

Investigating Knowledge Level, Awareness, Risk Factors and Preventive practices of Patients Regarding Ckd in Northern Ghana

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Abstract

Background: Chronic Kidney Disease (CKD) is a major global health problem. CKD is one of the most common complications of diabetes mellitus and hypertension and carries a risk of cardiovascular morbidity and mortality and usually progress to end-stage kidney disease.

Objectives: The main objective of the study was to assess the knowledge, awareness and prevalence of chronic kidney disease among patients seeking healthcare at the Tamale Central Hospital

Methodology: A descriptive cross-sectional study was carried out and a total of 260 respondents were selected by a systematic random sampling method and structured questionnaire were used to collect data from the respondent. Consent was sought from each selected participant, privacy and confidentiality was observed during the data collection. Data was analyzed using SPSS version 26.0.

Results: Findings from this study discovered that, 96 (36.9%) of the respondents were between 25-30 years of age. Majority, 165 (63.5%) of the respondents were females, while 217 (83.5%) of the respondents have heard about chronic kidney disease. Regarding the source of information, majority 92 (35.4%) of the respondents heard about chronic kidney disease from healthcare workers. Majority, 212 (81.5%) of the respondents admitted it's true that chronic kidney disease is a reduction in its ability to remove waste, 240 (92.3%) said its true chronic kidney disease means an infection of the kidney, 229 (88.1%) said its true chronic kidney disease means damage to the kidney. About 198 (76.2%) of the respondents believed drinking too little water can result in chronic kidney disease, almost all, 247 (95.0%) of the respondents believe smoking can result into chronic kidney disease, also, majority 209 (80.4%) of the respondents believe untreated hypertension can result in CKD.

Conclusion: The research question what is the knowledge level, awareness, risk factors and preventive practices of patients regarding CKD, was answered as the findings above speak to these questions. The burden of CKD remains serious and unacceptably high, appropriate preventive measures should be implemented to reduce kidney disease in Ghana and it is suggested that future research should look at a qualitative research method in order to spell out a lot of the information that respondents in this study were not able to give in detail due to the restrictions on the questionnaire used. A future study could seek to include more than one healthcare facility and increase the sample size.

Introduction

Chronic Kidney Disease (CKD) is a major global health problem. CKD is one of the most common complications of diabetes mellitus and hypertension and carries a risk of cardiovascular morbidity and mortality and progression to end-stage kidney disease [1].

Chronic kidney disease (CKD) is a worldwide epidemic health problem of increasing prevalence and costing an enormous burden on healthcare systems [2].

The aim of the study is to assess the knowledge and prevalence of chronic kidney disease among patients seeking healthcare at the Tamale Central Hospital. The objectives of the study include; to determine the level of knowledge of CKD among clients seeking healthcare at the Tamale Central Hospital, to identify the risk factors associated with CKD among clients seeking healthcare at the Tamale Central Hospital and to describe the level of preventive practices of CKD among clients seeking healthcare at the Tamale Central Hospital

Background To The Study

Chronic Kidney Disease (CKD) is a major public health burden that affects about 10% to 13% of the global population. CKD is defined as a decreased glomerular filtration rate, and increased excretion of urinary albumin, or both [2]. Every year, millions of people die as a result of inability to access adequate CKD treatment, particularly in resource limited countries. CKD is prevalent in Africa and sub-Sahara Africa (SSA) with the prevalence of 15.8% and 17.7%, respectively in the general population [3]. The high-risk populations such as patients who suffer from diabetes mellitus, high blood pressure and HIV were highly vulnerable with the prevalence of 32.3% of CKD. The prevalence of CKD in Rwanda ranged from 4% to 24%, based predominantly on proteinuria as a marker [4].

Prevention and control programs include; early detection, and effective treatment programs. However, population awareness of CKD remains low due to lack of information about the risk factors and preventive practices, which impede the effectiveness of these interventions. Although, it is possible to slow or stop renal conditions progression when diagnosed and managed in an early stage, the Centre for Disease Control and Prevention (CDC) estimate that around 30 million people in the US with kidney damage or reduced kidney function are not aware of their state as the early signs of CKD are subtle, making it difficult to recognize. This results in late diagnosis of kidney diseases at the end-stage of chronic kidney disease (ESKD) (stage 5), which requires renal replacement therapy [1].

Two of the most common risk factors that can lead to CKD are diabetes and hypertension ranging from 75% to 90 % in African countries [2]. Furthermore, it is not only NCDs that can be risk factors of CKD, but also some communicable diseases such as human immunodeficiency virus (HIV) and its related ARVs, schistosomi-

asis, leishmaniasis, and infectious glomerulonephritis can also increase the risk. In addition, the use of herbal drugs, environmental toxins and repeated episodes of malaria infection are implicated in the development of CKD. Strategies to reduce the burden of CKD include increasing public awareness of the gravity of the disease and its risk factors through health education, availing opportunities for early screening and detection, targeting prevention of obesity, diabetes and hypertension, and effective treatment [5].

