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Prevalence of *Schistosoma haematobium* among Primary School Children in Girei Local Government Area, Adamawa State, Nigeria.

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Abstract : *A study on Schistosoma haematobium among primary school children in Gerei Local government Area of Northeastern Nigeria was conducted to determine the infection prevalence and relationship among primary school children and to assess infection rate in respect to age and parents occupation of the subjects. A total of three hundred school children were randomly selected from two primary schools within the Local Government Area. The samples was examined for the ova of Schistosoma haematobium using sedimentation technique.The overall prevalence rate of 33.3% was observed. Higher infection rate was observed among males, 64(21.3%) than their female, 40(13.3) counterpart. However, there was no statistical significant difference (P>0.05). Prevalence was also noted to be higher among Pupils 10 years and above, 19.0% followed by age group 8-9 years, 10.7%, while the least was recorded among pupils within 6-7 years 5.0%. Chi-square revealed that, there was association between age group and rate of infection (p<0.05). Infection rate in relation to parents' occupation implies that, children whose their parents are farmer had the highest infection rate of 20.7% followed by those whose their parents are civil servants with 9.0% infection rate. Traders' children had the least with 5.0%.*

I. Introduction

Human schistosomiasis, also known as bilharziasis occurs due to *Schistosoma haematobium.* Schistosomiasis is a parasitic disease cause by several species of trematodes (platyhelmenthes or flukes infection), a parasitic worm of genus *Schistosoma* (Central Intelligence Agency [CIA], 2007). It is widely spread ranking second to malaria in terms of socio-economic and public health significance in tropical and sub-tropical areas. It is most prevalent among water-borne diseases, with a very great risk on rural population (Biu *et al*., 2000). They also reported on the incidence of the disease in Northeastern Nigeria where they limit their study to Maiduguri metropolis.

About 200 million people worldwide are estimated to be infected with *S. haematobium* of which 70% live in sub-saharan Africa. Uneke and Egede, (2009). Infection with *schistosoma species* does not always result in clinical manifestation of disease and many infections are asymptomatic (Uneke and Egede, 2009). *Schistosoma. haematobium* infection however could cause anemia, haematoria, dysuria, nutritional deficiency, lesion of bladder, kidney failure and elevation risk of bladder cancer and also can cause growth retardation in children.

Transmission of urinary schistosomiasis is depended on availability of specific snail host and human activities with water contacts (WHO, 2010). Therefore, the risk and emergence of urinary schistosomiasis is attributed to the range of snail habitat promoted by water development schemes such as dam construction (Jamison *et al*., 2006). School age children were thought to have frequent water contact which exposed them to schistosomiasis, therefore they have association with schistosomiasis problem (Deribe *et al*., 2011 and Bala *et al*., 2012).

II. Materials and Methods

The study was conducted in Girei Local government Area Adamawa of State, Nigeria. The Area is located between latitude 9^o 11 and 9^o 38 north and longitude 12^o 21 and 12^o 49 East. The choice of the study area was based on reports from primary health care, clinics and hospitals.

Children between age group of six years and above were selected randomly from all the respective classes. The students were sensitized on urinary schistosomiasis and the transmission route and how to collect the sample without contamination. Three hundred (300) urine samples was collected using simple random sampling method. A dry clean leak proof, well labeled, wide mouthed plastic specimen bottles were given to the participants for sample collection. They were further informed to collect the last few drops of their morning urine because the last drops often contain high number of eggs (Cheesbrough, 2002). Urine collected was immediately taken to laboratory to examine the presence of *schistosome* ova using sedimentation method. Each

sample was centrifuge at 1500rpm for 5 minutes and the prepared slides were examined microscopically using x10 and x40 objective lens. Chi-square was used to test the differences and association. p=0.05 was used to determine the significance at $p<0.05$.

III. Results

The overall prevalence of those that are infected with *S. haematobium* in the study area was 104(34.7%) (Table 1). The distribution of infection according to sex revealed that male, 64(21.3%) pupils were more infected than females, 40(13.3%) (Table 2). Prevalence of *S. haematobium* infection was common across all the age groups and peaked among age group 10 years and above with 37.7% in Girei I and 42.1 % in Girei II and low infection was recorded among age group 1-7 years with 25.0% in Girei I and II (Table 3), with statistical significant difference ($p<0.05$). The prevalence of *S. haematobium* with reference to parents occupation signified infection rate among pupils whose their parents are farmer with 20.7% and relatively followed by those whose parents were civil servant with 9.0%, while children of traders had the lowest infection rate of 5.0% as shown in table 4, and the was statistical significant difference ($p<0.05$).

