

AWARENESS AND PERCEPTION OF URINARY SCHISTOSOMIASIS AMONG THE INHABITANT OF RURAL ENDEMIC COMMUNITIES IN BENDE LOCAL GOVERNMENT AREA, ABIA STATE, NIGERIA

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ABSTRACT

Research has put Nigeria as a country with the highest burden of schistosomiasis in Africa with about 29 million persons living with the disease. Lack of adequate information about the disease has increased the risk of infection in endemic areas. This study evaluated the knowledge and perceptions about urinary schistosomiasis in Bende Local Government Area (LGA) of Abia, where the disease is endemic. A cross-sectional study of 150 consented respondents comprised 30 persons per community (Igbere, Ozuitem, Akoli imenyi, Item and Alayi) were selected using simple random techniques. Structured questionnaires were used to obtain data on their socio-demographic characteristics and information bothering on the knowledge, attitude and perception about urinary schistosomiasis. Less than half 63(42.0 %) of the respondents had the knowledge of the disease. The majority of those who knew about the disease was ignorant of the intermediate host 52(82.5 %) and drug of choice for the treatment 51(81.0 %). A greater number 48(76.2 %) recognized their streams as the source of infection. 1.6 % perceived those living with the disease as people suffering from their wrongdoing. Interestingly, most respondents 99(66.0%) have regular contact with the water bodies in the area and often experience skin itch afterwards 28(18.7 %). The study suggests a low awareness of urinary schistosomiasis in the study area. Health education programmes with emphasis on the intermediate host and the praziquantel for the treatment is recommended for a sustainable elimination strategy.

Keywords: Urinary Schistosomiasis, *Schistosoma haematobium*, Knowledge, Perception, Bende

INTRODUCTION

Urinary schistosomiasis is a disease condition caused by a trematode parasite known as *Schistosoma haematobium*. People become infected when larval forms of the parasite released from freshwater snails (*Bulinus* sp.) penetrate the skin during contact with infested water (WHO, 2017). The disease is more common among poor people living in developing countries where human and environmental factors encourage its transmission (Oladejo and

Ofoezie, 2006; SCI, 2008; Eyo *et al.*, 2012). Statistics showed that over 153 million persons are infected worldwide, with an estimated 120 million that are asymptomatic (WHO, 1998). The disease is endemic in Nigeria with a substantial number of persons at risk of infection (Chitsulo *et al.*, 2000).

In Nigeria, both urinary and intestinal schistosomiasis, caused by *Schistosoma haematobium* and *Schistosoma mansoni* respectively, are prevalent (Oladejo and Ofoezie, 2006; Opara *et al.*, 2007), with urinary

schistosomiasis more distributed (Ofoezie, 2002). It is widespread in both rural and urban communities with prevalence ranging between 2 and 90 % and many cases occurring among school-aged children, especially the poor and marginalized (Oladejo and Ofoezie, 2006; Opara *et al.*, 2007; Hotez and Kamath, 2009). Nigeria has the highest burden of schistosomiasis infection in Africa with about 29 million individuals who are infected (Hotez and Kamath, 2009). Lack of awareness of the mode of transmission of parasites increases the risk of infection (Dawaki *et al.*, 2015). Ignorance and misconception could militate against the disease control and elimination programme in the endemic area. Community awareness and a better understanding of disease causes, mode transmission and prevention will enhance elimination strategy in the endemic areas.

Urinary schistosomiasis is endemic in Bende South East Nigeria (Alozie and Anosike, 2004). It is easily contracted while bathing or swimming in various streams that are scattered in most parts of the town with notable active breeding sites for *Bulinus* snails. The disease prevalence is attributable to extensive water contact activities, poor personal hygiene and other cultural practices (Oladejo and Ofoezie, 2006).

The current study was therefore undertaken to evaluate the knowledge, attitudes and perceptions (KAP) of urinary schistosomiasis in Bende LGA, Southeast, Nigeria. This will assist in the formulation of strategies for the elimination programme in accordance with WHO recommendations.