In parts of Tanzania, for example, the prevalence of CKD has been estimated at 7% with as many as 15% of adults in urban settings living with CKD. However, despite a potentially high prevalence there remains a dearth of epidemiological data regarding disease burden and risk factors, and community awareness of this condition remains low. In addition to the need for more epidemiological assessments, there is an urgent need for a better understanding of knowledge, attitudes, and preventive practices associated with NCDs such as CKD. These factors can provide important insights that inform optimal policy and public health responses [6].

There appears to be limited studies in Africa on CKD knowledge level among victims and the general population. In Benin City, Nigeria, a study conducted in 2012 among non-medical university students in their 3rd and 4th year showed only 44.7% were aware that diabetes mellitus, and 25.1% were aware the hypertension were risk factors. Furthermore, 48% believed that spiritual healing, herbal therapy, and urine therapy were treatments. That study showed that 25.1% had good knowledge, 35.2% had some knowledge, and 39% had poor knowledge [7]. A study conducted in South Africa in 2015, showed that 60.42% of university students had good knowledge of CKD risk factors, and in Abia State, Nigeria, 81% of 4th-year nursing students had good knowledge of kidney function, 21% of CKD, though overall knowledge of risk factors was poor [8]. At university community in Nigeria in 2015, the prevalence of risk factors on CKD was high where in a sample of 259 young volunteers; the obesity was found in 12.2% of participants while proteinuria and glycosuria were found in 12.4% and 2.7% participants, respectively. Thus, indicating that young people like university students were also at high risk of developing CKD [9].

Osafo et al (2017) reported a 47 % prevalence of CKD among patients with hypertension in Ghana, in a multicenter study conducted predominantly among people with hypertension in the Greater Accra area. Also, Yakubu et al., 2021, reported same 47% prevalence of CKD, in Ghana among hypentensive patients [10, 11].

Chronic kidney disease (CKD) is a worldwide epidemic health problem of increasing prevalence and costing an enormous burden on healthcare systems. The global increase in CKD needs a well-organized preventive strategy mainly by detecting the risk factors. According to the American Heart Association (AHA) statement released in 2013, CKD mentioned as a significant risk factor for coronary disease [12]. Earlier-stage CKD can also lead

to several complications related to anemia and bone mineral metabolism disorders. Despite these known adverse consequences of CKD, most of the people remain unaware of the disease. Kidney disease (KD) can be diagnosed with simple laboratory procedures. However, people's practice toward testing (screening) themselves to know the status of CKD is exceptionally very low [13].

Although CKD epidemically occurs within the population, not many people, however, are aware of this health issue. It was indicated that only 1.9% CKD respondents were aware of CKD in Thailand and 3.54% in Taiwan [14]. Indeed, this is a very small percentage of the population and thus, screening and early detection for CKD are highly required among this group.

The majority of patients with renal dysfunction are not aware of having CKD until 90% of kidney function becomes lost. Because of this, most early stages of CKD are underdiagnosed; patients come to health facilities when the disease is in an advanced stage which gives opportunity for the progression of disease. Preventive strategies of CKD include identifying high-risk individuals, awareness creation for patients to prevent renal disease, public education, enhancing awareness of policymakers and health care providers, blood and urine tests to detect early stages of CKD, and modifying the lifestyle of susceptible individuals like hypertensive patients [15].

There is paucity of literature regarding knowledge towards prevention and early detection of CKD in Ghana. To the best of our knowledge, there is no study conducted in Northern Region about knowledge level, awareness, risk factors and preventive practices of patients towards CKD. Thus, the aim of this study was to assess knowledge level, awareness, risk factors and preventive practices of CKD among patients seeking healthcare at the Tamale Central Hospital.

Theoretical Framework

Health Belief Model

The theoretical framework adopted for this study is the Health Belief Model. The Health Belief Model is the most widely used social cognitive theory in health psychology; it basically predicts and explains health behaviors and that behavior change is based on the balance of the barriers and benefits of health action [16]. According to this model, the perceived threat of a disease such as CKD is determined by the perceived seriousness and perceived susceptibility of that condition. The effectiveness of any health behavior is affected by its perceived benefits and barriers. Apparently, the Health Belief Model has included self-efficacy as a key factor and it is influenced by mediating variables such as demographic, structural and social variables [17].

Friman et al (2017), did a descriptive study to establish any relationships between modifying factors, individual health beliefs and hemodialysis patients' adherence to a low-phosphorus diet [18]. Modifying factors such as age, level of education and knowledge

of the disease were found to be associated with dietary adherence, and individual health beliefs like self-efficacy to execute positive behaviors and the perceived benefits thereof were also found to be associated with dietary adherence. Therefore, understanding of modifying factors and individual health beliefs yields positive dietary adherence among hemodialysis patients [18].

