

PREVALENCE OF GASTROINTESTINAL PARASITISM IN THREE PRIMARY SCHOOLS IN RAFINKADA DISTRICT OF WUKARI LOCAL GOVERNMENT OF TARABA STATE, NIGERIA

S. M. PUKUMA, B. BRISTONE and M. S. ALE

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ABSTRACT

A total of 300 stool samples were collected from the three schools, Ason, Kpanawa and Rafin kada and examined for gastrointestinal infection. Of the total number examined, 144(48%) were infected. Six parasites species were encountered namely, *Taenia solium*, with prevalence rate of 17.4%, *Ancylostoma duodenale* 20.8%, *Ascaris lumbricoides* 16.0%, *Entamoeba coli* 20.1%, *Schistosoma mansoni* 25.7%, and *Trichuris trichura* 22.9%

Children of Kpanawa primary School had the highest infection rate of 56%, this was followed by Rafin Kada primary School with a rate of 50%. While children of Ason Primary had the least infection rate of 38%. In all the schools it was observed that males were more infected than the females. It was also observed that children between the ages of 5-8 years old were mostly infected in Kpanawa and Rafin Kada primary schools, whereas in Ason primary schools, children between the ages of 9-12 were mostly infected. Parasite species was similar in the 3 schools except for *Taenia solium* and *Schistosoma mansoni*, which were observed only among children of Kpanawa and Rafin Kada Primary Schools

KEYWORDS: Intestinal, parasites, Children and Infection

INTRODUCTION

Intestinal parasites are amongst the most prevalent human infections, mainly among school children due to poor hygienic nature or poor sanitary condition, coupled with their voracious eating habits (WHO 1987). The global distribution of these intestinal parasites and the disease they cause have been documented by many authors and the global prevalence depends not so much on the regional ecological conditions but more on the local standards of social and economic development (WHO 1998 and Cheesbrough 1992). Helminthiasis whether soil transmitted, vector borne or as a result of any unhygienic or community practices pose a very great public health problem to man. According to Adeyeba and Akinlabi (2002), children infected with helminths suffer reduced cognitive development and may increase absenteeism from school. In addition intestinal helminths cause malnutrition, anemia, growth retardation as well as higher vulnerability to other infection.

Heavy parasite burden may cause digestive and nutritional disturbances, blockages of the gut, abdominal pain, vomiting, restlessness, disturbed sleep and the perforation of tissues (Mbanugo and Abazie 2002). The risks associated with contamination of soil and direct contacts with contaminated environment predispose children to infection.

Hence this study was conducted to determine the prevalence and distribution of intestinal helminths among school aged children in Rafin Kada district of Wukari in Taraba state, Nigeria.

MATERIALS AND METHODS

Rafin kada district is located south west of Wukari; It is estimated to have a population of about 15000 people. There are predominantly two main tribes, Jukuns and Chambas. Other minority tribes include Hausas, Fulani's and Angas. Majority of the inhabitants are farmers and fishermen, except for Hausas and Fulani's that are butchers and herdsmen respectively.

The main source of water for community use is from the "Rafin kada" (crocodile stream), where the village name was derived.

Three (3) primary schools were selected for the study, namely Ason, Kpanawa and Rafin kada central. Prior to the collection of samples information was passed 7 days in advance to the date through the different community channel of communication such as the church, mosque and town crier.

Three hundred (300) stool samples were collected from the 3 primary schools in the community. 100 pupils were randomly selected from each school bearing in mind equal number of sexes to eliminate bias. Samples collected were preserved in 10% formalin before it was transported to the laboratory for examination. In laboratory stool samples were examined using formal ether concentration technique as described by WHO (1991).

RESULTS

Of the 300 stool samples examined for infection, 144 (48%) were infected with intestinal parasites. Six parasites species were encountered namely *Taenia solium*, with prevalence rate of 17.4%, *Ancylostoma duodenale* 20.8%, *Ascaris lumbricoides* 16.0%, *Entamoeba coli* 20.1%, *Schistosoma mansoni* 25.7%, and *Trichuris trichura* 22.9% (Table 1).

Table 1: Distribution of infection by schools

Schools	Number examined	Number infected
Ason primary school	100	38(38%)
Kapanawa primary school	100	56(56%)
Rafin Kada primary school	100	50(50%)
Total	300	144 (48%)
Mean	100	48

Children of Kpanawa primary school had the highest infection rate of 56%, followed by Rafin kada central with prevalence rate of 50%. Whereas children of Ason primary had the least infection rate of 38%. (Table 2). In all the schools it was observed that the males were more infected than females, with prevalence rate of 40% for Ason, 56% for Kpanawa and 60% for Rafin Kada (Table 3).

