**Prevalence and distribution of urogenital schistosomiasis**

**andTrichomoniasisin Oju LGA, Benue State, Nigeria.**


## ABSTRACT

Schistosomiasis is a disease of medical importance. Schistosomiasis is prevalent in Nigeria where it is responsible for grave economic losses. A cross-sectional study was conducted from July, 2017- December, 2018among school children from six (6) schools in Oju local government area of Benue State Nigeria, in order to determine the prevalence of urinary schistosomiasis with respect to sex, age and location.A total of 300 samples were collected and examined with the aid of a compound microscope (X10) and (X40) for the presence of *Schistosoma haematobium* eggs. The mean age of children that participated in the study was 15.32 years. Of the 300 children tested, 60 (20%) were infected. Urogenital schistosomiasis prevalence in males 38 (63%) was significantly higher ($p<0.05$) than in females 22 (36.7%). Of the six (6) schools visited, Government Secondary School Amenka-owo had the highest prevalence rates of 18 (30%), $p>0.05$. Among the different age groups, 11-15 years had the highest prevalence of 32 (53.3%), while significantly lower prevalence $p<0.05$ was recorded in those 21 years and above 6 (10%). In addition to *Schistosoma* parasite, *Trichomonasvaginalis* was also recorded in children 16years of age and above. Urinary schistosomiasis is a major public health problem affecting both males and females of different age groups andin different localities in Oju Local Government Area of Benue State, Nigeria.

## Introduction

Schistosomiasis is a parasitic disease caused by digenetic trematodes of the genus *Schistosoma*. 90% of worldwide cases occur in sub-Saharan Africa (World Health Organization [WHO], 2017. According to WHO, (2010a) more than 207 million people, 85% of who live in Africa, are infected with schistosomiasis and an estimated 700 million people are at risk of infection in 76 countries where the disease is considered endemic, as their agricultural work, domestic chores and recreational activities expose them to infested water. The intermediate host for transmission of urinary schistosomiasis is snails of the genus *Bulinus* which is found in freshwater bodies. Transmission of the parasite takes place in permanent water bodies as well as in seasonal ponds or streams (Omonijo*et al*., 2013). Although *Schistosoma haematobium* infection does not always result in clinical diseases as many infections are asymptomatic, schistosomiasis in children can cause anemia, stunted growth and a reduced ability to learn (WHO, 2012).

Prevalence rates of 14(6.4%) children was reported out of 218 school children before treatment with praziquantel tablets in Langai community, Mangu local government area, Plateau State (Banwat *et al*., 2011). Ekpo *et al*. (2010) reported a higher prevalence 97 (58.1%) of urinary schistosomiasis among school children in Abeokuta. Mbata *et al*. (2009) also reported a high prevalence of 46.6% in Ogbadibo, Benue State, Nigeria. Dawaki *et al*. 2016 reported urinary schistosomiasis prevalence of 20.6% in males than 13.3% in females among Hausa communities in Kano, Nigeria. Pereira *et al*., 2010 reported that younger people (school aged children) are most vulnerable to schistosomiasis infection and play an important role in its transmission and therefore suggested that school aged children be a reference group for assessing the need for intervention in communities.

This research aimed to determine the difference in prevalence of the parasite between sexes, based on location and age in Oju lga of Benue State as this could shed light on how to channel scares control resources to maximize control outcomes in endemic communities.

## Materials and Methods

### Study area

Across-sectional study was conducted in Oju LGA, Benue State, Nigeria. Oju is located in Southern Benue and comprises of 3 Zones (A, B and C).

### Sampling site

Six (6) schools consisting of Primary and Secondary Schools were sampled namely;

L.G.E.A Oburu, Government Secondary School Amenka-owo, Solid foundation Nursery/primary School Ega-Okpodom, Government Secondary School Ikachi, L.G.E.A Obusa, and Government Secondary School OdigoUwokwu.

### Ethical Clearance

Consent was obtained from school authorities, parents, and assent was obtained from school children prior to sampling.

### Specimen collection

A total of 300 urine samples were collected between 10:00 am and 2:00 pm (Chessborough, 2010).

### Laboratory analysis of samples

Following centrifugation, urine deposits were examined under a light microscope using x10 and x 40 objectives (Chessborough, 2010).

### Statistical analysis

Data obtained were analyzed using Chi-Square analysis.