According to this model four main beliefs influence adherence to regimens, namely the perceived benefits thereof, perceived barriers, susceptibility to illness, and the severity of the outcome of non-adherence. In the studies that were done using the Health Belief Model to predict adherence, the predictors for adherence were revealed to be the benefits of treatment and disease threat [18]. Using the same model, found that patients' beliefs regarding phosphate binding medications influenced their compliance/ adherence [19]. Fung et al. used the Health Belief Model to understand the psychosocial influences of non-adherence behaviors on peritoneal dialysis patients and the perceived benefits, perceived barriers and efficacy beliefs were found to predict non-adherence behavior's in this population.

Becker et al., defined cues to action as factors that force an individual to make informed decisions about certain health related matters meaning the strategies that activate readiness to take up the recommended health behavior [20]. With this view, peer support, family support and awareness about complications related to non-adherence are some of the factors or cues to action that are paramount in facilitating adherence in CKD population. Norman and Connor identified sick role behaviors as compliance with the recommended medical regimens after diagnosis of an illness [21]. The Health Belief Model puts emphasis on the individual and ignores social and economic factors which directly impact on CKD treatment plans and affect the patients' engagement with integrated management plans. In addition, this model has no role for emotional factors such as fear and denial, and these factors are predominant in CKD patients because of the nature of their disease [21]. This study therefore, is premise on this model and adopts it as a framework in this investigation.

Methodology

Introduction

This section gave information about the research processes and procedures followed to collect field data for analysis. Areas of interest included selected area for study, research design, population of study; sample size, sample selection, methods of data collection, data analysis, procedure, and study limitations.

Study Setting

Tamale is a metropolis in Ghana's Northern Region. It is located in the central part of the Region and shares boundaries with the Sagnarigu District to the west and Savelugu-Nanton Municipality to the north, Mion District to the east, East Gonja to the south and Central Gonja to the south and to the west by Tolon District and to the north-west by Kumbungu District. The metropolis has a total

population of 248, 914, out of which 125, 033 (50.23%) are females and 123,881 (49.77%) males. The average household size in the metropolis is 5.2 persons. The Tamale Metropolitan Assembly (TaMA) is located within latitudes 9°16'N and 9°34'N and longitudes 0°34'W and 0°57'W. It covers a total land area of 922 km² (TaMA, 2010). Regarding settlement structure, the TaMA is composed of the city of Tamale, 17 peri-urban communities and 115 villages (Fuseini, 2014). In 2012, the Sagnarigu District Assembly (SDA) was carved out of the then Tamale Municipal Assembly (TaMA) which constituted the TaMA due to rapid growth of the metropolis.

The Tamale Central Hospital was established in July 1929, the Tamale Central Hospital also known as the Regional Hospital has 186 beds, 8 functional wards and provides a 24hour service. The hospital provides services such as OPD, Pharmacy, antenatal care, laboratory service, theatre service, Ear, Nose and Throat care, psychiatry, and maintenance care and among others. Currently, the hospital admits about 46,331 patients annually. Averagely, about 100 people seek medical care at the facility daily and are admitted and stay up to 2 days.

Research Design

The research design refers to the overall strategy that a researcher chooses to integrate the different components of the study in a coherent and logical way, thereby, ensuring that the research problem will be effectively addressed; it constitutes the blueprint for the collection, measurement, and analysis of data. According to Sekaran (2003), a research design is set up to decide on, among other issues, how to collect further data, analyze and interpret them, and finally, to provide an answer to the problem. The researcher used a cross-sectional survey aided by quantitative methods. According to the Franklin Institute of Wellness (2018), a cross sectional study provides information about the burden of a health condition or human attitude within a population and the relationships between various exposures and outcomes.

Therefore, answering the questions in a language they understand too helped the researchers to establish personal contact with the respondents and created an easy environment in which they felt comfortable to share their experiences. Cross-sectional studies are usually relatively inexpensive and allow researchers to collect a great deal of information quite quickly. Data is often obtained using self-report surveys and researchers are then able to amass large amounts of data from a large pool of participants. Researchers can collect data on some different variables to see how differences in sex, age, educational status, and income might correlate with the critical variable of interest. However, some of the potential challenges of cross-sectional studies are that, while the design sounds relatively straightforward, finding participants who are very similar except in one specific variable can be difficult. Cross-sectional studies generally require a large number of participants, so it's more likely that there were small differences among participants.

Study Population

Creswell (2005) explains population as a group of people who are the focus of a research study and to which the results would apply. This is also the group on which the researcher would like to make inferences. For this study, the target population consisted of all patients who report for care at Tamale Central Hospital and spent at least two days and above on the ward.

Inclusion/Exclusion Criteria

Inclusion criteria

Patients/caregivers who attend OPD at the hospital, and those whose length of stay at the hospital was at least 24hours and more.

