

Original Article

Belief in complementary and alternative medicine in the management of kidney diseases in a rural population of South-East Nigeria



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ABSTRACT

Background: The use of complementary and alternative medicine (CAM) for treatment of chronic diseases has been on the increases globally. This is an important risk factor in the pathogenesis of kidney injury. Identifying patients who believe in their use for treatment of kidney disease will assist in targeted surveillance and intervention activities to avert adverse health outcomes. **Aim:** To obtain the proportion of adults in a rural population who believe in use of CAM in treatment of kidney diseases. We also sought to establish any association between this belief and the educational level, knowledge of function of kidneys and causes of kidney diseases. **Methods:** A semi-structured, researcher-administered questionnaire was the tool for data collection. **Results:** Four hundred and thirty five (435) questionnaires were analyzed. There were 160 males (36.8%) and 275 females (63.2%), male/female ratio been 1:1.7. The mean age was 42.8±14 years with a range of 18 to 78 years. Only 26.6% correctly identified at least two basic functions of the kidneys. Also 32.6% of the respondents were aware of at least three common causes of kidney diseases in our environment. Belief in alternative therapy to kidney disease was documented in 83.2%. There was no association between this belief and educational level of the participants and their knowledge of functions of kidneys and causes of kidney disease. **Conclusion:** Belief in CAM is high in the study population. Interventions that will cause a re-orientation need to be initiated to avert possible adverse health implications of a corresponding use.

Key words: Belief, complementary and alternative medicine, kidney diseases, surveillance, herbs, nutritional supplements.

INTRODUCTION

Millions of people around the world suffer from kidney diseases, and these patients will

eventually need a form of renal replacement therapy.^[1] It has been reported that the incidence of kidney diseases is higher in the developing countries than in the industrialized



world.^[2] Renal replacement therapies save lives but with great costs, which are becoming a major issue in western countries because they account for a significant proportion of healthcare expenditure.^[3] The cost of management of end stage kidney disease is exorbitant and far beyond the reach of an average patient in developing countries.^[4] In Nigeria, there is no social security system or health insurance scheme in place to assist the patient on renal replacement therapy and as such the burden is borne solely by the patient and relatives.^[5] As a result, less than 2% of patients who started dialysis had been shown to be able to maintain it for more than 12 months.^[6]

The magnitude of the existing burden of illness caused by kidney failure, the projections for increasing incidence of kidney diseases, and the limitations of our existing treatments for kidney failure all point to the need for clinical and population-based interventions aimed at prevention of kidney diseases.^[7]

Many problems in primary healthcare are due to lack of knowledge and sensitivity to local health practices, and due to the economic and cultural factors associated with these practices.^[7] In the developing world, up to 80% of the population uses traditional medicine for primary health care.^[8] In industrialized countries, adaptations of traditional medicine, termed 'complementary' or 'alternative' medicine (CAM), are used by a growing number of patients for preventive or palliative care.^[8]

The United States National Centre for Complementary and Alternative Medicine (NCCAM) defines complementary and alternative medicine as a 'group of diverse medical and healthcare systems, practices and products that are not presently considered to be part of conventional medicine'.^[9]

The exact definition of what constitutes CAM however is culturally dependent. In India for example, Ayurveda is practiced on a nationwide scale and is commonly regarded as orthodox medicine.^[10] In China, traditional Chinese medicine such as herbal medicine, acupuncture, acupressure, qi gong and t'ai chi chu'an are widely practiced alongside modern western medicine.^[10] In Nigeria, herbal medicines and nutritional supplements are commonly practiced while water therapy and spiritual practices are rare.

Some patients with kidney disease initially use herbal medications for treatment and seek help from spiritual houses, only to eventually resort to hospitals and specialists at a stage when the ailment is advanced.^[5] Most herbal products have no clear statement of content or medically related information on the package labels, and have not been validated or certified by any recognized body.^[10] Not all documented useful plants are harmless. Some of these herbal remedies have been implicated in the aetiology of acute renal failure, interstitial nephritis, uro-epithelial malignancies and progressive chronic kidney disease.^[11] Although there is emerging evidence in the literature that some may be renoprotective, many nephrologists are reluctant to consider them in research trials for fear of adverse effects (including nephrotoxicity) or deleterious interaction with co-prescribed, conventional medicines.^[12] More important is the fact that most of our populace are ignorant of the contents of these herbal concoctions. Hence there is need to restrict their use.

