



Knowledge of Associated Risk Factors of Chronic Kidney Disease among Secondary School Teachers in Anambra State Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Knowledge of the risk factors of chronic kidney disease can assist in early detection of the disease and in the reduction of the incidence of complications. If people are aware of the risk factors for developing chronic kidney disease, they may engage in or adopt certain lifestyle changes that can prevent or delay development of chronic kidney disease and its complications. The objective of the study was designed to determine the knowledge of the associated risk factors of chronic kidney disease among secondary school teachers in Anambra State. Six purposes and research questions and five hypotheses guided the study. The research design to be adopted for this study is the cross-sectional survey design; the area of this study is Anambra State of Nigeria; the population of the

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study comprised of all 276 public secondary schools in Anambra State; the population of the teachers in all the schools was 6337. The sample size was 399 teachers both male and female; this was determined using the 'Yaro Yamane' formula for a finite population. The instrument for data collection for this study was a knowledge test which was adapted and developed from two validated knowledge tests. The result of the study showed that the teachers had high knowledge of associated risk factors of chronic kidney disease. Based on the findings, conclusions and recommendations were made; Continuous teaching through health education is needed for teachers in the urban areas to increase their knowledge of CKD; as well as continuous health education among the teachers in the rural areas to sustain their high knowledge of CKD.

Keywords: Knowledge; risk factor; chronic kidney disease; lifestyle changes.

1. INTRODUCTION

Knowledge is a term used to describe the confident understanding of a subject with the ability to use it for a specific purpose. According to Mullins and Timothy (2021) knowledge acquisition involves complex cognitive processes which include perception, learning, communication, association and reasoning. Knowledge of the risk factors of chronic kidney disease can assist in early detection of the disease and in the reduction of the incidence of complications. If people are aware of the risk factors for developing chronic kidney disease, they may engage in or adopt certain lifestyle changes that can prevent or delay development of chronic kidney disease and its complications. Knowledge as used in this study refers to the understanding and recall of facts involving how the kidneys function and recognizing symptoms associated with the disease progression. It also includes knowledge of the associated risk factors and preventive measures of chronic kidney disease.

A risk factor is a habit, trait, condition or hazard that increases a person's chances of developing a disease. Risk factors for chronic kidney disease can be described as the presence of one or more of the several factors that may increase the probability of an individual developing a chronic kidney disease. These factors may include the age, gender, family history, alcohol use, smoking, excessive use of pain relieving drugs, physical inactivity and eating habit, overweight or obesity, hypertension, diabetes and use of herbal drugs. Knowledge of the associated risk factors of a disease can go a long way in making individuals aware and conscious of the fact that these factors need to be modified in order to avoid the onset of such a disease. Plantinga, Tout and Powe [1] suggested that assessment of individuals' knowledge is important because some diseases can often go

undetected and untreated if the people do not know and avoid the risk factors. These periodic assessments will go a long way in the prevention of these diseases. Preventive measures are those activities undertaken by an individual to reduce or prevent the risk of developing a particular disease. Assessing the knowledge of preventive measures of chronic kidney disease is an approach that will examine and address the entire range of factors that affect health and aims to reduce the risk factors in the population [2,3,4]. These interventions can include knowledge on measures like promotion of healthy eating, regular physical activity, judicious use of drugs and the loss of excess body weight as a measure to preventive or totally avoid chronic diseases.

Chronic diseases generally cannot be prevented by vaccines or cured totally by medications; therefore, prevention is targeted at their risk factors. Sadlier and Meara (2010) suggested that it was important to assess the knowledge of these risk factors in the adult population in order to create better awareness of the disease condition. Studies have shown that individuals who are provided with appropriate information and knowledge about a chronic disease and its risk factors are more likely to engage in health-promoting behaviors and life style modifications that will enable them avoid the incidence of any disease. This is also applicable to chronic kidney disease prevention. Therefore, improving the public's knowledge about chronic kidney disease and its risk factors is an important strategy for chronic kidney disease prevention.

Chronic kidney disease (CKD) is a condition in which the kidneys have been damaged and have not worked normally for at least three months Health Direct, [5]. Chronic kidney disease has become a public health issue affecting people of all ages all over the world. It is frequently clinically silent in the early stages, resulting in

most patients being detected shortly before, or with the onset of symptoms of the disease. It can be thought of as a thief that works quietly at night, without creating any disturbance. Chronic kidney disease is most often discovered by accident when the patient who visits the hospital is being diagnosed for another illness which might not necessarily be a kidney diagnoses. It might also be discovered during routine employment medical screening.

The attention being paid globally to chronic kidney disease is attributable to certain factors which include the rapid increase in its prevalence, the enormous cost of treatment, an appreciation of its major role in increasing the risk of cardiovascular disease and the discovery of effective measures to prevent its progression [6]. Chronic kidney disease has a huge financial burden on families of subjects with the medical condition and in order to drastically reduce the frequency of chronic kidney failure, a good knowledge of its associated risk factors and preventive measures is needed to exist among the population.

