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TITLE: KNOWLEDGE OF CHRONIC KIDNEY DISEASE AMONG NON-NEPHROLOGY NURSES IN AKURE, SOUTHWEST, NIGERIA

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ABSTRACT

BACKGROUND: Health workers require adequate knowledge of chronic kidney disease (CKD) to be able to play their role in reducing the burden of CKD. Most previous studies focused on assessing knowledge of doctors on CKD, however nurses are also important in primary, secondary and tertiary prevention of CKD.

AIM: This study assessed the knowledge of non-nephrology nurses on CKD with the aim of identifying areas of knowledge gaps which will be targets for future educational programs.

METHODS: This was a cross-sectional descriptive study carried out among nurses in Akure, Southwest Nigeria during their mandatory continuing professional development program required for practicing license renewal. Knowledge of CKD was assessed using self-administered pretested questionnaires. P-value of <0.05 was taken as significant

RESULTS: One-hundred nurses participated in the study with a male:female ratio of 1:3.7. The mean duration of their nursing experience was 14.5±9.1 years. Only 15 % had nephrology posting during their training. Six (6%) of the respondents had good knowledge of CKD, 55 (55%) had fair knowledge and 37 (37%) had poor knowledge. Only 5% was aware of renal care policy in Nigeria. Junior and intermediate cadre nurses had better knowledge of CKD than senior cadre nurses (p=0.004). Nurses who had nephrology posting during their training had significantly higher mean knowledge score than others (14.38±2.25vs12.93±3.10, p= 0.036).

CONCLUSION: There were significant deficiencies in the knowledge of CKD among non-nephrology nurses who participated in the study. Junior and intermediate cadre nurses and those who had nephrology postings had better knowledge of CKD.

Keywords: Knowledge, Chronic kidney disease, non-nephrology nurses

INTRODUCTION

Chronic kidney disease (CKD) has become a disease of public health importance because its prevalence has been increasing both in developing and developed countries. According to the 2010 Global Burden of Disease study, CKD ranked amongst the top twenty causes of death. [1] The devastating effect of the disease on socio-economic lives of the people is more pronounced in developing countries because most CKD patients present late and at the terminal stage of the disease coupled with the fact that the disease predominantly affects young and middle aged persons who constitute the most productive group of any society.[2-4] In Nigeria, the reported prevalence of CKD according to both hospital and community based studies varies between 6-12 %.[5-8]

The financial burden involved in taking care of most CKD sufferers are solely borne by the patients and their relatives most times in developing countries like Nigeria unlike developed countries where there is well structured and established health insurance scheme to meet these financial needs. The cost of renal replacement therapy is beyond the reach of most Nigerian CKD patients. [9-11] However, most developed countries may be unable to fully cope with financial demand of renal care if preventive efforts are not taken to curb this epidemic .

Despite the huge burden of the disease in Nigeria, majority of Nigerians are not well informed about the disease. [12-14] There is the need to create more public awareness especially among high risk individuals as part of the efforts to reduce the disease burden. Adequate knowledge of CKD by health workers is essential for them to be effective in educating the society and counseling high risk groups. Also, majority of patients tend to seek advice on health related issues from health workers such as nurses who are family members and friends before presenting in the hospital.

Most studies have focused on assessing knowledge of CKD among non-nephrology specialist and non-specialist doctors. [15-19] There is dearth of information on knowledge of CKD among nurses. This study assessed knowledge of CKD among nurses during their mandatory continuing professional development program in Akure, Southwest Nigeria with the aim of identifying areas of knowledge gaps which could be focused and emphasized when organizing educational programs in future.

MATERIAL AND METHODS

Study Setting and Participants

This was a cross-sectional descriptive study carried out during mandatory continuing professional development program for nurses which is a pre-requisite for their license renewal in Akure, Southwest Nigeria, Ondo state. A simple random technique was adopted in selecting the participants.

Data Collection

Knowledge of CKD was assessed through the use of a pretested, closed ended structured questionnaire that had 25 questions. The questionnaire had sections A and B. Section A consisted of questions on socio-demographic information, number of years of experience, qualifications, nephrology training experience. Section B consisted of questions that assessed knowledge of CKD in areas of definition, epidemiology, risk factors, stages, clinical features and treatment of CKD.