Population surveys have consistently identified a low level of awareness of major, modifiable risk factors for progressive kidney disease including use of some forms of alternative medications.^[13-16] The aim of this study is to identify the proportion of the study population that believes in alternative therapy to kidney disease and to ascertain its association with educational level, knowledge of functions of kidneys and causes of kidney diseases. Identification of this group will help to initiate specific directed efforts towards modifying this risk factor for progressive kidney disease through education.

METHODOLOGY

Study design and setting

This is a descriptive cross sectional questionnaire-based study carried out in Olokoro, a semi urban community in Umuahia South local government area of Abia state, Southeast Nigeria. The community is about 8 kilometers from the center of the state capital. There are two hundred and twelve (212) enumeration areas (EA) in Olokoro.

Study population

The study population included adults who are resident in the community. The recently issued national and state population estimate of Umuahia South Local Government Area is 131,760 with equal gender distribution; the total population of Olokoro community was

put at 52,712.^[17] The community was chosen due to ease of community entry and positive disposition of the indigenes of the community towards researchers. Also its proximity to the center of the state capital, Umuahia, ensured that transportation and other research logistics were easy.

Sample size

Sample size estimation was determined using the appropriate formula.^[18-19] A previous study conducted by Okaka *et al.* among undergraduate non-medical students in Benin Nigeria^[20] showed that 48% of the participants believe in alternative medical therapy for treatment of kidney diseases. The sample size in this study was extrapolated from this value at a 95% confidence level with a 5% margin of error. This gave a minimum sample estimate of 383 individuals. A sample size of 460 adults was selected to allow for possible non responders.

All adults \geq 18years of age who consented to the study in each household visited were included while those with psychiatric illness were excluded from the study.

Sampling method

Multi stage cluster sampling method was carried out using EAs as clusters. Fifty three of these EAs were selected randomly by balloting. Households in the involved EAs were selected by systematic random sampling method. The first household was determined by the spin of a bottle. Thereafter, individuals in each selected household who meets the inclusion criteria were selected for the study.

Study procedure

Structured, researcher-administered closed-ended questionnaire containing 27 items was the tool for data collection. Twenty-three items on the questionnaire bordered on their knowledge of basic functions of the kidneys, causes of kidney disease, possible treatment modalities, and belief in alternative therapy for kidney diseases as well as suggested alternatives. The remaining four items border on socio-demographic characteristics of the respondents. The questionnaire, written in English was translated to the local dialect by an expert in the local dialect. The translated format was thereafter translated back to English by a second party. The two English versions were then cross-checked for accuracies and consistencies in the questions. The local dialect format was used

in the data collection. The face and content validity of the questionnaire were evaluated by one nephrologists and one community health physician. The interviewers had a common training conducted by the principal investigator to ensure accurate and uniform data collection. A pilot study was conducted among 30 adults in an EA in the community not selected for the study. Based on the outcome, some questions were adjusted accordingly and "I don't know" was added to some responses. The study lasted one month.

Ethical consideration

The study protocol, questionnaires and consent forms were reviewed and approved by the human resource and ethical committee of Federal Medical Center Umuahia, Abia state, Nigeria. Informed consent was obtained from each participant before recruitment in the study. Confidentiality was maintained and the anonymity of responses ensured. Personal identifiers were not collected from the subjects.

Statistical analysis

The data collected was analyzed using the statistical package for social sciences (SPSS) version 21.0. Quantitative variables were expressed as mean \pm standard deviations. Qualitative variables expressed as percentages. Spearman's correlation analysis was used to determine the association between educational level of participants and knowledge of functions of kidneys and causes of kidney diseases. Chi-square with trend was used to determine the association between belief in CAM and educational level of participants, knowledge of kidney functions and knowledge of causes of kidney diseases. *P*-value less than 0.05 was considered significant.

RESULTS

Four hundred and sixty (460) questionnaires were administered to consenting adults in the community. However, 449 were turned in giving a response rate of 97%. Among these, 435 were correctly filled and hence used in the analysis. There were 160 males (36.8%) and 275 (63.2%) giving male/female ratio of 1:1.7. The mean age of the respondents was 42.8 \pm 14 years with a range of 18 to 73 years. Mean age \pm standard deviations of male and female respondents were 43.7 \pm 15 years and 42.7 \pm 13 years respectively (table1).