Diabetes mellitus and hypertension are among the main risk factors contributing towards development of chronic kidney disease and its progression. Interestingly, while many individuals are aware of diabetes and hypertension as health problems, they fail to correlate them with chronic kidney disease, or view chronic kidney disease as just a health problem [7,1]. This suggests that there are substantial short comings in chronic kidney disease knowledge in the Nigerian population. This is also compounded since the initial stages of chronic kidney disease can be asymptomatic, thereby making early disease detection to be difficult.

So many factors could affect the knowledge of CKD among teachers one of them is the geographical location that is the location of the teachers school whether rural or urban school. Gender of the teacher could also affect their knowledge whether male or female teacher; some studies in the past has found out that chronic kidney disease might occur most commonly in people above 30 years of age who are obese, although its incidence is increasing in younger adults due to the trend of urbanization and lifestyle changes and unhealthy diets working experience of the teacher could also affect the teacher's knowledge; educational qualification of the teacher could also affect their knowledge and also the age of the teacher could

also be a factor affecting the teacher's knowledge of CKD. Finally, due to the nature of CKD and the role of teachers in the society for information to get to larger audience, This study has been designed to determine the knowledge of associated risk factors of chronic kidney disease among secondary school teachers in Anambra.

1.1 Purpose of the Study

The purpose of this study was to determine the knowledge of the associated risk factors and preventive measures of chronic kidney disease among secondary school teachers in Anambra State. Specifically, the study determined the knowledge of:

1. associated risk factors of chronic kidney disease among secondary school teachers in Anambra State.
2. associated risk factors of chronic kidney disease among secondary school teachers in Anambra State based on their geographical location.
3. associated risk factors of chronic kidney disease among secondary school teachers in Anambra State based on their gender.
4. associated risk factors of chronic kidney disease among secondary school teachers in Anambra State based on their years of working experience.
5. associated risk factors of chronic kidney disease possessed by secondary school teachers in Anambra State based on their educational qualifications.
6. associated risk factors of chronic kidney disease possessed by secondary school teachers in Anambra State based on their ages.

1.2 Research Questions

The following research questions were formulated to guide the study:

1. What is the knowledge of the associated risk factors of chronic kidney disease among secondary school teachers in Anambra State?
2. What is the knowledge of the associated risk factors of chronic kidney disease among secondary school teachers in Anambra State based on geographical location?
3. What is the knowledge of associated risk factors of chronic kidney disease among

secondary school teachers in Anambra State based on gender?

4. What is the knowledge of associated risk factors of chronic kidney disease among secondary school teachers in Anambra State based on their years of working experience?
5. What is the knowledge of associated risk factors of chronic kidney disease possessed by secondary school teachers in Anambra State based on their educational qualifications?
6. What is the knowledge of associated risk factors of chronic kidney disease possessed by secondary school teachers in Anambra State based on ages?

1.3 Research Hypotheses

The following null hypotheses were formulated to guide the study and was be tested at 0.05 levels of significance.

1. There is no significant difference in the mean scores of urban and rural secondary school teachers in Anambra State on their knowledge of the associated risk factors of chronic kidney disease.
2. There is no significant difference in the mean scores of secondary school teachers in Anambra State on their knowledge of the associated risk factors of chronic kidney disease based on their gender.
3. Secondary school teachers in Anambra State will not differ significantly in their knowledge of the associated risk factors of chronic kidney disease based on their working experience.
4. There is no significant difference in the mean scores of secondary school teachers in Anambra State on their knowledge of the associated risk factors of chronic kidney disease based on their educational qualifications.
5. There is no significant difference in the mean scores of secondary school teachers in Anambra State on their knowledge of the associated risk factors of chronic kidney disease based on their age group.

2. METHODS

The research design adopted for this study was a cross-sectional survey design. The area of this study is Anambra State of Nigeria. The target population of the study comprised all secondary school teachers in public secondary schools in Anambra State. There are all together 276 public

secondary schools in the State. The sample size was 399 teachers both male and female. This was determined using the 'Yaro Yamane' formula for a finite population. This sample size was drawn from 21 secondary schools in Anambra State, and was considered high enough for generalization. Six hundred and twenty out of 6337 teachers will be chosen for the study. Multistage sampling procedure was be used to select the sample for the study. The instrument for data collection for this study was a knowledge test which was adapted and developed from two validated knowledge tests (Marias farius & Daher, 2017; [8] which had been previously used in similar studies testing the knowledge of chronic kidney disease risk factors. The data collected was analyzed using statistical package for social science version 25 (SPSS). Means and standard deviation was used to answer the research questions. The research hypotheses was tested using t- test and analysis of variance (ANOVA) at 0.05 level of significance.

