African Journal of Health, Nursing and Midwifery
ISSN: 2689-9418
Volume 5, Issue 55, 2022 (pp. 55-63)
www.abjournals.org

AWARENESS OF THE RISK FACTORS FOR CHRONIC KIDNEY DISEASE AMONG SECONDARY SCHOOL STUDENTS IN NIGERIA: EVIDENCE FROM OGUN STATE

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Cite this article:

Omeonu P.E., Olayemi A.T., Asekun-Olarinmoye I. (2022), Awareness of the Risk Factors for Chronic Kidney Disease among Secondary School Students in Nigeria: Evidence from Ogun State. African Journal of Health, Nursing and Midwifery 5(1), 55-63. DOI: 10.52589/AJHNM-FE5GMAZU.

Manuscript History

Received: 31 Jan 2022

Accepted: 22 Feb 2022

Published: 17 March 2022

ABSTRACT: *There is an increasing burden of chronic kidney disease among youths in most developing countries like Nigeria where healthcare financing is poor. Therefore, there is a need to assess the level of awareness of the risk factors for chronic kidney disease. The study employed the cross-sectional study design. Random selection of 271 respondents was done and data was collected from them using questionnaire. The analysis of the data was done using the statistical package for social sciences (SPSS) to generate descriptive statistics in form of frequency tables and charts. The result showed that 49.8% of the respondents were between the ages of 13 and 15 years, with a mean age of 13.51±1.385. Most of the respondents (56.8%) were females and of the Christians denomination (64.9%). Nearly all the respondents (90.4%) were from the Yoruba ethnic group. Some 60.9% of the respondents claimed to be aware of chronic kidney disease while only 44.6% had heard about the risk factors of chronic kidney disease. The mean value for the computed construct for level of awareness of risk factors of chronic kidney disease was 14.40±2.59 which is approximately 60% (not very strong) of the maximum point (using a 24-point scale). There is therefore a need for more awareness on risk factors for chronic kidney disease among adolescents in Nigeria and this can be done through the different mediums for passing health messages to the general public.*

KEYWORDS: Chronic Kidney Disease, Awareness, Risk Factors.

Article DOI: 10.52589/AJHNM-FE5GMAZU
DOI URL: https://doi.org/10.52589/AJHNM-FE5GMAZU

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INTRODUCTION

Non-communicable diseases (NCDs) have become the leading cause of death in most regions of the world and may continue to be for coming years. It has been predicted that Africa is expected to have the largest incidence of non-communicable disease deaths globally by 2025 (Naik & Kaneda, 2015). Chronic kidney disease (CKD) is one of such NCDs. It is a progressive, non-communicable disease that most commonly results from diabetes, high blood pressure or kidney inflammation (Demaio, Neuen, Taylor, Kerr & Perkovic, 2013). According to Bello A. K. (2017), CKD is the presence of a damaged kidney or a decreased level of kidney functions for a period of three months or more.

West African countries have a prevalence level of about 16% for CKD and this is the highest in the African continent. In Africa, CKD is characterized by young age of patients, huge morbidity and premature deaths. About 90% of patients with CKD die within 90 days of starting dialysis. Despite this high prevalence, there is yet scanty studies on the epidemiology and economic burden of CKD in Nigeria especially among young people (Olanrewaju et al., 2020). There is general high prevalence of the risk factors for CKD in Nigeria (Yusuf et al., 2019). Prevention and control of CKD to a large extent depend on the awareness and early detection of the disease and its risk factors. Bello A.K. (2017) suggested that with a better understanding of its risk factors, development of the disease and progression to end stage renal disease can be prevented. Obviously, awareness of the risk factors for CKD among youths will help in the prevention of the disease in later years.

Chronic kidney disease is divided into 5 stages of increasing severity (American Association of Kidney Patients, 2014). The stages are:

Stage 1 - Kidney damage with normal or high glomerular filtration rate

Stage 2 - Kidney damage with mid low glomerular filtration rate

Stage 3 - Moderately low glomerular filtration rate

Stage 4 - Severely low glomerular filtration rate

Stage 5 - Kidney failure.