MATERIALS AND METHODS

Study Area: Bende LGA is rural settling in Abia State, Nigeria. It is bounded by Ebonyi and Akwa Ibom States. It is located at 5.56 latitude and 7.63 longitudes and situated at an elevation of 123 meters above sea level. It has an estimated population of 192,621, comprising 95,675 and 96,946 as males and females respectively (NPC, 2006).

Their land is fertile and produces a large scale of both cash and food crops such as rice, palm oil, cashew, maize, okra, cassava and they

are known to be one of the three agricultural belt in Abia State, Nigeria. They have water bodies like; River Aha, Igwu, Inyang, and uses the water for both domestic and agricultural purposes. The area lacks pipe-borne water and good social infrastructures. Their main sources of water are slow-moving streams such as Aha, Igwu and Inyang. Water from these main sources are used for both agriculture and domestic purposes. For the purpose of the study, five communities (Item, Umuimenyi, Ozuitem, Igberere and Alayi) out of 12 autonomous communities were randomly selected in Bende LGA.

Ethical Clearance: Ethical clearance was sort and obtained from Abia State Ministry of Health, Nigeria with an introductory letter from the Ethical Committee of College of Natural Science, Michael Okpara University of Agriculture. The traditional ruler of every community selected for the study was notified and their consent obtained.

Experimental Design: For the purpose of the study, 150 consented respondents were selected from the five randomly selected communities in Bende LGA, Southeast Nigeria. A population size of 192,621 was targeted for the study. With the help of the community leaders and the health centre nurses, 30 persons were selected from each of the communities for the study using simple random sampling techniques. Information on the signs and symptoms of urinary schistosomiasis was given to enable understanding the disease of study. Data on their socio-demographic characteristics and relevant information on their knowledge, attitude and perception on urinary schistosomiasis were extracted and recorded using structured questionnaires. Those who could not read and understand were assisted by translating each question in their local dialect. The study was conducted by between May and September 2017.

Statistical Analysis: Data obtained was entered into a spreadsheet in SPSS version 21 and analyzed for errors. Frequencies and the percentage were calculated for each question.

Influence of gender, marital and occupational status on the knowledge of urinary schistosomiasis was evaluated using multiple regression analysis.

RESULTS AND DISCUSSION

The present study provides information about the knowledge and practices about urinary schistosomiasis in Bende LGA, Abia State in Nigeria. Socio-demographic characteristics of 150 respondents who participated in this cross-sectional study comprise males (58.0 %) and females (42.0 %). Occupational characteristics of the respondents showed that more were farmers (n = 61, 40.7 %). Most of them were between 11 – 20 (n = 45, 30.0 %) years old and greater percentage were married (49.3 %) (Table 1).

Table 1: Socio-demographic characteristics of the population in Bende Local Government Area, Abia State, Nigeria investigated for knowledge and perception of urinary schistosomiasis

Characteristics	Frequency
Gender	
Male	87 (58.0)
Female	63(42.0)
Occupation	
Farmer	61(40.7)
Civil servant	24(16.0)
Student	55(36.7)
Artisan	10(6.7)
Age	
1 – 10	6(4.0)
11 – 20	45(30.0)
21 – 30	34(22.7)
31 – 40	27(18.0)
41 – 50	15(10.0)
51+	23(15.3)
Marital Status	
Single	72(48.0)
Married	74(49.3)
Widow/Widowers	4(2.7)
Total	150(100.0)

Number in parenthesis = percentage

Table 2 revealed that respondents were not conversant with urinary schistosomiasis as more than half (n = 87, 58.0 %) had no

knowledge of the disease. Moreover, the majority who had knowledge of the disease were ignorant of the snail intermediate host 52(82.5 %) and praziquantel 51(81.0 %) the drug of choice for the treatment.

