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Prevalence of *Schistosoma haematobium* infection in school aged children of Konduga Local Government Area, Northeastern Nigeria

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ABSTRACT: A study on the prevalence of *Schistosoma haematobium* infection in school aged children of Konduga Local Government Area of northeastern Nigeria was conducted between the month of May and December, 2004. A total of four hundred and ninety four children selected randomly from thirteen primary schools within the local government area revealed an overall prevalence of 120 (24.3%) with 95 (79.2%) as male and 25(20.8%) as female ($p<0.05$). Prevalence was also noted to be higher among age groups between >13 and 15 years with 60 (50.0%) compared to age groups of 7-10 years with 15 (12.5%) and >10-13 years with 45(37. 5%) ($p<0.05$). Infection was generally commonly higher during the raining periods of the study with a peak in August indicating 39.6% followed by September with 38.7%.

Keywords: Prevalence, *Schistosoma haematobium*, Children, Konduga, Nigeria.

Introduction

Human schistosomiasis, also known as bilharziasis due to *Schistosoma haematobium*, is widespread ranking second to malaria in terms of socio-economic and public health significance in tropical and sub-tropical areas. It is the most prevalent of the water-borne diseases, with a very great risk on the health of rural populations (Hunter, 1976; Biu *et al*., 2000). The disease has been described from other parts of Nigeria (Okoli and Odaibo, 1990; Bello and Edungbola, 1992; Mafiana *et al*., 2003). Biu *et al.*, (2000) also reported on the incidence of the disease in northeastern Nigeria but limited their study to the Maiduguri Metropolis. Hence this study was designed to improve on these findings by extending the investigation to other local government areas of Borno State.

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Materials and Methods

Source of samples: A total of 494 primary school children attending 13 schools within Konduga Local Government Area of Borno State were randomly sampled for suspected cases of bilharziasis.
Urinalysis: Urine samples voluntarily submitted by individual pupils were used for this study. Each sample was taken to the diagnostic parasitology laboratory, University of Maiduguri and centrifuged at 1500g for 3 minutes (Baker *et al*., 1985). The supernatant was discarded to leave sediment which was transferred to the center of a clean grease-free glass slide to which was added a cover slip. This was mounted on a light microscope and examined at x40 objective to identify *Schistosoma haematobium* ova which was described as golden yellowish and elliptical in shape with a terminal spine (Soulsby, 1982).

Statistical analysis: Data on the age, sex of the children and the months of study were analyzed using the students "t" test with "p" values equal to or less than 0.05 regarded as significant (Graphpad Instat Guide, 2000).

Results

The results of this study revealed that out of the 494 children examined, there was an overall prevalence of 120(24.3%), indicating 95(79.2%) males and 25(20.8%) females ($p<0.05$). Age groupings of 7-10; >10-13; and >13-15 years had prevalence rates of 15(12.5%); 45(37.5%) and 60(50.0%) respectively ($p<0.05$) (Table 1).
Table 2 indicates the prevalence of *S. haematobium* based on the months of study. Diseased cases occurred all through the study period but peaked in August (39.6%) and September (38.7%) with the highest rainfall compared to the "early rains" of June and July with 13.8% and 19.5%; and the "late rains" of October with 14.9%($p<0.05$).

Table 1: Prevalence of *Schistosoma haematobium* infection based on the sex and age of primary school children examined.

	No. of children examined	No.(%) infected
Total	494	120(24.3)
Sex:		
Male	289	95(79.2)[a]
Female	205	25(20.8)[b]
Age (years):		
7-10	151	15(12.5)[c]
>10-13	160	45(37.5)[d]
>13-15	183	60(50.0)[e]

*Figures in the same column with different superscripts differ significantly ($p<0.05$)

Table 2: Monthly prevalence of *S. haematobium* infection among the primary school children examined.

Month	No. of children examined (n=494)	No.(%) examined
May	30	4(13.3)
June	65	9(13.9)
July	82	16(19.5)
Aug	101	40(39.6)
Sept	75	29(38.7)
Oct	67	10(14.9)
Nov	39	4(10.3)
Dec	35	8(22.9)

Discussion

The prevalence of *S. haematobium* infection in primary school children in Konduga local government area of Borno State was studied. The disease was found to exist at a prevalence of 24.3% which based on focus individual discussions with adult men and women revealed that infection in children was primarily due to their swimming activities in earth dam reservoirs particularly during the active rains. These findings agree with the report by Mafiana *et al*., (2003), that infection in pre- school and school children was primarily due to exposure occasioned by washing, bathing, dry season farming, and fishing activities with peak infections between August and September rains (Biu *et al*.,2000).

This study also revealed a statistically significant higher prevalence in males compared to the females which agrees with the findings by Ogbeide *et al*.,(1994); Nduka *et al*.,(1995); Onuigbo *et al*.,(1995); Akufongwe *et al*.,(1996); Okoli and Odaibo,(1999); Biu,*et al*.,(2000); and Mafiana *et al*.,(2003). But contradict those given by Edungbola *et al*.,(1988);Bello and Edungbola (1992). Amazigo *et al*.,(1997), that there was no statistically significant between sexes. Nnoruka *et al*.,(*2000*) suggested that there is no consistent pattern attributable to sex differences with respect to infection in Nigeria and elaborated that status of infection is associated with water contact pattern. This study also associated severe infection to age groups between 13-15years which agrees with the findings by Ogbeide *et al*.,(1994) and Nduka *et al*.,(1995) that ages of 13 and above tend to play outdoor water contact activities more, with a drop in load of infection with increasing age due to development of immunity (Edington *et al*.,(1976).

In conclusion, government should regularly disinfect ponds and streams, treat school children and emphasize on school health education programmes.

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