The stages are determined by the glomerular filtration rate. To calculate the glomerular filtration rate for an individual, a formula which combines the individual's age, gender, race and serum creatinine levels is used (Kathuria & Wedro, 2016). Stage 5 of chronic kidney disease, which is also referred to as end-stage renal disease (ESRD), is the point at which there is total or almost total loss of kidney function in a patient and in which to survive, such patient requires dialysis or a kidney transplant (American Association of Kidney Patients, 2014).

The causes of chronic kidney disease include hypertension, diabetes, glomerulonephritis, pyelonephritis, obstructive nephropathy, and polycystic kidney disease (Tzanakaki et al., 2014). It is important to note that chronic kidney disease is also hereditary, meaning that it is a disease that can be passed through generations in families that have a history of the disease (Lights & Boskey, 2015). Early diagnosis and treatment of the disease can reduce the risks associated with chronic kidney disease (risk of cardiovascular events, kidney failure and deaths) (Meuwesen et al., 2016).

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Chronic kidney disease is one of the greatest challenges which the field of public health is facing in the 21st century and this challenge is linked to a considerable number of illnesses and deaths (Seck, Doupa, Gueye & Dia, 2014). The 2013 Global Burden of Disease study reported that an estimate of 956,200 people have died as a result chronic kidney disease, a 134% increase from 1990 (Ene-lordache et al., 2016).

With a worldwide estimate of 200 million people having chronic kidney disease, it is reported to affect almost 500 in 1 million people per year and out of this, 1–2% represent the paediatric population (children and adolescents) range (0–17years old) (Ojo, 2014; Tan, Naing, Han, Khalil, Chong & Tan, 2016). The burden of chronic kidney disease is felt in most developing countries like Nigeria, where there is no health insurance to meet the huge financial demands the disease places on its sufferers and their families (Adejumo, Akinbodewa, Okaka, Alli & Ibukun, 2016).

With an increase in the number of people with chronic kidney disease globally, CKD may reach an epidemic level (Odetunde et al., 2014). This is why this research is focusing on the awareness of the risk factors for chronic kidney disease among students of Remo Secondary School, Sagamu, Ogun State.

METHODOLOGY

The study employed a cross-sectional descriptive research design. The study population of this research work consisted of both male and female students in the senior secondary school of Remo Secondary School, Sagamu, Ogun State, Nigeria. Some 271 students were selected for the study using the convenience sampling technique. The enumeration included all the students of the senior secondary school of Remo Secondary School who were willing to participate in this study. The instrument used for data collection was the questionnaire which was structured in line with the objectives of the study.

Data analysis was done using Statistical Package for Social Sciences (SPSS) version 20.0. The data collected was subjected to descriptive and inferential statistics using the information obtained, and was summarized and presented in tables and charts. The level of awareness was determined using a construct designed with a rating scale.

RESULT PRESENTATION

The result of the demographic characteristics of the respondents is presented in Table 1. Result showed that 135 (49.8%) respondents were between ages 13 and 15 years with the mean age of the respondents being 15.51±1.38. The male respondents for the study were 117 (43.2%) while the female respondents were 154 (56.8%). The respondents that were Christians were 176 (64.9%) and those belonging to the Yoruba ethnic group were 245 (90.4%). From the total number of respondents, most of the students (41%) that volunteered to participate in the study were in their first year in the senior school. Only 98 (36.2%) of the respondents had literate parents.

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Table 1: Distribution of respondents by personal Information

Variables	Categories	Responses	
		Frequency (n=271)	Percentage (%)
Age	10-12	2	0.7
	13-15	135	49.8
	16-18	132	48.7
	19-21	2	0.7
	Mean age = 15.51±1.38		
Gender	Male	117	43.2
	Female	154	56.8
Religion	Christianity	176	64.9
	Islam	93	34.3
	Traditional	2	0.7
Ethnicity	Yoruba	245	90.4
	Igbo	18	6.6
	Hausa	4	1.5
	Others	4	1.5
Class	Senior class 1	111	41.0
	Senior class 2	72	26.6
	Senior class 3	88	32.5
Heard of CKD	Yes	165	60.9
	No	106	39.1
Parents are literate	Yes	98	36.2
	No	173	63.8

Th result in Table 1 further shows that most of the respondents (165; 60.9%) claimed to have heard of CKD. The result in Figure 1 shows that majority of the respondents (77; 41.2%) got information about chronic kidney disease through the mass media among other sources of information.

