

**RENAL DISEASES: CAREGIVERS' KNOWLEDGE,  
ATTITUDE AND PRACTICE IN NORTH EASTERN NIGERIA**

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**ABSTRACT**

**Background:** Lack of awareness of renal diseases among the parents/ care givers of children can contribute to the development of childhood chronic kidney disease (CKD). Awareness of kidney disease by the care givers of children can improve their health seeking behaviour and reduce the significant economic and public health burden. We conducted a cross-sectional descriptive study to assess the knowledge, attitude and practice of renal diseases among the care givers of children attending University of Maiduguri Teaching Hospital. Management of CKD is very expensive especially in the third world where most care givers are poor and cannot afford the cost of renal replacement therapy like dialysis and renal transplant. This underscores the determination of knowledge, attitude and practice of parents/ care givers on childhood renal diseases. **Objective:** To assess the knowledge, attitude and practices on renal diseases among the care givers of children attending a tertiary hospital in north eastern Nigeria. **Method:** This cross-sectional study was conducted among mothers or caregivers of children receiving care in the department of Paediatrics of a Teaching Hospital, Borno state. Mothers/ caregivers were consecutively selected as they come to the hospital and 420 subjects were interviewed through a self-administered questionnaire. Each subject was interviewed on his or her knowledge, attitude and practice of childhood renal diseases and data was entered appropriately into the different sections of the study questionnaires. Data was analysed using Epi-info statistical software (version 7.0). Informed consent was obtained from the parents and confidentiality to any information disclosed by the mother was ensured. **Results:** The ages of the respondents ranged from 18 – 67 years with a mean age of 37.2 (SD±13.6) years. Majority 140 (33.3%) of the respondents were aged 31 – 50 years;  $p < 0.05$ . Among the respondents, were 255 (60.7%) females and 165 (39.3%) males with male to female ratio of 1: 1.5. The ages of the children ranged from 1 month to 15 years with 239 (56.9%) males and 181 (43.1%) females and male to female ratio of 1.3: 1. There were 267 (63.6%) Muslims and 153 (36.4%) Christians. There were 98 (23.3%) care givers from the upper social class, 120 (28.6%) from the middle social class and 202 (48.1%) from the lower social class. Most mothers (89.2%) had no factor preventing them from seeking medical care. Many (70.7%) of the caregivers took their children to health facilities once sick or developed any symptom of severe childhood disease. **Conclusion:** Although most of the care givers that participated in this study had knowledge of one form of kidney disease or the other, most had no knowledge of any treatment modality of these kidney diseases.

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**Keywords:** Caregivers, Knowledge, Attitude, Practice, Childhood renal disease

**INTRODUCTION**

The kidney is one of the major vital organs in the human body which meets the body's needs to maintain water, electrolytes, acid-base balance and to eliminate the end products of protein

metabolism. Many kidney diseases affect children and these diseases may lead to renal failure which could be acute or chronic. Acute Kidney Injury (AKI) can be defined as an increase in serum creatinine from a previous trough level or an

absolute increase in serum creatinine level within 48 h of bilateral kidney insult by 0.3mg/dL (26.4  $\mu$ mol/L) or a 50% (1.5-fold) increase in serum creatinine or more from the baseline.<sup>1</sup> Chronic kidney disease is defined as evidence of structural or functional kidney abnormalities (abnormal urinalysis, imaging studies, or histology) that persist for at least 3 months, with or without a decreased glomerular filtration rate (GFR), as defined by a GFR of less than 60 mL/min per 1.73 m<sup>2</sup>.<sup>2</sup> End stage renal disease (ESRD) represents a chronic clinical state or condition in which there has been an irreversible loss of endogenous renal function, when a patient's GFR has fallen to <15 ml/min/1.73 m<sup>2</sup> of a degree sufficient to render the patient permanently dependent upon renal replacement therapy (Hemodialysis (HD), peritoneal dialysis (PD) or Renal transplantation) in order to avoid life-threatening uremia.<sup>3</sup> Children with ESRD will have their normal development in physical, emotional, psychological, social, economic, and spiritual aspects disrupted.<sup>4</sup> Chronic Kidney Disease in children younger than 5 years is most commonly a result of congenital abnormalities such as renal hypoplasia, dysplasia, and/or obstructive uropathy.<sup>2</sup> Additional causes include congenital nephrotic syndrome, prune belly syndrome, cortical necrosis, focal segmental glomerulosclerosis, polycystic kidney disease, renal vein thrombosis, and hemolytic uremic syndrome. After 5 years of age, acquired diseases (various forms of glomerulonephritis including lupus nephritis) and inherited disorders (familial juvenile nephronophthisis, Alport syndrome) predominate. Management of CKD is very expensive as the cost of dialysis and renal transplantation is beyond the confines of most people in our society.