Table 1: National Centre for Complementary and Alternative Medicine Classification of CAM therapies.^[9]

1. Whole medical systems	Homeopathic medicine, naturopathic medicine, chiropractic, traditional Chinese medicine, Ayurveda etc.
2. Mind-body interventions	Meditation, prayer, mental healing, art, dance, music therapy etc.
3. Biologically based therapies	Herbs, vitamins, dietary supplements, Health foods, aromatherapy etc.
4. Manipulative and body based methods	Chiropractic or osteopathic manipulation, massage etc
5. Energy therapies (Biofield therapies and bioelectromagnetic based therapies)	Reiki, Qi gong, therapeutic touch, electromagnetic fields etc.

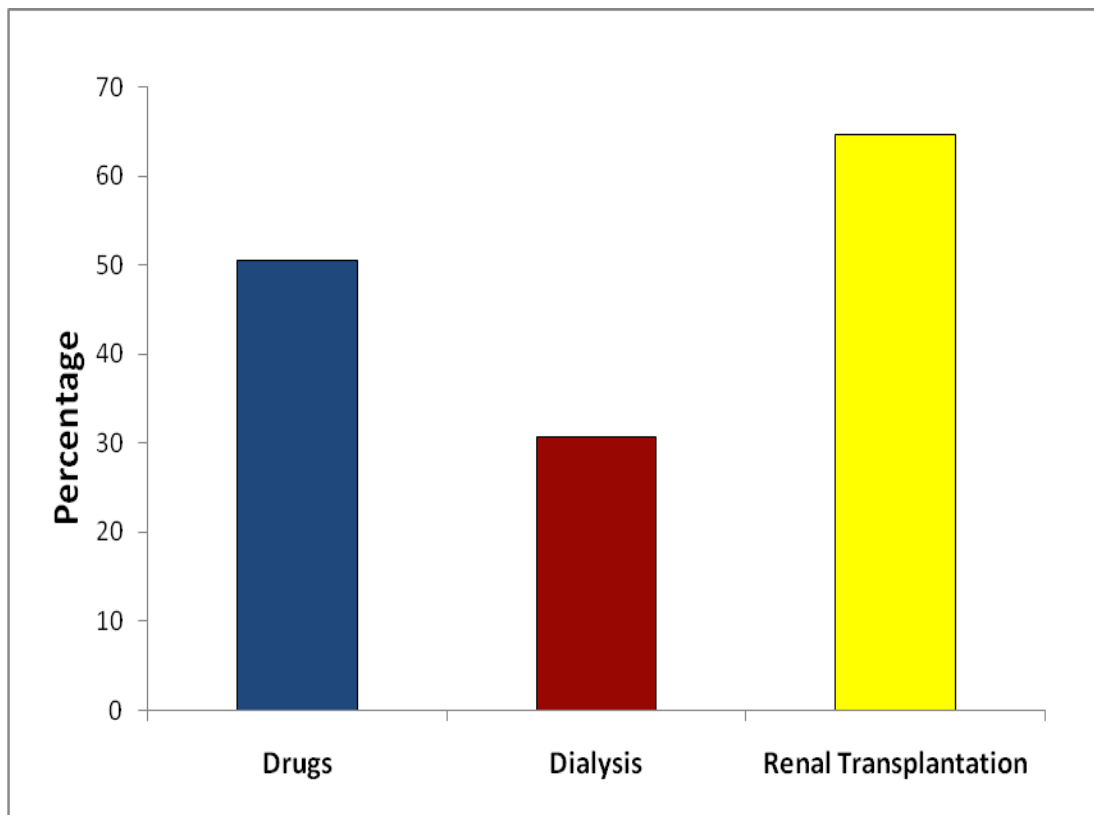


Figure 1: Knowledge of conventional treatment modalities of kidney diseases

Table 2: Socio-demographic characteristics of all participants

Variable	Men (N=160)	Women (N=275)	All (N=435)	P- value
Age group				
<20	7(4.4%)	4(1.5%)	11(2.5%)	0.003
20-39	67(41.9%)	127(46.2%)	194(44.6%)	
40-59	55(34.4%)	119(43.3%)	174(40%)	
≥60	31(19.4%)	25(9.1%)	56(12.9%)	
Marital status				
Single	49(30.6%)	79(28.7%)	128(29.4%)	0.002
Married	105(65.6%)	156(56.7%)	261(60.1%)	
Divorced/separated	3(1.9%)	5(1.8%)	8(1.8%)	
Widow/widower	3(1.9%)	35(12.7%)	38(8.7%)	
Occupation				
Civil servants	38 (23.8%)	65 (23.6%)	103(23.7%)	0.009
Students	35 (21.9%)	62 (22.5%)	97 (22.3%)	
Traders/self employed	70(43.8%)	106 (42.2%)	186 (42.8)	
Unemployed/Pensioners/Clergy	17 (10.6%)	32 (11.6%)	49 (11.2%)	
Educational status				
None	30 (18.7%)	27 (9.8%)	57 (13.2%)	<0.001
Primary	73 (45.6%)	49 (17.8%)	122(28.0%)	