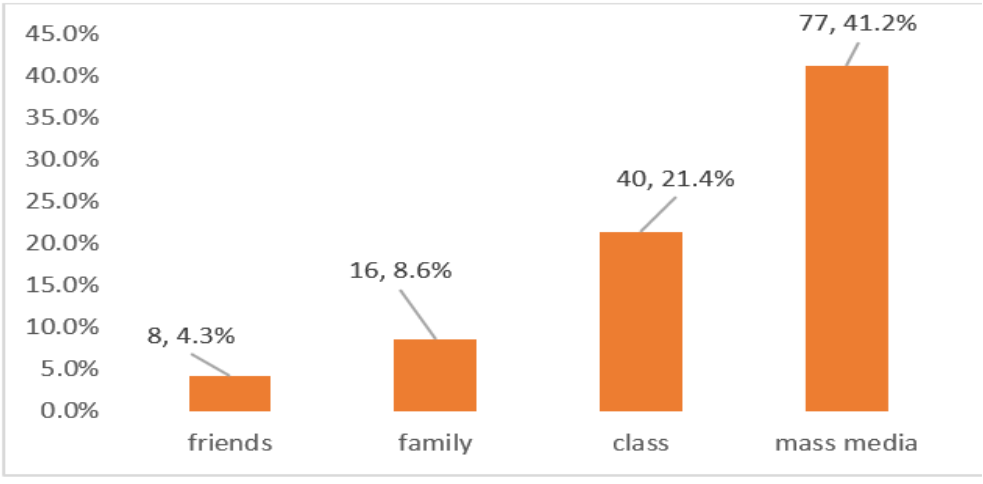

Figure 1: Source of information for chronic kidney disease among respondents

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Table 4: Respondents' awareness of the symptoms and risk factors for chronic kidney disease

Variable	Categories	Frequency (n=271)	Percentage (%)
I am aware of the symptoms of chronic kidney disease	Yes	118	43.5
	No	153	56.5
Do you know the risk factors for chronic kidney disease?	Yes	121	44.6
	No	150	55.4
Do you know that smoking is a risk factor for chronic kidney disease?	Yes	241	88.9
	No	30	11.1
Do you know that not engaging in physical exercise increases one's chances of having chronic kidney disease?	Yes	158	58.3
	No	113	41.7
Do you know that a poor diet increases one's risk of several illnesses, including chronic kidney disease?	Yes	245	90.4
	No	26	9.6

Less than half of the respondents (118; 43.5%) specified that they were familiar with the symptoms of chronic kidney disease and only 121 (44.6%) indicated that they were aware of the risk factors that result in chronic kidney disease (Table 4).

However, the result shows that 241 (88.9%) of the respondents were aware of smoking as a risk factor for chronic kidney disease. More than two-quarter (158; 58.3%) of the respondents indicated that lack of physical exercise can increase one's chances of having chronic kidney disease and 245 (90.4%) respondents were aware that poor diet can increase a person's risk of several illnesses, including chronic kidney disease

The result of the computed construct measuring level of awareness of respondents with respect to CKD is presented in Table 5. The construct was done on a 24-point rating scale to determine the level of awareness of respondents on chronic kidney disease. The analysis revealed that more about 159 (58.7%) of the respondents had average scores for the level of awareness of chronic kidney disease while only 3 (1.1%) respondents had high scores. Furthermore, the result shows that the mean value for the computed construct was 14.40±2.59, which is approximately 60 % of the maximum point. This result shows that the CKD risk awareness level of respondents is below 70% of the maximum point on the scale of measure and this is considered low following Ashur (1977) and Agbede, Kio and Adeyemo (2019).