Children with renal disease require their caregivers and family members to assume major responsibility for their health seeking and treatment. It is important to assess their background of knowledge, attitudes and practices toward the care of those children at home. Awareness of renal diseases, and improvements in medical management and renal transplantation will improve the prognosis for the infant, child, or adolescent with CKD.<sup>1</sup> The current study, therefore,

aimed to assess the knowledge, attitude and practices of caregivers of children on renal disease at Paediatric department of University of Maiduguri Teaching Hospital.

## MATERIALS AND METHOD

The study was a descriptive cross-sectional study conducted among mothers of children receiving care in the clinics and wards of the department of Paediatrics of a Teaching Hospital. Random sampling procedure was used to obtain 420 mothers over a period of 6 months from January to June 2015. Mothers were recruited consecutively as they come to the Paediatric wards and clinics after obtaining their consent to participate in the study. Structured interview questionnaire on knowledge, attitude and practice on renal diseases developed by the investigator was administered to the mothers. The structured interview was designed into four different sections. The first section included the care givers' and children's socio-demographic characteristics like age, sex, marital status, religion, tribe and social class was determined and recorded in an appropriate section of the study questionnaires. The social class was determined from the socio-economic status of the parents based on the scores describer by Ogunlesi *et al*.<sup>5</sup> A score was awarded for the highest educational level and present occupation (income) of each parent and the sum of the four scores (from father's education and occupation and mother's education and occupation) was added and the mean determined by dividing by 4.<sup>5</sup> The mean of these four scores, to the nearest whole number, was the socio-economic status (I, II, III, IV and V respectively).<sup>5</sup> A socio-economic score of III belonged to the middle social class, the socio-economic score of I and II belonged to the higher social class and the scores of IV and V belonged to the lower social class.<sup>5</sup> These results were recorded in the appropriate section of the study proforma. The other three sections of the questionnaire included the care givers' knowledge, attitude and practice and each section's variables were recorded appropriately. Ethical approval was obtained from the ethical committee of the UMTH. Confidentiality to any information disclosed by the mother was ensured.

**Data analysis**

Data was analysed using Epi-info statistical software version 6.0. Numerical data were expressed as mean  $\pm$  SD. Qualitative data were expressed as frequency and percentage. For qualitative data; comparison between variables was done by using Chi-square test. A p-value of 0.05 was considered statistically significant.

**RESULTS****Socio-demographic characteristics of the study population**

Four hundred twenty caregivers were studied over the study period. Forty-seven mothers decline

consent to the study and 12 could not complete the interview after the initial consent. These mothers were then not included in subsequent analysis. Their ages ranged from 18 to 70 years with mean age of 44.0 ( $\pm$ 3.2) years. Majority, 180 (42.8%), of the care givers were of the ages 31 – 50 years. There were 60.7% females and 39.3% males with male to female ratio of 1: 1.5. Most, 267 (63.6%), of the care givers were Muslims;  $p < 0.05$  and majority, 202 (48.1%), of them came from the lower social class;  $p < 0.05$ . Table 1 demonstrates the socio-demographic characteristics of the study population.

**Table 1:** Socio-demographic characteristics of the study population

| <b>Age group of parents (years)</b>  | <b>Number</b> | <b>Percent</b> |
|--------------------------------------|---------------|----------------|
| <20                                  | 30            | 7.1            |
| 20-30                                | 80            | 19.0           |
| 31-50                                | 180           | 42.9           |
| >50                                  | 130           | 31.0           |
| <b>Age group of children (years)</b> |               |                |
| <5                                   | 127           | 30.2           |
| 5-10                                 | 135           | 32.1           |
| 11-15                                | 91            | 21.7           |
| >15                                  | 67            | 16.0           |
| <b>Sex of parents</b>                |               |                |
| Male                                 | 165           | 60.7           |
| Female                               | 255           | 38.3           |
| <b>Sex of children</b>               |               |                |
| Male                                 | 239           | 56.9           |
| Female                               | 181           | 43.1           |
| <b>Religion</b>                      |               |                |
| Muslim                               | 267           | 63.6           |
| Christian                            | 153           | 36.4           |
| <b>Social class</b>                  |               |                |
| Lower                                | 202           | 48.1           |
| Middle                               | 120           | 28.6           |
| Upper                                | 98            | 23.3           |
| <b>Relationship to child</b>         |               |                |
| Mother                               | 223           | 53.1           |
| Father                               | 71            | 16.9           |
| Grand mother                         | 59            | 14.0           |
| Grand father                         | 37            | 8.8            |
| Other relatives                      | 32            | 7.6            |
| <b>Marital status</b>                |               |                |
| Married                              | 276           | 65.7           |
| Divorced                             | 91            | 26.7           |
| Widow                                | 53            | 12.6           |
| <b>Total in each group</b>           | <b>420</b>    | <b>100.0</b>   |

