

ORIGINAL ARTICLE

ASSESSMENT OF KNOWLEDGE OF CAUSES, SIGNS AND SYMPTOMS AS A DETERMINANT OF KIDNEY FAILURE RISK BEHAVIOUR AMONG WORKERS IN EDE NORTH LOCAL GOVERNMENT AREA OF OSUN STATE, NIGERIA

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ABSTRACT

Background

Kidney diseases are silent killers with huge consequences that man has been attempting to eradicate for years, but with little success. Knowing the exact nature of the cause, signs, and symptoms that indicate a decline in kidney function could help detect disease development earlier. This study looked at people's knowledge of kidney failure's causes, signs, and symptoms as a determinant of kidney failure risk behavior.

Objective

The goal was to discover if people's knowledge of kidney failure's causes, signs, and symptoms could help with early illness identification.

Methods

A descriptive survey research design with a multistage sampling procedure was used to pick 331 respondents for the study. The study's instrument was a structured self-administered questionnaire with a reliability coefficient of 0.81. Three hypotheses were developed and using SPSS, the chi-square test was employed to assess the hypotheses at the 0.05 level of significance.

Results

The findings revealed that knowledge of causes and knowledge of signs and symptoms were significant determinants of kidney failure risk behaviors ($X^2_{cal} = 110.97$, $X^2_{crit} = 19.68$, $df = 11$, $p = 0.05$; $X^2_{cal} = 52.70$, $X^2_{crit} = 35.172$, $df = 23$, $p = 0.05$) and that there was no significant gender difference in knowledge of kidney failure causes ($F = 0.049$, $df = 329$, $p > 0.05$).

Conclusion

We found that knowledge of causes, signs, and symptoms is a significant factor of kidney failure risk behaviors among workers in Ede North Local Government Area of Osun State, Nigeria, based on the findings of this study. We also concluded that there is no significant gender difference in knowledge of causes of kidney failure among these workers.

Keywords: Kidney Failure, Risk Behaviors, Causes, Signs, Symptoms

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INTRODUCTION

The kidneys are vital excretory organs that play a dominant role in regulating the composition and volume of the extracellular fluid (ECF) in the body. Damage to the kidneys has serious implications for systemic functions, growth, and existence. A study opined that irreversible damage that compromises the ability of the kidneys to sustain bodily functions, normal growth, and life as occurs in end-stage renal disease (ESRD) poses great challenges to renal replacement strategies and other management modalities (1).

The Center for Disease Control and Prevention stated that, when the kidneys stop working, waste can no longer be removed from the blood, meaning that kidney failure has occurred (2). It stated further that Kidney disease damages the kidney filters so that they cannot remove wastes and water (3-6). When this happens, the body is filled up with excess fluid and wastes. Kidney failure is also called end-stage renal disease (ESRD) (3). The common causes of this ESRD as stated, are diabetes mellitus, hypertension, glomerulopathies, interstitial nephritis, and cystic disease/ hereditary disorders (4-7).

Data related to the cause of ESRD reported at the state hospital in Ede land revealed that over 13700 cases of hypertension, diabetes, and some infections were reported between 2007 and 2014 (8). According to Gross, Azevedo, and Silveiro diabetic nephropathy is the leading cause of chronic kidney disease in patients starting renal replacement therapy and it is associated with increased cardiovascular mortality (9-12). Also, reported in their study that hypertension is the second leading cause of chronic kidney disease in all developed and many developing countries but glomerulonephritis and unknown causes are more common in countries of Asia and sub-Saharan Africa (SSA) (1, 9-11).

Researchers have reported that environmental pollution, pesticides, analgesic abuse, herbal medications, the use of unregulated food additives, and genetic factors also contribute to the burden of kidney disease in developing countries. The kidney is the most

common organ in the urinary tract to be injured by severe trauma (3) and the American Kidney Fund (12) also reported blunt trauma injuries to the kidney may show no evidence of external injury, or bruises may appear over the back or abdomen where Shaheen and Al-Khalid believed that AKD commonly precedes or aggravates CKD, while Acute Renal Failure (ARF) and Chronic Renal failure (CRF) are syndromes characterized by deterioration in renal function resulting in the accumulation of nitrogenous waste products sufficient to cause uremia following a variety of insults to previously normal kidneys (13). Alagappan though opined that ARF occurs in the short term while CRF is a long-term process and this means that both cannot be described in terms of severity but in terms of duration (3).