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Table 5: Respondents' level of awareness

Variables	**Category**	**Frequency (n=271)**	**Percentage (%)**
Level of awareness of chronic kidney disease on a 24-point rating scale	Poor score	13	4.8
	Below average score	96	35.4
	Average score	159	58.7
	High score	3	1.1
Maximum point of scale of measure and percentage of maximum point scored	24 (60%)		
Mean of computed construct	14.40±2.59		

Table 6: Regression output for factor influencing respondents' CKD risk awareness level

Variables	Beta Coefficient	t-value	Sig.
(Constant)	5.255	3.409	.001
Age (year)	0.837*	2.646	0.035
Gender (male = 1, female = No)	-.004	-.054	.957
Religion (Dummy: Christianity = 1, otherwise = 0)	.067*	2.143	0.034
Parents educated (Dummy: Yes = 1, otherwise = 0)	1.028*	2.085	0.039

* Significant at P< 0,05; R-square = 0.64; F = 1.289*

Source: Field survey (2021)

The diagnostic result for the regression model (in Table 6) shows that the coefficient of determination, R^2, is 0.64, i.e., the linear regression explains 64.4% of the variance in the data. Since F-statistics is significant at <0.05, we can assume that the model explains a significant amount of the variance in respondents' CKD risk awareness level.

Factors which significantly and positively influenced respondents' CKD risk awareness level (at $p \leq 0.05$) include the age of the respondents ($\beta = 0.84$; $p = 0.04$), their religion affiliation ($\beta = 0.07$; $p = 0.03$) and their parents' educational status ($\beta = 1.03$; $p = 0.04$). Thus, a percentage increase in the level of these explanatory variables will increase respondents' CKD risk awareness level**.**

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DISCUSSION OF FINDINGS

From the results of the study, it was discovered that the majority of the respondents were between the ages of 13–15 years. This age range can also be termed as being early to mid-adolescence. It was also discovered that majority of the respondents were females and this is in line with the fact that females respond more to health-related studies. The dominant religion as regards this study was seen to be Christianity which is a reflection that the Christian religion is dominant in the western part of Nigeria. Thus, in addition to schools, the Christian religious centres form a good avenue for disseminating public health education. Majority of the respondents were Yorubas and this can be seen to be influenced by the study area which is a Yoruba speaking area. The parents of most of the respondents are not literate and that explains why those that have information about CKD source from the media and not from home. This result corroborates the findings of Yann, Lee and Goh (2016) who posited that the mass media is a veritable source of health information for youths. It is also interesting to discover that less than half of the respondents got information about CKD from school. This may be because they are still at the lower senior school level.

The findings of the study revealed that the level of awareness of the respondents on chronic kidney disease is relatively low but not poor. The results from this finding contradicts the findings of Okoye O .C. A. et al. (2011) where it was revealed that the level of awareness of the respondents on chronic kidney disease was poor. The findings of this study also contradict the findings of Yann, Lee and Goh (2016) where the result for the level of awareness of the respondents was revealed to be poor. Factors influencing respondents' CKD risk awareness level include respondents' age, religion and parents' education. Older students are likely to have more information on CKD. Most of the respondents are relatively young. Also, this result confirms the efficacy of transmitting health information through the Christian religious centres.

The findings of the study revealed that the level of awareness of the risk factors of chronic kidney disease among the respondents is on an average. The findings revealed that majority of the respondents indicated that they are not aware of the risk factors of chronic kidney disease. The report of the findings on the source of information for the risk factors for chronic kidney disease can be said to be mass media as it was indicated that majority of the respondents got their information on chronic kidney disease from the mass media. This is in contrast to the findings of Yann, Lee and Goh (2016) where it was revealed that majority of the respondents got their information from newspaper, internet, medical personnel and health campaign.

CONCLUSION AND RECOMMENDATION

The saying "Prevention is better than cure" comes a long way. From the research, it is shown that the awareness level of chronic kidney disease among young students in Nigerian secondary schools can only be said to be average. This may hinder them from taking necessary precautions for the disease. This research shed light on the fact that there is a need to raise the awareness of chronic kidney disease and its risk factors as this is the first step in eradicating the disease. Our findings suggest the need for more intentional health education at lower levels in secondary schools in Nigeria. Intervention efforts should consider using the Christian worship centres as avenues to reach more youths.

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