Exclusion criteria

Those whose health status were not unstable or were in the state of confusion or disoriented. Those who spent more than 24 hours but were not willing to participate and those who were less than 18years.

Sample Size

Sampling size is the total number of sampling units that will actually be sampled from the target population. In order to find an approximate sample size for a study, the following formula was used: Using Small Sample Techniques', of the research division of the national education associations formula for determining sample size. The sampling size for the study was determined using Michael & Hunka (1960) sample size formula.

$$S = \frac{(x^2 NP (1 - P))}{((d^2 (N - 1) + x^2 P (1 - P))}$$

Where:

S = required sample size

*x*² = The table value of chi-square for 1 degree of freedom at the desired confidence level. (1.96)²

= 3.8416)

N = the population size

P = the population proportion (assumed to be 0.50 since this will provide the maximum sample size)

d = the degree of accuracy expressed as a proportion (0.05).

$$S = \frac{(x^2 NP (1 - P))}{((d^2 (N - 1) + x^2 P (1 - P))}$$

Now N=800

$$S = \frac{(3.8416 \times 800 \times 0.50 (1 - 0.50))}{((0.0025 (800 - 1) + 3.8416 \times 0.50 (1 - 0.50))}$$

$$S = \frac{(3.8416 \times 400 \times 0.50)}{(0.0025 \times 799 + 3.8416 \times 0.25)}$$

$$S = \frac{(3.8416 \times 200)}{(1.9975 + 0.9604)}$$

S=259.751851

Therefore

S=260

Using the above formula 260 patients were sampled to represent the total population.

Sampling Techniques

A sample is the selection of individuals from a target population who reflect the characteristics of the target population. Sampling refers to the selection of a part of a group with the aim of collecting complete information and the part that represent (Khan, 2012). There are two main forms of sampling techniques namely probability and non-probability sampling. Considering the research topic as well as resources available, a simple random sampling technique was utilized

Data Collection Instruments

The tools for the data collection will be structured questionnaires adopted from past researches and thesis [11, 12]. This instrument will be designed to provide quantitative data on the research topic. Khan (2012) posits that a lot of authorities use questionnaires to collect data without considering other methods. Questionnaire therefore is a written list of questions that are answered by a few people so that information can be collected from the answers provided. In order to ascertain data relevant for the research, questionnaires comprising closed ended questions was administered to respondents to provide responses. The questionnaire was kept as brief as possible to improve the rate of response, it was accompanied by a cover letter explaining the purpose of the research and assurances of confidentiality.

Data Collection Procedure

After gaining permission from the hospital management and the unit heads, the researcher informed the patients and patient relatives about the requirements for participating in the study. Those who consented was given the questionnaire at an agreed time and venue by the participant.

Data Management

Data collected during the research was protected in order to maintain the confidentiality of the participants. Each participant was given a code depending on the unit he/she is admitted. Then pseudonyms were used to replace the codes after the process. Also, the questionnaires were kept in a safe locker and separated from the demographic information and consent forms which could be assessed by the researchers and their supervisors only. The raw data (questionnaires) was stored in an external hard drive in order to guard against data loss.

Data Analysis Plan

Data collected was edited to exclude errors, re-organized, coded and processed for efficient analysis. Access to the data was limited to the researcher, Research and Development department and the supervisor at the initial stage of the research till completion. Data was analyzed with Statistical package for Social Sciences (SPSS) Version 26.0. Results was presented in tables and interpretations of findings was made.

Ethical Considerations

An introductory letter was obtained from Technical University College, Ghana and presented to Research and Development Unit of the Tamale Central Hospital for permission prior to conducting the study in the facility. In carrying out a research work, there is the need for the researcher to be ethical in relation to the study area and for that matter the respondents from whom data will be obtained. As such, there was the need to ensure that the study did not contravene the ethical issues. The nature of the questions was such that they were free from inconvenience and embarrassment to the respondents. In fact, all participants sampled for questionnaire administration were assured of their utmost confidentiality with regards to data provided. Those who participated in the study were not coerced but did so voluntarily. The consent of the respondents was obtained before they participated in the research. As much as possible, the researcher exercised a great deal of circumspection and objectivity throughout the research period.

Results

Introduction

This section presents the entire analysis and results of the study. In this section data was presented, and interpreted. The findings of this study were presented and analyzed in regard to the stated research questions and the study objectives.