ARF, unlike CRF, is usually potentially preventable and reversible but it is often difficult to distinguish between reversible ARF leading to CRF and ARF because the majority of CRF patients in the tropics present in the acute setting (9). The Ministry of Health and Kidney Health reported that most people with kidney disease do not develop ESKD but only a few people with kidney or urinary tract problems (blockage and enlargement of the prostate gland) develop CKD and even smaller number progress to ESKD (14). Furthermore, it was suggested that people with kidney failure, particularly dialysis patients, have far higher rates of heart and blood vessel problems than people without kidney problems (3). The National Institute of Diabetes and Digestive and kidney failure reported that kidney failure also raises the risk of other cardiovascular problems such as blockage of blood to the heart and congestive heart failure (14).

The health, socio-cultural and economic implications of kidney diseases are very enormous due to morbidity and mortality associated with the progression to kidney failure and also to its association with accelerated cardiovascular diseases. Various researches have revealed that ESRD can be treated by dialysis or by kidney transplantation but the Ministry of Health and Kidney Health postulated that some people may decide to have 'conservative' treatment (Also called palliative

or supportive care) instead (14). ESRD causes handicaps, as the patients have to report for dialysis two or three times per week (15). The need for dialysis or transplantation as a definitive solution to end-stage kidney diseases is expensive and has a significant effect on the quality of life (6).

In an earlier study by the authors, prevalent risk behaviors of kidney failure among workers in Ede North Local Government Area of Osun State, Nigeria include use of herbal remedies, lack of regular exercise, frequent eating, use of non-prescribed drugs, and intake of alcohol (16). People's knowledge of specific causes, signs, and symptoms as determinant risk behavior of kidney failure among these workers could assist with earlier detection of disease progression. Therefore, the assessment of knowledge of causes, signs, and symptoms of ESRD is essential (16).

METHODOLOGY

This study adopted a descriptive survey research design and the design was considered appropriate because it helps the researcher to obtain firsthand information regarding the prevalence, distribution, determinants, and interrelationship of variables within a population. The population for this study consisted of both male and female local government workers in Ede North Local Government Area of Osun state with a sample size of three hundred and thirty-one (331) workers from all the eight sections within the local government area selected through multistage sampling techniques, at the first stage, proportionate sampling technique was used to select seventy percent (70%) of the local government workers from each of the sections and at the second stage, the workers who gave their consent for participation were purposively selected until the expected number of respondents was attained in each section of the local government area.

Three hypotheses were formulated as follows:

1. Knowledge of causes (diabetes mellitus, hypertension, glomerulopathies, interstitial nephritis, hereditary disorders, and Miscellaneous) will not be a significant determinant of kidney failure risk behaviors

among workers in Ede North Local Government Area of Osun state.

2. Knowledge of signs and symptoms (baggy eyes, foamy and bloody urine, hiccoughs, seizures, vomiting, abdominal swelling, scanty or frequent urination, patchy skin discolorations, sexual dysfunctions, high blood sugar, high blood pressure, body itching, and generalized body weakness) will not be a significant determinant of kidney failure risk behaviors among workers in Ede north local government area of Osun state.

3. There will be no significant gender difference on knowledge of causes of kidney failure among workers in Ede North Local Government Area of Osun State.

The instrument used for the study was a structured self-administered questionnaire designed according to the tested variables in the hypotheses. The reliability of the instrument was ascertained through pretesting, by administering the instrument to forty (40) workers in the Ede south local government area of Osun state who are not part of the research sample. The Cronbach alpha was used to test the internal consistency of the instrument which yielded a coefficient of 0.81.

Procedure for Data Collection and Analysis

The respondents were duly addressed and informed about the purpose of the study and the questionnaire was administered to them with the help of the four (4) trained research assistants. To ensure accurate responses to the questionnaire, guidelines concerning the completion of the questionnaire were administered. Free will by the respondents to complete the questionnaire was taken to be informed consent from them.