Table 2: Information on the general knowledge of urinary schistosomiasis in Bende Local Government Area, Abia State, Nigeria

Characteristics	Yes	No
KUS	63(42.0)	87(58.0)
KSIH	11(17.5)	52(82.5)
KPCT	12(19.0)	51(81.0)
Local names for urinary schistosomiasis		
Oko	31(49.2)	32(50.8)
Ogba	2(3.2)	61(96.8)
No idea	30(47.6)	33(52.4)
Vulnerable age group		
1 – 10	7(11.1)	56(88.9)
11 – 20	29(46.0)	34(54.0)
21 – 30	3(4.8)	60(95.2)
31 – 40	1(1.6)	62(98.4)
41+	2(3.2)	61(96.8)
No Idea	21(33.3)	42(66.7)
Known tradition method of treatment		
Yes	11(17.5)	52(82.5)

Key: Number in parenthesis = percentage, KUS: knowledge of urinary schistosomiasis, KSIH: knowledge of snail intermediate host, KPCT: knowledge of praziquantel as the drug of choice for treatment

This indicated lack of appropriate health education programme in the area where urinary schistosomiasis was reported to be endemic (Alozie and Anosike, 2004). This may create an additional burden and cost for controlling the disease and can result to the failure of schistosomiasis eradication programme in the area. In accordance, few previous reports showed variation in the level of awareness amongst the Nigerian population; 33.8 – 42.0 % in Delta State, South-South Nigeria (Ukwandu and Nmorsi, 2004; Onyeneho *et al.*, 2010), and 64.4 % in Ogun and Niger States along the middle belt and southwestern region (Akinwale *et al.*, 2004).

A greater number (n = 31, 49.2 %) referred to the disease as "Oko" in their local dialect, with the opinion on the most vulnerable

showing higher prevalence among people between 11 – 12 years old. Many (n = 52, 82.5 %) were not aware of any traditional method of treatment of the disease.

The majority (n = 47, 76.2 %) of those who had knowledge of the disease knew it can be contacted through swimming in the streams even they were ignorant of the life cycle of the parasite that caused the disease. A few of the respondent (n = 2, 3.2 %) thought it was sexually transmitted (Table 3).

Table 3: Knowledge on the mode of transmission of urinary schistosomiasis among the inhabitant of Bende Local Government Area, Abia State, Nigeria

Mode of transmission	Frequency
Swimming in the streams	48(76.2)
Playing with snails	4(6.3)
Through sex	2(3.2)
No idea	9(14.3)
Total	63(100.0)

Number in parenthesis = percentage

These findings also revealed that majority (55.6 %) of the respondents got the information about the disease from unspecified sources, whereas, few (1.3 %) of them maintained that they heard about the disease from the internet (Table 4).

Table 4: Source of information about urinary schistosomiasis among the inhabitant of Bende Local Government Area, Abia State, Nigeria

Source of information	Frequency
School	6(9.5)
Radio	5(7.9)
Internet	2(3.2)
Friends	11(17.5)
Parents	4(6.3)
Others	35(55.6)
Total	63(100.0)

Number in parenthesis = percentage

Health education on schistosomiasis helps people to understand their own behaviour that promotes the spread of the disease, principally water contact, indiscriminate urination and defecation (Nelson *et al.*, 2001). Countries where urinary schistosomiasis is endemic, public

health information is encouraged to be disseminated through posters, films, mass media especially radio and community meetings by health workers (Nelson *et al.*, 2001).

Even when more than half (76.2 %) of the respondents who were aware of the disease recognized streams and water bodies as the infection foci, only 39.7 % considered avoiding water contact as a preventive measure (Table 5).

Table 5: Knowledge of methods of preventing urinary schistosomiasis among the inhabitant of Bende Local Government Area, Abia State, Nigeria

Preventive method	Frequency
Avoid swimming	25(39.7)
Avoid urinating in the stream	2(3.2)
Avoid contact with the patient	1(1.6)
No idea	27(42.8)
Others	8(12.7)
Total	63(100.0)

Number in parenthesis = percentage

A previous study in Anambra State, Nigeria observed that most of the subjects understand that water bodies transmit the infection and they desist from drinking it; however, they still carried out other domestic activities in *Bulinus* infested water (Ekwunife *et al.*, 2004; Ivoke *et al.*, 2014). Correspondingly, previous studies in other endemic areas of Africa, Yemen and Brazil maintained similar observations (Kloos *et al.*, 1982; Chimbari *et al.*, 1992; Gazzinelli *et al.*, 1998; Sady *et al.*, 2015). This indicated that awareness alone does not necessarily result in behavioral changes, which are often more difficult to be achieved, requiring long periods of time to ensure compliance with healthier practices (Asaolu and Ofoezie, 2003).