A score of 1 point was given for each correctly answered question and the total score calculated for each respondent. The maximum obtainable score was 25. A score of 18-25 points was considered as good knowledge of CKD, 13-17 points as fair knowledge and < 13 points as poor knowledge. Respondents who were nursing officers (NO) I and II were categorized as junior cadre nurses, senior nursing officers (SNO) as intermediate cadre nurses while other more senior nurses were categorized as senior cadre nurses.

Ethical consideration

Ethical clearance was obtained from the Ethical and Research Committee of State Specialist Hospital, Akure, Ondo State. Informed consent was obtained from each participant. All questionnaires were coded (*without names*) and confidentiality of responses was ensured throughout the study.

Data Analysis

Data generated was analyzed using the statistical package for social sciences (SPSS) version 17.0. Results were presented in tabular form. Univariate analysis was used in description of demographic characteristics of the study population. Discrete variables were presented as frequency and percentages. Chi-square test was used to determine the significance of observed differences for categorical variables. Student t-test was used to compare mean knowledge scores within sub-group. P values < 0.05 were considered significant

RESULTS

One hundred nurses participated in the study consisting of with a male:female ratio of 1:3.7. Seventy-seven (77%) respondents were aged 50 years and below. Thirty-three (34.7%) had post-basic qualification in nursing, 40(42.1%) had BSc (Nursing) and 4(4.3%) had post-graduate nursing training. The mean duration of respondents' nursing experience was 14.5±9.1 years. Forty-four (45.4%) of the respondents were nursing officers and senior nursing officers. Only sixteen (16.3%) of the respondents had nephrology postings during their training with a mean duration of 25.7±35.9 days.(Table1)

Six (6%) respondents had good knowledge of CKD, 55 (55%) had fair knowledge and 37(37%) had poor knowledge of CKD (Fig 1). Among the respondents, 13 (13%) could define CKD, 13(13%) knew the age group most commonly affected and only 4(4%) knew that CKD had 5 stages. Forty-five (45%) could not identify nocturia as a feature of CKD, 37(37%) knew serum creatinine level was a useful screening test to diagnose CKD. Sixty-five (65%) did not know that erythropoietin is the best mode of treatment of anemia in CKD and 11(11%) knew that it could be administered subcutaneously. Seventy-six (76%) knew that renal transplantation was the best mode of treatment for end stage disease. Only 5(5%) of the respondents knew about renal care policy in Nigeria. (Table2)

Junior and intermediate cadre nurses had better knowledge of CKD than higher cadre nurses ($p=0.004$). There was no significant association between knowledge of CKD and years of nursing experience ($p=0.488$). (Table 3)

Nurses who had nephrology posting during their training had significantly higher mean knowledge score of CKD than others (14.38±2.25 vs 12.93±3.10, $p = 0.036$) (Fig 2)

DISCUSSION

There were significant deficiencies in the knowledge of CKD among majority of the respondents in this study. Only 6 (6%) of the respondents had good knowledge, 55 (55%%) had fair knowledge and 37 (37%) had poor knowledge of CKD. The finding of this study is comparable to that of Agaba et al[15] who reported that adequate knowledge of CKD was found in 36.2% of their study population although their study subjects were non-nephrologist specialist doctors

Majority of the respondents did not know the definition of CKD. It was only 13 % that knew that CKD is a disease that affects structure and/ or functions of the kidneys for at least 3 months. Most of the respondents had good knowledge of risk factors associated with CKD. This is similar to reports from previous studies where knowledge of CKD was assessed amongst doctors. [15-17] Hypertension, chronic glomerulonephritis and diabetes mellitus were respectively identified by 77%,81% and 88% of the respondents as common aetiologies of CKD in Nigeria. However, about one-third did not know diabetes mellitus as a common cause despite the fact that burden of diabetic nephropathy is on the increase.