**Knowledge, attitude and practice of caregivers towards kidney disease**

Of the 420 care givers studied, 294(70.0%) admit having known one form of kidney disease or the other. The remaining 126 (30.0%) care givers were ignorant of any form of kidney disease. Majority of the respondents that know one form of kidney disease or the other were among the 39-45 years of age;  $p < 0.05$ . Most, 283 (67.3%) of the care givers known some causes of renal disease;  $p < 0.05$ . Abdominal pain was the most, 77 (18.3%), occurring clinical feature of the renal disease known to the care givers. Most, 178 (42.4%) care givers don't know any modality of treatment of renal disease. Majority, 241 (57.4%), of the care givers did not know of the existence of kidney specialist. Only 97 (23.1%) care givers know of any preventive majors of the renal disease while the remaining respondent don't know any preventive major;  $p < 0.05$ . Table 2 revealed the knowledge of caregivers towards their children's kidney disease.

**Table 2:** Knowledge of caregivers towards kidney disease

| KNOWLEDGE                      | NUMBER, n  | PERCENT    |
|--------------------------------|------------|------------|
| <b>Kidney disease</b>          |            |            |
| Don't know                     | 126        | 30.0       |
| Urinary tract infection        | 119        | 28.3       |
| Kidney stones                  | 84         | 20.0       |
| Urinary schistosomiasis        | 52         | 12.4       |
| <b>Cause of kidney disease</b> |            |            |
| Don't know                     | 137        | 32.6       |
| Infection                      | 103        | 24.5       |
| Stones                         | 87         | 20.7       |
| Cancer                         | 62         | 14.8       |
| Superstitious                  | 31         | 7.4        |
| <b>Clinical features</b>       |            |            |
| Abdominal pain                 | 77         | 18.3       |
| Painful urination              | 76         | 18.1       |
| Constitutional symptoms        | 73         | 17.3       |
| Urethral discharge             | 67         | 16.0       |
| Haematuria                     | 39         | 9.3        |
| Body swelling                  | 26         | 6.2        |
| Anaemia                        | 12         | 2.9        |
| Abdominal swelling             | 11         | 2.6        |
| Others                         | 61         | 14.5       |
| <b>Treatment</b>               |            |            |
| Don't know                     | 178        | 42.4       |
| Medical                        | 92         | 21.9       |
| Dialysis                       | 73         | 17.4       |
| Transplant                     | 70         | 16.7       |
| Surgical                       | 47         | 11.2       |
| Traditional/ spiritual         | 28         | 6.7        |
| <b>Kidney specialist</b>       |            |            |
| No                             | 241        | 57.4       |
| Yes                            | 179        | 42.6       |
| <b>Preventive measures</b>     |            |            |
| No                             | 323        | 76.9       |
| Yes                            | 97         | 23.1       |
| <b>Total in each group</b>     | <b>420</b> | <b>100</b> |

### Attitude and practice of caregivers towards kidney disease

Table 3 below describes the attitude and practices of the care givers toward their children's renal diseases. Majority, 346 (82.4%), of the care givers accept admission when offered and most of them were adherent with their children's medication. Most, 297 (70.7%), of the care givers take their children to the hospital when sick as compared to those, 67 (16.0%) who take their children to the chemist shop;  $p < 0.05$ . Only 56 (13.3%) of the care givers patronise traditional healers for their sick children.