Socio-demographic Characteristics

Table 1 depicts, majority 96 (36.9%) of the respondents were between 25-30 years of age, 76 (29.2%) were between 31-35 years of age, 46 (17.7%) were between 41-45 years of age and 42 (16.2%) were between 18-24 years of age. Majority, 165 (63.5%) of the respondents were females and 95 (36.5%) were males, more than half 143 (55.0%) of the respondents were urban dwellers and 117 (45.0%) were rural dwellers. On the marital status, majority, 138 (53.1%) of the respondents were married, 114 (43.8%) were single, 7 (2.7%) were widowed while 1 (0.4%) were divorced. On the level of education, majority 94 (36.2%) of the respondents had tertiary level of education, 71 (27.3%) had no formal education, 64 (24.6%) had SHS level of education and 31 (11.9%) had primary level of education. Finally, majority 95 (36.5%) of the respondents were government employees, 60 (23.1%) were employed by private/NGO, 60 (23.1%) were farmers, 17 (6.5%) were merchants, 15 (5.8%) were daily laborers, 7 (2.7%) were retired and 5 (1.9%) were housewives.

Table 1: Socio-demographic Characteristics

Characteristic	frequency (n=260)	percentage (%)
Age		
18-24	42	16.2
25-30	96	36.9
31-35	76	29.2
36-40	0	00
41-45	46	17.7
Sex		
Male	95	36.5
Female	165	63.5
Residence		
Urban	143	55.0
Rural	117	45.0
Marital status		
Single	114	43.8
Married	138	53.1
Widowed	7	2.7
Divorced	1	0.4
Level of education		
No education	71	27.3
Primary	31	11.9
SHS	64	24.6
Tertiary	94	36.2
Occupation		
Government employee	95	36.5
Private/NGO	60	23.1
Merchant	17	6.5
Daily Labourer	15	5.8
Housewife	5	1.9
Farmer	60	23.1
Farmer	7	2.7
TOTAL	260	100

Source: Field survey (2022)

Knowledge of CKD

Table 2 indicates that, majority 217 (83.5%) of the respondents have heard about Chronic kidney disease, and 43 (16.5%) never heard about chronic kidney disease, on the source of information, about 92 (35.4%) of the respondents heard about chronic kidney disease from healthcare workers, 64 (24.6%) heard about it from radio/information center, 51 (19.6%) heard about it on the television, 39 (15.0%) has never heard about chronic kidney disease and 14 (5.4%) read about it from the newspaper/magazine. Majority, 212 (81.5%), of the respondents admitted it's true that chronic kidney disease is a reduction in its ability to remove waste, The most

of them 240 (92.3%) said its true chronic kidney disease means an infection of the kidney, 229 (88.1%) said its true chronic kidney disease means damage to the kidney, 185 (71.2%) said its true chronic kidney disease means a stone in the kidney. 169 (65.0%) of the respondents admitted chronic kidney disease means swelling of the kidney, 196 (75.4%) of the respondents admit chronic kidney disease is manifested by pain in the flank, also, 182 (70.0%) of the respondents admit chronic kidney disease is manifested by difficulty in urination, 176 (67.7%) of the respondents admit chronic kidney disease is manifested by change in urine color. Half, 132 (50.8%) of the respondents admit chronic kidney disease can be

asymptomatic until advanced stages, 172 (66.2%) of the respondents admit chronic kidney disease is manifested by urinating too little and finally, 154 (59.2%) of the respondents do not believe chronic kidney disease is manifested by urinating too much.

Table 2: Knowledge of CKD

Characterisric	frenquency (n=260)	percentage (%)
Have you heard about CKD?		
Yes	217	83.5
No	43	16.5
Where did you hear about CKD?		
Radio/information center	64	24.6
Radio/information center	51	19.6
Newspaper/magazine	14	5.4
From health care workers	92	35.4
Never heard about it	39	15.0
CKD is a reduction in kidney's ability to remove waste?		
True	212	81.5
False	48	18.5
CKD is an infection of the kidneys?		
True	240	92.3
False	20	7.7
CKD is damage to the kidneys?		
True	229	88.1
False	31	11.9
CKD is a stone in the kidney?		
True	185	71.2
False	75	28.8
CKD is a swelling of the kidneys?		
True	169	65.0
False	91	35.0
CKD is manifested by pain in the flank?		
True	196	75.4
False	64	24.6
CKD is manifested by difficulty in urination?		
True	182	70.0
False	182	30.0
CKD is manifested by change in urine colour?		
True	176	67.7
False	84	32.3
CKD can be asymptomatic until advanced stages?		
True	132	50.8
False	128	49.2
CKD is manifested by urinating too little?		
True	172	66.2
False	88	33.8

CKD is manifested by urinating too much?		
True	106	40.8
False	106	59.2
TOTAL	260	100

Source: Field survey (2022)

Risk factors of CKD

Table 3 discovered that, majority 169 (65.0%) of the respondents said drinking too much water can not result in chronic kidney disease, 198 (76.2%) of the respondents believe drinking too little water can result in chronic kidney disease, almost all, 247 (95.0%) of the respondents believe smoking can result into chronic kidney disease, also, majority 209 (80.4%) of the respondents believe untreated hypertension can result in CKD.