Majority (74%) knew that CKD affects males more than females, but a larger proportion did not know about the prevalence of CKD as well as the age group commonly affected. This is also similar to findings of Agaba et al[18] who reported that the knowledge of prevalence of CKD was poor among family medicine resident doctors. The nurses knew about the features of CKD such as frothiness of urine, easy fatigability, hypertension and anemia, but only about half of the respondents identified nocturia as a feature of CKD. This is worrisome because nocturia is one of the early signs of CKD during which other overt features of the disease may be absent. Therefore, some of these nurses may not be able to identify patients with early CKD. Among the listed risk factors for CKD, obesity was the least identified as among the respondents.

Most of the respondents (96%) did not know that CKD has 5 stages. Similar knowledge gap was identified by Choukem et al[17] in a study done in Cameroon. Fifty-six percent of the respondents who were general practitioners and non-nephrology specialist doctors did not know that CKD has 5 stages.[17] Thirty-seven percent identified serum creatinine as a useful investigation required to diagnose CKD during screening, 35% knew that EPO was the best treatment option for anemia in CKD while only about a tenth knew that EPO could be administered subcutaneously. This suggested that the nurses were not familiar with EPO, a drug whose use is not limited to renal medicine. About three quarter knew that renal transplantation was the best mode of treatment for patients with end stage renal disease.

Surprisingly, we found that junior and intermediate cadre nurses had significantly better knowledge of CKD than the relatively more senior nurses. Mahmud et al [16] also reported that junior doctors fared better than senior doctors, in knowledge as well as management of CKD. This may be due to the fact that CKD has recently become a disease of public health importance recent and also the awareness of CKD is on the increase now compared to the past .

About 16% of respondents had rotations in nephrology unit during the course of their training. These nurses had better knowledge of CKD compared to those who did not rotate through the unit. This is similar to report by Okwuonu et al [20] in a study that assessed knowledge of final year nursing students on CKD. Students who rotated through dialysis unit were reported to have had significantly higher mean knowledge scores than others who did not rotate through the unit. This therefore implies that nurses would have better knowledge of renal medicine and enhanced capacity to effectively play their roles in reducing the burden of kidney disease if nephrology rotation is included in their training.

Only few of the nurses (5%) knew about renal care policy in Nigeria. This national renal care policy is an initiative of the Nigeria Association of Nephrology (NAN) whose primary objective is to develop a national renal health system that will provide effective, efficient, quality, accessible and affordable renal health services with the overall aim of improving the health status of Nigerians. Although this policy is yet to be passed into law by the legislative arm of the government, the level of awareness is however low. Therefore, there is an urgent need for NAN to create more awareness and enlightenment for the public about this policy so that it could attract the much needed support by Nigerians.

CONCLUSION: There were significant deficiencies in the knowledge of CKD among non-nephrology nurses who participated in the study. The junior and intermediate cadre nurses and those who had nephrology rotation had better knowledge of CKD.

Nephrology postings should be incorporated into the nursing curriculum while educational programs targeting specific knowledge gaps in CKD should be incorporated regularly into the continuing medical education for nurses. Also, NAN should engage in public enlightenment in order to sensitize the masses on the renal care policy.

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Table 1: Characteristics of Study population (N=100)

Characteristics	n (%)/ Mean±sd
Age group (years)	
20-30	17(17)
31-40	32(32)
41-50	28(28)
51-60	21(21)
>60	2(2)
Gender	
Male	21(21.2)
Female	78(78.8)
Nursing Qualification	
Basic	19(20)
Post-basic	33(34.7)
BSc	40(42.1)
MSc	3(3.2)
PhD	1(1.1)
Years of nursing experience	
Mean duration of nursing experience(years)	14.5±9.1
< 10years	40
10-20 years	34
>20 years	22
Cadre of Nurses	
Junior and Intermediate	44(45.4)
Senior	53(54.6)
Previous rotation in Nephrology	
Yes	16(16.3%)
Mean duration of nephrology rotation (days)	25.7±35.9
No	82(83.7)