Table 2: Distribution of parasites species by School

	<i>T. solium</i> ,	<i>A. duodenale</i> ,	<i>A. lumbricoides</i> ,	<i>E. coli</i> ,	<i>S. mansoni</i>	<i>T. trichura</i>
Ason	-	6	8	10	-	7
Kapanawa	11	13	6	11	15	14
Rafin Kada	14	11	9	15	22	12
Total	25	30	23	36	37	33
Mean	8.33	10	7.67	12	12.3	11

Table 3: Distribution of infection by sex and school.

	Ason		Kpanawa		Rafin Kada	
	# Examined	# Infected	# Examined	# Infected	# Examined	# Infected
Male	50	20 (40%)	50	28 (56%)	50	30 (60%)
Female	50	18 (36%)	50	22 (44%)	50	26 (52%)
Total	100	38 (38%)	100	50 (50%)	100	56 (56%)
Mean	50	19	50	25	50	50 28

In Kpanawa and Rafin Kada primary school, children between the ages of 5-8 years were the most infected compared to those within the age range of 9-12 years. However in Ason primary school children within the age range of 9-12 years were the most infected (Table 4).

Parasite species were similar in all the schools except for *Schistosoma mansoni* and *Taenia solium*, which was observed only among children of Kpanawa and Rafin Kada Primary Schools respectively.

Table 4: Distribution of infection by age

	5-8 Years		9-12 Years	
	# Examined	# Infected	# Examined	# Infected
Ason	36	14 (39%)	64	24 (37.5%)
Kapanawa	40	38 (95%)	60	12 (20%)
Rafin Kada	50	40 (81%)	50	16 (32%)
Total	126	92 (73%)	174	52 (30%)
Mean	42	30.7	58	17

DISCUSSION

The study shows that 38%, 50% and 56% of pupils of Ason, Kpanawa and Rafin Kada primary schools respectively were infected with intestinal parasites. The high prevalence of infection observed among the pupils could be attributed to socio-cultural behavior, which predisposes them to infection. The use of bushes around the schools and homes for defaecating, which seemed to be an accepted social behavior in the study area may have accounted for the high infection rate. According to Nock et al (2003), pupils could either seed the soil with eggs from their faeces and or contract infection from such contaminated soil especially behind classroom, which more or less provide a hideout for defaecation for the pupils. In addition eggs in soil could facilitate their dissemination both far and wide.

The high infection rate observed among children of Kpanawa and Rafin Kada primary schools could be attributed to the fact that these two communities depends on water from wells and streams, coupled with the habit of indiscriminate defaecation, unlike Ason community whose source of water both at home and school is borehole.

It was observed in the three schools that males were more infected than the females. This implies that male children have similar activities and behaviour that predispose them to infections.

Children between the ages of 5-7 years in Kpanawa had the highest infection rate of 95%, followed by Rafin Kada with prevalence rate of 81%. This was however not the case among children of same age group in Ason primary school that have relatively lower infection rate of 39%. This observation

agrees with that of Boot et al (1998) who recorded high infection rate among school children of same age group.

The high infection rate observed in Kpanawa and Rafin kada could be attributed to a number of factors such as environmental, socio-cultural and general laxity in personal hygiene among children of this age group. Similarly, Fashuyi (1983) observed that considerable amount of animal and human waste is discharged into the soil daily leading to the seeding of the soil with helminth eggs and larvae. Eggs in soil becomes the main sources of infection, particularly in children (Galadima and Olatunde 1987)

In terms of parasite distribution within the 3 schools, it was observed that *Ancylostoma duodenale*, *Ascaris lumbricoides*, *Entamoeba coli* and *Trichuris trichura* were found to be present in all the schools, but infection rates were different. Whereas *Teania solium* and *Schistosoma mansoni*, were found only among children of Rafin kada and Kpanawa primary schools. The presence of *Schistosoma mansoni* among children of these two communities could be attributed to its proximity to the Kada stream (crocodile stream), which is the only source of water for use and for swimming, by children of these communities

The study shows that intestinal parasites were common among school children of Rafin kada district, with pupils of Kpanawa and Rafin kada primary schools being mostly infected, whereas children of Ason primary school were the least infected. Lack of portable water supply in Kpanawa and Rafin kada communities may have contributed to the high infection rate observed among the school pupils.

Intestinal parasites are a solvable public health problem. Regrettably intestinal parasites continue to plague the Nigerian populace, particularly children with little or no intervention to arrest the spread. (Sovioli et al 1992).

According to Stephenson (1994), helminthiasis especially in children is a serious health problem; infection with hookworm leads to decreased productivity, reduced rate of cognitive development, poor performance at school, increased absenteeism from school and increased susceptibility to infections. There is therefore the need for concerted effort at all levels (Government, community and individuals) to control the transmission and spread of infection. This can be achieved through aggressive health education campaign among community members on health implication of indiscriminate defecation.

The reintroduction of hygiene as a subject in schools like in the past will go a long way in teaching pupils the mode of transmission and preventive measures from acquiring infections. Provision of adequate water supply, toilet facilities and general improvement in personal hygiene will go a long way in the prevention and control of these infections.

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