Interestingly, a considerable number, 148 (56.9%) of the respondents do not think untreated HIV/AIDS can result in CKD, again 164 (63.1%) of the respondents do not think untreated Malaria can result in CKD however, 138 (53.1%) of the respondents think being a driver can result in CKD and 138 (53.1%) of the respondents do not think being a tailor can result in CKD.

Table 3: Risk factors of CKD

Characterisric	frenquency (n=260)	percentage (%)
Drinking too much water can result in CKD?		
Yes	91	35.0
No	169	65.0
Drinking too little water can result in CKD?		
Yes	198	76.2
No	62	23.8
Smoking can result in CKD?		
Yes	247	95.0
No	13	5.0
Untreated diabetes can result in CKD?		
Yes	209	80.4
No	51	19.6
Untreated hypertension can result in CKD?		
Yes	185	71.2
No	75	28.8
Untreated HIV/AIDS can result in CKD?		
Yes	112	43.1
No	148	56.9
Untreated Malaria can result in CKD?		
Yes	96	36.9
No	164	63.1
Being a driver can result in CKD?		
Yes	138	53.1
No	122	46.9
Being a tailor can result in CKD?		
Yes	122	46.9
No	138	53.1
TOTAL	260	100

Source: Field survey (2022)

Preventive Practices of CKD

Table 4 depicts that, majority 212 (81.5%) of the respondents sometimes observed regular physical exercise as a preventive practice of CKD, 121 (46.5%) of the respondents sometimes do have regular renal check-ups, also, 130 (50.0%) of the respondents do not at all have regular diabetes screening, 129 (45.8%) of the respondents sometimes have regular hypertensive screening. Ma-

majority, 153 (58.8%) of the respondents sometimes eat vegetables, 171 (65.8%) of the respondents sometimes eat fruits regularly, 164 (63.1%) of the respondents sometimes eat foods with too much salt, 136 (52.3%) of the respondents sometimes eat foods with high fat content, 194 (74.6%) of the respondents do not at all drink too much alcohol and finally, 216 (83.1%) of the respondents do not at all smoke.

Table 4: Preventive Practices of CKD

Characterisric	frenquency (n=260)	percentage (%)
Do you have regular physical exercise?		
Always	41	15.8
Sometimes	212	81.5
Not at all	7	2.7
Do you have regular renal check-up?		
Always	27	10.4
Sometimes	121	46.5
Not at all	112	46.5
Do you have regular diabetes screen?		
Always	23	8.8
Sometimes	107	41.2
Not at all	130	50.0
Do you have regular hypertension screening?		
Always	29	11.2
Sometimes	119	45.8
Not at all	112	45.8
Do you regularly eat vegetables?		
Always	79	30.4
Sometimes	153	58.8
Not at all	153	10.8
Do you regularly eat fruits?		
Always	76	29.2
Sometimes	171	65.8
Not at all	13	5.0
Do you eat foods with too much salt?		
Always	15	5.8
Sometimes	164	63.1
Not at all	81	31.2
Do you eat foods with high fat content?		
Always	15	5.8
Sometimes	136	52.3
Not at all	136	41.9
Do you drink too much alcohol?		
Always	13	5.0
Sometimes	53	20.4

Not at all	194	74.6
Do you smoke?		
Always	14	5.4
Sometimes	30	11.5
Not at all	216	83.1
TOTAL	260	100

Source: Field survey (2022)

Discussion, Conclusion And Recommendation

Introduction

This section presents the discussion of the study. The results of the study are discussed in line with main themes and factors that evolved in the course of the analysis. The discussion considers key themes and implication of results to theory and industry practice. Particular attention is directed at key theoretical and empirical literature that are in agreement or disagreement with the findings of the study

Socio-demographic Characteristics

Findings from this study discovered that, majority 96 (36.9%) of the respondents were between 25-30 years of age. Majority, 165 (63.5%) of the respondents were females, more than half 143 (55.0%) of the respondents were urban dwellers. On the marital status, majority, 138 (53.1%) of the respondents were married. On the level of education, majority 94 (36.2%) of the respondents had tertiary level of education. Finally, majority 95 (36.5%) of the respondents were government employee.

Knowledge of CKD

Results from the study indicates that, majority 217 (83.5%) of the respondents have heard about chronic kidney disease, on the source of information, 92 (35.4%) of the respondents heard about chronic kidney disease from healthcare workers. About 212 (81.5%) of the respondents admitted it's true that chronic kidney disease is a reduction in its ability to remove waste, 240 (92.3%) said its true chronic kidney disease means an infection of the kidney, 229 (88.1%) said its true chronic kidney disease means damage to the kidney, 185 (71.2%) said its true chronic kidney disease means a stone in the kidney. Similar to this study, 92% was reported in Tanzania by Wolide et al., to be an awareness of chronic kidney disease among respondents, however their source of information was from Television [12]. Moreover, a study conducted in Ethiopia by Choukem et al (2016), reported 62% and 82% acknowledged that chronic kidney disease means inability of the kidney to perform its activities and infection to the kidney respectively. Majority, 169 (65.0%) of the respondents admitted chronic kidney disease means swelling of the kidney, majority 196 (75.4%) of the respondents admit chronic kidney disease is manifested by pain in the flank, also, 182 (70.0%) of the respondents admitted chronic kidney disease is manifested by difficulty in urination, 176 (67.7%) of the respondents admit chronic kidney disease is manifested by change in urine color. In line with this study Cohen et al (2017), discovered in their study that, 80% of the participants agreed chronic