Missing values excluded

TABLE 2: FREQUENCY OF CORRECT ANSWERS

S/N	QUESTIONS	Frequency of correct answers n (%)
1.	Definition of CKD	13(13)
2.	Gender most commonly affected	74(74)
3	Age group commonly affected by CKD	13(13)
4.	Proportion of Nigerians affected by CKD	16(16)
5.	Number of stages of CKD	4(4)
6.	Three most common causes of CKD in Nigeria	
6.1	Hypertension	77(77)
6.2	Diabetes mellitus	64(64)
6.3	Chronic glomerulonephritis	81(81)
7	Clinical features of CKD	
7.1	Anemia	68(68)
7.2	Hypertension	75(75)
7.3	Body Swelling	94(94)
7.4	Easy fatigability	84(84)
7.5	Nocturia	55(55)
7.6	Frothy Urine	63(63)
8	Risk factors for CKD	
8.1	Acute renal failure	88(88)
8.2	Obesity	44(44)
8.3	Hypertension	87(87)
8.4	Diabetes Mellitus	72(72)
8.5	Smoking	59(59)
9	Useful screening test for CKD	37(37)
10	Best treatment option for CKD anaemia	35(35)
11	Mode of administration of EPO	
11.1	Subcutaneously	11(11)
11.2	Intravenously	44(44)
12	Best treatment option of ESRD	76(76)
13	Renal Care Policy	5(5)

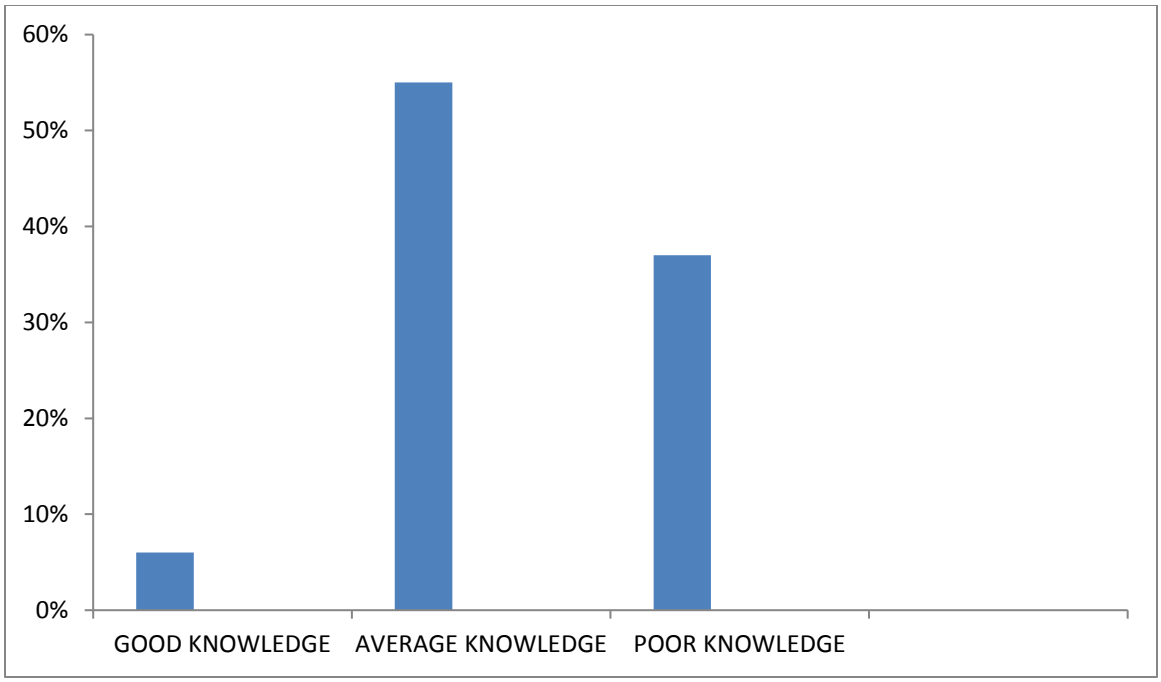

Figure 1: Knowledge of CKD among respondents

Table 3: Association between knowledge of CKD, year of nursing experience and Cadre

	Good Knowledge	Fair Knowledge	Poor Knowledge	P-value
Years of Nursing experience				
< 10years	11(32.1)	26(46.4)	3(50)	0.488
10-20 years	16(47.1)	16(28.6)	2(33.3)	
>20 years	7(20.6)	14(25)	1(16.7)	
Cadre of Nursing				
Junior and Intermediate	5(83.3)	29(51.8)	10(28.6)	0.004
Senior	1(16.7)	27(48.2)	25(71.4)	

