ashuntantang GE, Basnet S, Rotter RC, Douthat WG, et al. Complications of chronic kidney disease: Current state, knowledge gaps, and strategy for action, *Kidney International Supplements.* 2017;7(2):122-129
21. Adongo PB, Tabong PT-N, Asampong E, Ansong J, Robalo M, Adanu RM. Beyond Knowledge and Awareness: Addressing Misconceptions in Ghana's Preparation towards an Outbreak of Ebola Virus Disease. *PLoS ONE.* 2016;11(2):e0149627. Available:<https://doi.org/10.1371/journal.pone.0149627>
22. Creswell JW. Research design: Qualitative, quantitative, and mixed methods

- approaches. Thousand Oaks, CA: Sage Publications; 2009.
23. Green J, Thorogood N. (Eds.). *Qualitative methods for health research* (2nd ed.). Thousand Oaks, CA: Sage; 2009.
  24. Stømer UE, Wahl AK, Gøransson LG, et al. Exploring health literacy in patients with chronic kidney disease: A qualitative study. *BMC Nephrol.* 2020;21:314. Available: <https://doi.org/10.1186/s12882-020-01973-9>
  25. Bonner A, Lloyd A. Exploring the information practices of people with end-stage kidney disease. *Journal of Renal Care.* 2012;38(3):124-130.
  26. Lin Chiu-Chu, Shang-Jyh Hwang. Patient-Centered Self-Management in Patients with Chronic Kidney Disease: Challenges and Implications *International Journal of Environmental Research and Public Health.* 2020;17(24):9443. Available: <https://doi.org/10.3390/ijerph17249443>
  27. Toni E, Pirnejad H, Makhdoomi K, et al. Patient empowerment through a user-centered design of an electronic personal health record: A qualitative study of user requirements in chronic kidney disease. *BMC Med Inform Decis Mak.* 2021;21:329. Available: <https://doi.org/10.1186/s12911-021-01689-2>
  28. Zibran MA, Mohammadnezhad M. Determinants of knowledge, attitude and practice in patients with both type 2 diabetes and chronic kidney disease in Fiji. *F1000Res.* 2019;8:239. DOI: 10.12688/f1000research.18188.3 PMID: 31069069; PMCID: PMC6480935.
  29. onelli M, Lloyd A, Cheung WY, et al. Mortality and Resource Use Among Individuals with Chronic Kidney Disease or Cancer in Alberta, Canada, 2004-2015. *JAMA Netw Open.* 2022;5(1):e2144713. DOI: 10.1001/jamanetworkopen.2021.44713
  30. Clemens KK, O'Regan N, Rhee JJ. Diabetes Management in Older Adults with Chronic Kidney Disease. *Curr Diab Rep.* 2019;19:11. Available: <https://doi.org/10.1007/s11892-019-1128-3>
  31. Lo C, Ilic D, Teede H, Cass A, Fulcher G, Gallagher M, et al. The Perspectives of Patients on Health-Care for Co-Morbid Diabetes and Chronic Kidney Disease: A Qualitative Study. *PLoS ONE.* 2016;11(1):e0146615. Available: <https://doi.org/10.1371/journal.pone.0146615>
  32. Fuertes JN, Toporovsky A, Reyes M, Osborne JB. The physician-patient working alliance: Theory, research, and future possibilities. *Patient Education and Counseling.* 2017;100(4):pp.610-615.
  33. Fuertes JN, Rubinstein S, Reyes M, lampornpipopchai P, Mujeeb S, Smith CR, Toporovsky A. The physician-patient working alliance in hemodialysis treatment. *Behavioral Medicine.* 2017;43(4):242-250.
  34. Nygårdh A, Malm D, Wikby K, Ahlström G. The experience of empowerment in the patient-staff encounter: The patient's perspective. *Journal of clinical nursing.* 2012;21(5-6):897-904.
  35. Gee PO. The Financial Burden of CKD: The Medication Edition. *Kidney.* 2021; 360,2(6):920-921. DOI: 10.34067/KID.0002192021 PMID: 35373077; PMCID: PMC8791381.
  36. Medway M, Tong A, Craig JC, Kim S, Mackie F, McTaggart S, Walker A, Wong G. Parental perspectives on the financial impact of caring for a child with CKD. *American Journal of Kidney Diseases.* 2015;65(3):384-393.
  37. Wang V, Vilme H, Maciejewski ML, Boulware LE. The economic burden of chronic kidney disease and end-stage renal disease. In *Seminars in Nephrology.* 2016;36(4):319-330. WB Saunders.

© 2023 Lekuu and Yidana; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

*Peer-review history:*  
The peer review history for this paper can be accessed here:  
<https://www.sdiarticle5.com/review-history/104218>