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The Prevalence of Intestinal Helminthiasis in Primary School Children in Isuochi Umunneochi Local Government Area, Abia State, Nigeria

By Azoro A. V., Awurum I. N., Nwoke B. E. B, Chinaka A. A., Tony-Njoku. R. F., Egeruoh A. S & Nwakor, F. N

Univercity of Education Owerri, Nigeria

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The Prevalence of Intestinal Helminthiasis in Primary School Children in Isuochi Umunneochi Local Government Area, Abia State, Nigeria

Azoro A. V. ^α, Awurum I. N. ^σ, Nwoke B. E. B ^ρ, Chinaka A. A. ^ω, Tony-Njoku. R. F. [¥], Egeruoh A. S[§] & Nwakor, F .N ^x

Abstract- Prevalence of intestinal helminth infections in primary schools in Isuochi town, Abia State Nigeria was surveyed in two randomly selected primary schools, between April and September 2012. Stool samples of 200 pupils (110 males, 90 females), aged 6-9 years, were examined microscopically by using wet mount (normal saline) and concentrated saturated sodium chloride floatation techniques. Seven intestinal helminths, Ascarislumbricoides, Hookworm, Trichuristri- chiura, Strongyloidesstercoralis, Enterobiusvermicularis, Schistosomamansoni and Taeniaspp, were identified with 150(75%) of the 200 pupils infected with one or a combination of the worms. Hookworm had the highest prevalence (37.84%) followed by A. lumbricoides (24.32%), T. trichiura(14.86%), E. vermicularis(8.11%), S. stercoralis and T. spp have (6.76%) infection rate respectively while S. mansonlhas the lowest rate of infection (2.70%). A lumbricoides infection was highest and lowest among age 8 and 9 respectively while T. trichiurawas highest in age 7 and no infection in age 6. Though there was no significant difference (P>0.05) sex related difference in the prevalence of *helminth* infections. *Helminth* infections were relatively higher in males than females with infection rate of (80.010) and (68.9%) respectively. Mixed infection were recorded with Ascaris and Hookworm, and with Ascaris, Hookworm and Trichuris being the two most commonly occurring combinations. The finding of Helminthiasis in this study is significant and of public health importance. Improvement of personal hygiene, avoiding ingestion of contaminated food, restricting farm animals from straying in inhabited areas are recommended intervention our approaches to control human helminthiasis.

Keywords: children, helminthiasis, intestinal.

I. INTRODUCTION

he health of school age children in developing countries is a concern that has received increasing attention in the recent past, following high morbidity rates due to parasitic disease which are preventable (Bundy and Guyatt, 1995). Much of this morbidity has been attributed to parasitic helminth infections (Etim and akpan 1999, Etim et al, 2002).

e-mails: Vivianazoro1@gmail.com, ngonwakor@gmail.com

Author σ: Imo State University Owerri, Imo State.

The public health and socio-economic intestinal helminthiasis consequence of are of considerable global concerns particularly in the rural communities of the developing countries where malnutrition and other factors complicate the impact of the infection. Between 500 and 1000 million people were estimated to be infected with parasites with direct life cycles 35 years ago (PETERS 1978); meanwhile the number has certainly considerably increased. EDUNGBOLA (1988-90) estimated that 15 million Nigerians are suffering from ascariasis alone, while there are several thousand with hookworm, trichuriasis, enterobiasis, strongyhoidiasis, tapeworm infections and others. Apparently, the epidemiology of human intestinal parasites is vastly recorded in Nigeria. In most cases hospital records have become an increasingly popular method of determining prevalence of these diseases (Cowper 1967; Obiamiwe 1977; Reinthaler et al 1988).

Various prevalence rates on infection of these helminths in school children in different parts of Nigeria have been reported by several workers. Okpara et al (2007) for instance, obtained prevalence rate of 65.6%, 35.2% and 14.8% for Ascarisspp, Hookworm spp and Trichurisspp respectively. And Etim et al (2002), obtained a prevalence rate of 53.2%, 31%, 27.0% and 5.5% for Ascarissp, Ancylostomasp, Trichurissp and Schistosoma mansoni respectively, all from primary school children aged 5-16 years in Owerri and Calabar, Nigeria. The prevalence of these helminths varies not only from one locality to the other, but also among individuals, age, standard of sanitation, socio-economic status of parents, wih children of parents in the low income group having the highest prevalence of infection and sex with males being more infected than females ofinterest in intestinal helminthic infection is multiple infection or poly parasitism, occurring in various combinations and rate of infection but with Ascaris-Hookworm-Trichuris "Traid" combination as the most regular combination.

