



Science

## **KNOWLEDGE AND PERCEPTION OF CAUSES OF GROSS HAEMATURIA AMONG THE INHABITANTS OF KWALKWALAWA RIVERINE SETTLEMENT OF SOKOTO**

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### **Abstract**

Blood in the urine is a common condition seen in people living around the riverine area which may result from bleeding anywhere along the urinary tract. Schistosomiasis is considered to be the commonest cause of haematuria among the inhabitants of riverine areas.

Urinary schistosomiasis affects more than 200 million people worldwide and poses a threat to 600 million in more than 76 countries (WHO, 1993). In Africa alone, about 192 million cases of schistosomiasis have been reported; with Nigeria ranking the highest (15% of cases) followed by the United Republic of Tanzania (about 10% of the cases) and the Democratic Republic of Congo and Ghana with 7-8% each.

A descriptive cross sectional survey was conducted among the inhabitants of Kwalkwalawa village in Wamakko local government Sokoto state, Nigeria.

Majority of the respondents (81.4%) had passed bloody urine at one time of their life-time, unfortunately only 3.1% of the affected respondents had ever being to Hospital for treatment. Only 5.7% relates hematuria to contact with river water and the Knowledge score of gross hematuria revealed that only 11.4% have good knowledge of the disease. Perceived Social determinants of the disease in the environment include; Farming, Fishing, washing and Bathing in the River as well as fetching for Domestic use. The lack of proper knowledge of the cause of the disease and insufficient safe water supplies coupled with inadequate health care facilities may have influenced the infection rate and distribution of the disease in the area. In conclusion the study was able to find out a high prevalence of hematuria among the inhabitants of this study area, however, there is poor knowledge of the cause of bloody urine. Most of the respondents believed that bloody urine can be cured and prevented, but few relate it to drug treatment.

**Keywords:** Knowledge; Perception; Gross Hematuria; Riverine Area.

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## 1. Introduction

Haematuria refers to appearance of red blood cells (RBCs) in the urine, which may either be visible to the naked eye (Gross or macroscopic hematuria) or detected with a microscope (microscopic hematuria). Blood in the urine is a common condition seen in people living around the riverine area which may result from bleeding anywhere along the urinary tract. One cannot readily distinguish between blood originating from the kidneys, ureters, bladder or urethra. However, schistosomiasis is considered to be the commonest cause of hematuria among the inhabitants of riverine areas.

Urinary schistosomiasis (Bilharziasis) is a waterborne disease caused by a parasitic worm called *Schistosoma haematobium*, the disease is especially common among children in developing countries as they are more likely to play in infected water, this is the reason why studies on the epidemiology of urinary schistosomiasis in Nigeria and other countries mostly targeted the school children, while only a limited number of studies have been conducted at the community levels (Edingbola, L.D. 1988). Other high risk groups include farmers, fishermen and people using infected water for their daily chores.

The parasite is found in the venous plexus draining the urinary bladder. During infection, the parasites deposit terminal spine eggs which clog the venous plexus, impeding blood flow. This bursts the veins, allowing blood and eggs to enter the urinary bladder resulting in the characteristic symptom of hematuria (WHO, 1985).

### 1.1. Statement of the Problem

Urinary schistosomiasis affects more than 200 million people worldwide and poses a threat to 600 million in more than 76 countries (WHO, 1993). In Africa alone, about 192 million cases of schistosomiasis have been reported; with Nigeria ranking the highest (15% of cases) followed by the United Republic of Tanzania (about 10% of the cases) and the Democratic Republic of Congo and Ghana with 7-8% each (Hotez, et al., 2009).

About 200,000 deaths per annum occur as a result of schistosomiasis mainly through bladder cancer and rural failure. Individuals' perceptions on the causes and impact of urinary schistosomiasis differed by their levels of education and gender. There is little information on the epidemiology of *Schistosoma haematobium* infection in Northern Nigeria, and the prevalence and distribution of the disease remain unknown in most of the areas in this geographical zone.

Schistosomiasis is regarded as a disease of poverty because it persists in rural marginalized areas of Sub-Saharan Africa whose people are often subsistence farmers with no education (Watts, 2008). Regardless of the burden it causes, the disease often receives little attention by healthcare providers, national governments and international agencies compared to malaria, HIV/AIDS and TB, childhood diseases and diarrhea, simply because not every individual infected becomes immediately ill (Michaud, et al., 2003).