The completed questionnaires were collated, coded, and analyzed using chi-square to test the hypothesis formulated for the study at 0.05 level of significance and t-test to determine the mean difference for gender variation on knowledge of causes of kidney failure among the respondents.

RESULTS AND DISCUSSION OF FINDINGS

Hypothesis 1: Knowledge of causes (diabetes mellitus, hypertension, glomerulopathies, interstitial nephritis, hereditary disorders, and Miscellaneous) will not be a significant determinant of kidney failure risk behaviors among workers in Ede North Local Government Area of Osun state.

Table 1 revealed that knowledge of causes is a significant determinant of kidney failure risk behaviors among workers in Ede North Local Government Area of Osun State ($X^2_{cal} = 110.97$, $X^2_{crit} = 19.68$, $df = 11$, $p < 0.05$). The table also revealed that the calculated value is greater than the table value; therefore the null hypothesis is rejected. The findings on knowledge of causes of kidney failure show that significant difference exists between the variables. This agrees with (3) findings that reported the common causes of ESRD to be diabetes mellitus, hypertension, glomerulopathies, interstitial nephritis, and cystic disease/ hereditary disorders. The high incidence of the causes of kidney failure among people in Ede land suggests the importance of being able to predict when such causes would occur. This finding is also consistent with the data obtained from the State Hospital within the local government area which reported that over 13700 cases of diseases that can cause kidney failure were reported between 2007 and 2014 (8). The finding also corroborates with the fact that Diabetic nephropathy, Hypertension, and glomerulonephritis are more common causes of kidney failure (1,9).

Hypothesis 2: Knowledge of signs and symptoms (baggy eyes, foamy and bloody urine, hiccoughs, seizures, vomiting, abdominal swelling, scanty or frequent urination, patchy skin discolorations, sexual dysfunctions, high blood sugar, high blood pressure, body itching, and generalized body weakness) will not be a significant determinant of kidney failure risk behaviors among workers in Ede north local government area of Osun state.

Table 2, revealed that knowledge of signs and symptoms is a significant determinant of kidney failure risk behaviors among workers in Ede North Local

Government Area of Osun State ($X^2_{cal} = 52.70$, $X^2_{crit} = 35.172$, $df = 23$, $p < 0.05$). The table also revealed that the calculated value is greater than the table value; therefore the null hypothesis is rejected. The findings in this research work also revealed that knowledge of signs and symptoms is a significant determinant of kidney failure risk behaviors. This finding corroborates the submission of the National kidney foundation that when the kidney functions decreases (8): blood pressure is increased due to fluid overload and production of vasoactive hormones created by the kidney increasing the risk of developing hypertension and/or congestive heart failure. This was also supported that people with chronic kidney disease suffer from accelerated atherosclerosis and are more likely to develop cardiovascular disease than the general population, more so, patients afflicted with chronic kidney disease and cardiovascular disease tend to have significantly worse prognoses than those suffering only from the latter (3-6). The findings are in line with sexual dysfunction is very common in both men and women with chronic kidney disease (16). The findings also state that baggy eyes, foamy and bloody urine, hiccoughs, seizures, vomiting, early morning puffiness, loss of appetite, prolonged or excessive bleeding, abdominal swelling, scanty or frequent urination, patchy skin discolorations, sexual dysfunctions, high blood sugar, high blood pressure, frequent or water stooling, body itching and generalized body weakness are common signs and symptoms of kidney failure (17).

Hypothesis 3: There will be no significant gender difference in knowledge of causes of kidney failure among workers in Ede North Local Government Area of Osun State.

Table 3 showed that there is no significant gender difference in knowledge of causes of kidney failure among workers in Ede North Local Government Area of Osun State ($F = 0.049$, $df = 329$, $p > 0.05$). The table also shows that the mean difference between the two genders is low (0.55244) therefore, the null hypothesis is accepted.