Factually, many studies on intestinal helminthiasis of school children have been carried out in many parts of the country. It is still important to carry similar studies in different other parts of the country at different times in view of the changing patterns of parasitic infections. The present study aims at the Year

Author $\alpha \chi$: Department of Biology, Alvanlkoku Federal University of Education, Owerri, Imo State, Nigeria.

Author p: Federal University of Technology Owerri.

Author CD: National Root Crops Research Institute Umudike, Abia state.

identification of various intestinal helminth parasites, which infect primary school children, to determine the overall prevalence of infection and the pattern of infestation in relation to age and sex of the children, and reports the results of the investigation on intestinal helminthiasis in school children in Isuochi Primary Schools, Abia State, Nigeria.

II. MATERIALS AND METHODS

The study was carried out in Isuochi. Two hundred school children, aged 6-9 years in two randomly selected primary schools in Isuochi Town, Abia State, were investigated for their intestinal helminthic infections between April and September 2012. The schools are

School

Amuda Town Primary School Isuochi S1 Isuochi Central School Isuochi S2

a) Collection and examination of feacal samples

Wide mouthed specimen bottles were given to the randomly selected pupils who were asked to return them the following morning with feaces for examination. The name (optioned) age and sex of each child were labeled on the respective specimen collected. The specimens were taken to the laboratory for examination with a Nikkon compaind microscope using X10 and X40 objectives. The normal saline (wet mount) and concentrated saturated sodium chloride floatation techniques according to Nera and Brown (1994) Chees brough (1999) were used for the analysis of the feacal samples for helminth ova and larvae. On collection of feacal samples from the pupils, each pupil was interviewed on some of the following points: parents occupation, foot wear habits, domestic animals reared, regularity of the children's de-worming and availability and type of toilet facility etc. Data collected wer analyzed by means of descriptive statistics such as frequency tables, percentages and Chi square.

III. Results

The result of the study showed that School samples from a total of 200 primary school pupils comprising 110 males and 90 females, aged between 6 and 9 years, were examined for intestinal helminth infections. Seven intestinal helminth, *Ascarislumbricoides, Hookworm, Trichuristrichiura, Strongyloides-stercoralis, EnterobiusvermicularisSchistosomamansoni* and *Taeniaspp* were identified. Of the 200 pupils examined, 150 (75.0%) were infected with one or a combination of the worms with hookworm having the highest prevalence rate (28.0%), followed by *A. Lumbricoides* (24%) *I. Trichiura* (14.7%), *E. Vermicularis* (8.0%) S. *Stacoralis* and *Taeniaspecies* (6.7%) respectively, whereas S. mansoni had the least rate of infection (2.7%). The results are shown in table 1. The

findings of the highest occurance of hookworm infection more than *A. lumbricoides* is rare in a study like this.

The prevalence of infection among the schools ranged between 7.0% (S1) and 78% (S2). There was no significant difference in the prevalence of infection between schools. (P>0.05).

Table 2 shows that the overall prevalence of infection of the helminthes was highest in pupils aged 9 years (80%) and lowest in pupils aged 7 years (640%). The prevalence of *A. lumbricoides* and Hookworm were highest in pupils of age 7, 8 years and 6 years respectively and both lowest in pupils of age 9 years. There was no statistical significant difference in infection prevalence with age (P>0.05). the table further shows that *T. trichiura S. mansoni* were also highest in age 7 respectively.

Table 2 also shows that out of 200 pupils examined 110 (55.0%) males and 90 (45.0%) were males and females respectively, of these 88 (80%) males and 62 (68.9%) females were infected. The difference not significant (P>0.05). The prevalence of Hookworm and A. lumbricoides were higher in females than in males while that of T. trichiura where higher in males. The difference was not significant (P>0.05). This is in agreement with the discoveries of Okpara et al 2007. Of the 150 infected subjects, 22 (14.7%) had multiple intestinal helminth infections with 14 (9.3%) and 8 (5.3%) subjects having bouble and triple infections respectively. Ascarislumbricoides occurred mostly with other helminth, Ascaris + hookworm, and Ascaris + hookworm + Trichuris were the most common occurring combinations. These results are shown in table 3.

IV. DISCUSSION

Ova of seven intestinal helminthes, hookworm, Ascarislumbricoides, Trichuristrichiura, Strungyloidesstercoralis, Enterobiusvermicularis, Schistosomamansoni and Taeniaspp were recorded with 150 (75%) of the 200 school children positive for one or more types of helminth. The overall prevalence of infection (75%) when compared with reported studies of previous studies in other parts of the country (Mafiana, 1995, Ukpai and Ugwu, 2003) agrees with their findings but is high when compared with (Okpara 2007, and Dada et al 1993), suggestive of poor personal hygiene awareness and environmental sanitation in the study area and indefinite communal control efforts. Previous studies had also attributed the high endemicity to poor environmental and personal hygiene, shortage of good water supply and indiscriminate defecation. Hookworm and Ascarislumbricoides, in contrast to the other helminths had the highest prevalence of infection probably because their Ova can live in soil for years and are resistant to environmental pressures.