Secondary	69 (43.1%)	109(39.6%)	178(40.9%)	
Tertiary	29 (18.1%)	49 (17.8%)	78 (17.9%)	

Table 3: Participants with knowledge of causes of kidney disease

Causes of Kidney Diseases	Number	Percentage
Diabetes mellitus	186	42.8%
Hypertension	133	30.6%
Abuse of Pain Killers	126	29%
Herbal Concoctions	133	30.6%
Skin lightening cosmetics	57	13.1%
Spiritual	40	9.2%
Urinary Tract Infection	132	30.2%
Inherited from Parents	128	29.4%

Table 4: Association between educational level of the participants and belief in complementary and alternative medicine for treatment of kidney diseases

Educational level	Belief in complementary and alternative therapy N (%)	
	Yes	No
None	10 (2.8)	7 (9.6)
Primary	80 (22.1)	15 (20.5)
Secondary	146 (40.3)	30 (41.1)
Tertiary	126 (34.8)	21 (28.8)
Total	362 (100)	73 (100)

X^2 with trend = 2.557, $P=0.110$

Table 5: Association between knowledge of functions of the kidneys and belief in complementary and alternative medicine for treatment of kidney diseases

Correct answers	Belief in complementary and alternative therapy N (%)	
	Yes	No
None	19 (5.2)	8 (11.0)
One	248 (68.5)	44 (60.2)
Two	68 (18.8)	17 (23.3)
Three	27 (7.5)	4 (5.5)
Total	362 (100)	73 (100)

X^2 with trend = 1.507, $P=0.220$

Table 6: Association between knowledge of causes of kidney diseases and belief in complementary and alternative medicine for treatment of kidney diseases

Correct answers	Belief in complementary and alternative therapy N (%)	
	Yes	No
None	14 (3.8)	13 (17.8)
One	132 (36.5)	20 (27.4)
Two	100 (27.6)	14 (19.2)
Three and above	105 (32.1)	23 (35.6)
Total	362 (100)	73 (100)