3. RESULTS

Research Question 1

What is the knowledge of the associated risk factors of chronic kidney disease among secondary school teachers in Anambra State?

Research Question 2

What is the knowledge of the associated risk factors of chronic kidney disease among secondary school teachers in Anambra State based on their geographical location?

Research Question 3

What is the knowledge of associated risk factors of chronic kidney disease among secondary school teachers in Anambra State based on gender?

Research Question 4

What is the knowledge of associated risk factors of chronic kidney disease among secondary school teachers in Anambra State based on their years of working experience?

Research Question 5

What is the knowledge of associated risk factors of chronic kidney disease possessed by secondary school teachers in Anambra State based on their educational qualifications?

Table 1. Teachers' mean and standard deviation scores of the subjects on knowledge of associated risk factors of chronic kidney disease (n=346)

Variables	N	Mean	SD	Remark
Knowledge of Associated Risk Factors of Chronic Kidney Disease (Percentage scores)	346	71.75	14.18	High

Table 2. Teachers' mean and standard deviation scores of teachers' knowledge of associated risk factors of chronic kidney disease by school locations (n=346)

Location of school	N	Mean	SD	X diff
Urban	262	71.56	14.74	0.76
Rural	84	72.32	12.32	

Table 3. Teachers' mean and standard deviation scores on knowledge of associated risk factors of chronic kidney disease by gender (n=346)

Gender	n	Mean	SD
Male	109	70.99	14.82
Female	237	72.10	13.89

Table 4. Teachers' mean and standard deviation scores on knowledge of associated risk factors of chronic kidney disease by years of working experience (n=346)

Years of experience	N	Mean	SD
1-5years	211	70.42	15.03
6-10years	78	73.20	13.42
11-20years	37	74.32	12.87
above 20years	20	75.31	7.51

Table 5. Teachers' mean and standard deviation scores on knowledge of associated risk factors of chronic kidney disease by educational qualifications (n=346)

Highest Academic Qualification	n	Mean	SD
Diploma	39	71.15	16.13
1st Degree	215	71.19	14.16
Master's Degree	48	71.74	12.30
PhD	44	75.00	14.41

Table 6. Teachers' mean and standard deviation scores on knowledge of associated risk factors of chronic kidney disease by age range (n=346)

Age	n	Mean	SD
20-29 years	229	70.73	14.51
30-39 years	67	72.85	14.14
40-49years	39	75.88	12.33
50years and above	11	71.59	11.98

Table 7. Summary of t-test result comparing teachers in urban and rural schools on knowledge of associated risk factors chronic kidney disease

Source of variation	N	Mean	SD	df	t	p	Decision
Urban	262	71.56	14.74	344	-0.43	.671	*NS
Rural	262	72.32	12.32				

*NS

Table 8. Summary of t-test results comparing male and female teachers' knowledge of associated risk factors chronic kidney disease

Source	n	Mean	SD	Df	t	p	Decision
Male	109	70.99	14.82	344	-0.68	.498	NS
Female	237	72.10	13.89				

Table 9. Summary of one-way analysis of variance of teachers' knowledge of associated risk factors of chronic kidney disease by years of working experience

Source of Variation	Sum of Squares	df	Mean Square	F	p	Decision
Between Groups	1033.61	3	344.54	1.72	.162	NS
Within Groups	68335.86	342	199.81			
Total	69369.47	345				

Table 10. Summary of one-way analysis of variance of teachers' knowledge of associated risk factors of chronic kidney disease by educational qualifications

Source of Variation	Sum of Squares	df	Mean Square	F	p	Decision
Between Groups	545.59	3	181.86	.90	.439	NS
Within Groups	68823.88	342	201.24			
Total	69369.47	345				

Table 11. Summary of one-way analysis of variance of teachers' knowledge of associated risk factors of chronic kidney disease by age group

Source of Variation	Sum of Squares	df	Mean Square	F	p	Decision
Between Groups	986.54	3	328.85	1.65	.179	NS
Within Groups	68382.93	342	199.95			
Total	69369.47	345				

Research Question 6

What is the knowledge of associated risk factors of chronic kidney disease possessed by secondary school teachers in Anambra State based on ages?

Hypothesis 1

There is no significant difference in the mean scores of urban and rural secondary school teachers in Anambra State on their knowledge of the associated risk factors of chronic kidney disease.

Hypothesis 2

There is no significant difference in the mean scores of secondary school teachers in Anambra State on their knowledge of the associated risk factors of chronic kidney disease based on their gender.

Hypothesis 3

Secondary school teachers in Anambra State will not differ significantly in their knowledge of the associated risk factors of chronic kidney disease based on their working experience.