kidney disease is manifested by swelling, pains in the flank. In the contrary, their study participant disagreed that chronic kidney disease is manifested by difficulty in urination but affirmed that since the kidneys are not able to produce urine, for that matter there will be scanty urine [1]. Half, 132 (50.8%) of the respondents admit chronic kidney disease can be asymptomatic until advanced stages, majority, 172 (66.2%) of the respondents admit chronic kidney disease is manifested by urinating too little and finally, 154 (59.2%) of the respondents do not believe chronic kidney disease is manifested by urinating too much. This study agreed with a study conducted in Nigeria Sokoto State, where 52% of the studied participant admit chronic kidney disease can be asymptomatic at the initial stage until the advanced stage [23]. These information shows that knowledge and awareness level of participants is high even though there still the need to reach out to the others who have never heard of it and are living among the population.

Risk factors of CKD

On the risk factors of chronic kidney disease, the study depicts that, majority 169 (65.0%) of the respondents said drinking too much water can not result in chronic kidney disease, similarly a study conducted in Nairobi Kenya among 375 respondents, 67% affirmed that kidney disease was never related to too much intake of water. On the contrary, a study by Adejumo et al., reported 55% of their study participants acknowledged that excessive consumption of water especially can predispose one to suffer kidney disease later in life [3].

Moreover, majority 198 (76.2%) of the respondents believed drinking too little water can results in chronic kidney disease, almost all, 247 (95.0%) of the respondents believe smoking can result into chronic kidney disease, also, majority 209 (80.4%) of the respondents believe untreated hypertension can result in CKD. In a study conducted in Tanzania, 63% of the study participant agreed drinking too little of water can result in chronic kidney disease, 87% agreed smoking is a major risk factor for chronic kidney disease and 77% believed uncontrolled Hypertension can lead to chronic kidney disease [9]. Contrary to this study Chironda & Bhengu reported in their study 53% of the respondents do not believe drinking too little water can expose one to kidney disease [4].

Ineterestingly, majority 148 (56.9%) of the respondents do not think untreated HIV/AIDS can result in CKD, again 164 (63.1%) of the respondents do not think untreated Malaria can result in CKD however, 138 (53.1%) of the respondents' think being a

driver can result in CKD and 138 (53.1%) of the respondents do not think being a tailor can result in CKD. Similarly, Okaka et al (2017) reported that 77% of their study participant disagreed untreated malaria can be a risk factor for chronic kidney disease, however, in line with this study, Yusoff et al. discovered that 66% and 54% of being driver and tailor cannot be a risk factor for kidney disease respectively [14]. Nevertheless, 69.4% untreated HIV/AIDS has been reported in Zambia to be a predisposing factor for chronic kidney disease, their reason was that so far as HIV/AIDS infection compromised the immune system of an individual, such a person is exposed to any form of diseases including chronic kidney disease [6].

Preventive Practices of CKD

On the preventive practice of chronic kidney disease, majority 212 (81.5%) of the respondents sometimes observed regular physical exercise as a preventive measure, 121 (46.5%) of the respondents sometimes do have regular renal check-ups, also, 130 (50.0%) of the respondents do not at all have regular diabetes screening, 129 (45.8%) of the respondents sometimes have regular hypertensive screening. A study in china by Lin et al. indicated that, 77.4% of the study populace go for regular renal checks whereas 82% observed regular diabetes screening [24]. These findings by the various studies agrees with the construct or assertion by the health belief model that risk factors or severity of a condition is a factor that can change a person's behavior from negative to positive. Risk factors and serious burden of the condition should therefore, be made public for the general public to know. According to this model four main beliefs influence adherence to regimens, namely the perceived benefits thereof, perceived barriers, susceptibility to illness, and the severity of the outcome of non-adherence. These beliefs must therefore, be the anchor of campaign messages regarding CKD.

Majority, 153 (58.8%) of the respondents sometimes eat vegetables, 171 (65.8%) of the respondents sometimes eat fruits regularly, 164 (63.1%) of the respondents sometimes eat foods with too much salt, 136 (52.3%) of the respondents sometimes eat foods with high fat content, 194 (74.6%) of the respondents do not at all drink too much alcohol and finally, 216 (83.1%) of the respondents do not at all smoke. Contrary to this study, a study conducted in Bangladesh reported that out of 620 participants 558 representing 90% eats fruits and vegetables all the time, also their study revealed that 53% and 61% always drink alcohol and smoke [6, 24-34].