X^2 with trend = 1.396, $P= 0.238$

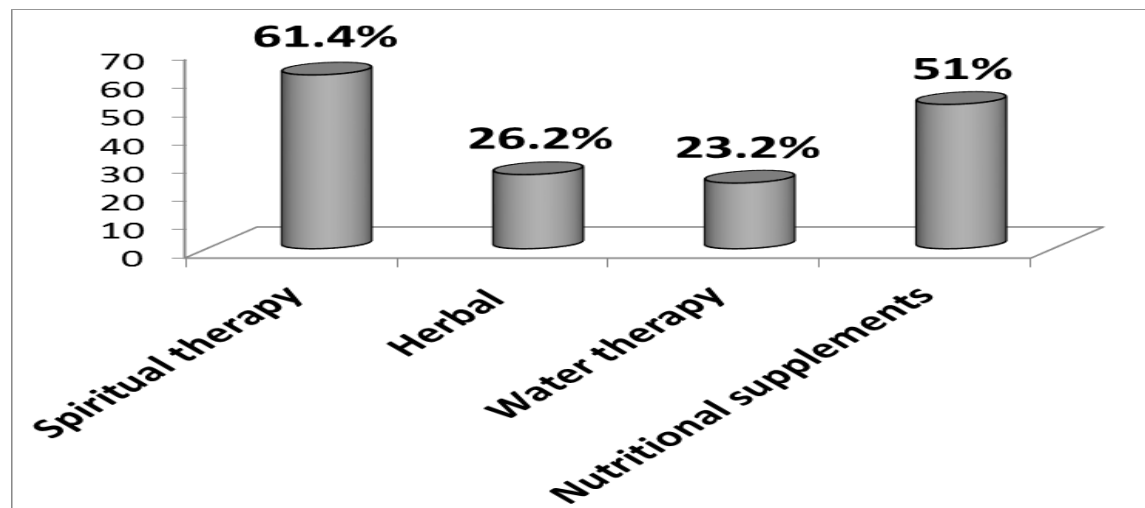


Figure 2: Participants' belief in different types of alternative medications

Knowledge of three basic functions of the kidneys was sought for (urine production, blood production and blood pressure regulation). Up to 26.6% of respondents were able to identify at least two of these functions. Only 7.1% of respondents correctly identified all three basic renal functions. There was a significant but weak positive correlation between educational level of respondents and their knowledge of basic renal functions (Spearman's rho= 0.128, $P=0.012$).

Knowledge of 7 possible causes of kidney disease was assessed (table 2). Only 32.6% of the respondents were aware of 3 or more common causes of kidney diseases. There was a significant but weak positive correlation between educational level of respondents and their knowledge of causes of kidney disease (Spearman's rho= 0.147, $P=0.004$).

On treatment options for kidney failure, the awareness of dialysis as a treatment option for kidney disease was generally poor; up to 68% are unaware of it as a treatment option for kidney disease (figure 1).

Three hundred and sixty two (83.2%) of the respondents believe in complementary and alternative treatment for kidney disease. However only 171 of them knew for sure what such treatment entailed. Of this group, 61.4%, 26.2%, 23.2%, 26.5% believe that spiritual, herbal medications, nutritional supplements and water therapy respectively could be used to treat kidney diseases (figure 2). There was no association between belief in CAM and educational level of the participants (X^2 with trend = 2.557, $P=0.110$, table 4).

Similarly, there was no association between the belief in CAM and knowledge of functions of kidney diseases (X^2 with trend = 1.507, $P=0.220$, table 5) and knowledge of causes of kidney diseases (X^2 with trend = 1.396, $P=0.238$, table 6)

DISCUSSION

Majority of the participants in are in the 20-59 years age group. This is the economically productive age group and, in Nigeria, this is the age group most commonly affected by chronic kidney disease as reported by various studies across the country.^[3,21-23] Their belief in CAM in treatment of kidney disease have far reaching deleterious consequences. This is especially true where the knowledge of constituents of herbal concoctions is

unknown. Most of the participants in this study were traders involved in the daily hassles of business. They may not have time to read drug labels or seek medical advice before consumption of herbal concoctions. Toxicity can occur when a herb with unknown toxicity is consumed, incorrect identification leads to substitution of an innocuous herb with a toxic one, preparations are contaminated with toxic non-herbal compounds or when a herb potentiates the nephrotoxic effect of a conventional therapy.^[8] They can be contaminated by pesticides and heavy metals; and because of errors in plant identification and confusing terminology, opportunities for mistakes and deliberate substitution can occur.^[8]

Poor knowledge of functions of the kidneys demonstrated in this study had been reported by an earlier studies in south western Nigeria among the general populace^[24] where 63.8% of the respondents were not aware of the basic functions of the kidneys. This similarity can be accounted for by the comparable socio demographic characteristics of participants in both studies. However, a similar study done among non-medical undergraduates at the University of Benin, Nigeria^[20] showed a higher level of knowledge of basic functions of the kidney as only 5% of the students had poor knowledge of kidney functions. Most of these students had undertaken biology lessons in secondary schools and have access to health information through books and internet facilities. These are factors that may have accounted for the higher level of knowledge in the study.

The leading causes of kidney disease in Nigeria are hypertension, chronic glomerulonephritis (CGN) and diabetes mellitus.^[22-23] The participants in this study had poor knowledge of the possible causes of kidney diseases. However, using diabetes mellitus and hypertension as examples and comparing this study with previous studies, there seems to be an improvement in knowledge of the general populace on the causes of kidney diseases over the years.^[20,24] This may be attributed to increased enlightenment from health workers and enlightenment over the media following increase in the prevalence of diabetes and hypertension.

Due to the high costs of treatment of kidney disease in our setting, most people solicit for

financial assistance from philanthropists, religious organizations, and mass media so as to undergo kidney transplantation. This may perhaps be the reason why most participants in this study were aware of kidney transplantation as a treatment option than dialysis (figure 1).