Hypothesis 4

There is no significant difference in the mean scores of secondary school teachers in Anambra State on their knowledge of the associated risk factors of chronic kidney disease based on their educational qualifications.

Hypothesis 5

There is no significant difference in the mean scores of secondary school teachers in Anambra State on their knowledge of the associated risk factors of chronic kidney disease based on their age group.

4. DISCUSSION OF THE FINDING

4.1 Knowledge of Associated Risk Factors of Chronic Kidney Disease among Secondary School Teachers in Anambra State

The findings of the study showed that, the teachers had high knowledge of associated risk factors of CKD. It is shown by the high mean knowledge scores of the teachers in general. This finding of the study was against the findings of NgendaHayo, et al. [9] which found out there was a low knowledge level of CKD among their respondents. It was also in disagreement with the findings of the study conducted by Chium, et al. [10] which showed that the respondents were not adequately informed about CKD. From the findings of this study, the teachers might have had a good knowledge of the associated risk factors CKD because of their career part as teachers they were supposed to have adequate experience and should be highly enlightened and educated and with the recent high prevalence rate of CKD teachers are supposed to acquire a lot of knowledge so that they can educate other people around them, by doing this they acquire a lot of knowledge and this might have affected and caused the high knowledge [11,12].

5. CONCLUSION

Based on the findings of this study, the following conclusions were made;

Secondary school teachers had good knowledge of the associated risk factors of chronic kidney disease this may be due to their profession as teachers; Moderator variables of location, gender, working experience, educational qualifications and age of the secondary school teachers, also had an effect in their knowledge of the risk factors of CKD although, not so significant.

6. RECOMMENDATIONS OF THE STUDY

Based on the findings of the study and the conclusion drawn, the following recommendations were made;

1. Continuous teaching through health education is needed for teachers in the urban areas to increase their knowledge of CKD; as well as continuous health education among the teachers in the rural areas to sustain their high knowledge of CKD.

2. The school management as well as the government and also non-governmental organization should join hands in providing health education regarding chronic kidney disease so that all teachers would benefit.

CONSENT

As per international standards or university standards, Participants' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Plantinga LC, Tout DS, Powe NR. Awareness of chronic kidney disease among patients and providers. *Advanced Chronic Kidney Disease*. 2010;17(3):225-236.
2. Ige OA. Knowledge and Perceived Susceptibility to Chronic Kidney Disease among Auto-Mechanics and Allied Professionals in Bodija Community of Ibadan North Local Government Area, Nigeria. *Journal of Advances in Medicine and Medical Research*. 2023;35(15):36-47. Available: <https://doi.org/10.9734/jammr/2023/v35i155067>
3. Sager BO, Alkaleb FB, Alhariqi IA, Alharbi AA, Alahmadi MA, Elmahdi FM. Challenges and Outcomes of Chronic Dialysis in Children: A Narrative Review, *Journal of Pharmaceutical Research International*. 2024;36(5):1-11. DOI: 10.9734/jpri/2024/v36i57512.
4. Luyckx VA, Tuttle KR, Garcia-Garcia G, Gharbi MB, Heerspink HJ, Johnson DW, White SL. Reducing major risk factors for chronic kidney disease. *Kidney international supplements*. 2017;7(2):71-87.
5. Health Direct Chronic kidney disease Retrieved from; 2023.
6. Nalado A, Abdu A, Adanu B. Prevalence of chronic kidney disease markers in Kumbotso rural Northern Nigeria. *African*

- Journal of Medical Science. 2016;45(l):61-65.
7. Chow WL, Joshi VD, Tin AS, Erf SV, Lim JFY, Teo SSH, Goh PSC, Tan GCS, Lim C, Kee TY. Limited knowledge of chronic kidney disease among primary care patients - A cross-sectional survey. BMC Nephrology. 2012;13(54). DOI.org/10.1186/1471-2369-13-54
 8. Okaka E, Ojogwu L. Awareness level of kidney diseases among non-medical students in Benin City, Nigeria. Journal of Medical Biomed Research. 2012;11:5—6.
 9. Ngendahayo, et al. Chronic kidney disease (CKD): Knowledge of risk factors and preventive practices of CKD among students at a university in Rwanda. African Journals Online (AJOL). 2019;2(2): DOI: 10.4314/rjmhs.v21i2.15
 10. Chiun YN, Zhong SL, Kiam SG, Cross-sectional study on knowledge of chronic kidney disease among medical outpatient clinic patients. Medical Journal of Malasia. 2016;71(3):99-104.
 11. Available: <https://www.healthdirect.gov.au/chronic-kidney-disease>
 12. Oluyombo R, Olamoyegun MA, Ayodele OE, Akinwusi PO, Akinsola A. Clustering of chronic kidney disease and cardiovascular risk factors in South-West Nigeria. J Nephropathol. 2017;6(3):196–203.

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