**Table 3:** Attitude and practice of caregivers towards kidney disease

| ATTITUDE AND PRACTICE                              | NUMBER | PERCENT |
|--|--------|---------|
| Accept admission                                   | 346    | 82.4    |
| Adherent with their drugs                          | 332    | 79.0    |
| Take sick child to hospital                        | 297    | 70.7    |
| Take their sick child to kidney specialist         | 130    | 31.0    |
| Take sick child to a chemist shop first            | 67     | 16.0    |
| Take their sick child to traditional healers first | 56     | 13.3    |

### DISCUSSION

Renal diseases are common causes of morbidity and mortality in children. If these diseases are left untreated may lead to chronic kidney disease (CKD), whose management is very expensive especially in the third world. Caregivers' Knowledge attitude and practice of renal diseases may positively or negatively affect the outcome of renal diseases in children.

The great majority of the caregivers were in the age group of 31-50a finding similar to that reported by El-Karmalawy *et al.*<sup>6</sup> This may be due to the fact that this age group constitute the most active age group in the family in the north-eastern part of Nigeria necessitating the health care seeking behaviour of the parents. However, Stanifer *et al.*<sup>7</sup> in Tanzania reported a different finding from our study where they reported that most respondents were within the age group 40 - 59 years. These differences in the age group distribution may be due to cultural variations and differences in the sample size.

The finding of more females than males in this study may be related to the fact that women usually take their children to the health care centres as compared to males. The gender difference reported in this study was like that reported by Hassan<sup>4</sup> and Chitsulo *et al.*<sup>8</sup> There has been a ravaging poverty in the north-eastern part of Nigeria<sup>9</sup> and this could explain the reason why most of the respondents in this study were in the lower social class. Low

standard of education in the north east contributes immensely to the low socio-economic status of the people of this region. Most subjects were married ushering the fact that married women were usually supported by their husbands in terms of seeking medical advice while divorced and single mothers stand alone in seeking medical attention.

The high knowledge of renal diseases exhibited by the respondents in this study was encouraging although they exhibited very low knowledge with respect to the cause, clinical features and treatment of this disease. Neither do these respondents know of any preventive measures to kidney diseases nor may any knowledge of kidney speciality (nephrology). This high knowledge of renal diseases exhibited by the respondents is attributed to the increased in the health seeking behaviour by the caregivers as indicated in this study. Illiteracy of the respondents could be responsible for their lack of knowledge to the cause, symptoms and treatment of childhood renal diseases. The knowledge of the aetiology, clinical features, treatment as well as preventive measures of kidney diseases by these care givers would contribute to the reduction in the morbidity, mortality and subsequent economic lost attributable to these diseases. This finding of low care givers' knowledge of the aetiology, clinical features and treatment of childhood kidney diseases in this study concurred with that reported by Stanifer *et al.*<sup>7</sup> in Tanzania where they also reported a low knowledge of the

aetiologies, symptoms and treatment for kidney disease by the respondents.

The care givers' attitude and practice towards kidney diseases found in this study revealed that most of them resort to taking their children to the hospital when sick, were adherent to their children's medication when prescribed and accept hospital admission when needed. Most of the respondents admit that poverty was the major hindrance to seeking health care for their children. Stanifer *etal*<sup>7</sup> also in their study documented a positive attitude and practice towards renal diseases as most respondents in their study like to seek care from the biomedical clinics than elsewhere. Karmalawy *etal*<sup>6</sup> in their study also documented that most of the care givers they interviewed had satisfactory attitude towards renal diseases. Only 30.0% of the participants take their children to the kidney specialist because due to lack of awareness.

## CONCLUSION

In conclusion although this study revealed that most care givers know one form of renal disease or the other, majority of them have a low knowledge of the cause, clinical features, treatment as well as preventive measures of renal diseases.

The respondents have a fair attitude and practices towards renal diseases. This shows that if the care givers of children in this part of the world would have had an opportunity to the knowledge of the causes, clinical features, treatment and preventive measures of renal diseases, the morbidity, mortality and economic loss from these diseases would have drastically reduced.

## RECOMMENDATION

We recommend that all hospitals and clinics everywhere in this country try and educate care givers of children coming to these centres for medical attention on the causes, clinical features, treatment and preventive measures of renal diseases. This may go a long way in preventing our children from developing chronic kidney disease with its attendant expensive management and economic lost in this part of the world.

## LIMITATIONS OF THE STUDY

The limitation of this study is that the name or explanations of some renal diseases could not be fully understood by the participants. Some congenital diseases like posterior urethral valves, Prune Belly syndrome could not be adequately understood by the participants.

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