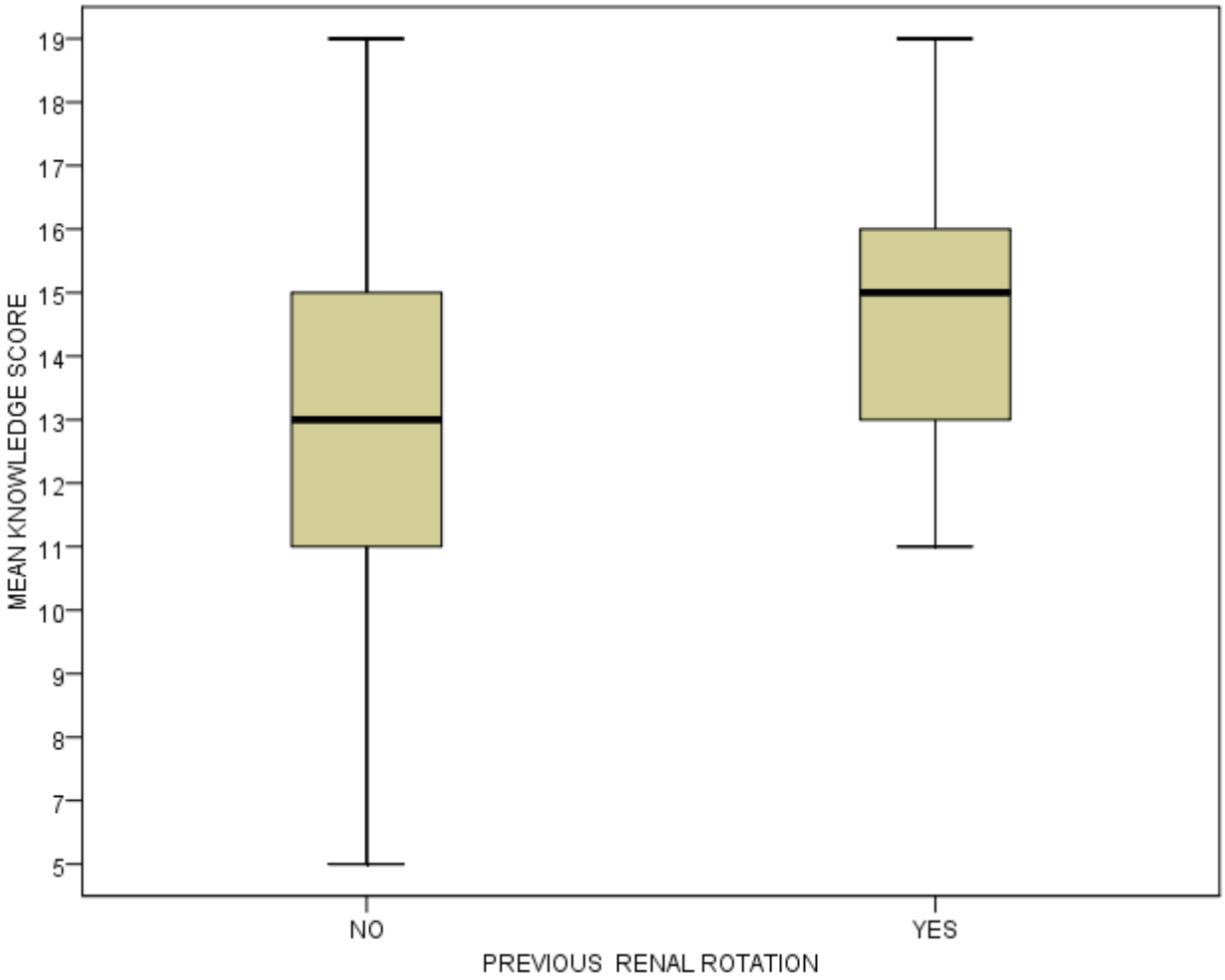

Fig 2: Box Plot showing the mean knowledge score of respondents.