**Results**

**Table 1:** Prevalence of Urinary Schistosomiasis among school children in Oju L.G.A., Benue State.

| Schools | Samples Examined | Number Positive (%) |
|---|---|---|
| L.G.E.A. Oboru | 50 | 12(20) |
| G.S.S. Amenka-owo | 50 | 18(30) |
| Solid Foundation Nus/pri | 50 | 4(6.7) |
| G.S.S. Ikachi | 50 | 5 (8.3) |
| L.G.E.A. Obusa | 50 | 11(18.3) |
| G.S.S. Odigo | 50 | 10(16.7) |
| Total | 300 | 60(20) |

$p<0.05$

**Table 2:** Prevalence of Schistosoma haematobium infection among school children in relation to Age in Oju L.G.A. Benue State.

| Age (Years) | Number Examined | Number Positive (%) | Male | Female |
|---|---|---|---|---|
| 5-10 | 78 | 12 (20%) | 8(13.3%) | 4(6.7%) |
| 11-15 | 80 | 32 (53.3%) | 20 (33.3%) | 12(20%) |
| 16-20 | 73 | 10 (16.7%) | 6.25 (10%) | 4 (6.7%) |
| 21 and above | 69 | 6 (10%) | 4 (6.7%) | 2(3.3%) |
| Total | 300 | 60(100%) | 38(63%) | 22(36.7%) |

Significant at $p<0.05$; mean age of children15.43 years

**Table 3:**Organisms found in the urine samples of the participants.

| Age Group | Number examined | Pus cell | RBC (%) | *T. Vaginalis* (%) | Epithelia cell |
|---|---|---|---|---|---|
| 5-10 | 69 | - | 22(40.7%) | - | - |
| 11-15 | 68 | 18 (31%) | 24(41.4%) | - | 8(13.8%) |
| 16-20 | 86 | 16(19.8%) | 12(14.8%) | 3(3.7%) | 14(17.3%) |
| ≥21 | 77 | 10(15.4%) | 8(12.3%) | 6(9.2%) | 8(12.3%) |
| Total | 300 | 44(14.7%) | 66(22%) | 9(3%) | 30(10%) |

## DISCUSSION

Schistosomiasis remains a major public health problem in tropical and subtropical countries especially in areas with poor sanitary conditions and among people with limited knowledge of the disease(Houweling, 2016); (King, 2010). Our results revealed a high prevalence of 20% among school children in Oju Local Government Areas of Benue State. Similarly high prevalence of 38.6% and 45.4% was reported among primary and secondary school children in Buruku and Katsina-ala local government areas, Benue State (Houmsou*et al*., 2009).

There was significant difference in prevalence between males and females andin participants aged 21 years and above, prevalence in males was more than double

the prevalence in females. This could be because in the Oju LGA, males tend to spend more time in the water bodies than females as male children tend to be very adventurous and spend long periods in water bodies thus increasing their chance of contact with *S. haematobium* cercariae and so, increasing their chances of infection.These results were in accordance with results by (Houmsou*et al*., 2012; Chukwu*et al*., 2013).

Prevalence rates differed significantly among age groups and was highest in children 11-15 years of age and leastin students aged 21years and above. This could be becauseas children grow older, they tend not to frequent streams for activities and the worms within them died naturally as *S. haematobium* adult worms have been reported to live on the average for 3-10 years (Wilkins,1987). The reduced prevalence observed in age group 21years and above could also be as a result of reduced egg secretion by adult worms with prolonged infection (chronic infection). For this reason, drug treatment for adults is advised in cases where adults grew up in highly endemic areas, presented with symptoms like haematuria when they were younger but as they grew older, became asymptomatic and are currently not shedding eggs in their urine; adult worms can sometimes survive as long as 40 years within humans (Colley *et al*., 2014).

Prevalence rates were highest in G.S.S. Amenka-owo, and lowest in Solid foundation nursery and primary school. Similar disparities in prevalence rates in communities within a study area were reported in Kwara State, Nigeria by Abdulkareem *et al*.(2018).

From our research, other pathogens were present in the urine samples like pus cells, RBC, *Trichomonasvaginalis*and epithelial cells. Pus cells were significantly higher in those aged 11-15 years than in those aged 21 and above. While RBC were significantly higher in children aged 11-15 years and 5-10 years than in any other age group. Students aged 20 years and above had higher incidence of *T.*

*vaginalis. T. vaginalis* in young adults could be indicative of sexual activities (Sutton *et al*., 2007).

**Conclusion**

Urinary schistosomiasis is endemic in Oju LGA, Benue State, Nigeria.
Alternative water sources like boreholes and mass drug administration with praziquantel could go a long way in controlling the disease in the area.

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