Table 1: Distribution of *Schistosoma haematobium* Infection in Relation to School

School	No. Examined	No. infected	% infected
Girei I	100	34	34.0
Girei II	200	70	35.0
Total	300	104	34.7

$X^2_{cal} = 5.369$, df at 0.05 = 3.841

Table 2: Prevalrnce of *Schistosoma haematobium* Infection by Gender

School	Male			Female			Total	Total
	No. Examined	No infected	% infected	No. Examined	No infected	% infected	No. infected	% infected
Girei I	68	24	35.3	32	10	31.3	34	34.0
Girei II	115	40	37.0	85	30	32.6	70	35.0
Total	185	64	21.3	117	40	13.3	104	34.7

$X^2_{cal} = 191.375$, df at 0.05=3.814

Table 3: Distribution of *Schistosoma haematobium* Infection in Relation to Age group

	School							
	Girei I			Girei II				
Age group (years)	No. Examined	No. infected	% infected	No Examined	No. infected	% infected	Total No. infected	Total % infected
6-7	20	5	25.0	40	10	25.0	15	5.0
8-9	35	12	34.3	65	20	30.7	32	10.7
10 and above	45	17	37.7	95	40	42.1	57	19.0
Total	100	34	34.0	200	70	35.0	104	34.7

$X^2_{cal} = 0.558$, 2df at 0.05 = 5.991

Table 4: Distribution of *Schistosoma haematobium* infection in Relation to parent's occupation

School	Farmer			Trader			Civil servant		Total No./ % infected
	No. Examined	No. infected	% infected	No. Examined	No. infected	% infected	No. Examined	No infected	% infected
Girei I	45	19	42.2	20	5	25.0	35	10	28.6	34(34.0)
Girei II	110	43	39.1	35	10	28.6	55	17	30.9	70(35.0)
Total	115	62	20.7	55	15	5.0	90	27	9.0	104(34.7)

$X^2_{cal} = 0.361$, 2df at 0.05 = 5.991

IV. Discussion

The result of this study demonstrated a prevalence rate of 104 (34.7%) of urinary schistosomiasis among primary school pupils of Girei Local Government Area Adamawa State, Nigeria. There was no doubt in the result as it agrees with the finding of Soares, *et al*. (2004) who stated that use of snail contaminated water for domestic purpose and leisure activities could be considered as risk factor for *schistosome* infection. The finding is also relatively in line with the research conducted by Biu, *et al*. (2009) who noted the prevalence of *S. haematobium* as 24.3% and Mafiana, *et al*. (2003) and disagrees with the work of Olalubi *et al*. (2013). This differences could be as a result of environmental hygiene condition that might exist among the study areas.

This study also revealed that males had higher prevalence rate of infection than the females. This agreed with the findings by Nworie *et al*. (2012); Okoli, *et al*. (1994) and Shashie, *et al*. (2015), but contrary to the finding of Olalubi, *et al*. (2013) who recorded high infection in females (61.0%) than males (39.0%). This could probably be due to females being more exposed to natural body of water than the males. School children between 10 years and above had the highest infection rate with 37.7%.This finding agrees with that of Shashie, *et al*. (2015) and Biu, *et al*. (2009) who recorded high cases of *S. haematobium* infection among pupils aged 10-15 years. It is well noted in this study that pupils whose parents were farmers had the highest infection rate and relatively followed by those whose parentswere civil servants and traders.This is in accord with the findings of some authors such as Shashie, *et al*. (2015); Ayele *et al*. (2008); Abou-zeid, *et al*. (2013) and Lengeler, *et al*. (2002).

Conclussion and Recommendation

This study has clearly demonstrated the occurrence of *S. haematobium* infection in the study area. The infection recorded could probably be due to few reasons, such as unhealthy environment, socio-cultural issues, lack of public menities, such as toilet, potable water supply, poverty, ignorance, inadequate access to healthcare and lack of proper sanitation and increased environmental contamination. Government should put emphasis on the above mentioned factors in educatin the community as well as providing the necessary amenities, de-worming of primary school aged children.

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