## 1.2. Rational of the Study

Several factors, such as cultural, social, environmental and behavioral, directly influence the prevalence and intensity of schistosomiasis. It is important that these factors be identified to aid designing control program. In several areas in Nigeria, there is complete lack of knowledge on the factors associated with schistosomiasis transmission. Environmental conditions and sewage disposal are deplorable, indiscriminate defaecation and urination is very common, the literacy level is low and safe/portable water is greatly inadequate with consequent effects on the community health. Health education and promotion campaigns are essential for any change in behavior to be made. For health education and promotion activities to be effective, target audiences must be identified so that a clear message can be delivered, and hence local knowledge and perceptions must be taken into account (WHO, 1995). But, health education interventions have failed in the past. Some researchers conclude that promoting behavioural changes obscures underlying structural and political problem associated with diseases and is tantamount to victim blaming, while research from the last decade have shown that health promotion interventions failed because they were designed without knowledge of the health behavior of the target population (Godin and Sheppard, 1983). The study aims to assess the knowledge and perception on the causes of hematuria among the respondents as well as design a health education package program for the State Ministry of Health.

## 2. Methodology

### 2.1. Description of the Study Area

Kwalkwalawa is a Village under Wamakko Local Government of Sokoto State; the village is 8km away from Sokoto Town. The state lies between latitude  $13^{\circ}04'N$  and longitude  $5^{\circ}14'E$  with total land area of  $25,973 \text{ km}^2$  [SSGOD, 2003]. River Rima and River Sokoto pass through the kwalkwalawa fadama, the two rivers serve as the source of water for irrigation, fishing and other domestic needs. The village is located within the fence of the Usmanu Danfodiyo University Sokoto

## 3. Materials and Method

The study design was a descriptive cross sectional survey conducted among the inhabitants of Kwalkwalawa town in Wamakko local government Sokoto state, Nigeria aged 10 years and above. Random simple sampling technique was used to collect data from the respondents and the instrument used for data collection was an interviewer administered questionnaire consisting of both open and closed ended questions. The items of information was divided into 4 sections (A, B, C, & D) involving Socio-demographic data of respondents, their Knowledge, perception and determinants of gross hematuria. Data was collected through the support of research assistants who were trained on how to administer the questionnaire and was analyzed using statistical package for social science (SPSS) version 20 computer software packages to produce frequency distributions of all variables. Descriptive statistics were used for qualitative and quantitative variables. The Chi-square test was used to compare differences between proportions. All statistical analysis was set at 5% level of significant,  $p \leq 0.05$  (i.e 95% confidence level) and a total of 286 study subject were enrolled in the study. Permission was obtained from the

department of community medicine Usmanu Danfodiyo University Sokoto and an ethical approval from the Teaching hospital was obtained. An introductory letter with ethical approval was taken to the Village leader (Hakimi) and a verbal consent was obtained from the study subjects after explaining the objectives of the study to them prior to questionnaire administration.

#### 4. Results

Two hundred and eighty six questionnaires were administered and only 280 were completed correctly and the information obtained was analyzed as follows;

Table 1: Socio-Demographic Characteristics of the Respondents; N=280

<b>Age</b>	<b>Frequency</b>
10 – 19	91 (32.5%)
20 – 29	104 (37.1%)
30 – 39	62 (22.1%)
40 – 49	21 (7.5%)
50 – 59	2 (0.7%)
<b>Sex</b>	
Male	271 (96.8%)
Female	9 (3.2%)
<b>Religion</b>	
Islam	280 (100%)
Christianity	0
<b>Occupation of respondent</b>	
Student	58 (20.7%)
Civil servant	8 (2.9%)
Trader	39 (13.9%)
Farmer	143 (51.1%)
Fishing	32 (11.4%)
<b>Highest level of education</b>	
Qur'an	196 (70%)
Primary	21 (7.5%)
Secondary	48 (17.1%)
Tertiary	15 (5.4%)
None	0
<b>Marital status</b>	
Single	160 (57.1%)
Married	119 (42.5%)
Divorced	1 (0.4%)
Separated	0
Widow/widower	0

Majority of the respondents fall between the Age range of 10 to 29years (69.6%) and 96.8% were all males; all the respondents were Muslims (100%) and mostly farmers (51.1%); single (57.1%) and about 70% had only Qur'anic education.