CONCLUSION

Based on the findings of this study, we concluded that knowledge of causes (diabetes mellitus, hypertension, glomerulopathies, interstitial nephritis, and hereditary disorders) and that of signs and symptoms (baggy eyes, foamy and bloody urine, hiccoughs, seizures, vomiting, abdominal swelling, scanty or frequent urination, patchy skin discolorations, sexual dysfunctions, high blood sugar, high blood pressure,

body itching, and generalized body weakness) is a significant determinant of kidney failure risk behaviors among workers in Ede North Local Government Area of Osun state. We also concluded that there is no significant gender difference on knowledge of causes of kidney failure among workers in Ede North Local Government Area of Osun State, Nigeria.

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TABLE 1: Chi-square table showing association between knowledge of causes of kidney failure and kidney failure risk behaviour

Items	SA	A	D	SD	X ² cal	X ² crit	Df	P
Kidney failure can occur as a result of exposure to hydrochemicals such as paint fumes	84 25.4	115 34.7	75 22.7	57 17.2	110.97	19.68	11	.000
Kidney failure can occur as a result of scarification marks	33 10.0	50 15.1	137 41.4	111 33.5				
Kidney failure can result from accident/trauma	77 23.3	159 48.0	59 17.8	36 10.9				
Kidney failure can occur as a result of high blood pressure	123 37.2	154 46.5	38 11.5	16 4.8				
Kidney failure can occur as a result of bad dietary habit	75 22.7	162 48.9	67 20.2	27 8.2				
Kidney failure can occur as a result of high blood sugar	99 29.9	165 49.8	34 10.3	33 10.0				
Kidney failure can occur as a result of recurrent infection	31 9.4	173 52.3	66 19.9	61 18.4				
Kidney failure can result from poor economic status	53 16.0	134 40.5	83 25.1	61 18.4				
Kidney failure has some relationship with lifestyle	52 15.7	171 51.7	56 16.9	52 15.7				
Kidney failure can occur as a result of unhygienic	22 6.6	84 25.4	141 42.6	84 25.4				
Kidney failure can be an heritable Disease	48 14.5	161 48.6	72 21.8	50 15.1				

TABLE 2: Chi-square table showing association between knowledge of signs and symptoms of kidney failure and kidney failure risk behaviour

Items	SA	A	D	SD	X ² cal	X ² crit	Df	P
Baggy eyes	69 20.8	129 39.0	76 23.0	57 17.2	52.70	35.172	23	.000
Foamy urine	34 10.3	61 18.4	125 37.8	111 33.5				
Bloody urine	76 23.0	155 46.8	62 18.7	38 11.5				
Hiccoughs	127 38.4	142 42.9	42 12.7	20 6.0				
Seizures	75 22.7	162 48.9	67 20.2	27 8.2				
Vomiting	99 29.9	165 49.8	34 10.3	33 10.0				
Early morning puffiness	31 9.4	173 52.3	66 19.9	61 18.4				
Loss of appetite	53 16.0	143 43.2	80 24.2	55 16.6				
Prolonged/excessive bleeding	52 15.7	171 51.7	56 16.9	52 15.7				
Generalized abdominal swelling	36 10.9	114 34.4	124 37.5	57 17.2				
Scanty urination	48 14.5	174 52.6	60 18.1	49 14.8				
Generalized patchy skin discoloration	70 21.1	133 40.2	80 24.2	48 14.5				
Sexual dysfunction	44 13.3	70 21.1	110 33.2	107 32.3				
High blood pressure	83 25.1	164 49.5	56 16.9	28 8.5				
Frequent/watery stooling	129 39.0	134 40.5	45 13.6	23 6.9				
Frequent urination	58 17.5	169 51.1	72 21.8	32 9.7				
Body itching	95 28.7	158 47.7	40 12.1	38 11.5				
Generalized body weakness	36 10.9	177 53.5	68 20.5	50 15.1				

Table 3: Mean difference table showing gender difference on knowledge of causes of kidney failure

	Sex	N	Mean	Std. Deviation	Mean difference	F	Df	P
Knowledge of causes of Kidney Failure	Male	200	29.2700	2.64995	0.55244	.049	329	.824
	Female	131	28.7176	2.72954				