Furthermore, Table 6 showed strong indication that urinary schistosomiasis incidence has potentials to increase in the study area as more than half (n = 99, 66.0 %) of the respondents have regular contacts with water infested with *Bulinus* snail with 37.3 % and 18.7 % experiencing itches "sometimes" and "often" respectively. Avoidance of swimming or bathing in contaminated or potentially contaminated water bodies is key to urinary schistosomiasis eradication.

Table 6: Predisposing factors to urinary schistosomiasis in Bende Local Government Area, Abia State, Nigeria

Characteristics	Frequency
Water contact in the stream/river	
Very often	99(66.0)
Not very often	35(23.3)
Not at all	16(10.7)
Experience itches afterwards	
Not applicable	16(10.7)
Very often	28(18.7)
Sometimes	56(37.3)
Not at all	50(33.3)
Farm near the stream	
Yes	108(72.0)
No	42(28.0)
Experience blood in urine	
Yes	13(8.7)
No	137(91.3)
Urinate inside river/stream	
Very often	36(24.0)
Sometimes	18(12.0)
Not at all	96(64.0)

Number in parenthesis = percentage

Being a disease associated with poverty, people get infected because they do not have access to safe water supplies. They equally acquire the infection during the course of routine domestic and agricultural activities involving water contact (Bergquist and Grove, 2005). Similarly, majority (n = 108, 72.0 %) of the respondents have farms near river/streams. These findings also revealed that 24.0 % of the respondents maintained that they often urinate into the stream, while a greater percentage (64.0 %) said that they do not. A previous study in Ogun and Niger States found that none of the respondents mentioned avoiding urination or defecation into the water bodies as a preventive measure (Akinwale *et al.*, 2004). Those that have experienced blood in their urine are small (n = 13, 8.7.0 %) compared to those that have not. A greater number (88.9 %) of the respondents suggested that persons living with the disease deserves to be taken to hospitals for treatment while a few (1.6 %) perceive them as people "suffering from their wrongdoings (Table 7).

Information in Table 8 on the regression coefficients (r) of 0.065, 0.000, 0.048, 0.005, indicated low positive influences of occupation, gender, age and marital status respectively on the respondent's knowledge of the disease. With influences being only significant (p<0.05) for occupational status and age.

Table 7: Respondents perception about people suffering from urinary schistosomiasis among the inhabitant of Bende Local Government Area, Abia State, Nigeria

Attitude	Frequency
Suffering from wrongdoings	1(1.6)
Inadequate personal hygiene	3(4.8)
Deserves pity	3(4.8)
Should be taken to hospital	56(88.9)
Total	63(100.0)

Number in parenthesis = percentage

Table 8: Influence of socio-demographic factors on knowledge of urinary schistosomiasis in Bende Local Government Area, Abia State, Nigeria

Model	R	R Square	Adjusted R Square
1	0.254 ^a	0.065	0.058
2	0.013 ^b	0.000	-0.007
3	0.218 ^c	0.048	0.041
4	0.069 ^d	0.005	-0.002
Model	Standard Error of the Estimate	F	Significance
1	0.48055	10.234	0.002 ^b
2	0.49684	0.023	0.878
3	0.48494	7.382	0.007
4	0.49570	0.710	0.401

Significant at p<0.05, a Predictors: (Constant), Occupation; b. Predictors: (Constant), Gender; c. Predictors: (Constant), Age; d. Predictors: (Constant), Marital Status

Conclusion: The study suggested that the inhabitant of Bende Local Government Area, Abia State, Nigeria had a poor knowledge of urinary schistosomiasis, the snail intermediate host, and the drug for the treatment. Thus, can pose a threat to the disease elimination the area.

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