In Nigeria, as in some developing countries, patients often present late to health facilities or not at all for several reasons which range from prohibitive cost of health care services to use of alternative treatment like spiritual healing and traditional/native healers.^[4,25] Three hundred and sixty two (83.2%) of the respondents in this study believe in alternative treatment for kidney disease. Suggested alternatives include herbal remedies, nutritional supplements, spiritual healing and water therapy (figure 2). This is alarming because nonconventional preparations rarely meet the required essential standards of consistency in composition and biological activity; many of these products contain undisclosed over-the-counter or prescription drugs or can be adulterated with hormones and glandular extracts.^[8] Largely outside the ambit of regulatory control, herbal remedies are prepared by quasi-trained herbalists and not tested for safety.^[11] In addition, due to poor surveillance, there is a dearth of reports of adverse reactions, and data renal and systemic toxicity are not readily available.

Belief in such alternative therapy implies that such a person is at risk of exposing the kidneys to further insults which include acute tubular necrosis/toxicity (such as Fanconi's syndrome), acute interstitial nephritis, papillary necrosis, hypertension, kidney stones, urinary retention, chronic tubulointerstitial nephritis with fibrosis, urinary tract carcinoma, acute rejection of the kidney transplant and progression of chronic kidney diseases.^[10] Thus, this high belief, if converted to a corresponding high use of alternative therapy, will have deleterious consequences for the teeming population of patients with kidney diseases in our environment.

This problem is not restricted to the study population. There is widespread use of herbal and dietary supplement (HDS), particularly in Asian countries.^[26] The prevalence of HDS use in the general population ranges from 22% to 77% across Asian countries.^[13,27-30] Patients with chronic diseases, such as diabetes, cardiovascular diseases and cancer have been reported as being more likely to

use HDS^[31] and the prevalence of HDS use in these populations ranges from 32% to 77% in Thailand, the US and Malaysia.^[32-36]

Although populations with chronic diseases have a higher prevalence of alternative therapies use, more than half of patients reported not informing either their doctor or health care providers about their HDS use.^[32,35-38] In contrast, patients with kidney diseases were more likely to inform their health care providers about their HDS use.^[39-40]

In Nigeria, earlier studies have reported similar belief in alternative medical practices for the treatment of kidney diseases with increasing trend over the years. Neither religion, occupational stratification nor education seems to have any influence on this belief in these studies.^[20,24]

This increasing belief in alternative therapy over the years mean that a time may come when these medications may replace the conventional ones or, at least, result in poor compliance to prescribed orthodox medications. Another scenario is patients taking these medications concurrently with resultant hazardous effect on the individual.

Patients with kidney diseases are exposed to polypharmacy (from medications and dialysis) than most patients with some other chronic diseases. Belief and subsequent practice of additional alternative medications like herbs and unguided nutritional supplements will surely result in deleterious consequences.

CONCLUSION

From the available literature search, this is the first study in southeast Nigeria addressing belief on CAM in treatment of kidney disease. Most respondents (73.4%) demonstrated poor knowledge of basic functions of the kidney; many (67.4%) had poor knowledge of possible causes of kidney diseases; belief in alternative treatment was recorded in majority of participants (82.3%) having no significant association with neither their educational level, knowledge of functions of the kidneys nor their knowledge of causes of kidney diseases; more people are aware of kidney transplantation as a treatment option for kidney diseases than dialysis and use of drugs

We must act now. Orthodox medical practitioners should be aware of the possible

use of CAM by patients particularly those with chronic diseases. With the teeming population of patients with chronic kidney disease, deliberate efforts should be made by health care providers to obtain history of belief or use of CAM. Health education and surveillance activities aimed at regulating their use should be initiated. Government, non-governmental agencies and health workers need to organise orientation activities to educate the populace on the dangers of some alternative medical practices especially in our populace where people are ignorant of the content and shelf life of some unorthodox medicines. In addition, the government should take definite steps to reduce the cost of drugs and effectively prohibit purchase of drugs from unqualified persons. These measures, if effectively implemented will bring immense health benefits to the people. It is important to note that the study was questionnaire-based, hence recall bias is associated with the study.

PREVIOUS PRESENTATION

This manuscript was presented in part as an abstract in the annual scientific conference of Nigerian Association of Nephrology, Akure, Nigeria in February, 2014.

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