Table 2: Prevalence of Gross Hematuria among the Respondents; n=280

	Frequency
<b>Did you ever passed bloody urine?</b>	
Yes	228 (81.4%)
No	49 (17.5%)
Don't know	3 (1.1%)
<b>Are you still passing the bloody urine?</b>	
Yes	106 (46.5%)
No	122 (53.5%)
	<b>(n=228)</b>
<b>Were you ever being to hospital for treatment?</b>	
Yes	7 (3.1%)
No	221 (96.9%)
	<b>(n=228)</b>

Majority of the respondents (81.4%) had passed bloody urine at one time of their life out of which 46.5% are still passing the bloody urine, unfortunately only 3.1% of the affected respondents had ever being to Hospital for treatment.

Table 3: Knowledge of Gross Hematuria among the Respondents; n=280

	Frequency
<b>Aware of bloody urine</b>	
Yes	275 (98.2%)
No	5 (1.8%)
<b>Correct knowledge of the cause</b>	
Yes	16 (5.7%)
No	264 (94.3%)
<b>Can bloody urine be cured?</b>	
Yes	201 (71.8%)
No	79 (28.2%)
<b>Knowledge of treatment</b>	
Herbal concussion	145 (72.1%)
Drugs	42 (20.9%)
Surgery	0
Prayer	0
I don't know	14 (7%)
<b>Knowledge of complication</b>	
Yes	216 (77.1%)
No	64 (22.9%)
<b>What are the problems?</b>	
Infertility	93 (42.7%)
Bladder cancer	40 (18.3%)
Urinary tract obstruction	31 (14.2%)
Kidney failure	19 (8.7%)
I don't know	49 (22.5%)
<b>Is bloody urine inherited?</b>	

Yes	154 (55%)
No	126 (45%)
<b>Is bloody urine related to river water?</b>	
Yes	208 (74.3%)
No	72 (25.7%)
<b>Do you think the condition can be prevented?</b>	
Yes	134 (47.9%)
No	146 (52.1%)
<b>What method of prevention do you know?</b>	
Drugs	38 (28.1%)
Herbal concussion	5 (1.8%)
I don't know	92 (68.1%)

About 92.8% of the respondents knew that people around pass bloody urine however only 5.7% relates it to contact with water. Majority of the respondents (71.8%) agreed that it can be cured however, only 20.9% relates it with drug treatment. The Knowledge score of gross hematuria revealed that only 11.4% have good knowledge

Table 4: Knowledge Score

<b>Knowledge score</b>	
Good knowledge	32 (11.4%)
Poor knowledge	248 (88.6%)

Only 11% of the respondents have adequate knowledge of causes of gross haematuria

Table 5: Respondents' Perception on the Causes of Gross Hematuria; n=280

<b>Is bloody urine normal?</b>	<b>Frequency</b>
Yes	28 (10%)
No	221 (78.9%)
I don't know	31 (11.1%)
<b>Is bloody urine related to puberty?</b>	
Yes	58 (20.7%)
No	222 (79.3%)
<b>Is bloody urine related to Food we eat?</b>	
Yes	158 (56.4%)
No	122 (43.6%)
<b>Is bloody urine related to evil spirit</b>	
Yes	18 (6.4%)
No	262 (93.6%)

Majority of the respondents (78.9%) thought of bloody urine to be abnormal, 20.7% relates it to puberty, 56.4% to Food we eat, and 6.4% to evil spirit.

Table 6: Perceived Causes of the Disease; n=280

<b>Drinking water from the river</b>	<b>Frequency</b>
Yes	280 (100%)
No	0
<b>Farm around the river</b>	
Yes	279 (99.6%)
No	1 (0.4%)
<b>Fishing in the river</b>	
Yes	279 (99.6%)
No	1 (0.4%)
<b>Wash plates and pots in the river</b>	
Yes	269 (96.1%)
No	11 (3.9%)
<b>Bathing in the river</b>	
Yes	279 (99.6%)
No	1 (0.4%)
<b>Do Animals drink and bath in the river?</b>	
Yes	274 (97.9%)
No	6 (2.1%)
<b>Urinate and/or defecate in the river</b>	
Yes	260 (92.9%)
No	20 (7.1%)

The table above identifies some perceived determinants of the disease in the community; Drink water from the river (100%), Farm around the river (99.6%), Fishing in the river (99.6%), Wash clothes, plates and pots in the river (96.1%), Bath in the river (99.6%), Animals drink and bath in the river (97.9%), Urinate and/or defecate in the river (92.9%).