Conclusion

Even though the knowledge of CKD, risk factors and preventive practices in the study population was high, however, Ghana Government as well as corporate organizations should come onboard to help create the awareness and encourage renal screening regularly to help detect and treat early kidney diseases. This will help to mitigate the prevalence of chronic kidney disease in Ghana. CKD is a significant health burden globally including Ghana. Peo-

ple who have knowledge of the risk factors and aware of preventive measures would more likely seek earlier treatment. Therefore, using the health belief model as a premise for this study, there is a need for enlightenment programs to improve knowledge, risk factors and preventive measures and severity of this condition so they can influence people to make lifestyle changes to prevent kidney diseases. The authors of this research recommend the use of the health belief model as a tool to develop a program that raises the awareness, burden and complications of CKD among people. This will have a positive impact in CKD prevention in the younger age group and the general population.

Limitations of the study

Usually, quantitative studies ignore the contextual and background information of participants as well as their value systems which are all important aspects of research that can make research findings accurate and reliable. The study was conducted in a single Hospital by the researchers and hence the scope was too small and therefore, cannot be generalized to other populations. Resources was another limitation as the scope of the study could not be broaden more than it was to enable researches draw conclusions of possible generalization of results.

Recommendation

The main recommendation from this study is that stakeholders at the decision-making level of medical practice will incorporate free renal screening of regular OPD care as well as other chronic conditions. Hypertensive patients should be encouraged to be aware of risk factors of CKD, and health care providers should educate hypertensive patients about the prevention and early detection of chronic kidney disease. The burden of CKD remains serious and unacceptably high, appropriate preventive measures should be implemented to reduce kidney disease in Ghana.

It is suggested that future research should look at a qualitative research method or a mixed method, in order to spell out a lot of the information that respondents in this study were not able to give in detail due to the restrictions on the questionnaire used. A future study could seek to include more than one healthcare facility and increase the sample size.

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Appendices

Questionnaire

Introduction

The researchers are here to gather information on the knowledge and prevalence of chronic kidney disease (CKD) among patients at the Tamale Central Hospital, Tamale, who are diagnosed with CKD. Data collected would be used solely for academic and professional purposes only. Your name and answers will be completely anonymous, but your views, in combination with those of others, are extremely important and there is no right or wrong answer. The finding of the study will help identify the level of knowledge, risk factors and preventive practices towards CKD. I will humbly request for your corporation in order to achieve the desired goal.

Please answer the questions correctly by ticking in the boxes provided (✓).

Section A: Demographic Data

1. Age

18-24 years [] 25-30 years [] 31-35 [] 36-40 [] 41-45 [] 46 and above

2. Sex

Male [] Female []

3. Residence

Urban [] Rural []

4. Marital status

Single [] Married [] Widowed [] Divorced []

5. Educational status

No formal education [] Primary [] Secondary [] Tertiary []

6. Occupation

Government employee [] Private/NGO [] Merchant [] Daily laborer [] Housewife [] Farmer [] Retirement []

Section B: Knowledge of CKD

7. Have you heard about CKD?

Yes [] No []

8. Where did you hear it from?

Radio/Information centre []

Television []

Newspaper or magazine []

Never heard about anaemia in pregnancy []

Healthcare workers []

		True	False
8	CKD is a reduction in kidneys' ability to remove waste from the blood)		
9	CKD is an infection of the kidneys		
10	CKD is damage to the kidneys		
11	CKD is a stone in the kidneys		
12	CKD is a swelling of the kidneys		
13	CKD is manifested by pain in the flank		
14	CKD is manifested by difficulty in urination		
15	CKD is manifested by change in urine odor		
16	CKD is manifested by change in urine color		
17	CKD can be asymptomatic to advanced stages		
18	CKD is manifested by urinating too little		
19	CKD is manifested by urinating too much		

Section C: Risk factors of CKD

		Yes	No
20	Drinking too much water can result in CKD		
21	Drinking too little water can result in CKD		
22	Smoking can result in CKD		
23	Untreated diabetes can result in CKD		
24	Untreated hypertension can result in CKD		
25	Untreated HIV/AIDS can result in CKD		
26	Untreated Malaria can result in CKD		
27	Being a driver can result in CKD		
28	Being a tailor can result in CKD		

Section D: Preventive Practices of CKD

		Always	Sometimes	Not at all
29	Do you have regular physical exercise?			
30	Do you have regular renal check-up?			
31	Do you have regular diabetes screen?			
32	Do you have regular hypertension screen?)			
33	Do you regularly eat vegetables?			
34	Do you regularly eat fruits?			
35	Do you eat foods with too much salt?			
36	Do you eat foods with high fat content?			
37	Do you drink too much alcohol?)			
38	Do you smoke?			

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