## 5. Discussion

This study identified the prevalence, knowledge, perception and determinants of the causes of gross hematuria among the inhabitants of Kwalkwalawa riverine area of Sokoto. Two hundred and eighty questionnaires were administered, correctly filled and analyzed using statistical package for social science (SPSS) version 20 computer software packages.

Majority of the respondents (69.6%) were aged 10 – 29, Males by gender (96.8), Muslims (100%), Farmers (51.1%), Single (57.1%) and about 70% attend only Qur'anic school.

Two hundred and twenty eight respondents (81.4%) replied that they had passed bloody urine at one time of their life which is higher than that of Kenya where the prevalence ranges from 5% to 65% [Karajan DM, et al, 1998; Mwinzi PN, et al, 2004; Oman JH, et al, 2001]. The lack of proper knowledge of the cause of the disease and insufficient safe water supplies coupled with inadequate health care facilities may have influenced the infection rate and distribution of the disease in the area.

The knowledge score of gross hematuria revealed that only 11.4% of the respondents have good knowledge and only 5.7% attributed it to contact with river water, which is slightly lower than a study conducted in Kano state, Nigeria where 25.8% of respondents have attributed urinary schistosomiasis to contact with water bodies [Sarkinfaada et al, 2009] and this might be due to the fact that both States lies in the same Geopolitical region of North-west where level of awareness is still ranked low. This is contrary to a research conducted in Volta Basin of Ghana where 88.7 – 99.4% acknowledged Schistosomiasis as a disease associated with the Volta Lake/River [Dzidzo Regina Y. et. al, 2011]. Also in a research to determine some behavioral practices that predispose vesicular Schistosomiasis transmission in endemic communities of Niger Delta, 76.04% of the respondents showed good knowledge of the disease; more males than females affected (79.34%) and (72.42%) respectively. About 76% of the respondents were knowledgeable about the disease syndrome, probably due to their high level of awareness [Onyirioha, 2010].

Perception score revealed that; about 63.6% of the respondents have good perception of the disease, only 36.4% relates it to inheritance, puberty, food we eat, and evil spirit. This is contrary to a study done in Northern Cameroon on some social determinants of Urinary Schistosomiasis which reports that ‘Exposure to sun was the reported cause of hematuria [53% adult and 62% children respondents], followed by drinking of dirty water [18% adults and 41% children]. Only 15% of adult and 26% school children could relate hematuria to wading, a common means of exposure to urinary schistosomiasis [Jean M. et. al, 2004].

Majority of the respondents perceived the social determinants to hematuria in the environment as Farming (99.6%), Fishing (99.6%), Drinking (100%), washing, bathing, urinating and defecating around the river. This is similar to a research to determine some behavioral practices that predispose vesicular Schistosomiasis transmission in endemic communities of Niger Delta, where most respondents 74.85% said that they defecated into the surroundings and used the pond/stream water for domestic purposes. Only 25.15% showed good habits and practices that would assist in the control of the disease transmission. The respondents claimed to defecate into pit Latrine usually; not making regular use of pond/stream water and only use rain water when and where available [Onyirioha, 2010].

## **6. Conclusion**

The study was able to find out a high prevalence (81.4%) of hematuria among the inhabitants of the study area; however there is poor knowledge of the cause of bloody urine whereby only 11.4% shows good knowledge. Perceived Social determinants of the disease in the environment include; Farming, Fishing, washing and Bathing in the River as well as fetching for Domestic use. The lack of proper knowledge of the cause of the disease and insufficient safe water supplies coupled with inadequate health care facilities may have influenced the infection rate and distribution of the disease in the area.

## **7. Recommendations**

- 1) Pipe borne water should be provided in order to reduce their dependence on open water bodies for drinking and other domestic uses.



- 2) Health education is necessary to raise awareness on the social factors that predisposes to development of Schistosomiasis and early treatment of its related symptoms like hematuria.

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