However, the prevalence of ascariasia and hookworm infections decreased with age 9 groups

probably indicating maturity in age and awareness of the existence of such diseases. Poor parental hygiene, supervision, voracious eating habit and activities linked with contaminated with infected intestinal helminth infections s common in school children in Nigeria. In this study, through sex differences in the prevalence of intestinal helminth infections was not significant,. Males were more infected (72.7%) as against females (66.6%). Many of the children infected with this helminth are from homes in which goats, sheep or rabbits are domestically reared and their feaces used as nature in domestic vegetable gardens.

Mixed infection due to Ascaris, hookworm and Trichuris often described as "Ubiquitous triod" Ascaris and hookworm was common, which is in consonance with the findings of mba and Amadi (2001), Ukpai and Ugwu (2003) Opara et al (2007).

From an epidemiological perspective therefore the study underlying the fact that indiscriminate defecation, food and feeding habits amenities and awareness of the mode of transmission as well as low level of sanitation of the study areas are among the principal factors enhancing transmission of helmthiasis in the area studied. This situation calls for effective control measures in the community. Perhaps, this can be achieved through community health education campaign aimed at influencing the attitudes and behaviours of the population at risk regarding the consumption of well cooked meat, maintaining a high standard of sanitation and treating diagnosed cases.

A similar recommendation has been made by Ukoli (1990). Prevention of these intestinal helminth infections is possible by restricting sheep, goat and cattle from straying, avoiding ingestion of predisposed food, avoiding use of human and animal excreta as fertilizer in vegetable gardens, avoiding bathing in infected streams and lakes and by maintaining personal hygiene.

Table 1 : The prevalence of intestinal helminths in school children in selected primary schools in Isuochi

School	No. of	No.	Helminths identified/% prevalence						
Code	pupils Examined	infected (%)	A.1 H (%)	T.t (%)	S.S (%)	E.V (%)	S.M (%)	I SPP (%)	(%)
SI	100	72(72%)	20 (27.8%)	25 (34,7)	9 (12.5)	5 (6.9)	5 (6.9)	0 (0.0)	6 (8,3)
S2	100	78(78%)	16 (20.5)	31 (28.0%)	13 (16.7)	5 (6.4)	7 (9.0)	4 (5.1)	4 (5.1)
TOTAL	200	150(75%)	36 (18.0)	56 (28.0)	(11.0)	10 (5.0)	12 (6.0)	4 (2.0)	10 (5.0)

Source; Field survey 2012

Table 2 : Prevalence of intestinal helminth infections in relation to Age and Sex of pupils

 Age	No	No d Infootod	A	Hook	T.t	S.s	E.v	S.m	T.spp	
 (yrs)	examme	a mected % coide	es %	worm %	%	%	%	%	%	
6	m20	18(90.0)	5(27.8)	9(50.0)	0(00.0)	3(16.7)	0(00.0)	2(11.1)	2(11.1)	
	F14	11(78.6)	3(27.3)	3(27.3)	0(00.0)	1(9.1)	0(00.0)	0(00.0)	2(11.2)	
	T34	29(85.3)	8(27.6)	12(41.4)	0(00.0)	4(13.8)	0(00.0)	2(6.9)	4(13.8)	
7	m42	31(73.1)	6(19.4)	12(38.7)	9(29.0)	1(3.2)	7(22.6)	0(00.0)	1(3.2)	
	F34	28(823)	2(7.1)	6(21.4)	5(17.9)	3(10.7)	3(10.7)	0(00.0)	1(3.6)	
	T 76	59(77.6)	8(15.7)	18(30.5)	14(23.7)	4(6.8)	10(16.9)	0(00.0)	2(3.9)	
8	m29 37	29(78.4)	10(34.5)	18(62.1)	2(6.9)	1(3.4)	0(00.0)	1(3.4)	3(10.3)	
	F26 33	20(60.6)	6(30.0)	6(30.0)	0(00.0)	1(5.0)	0(00.0)	1(5.0)	1(5.0)	
	T 70	49(70.0)	16(32.7)	2449.0)	2(4.1)	2(4.1)	0(00.0)	2(4.1)	4(8.2)	
9	m 11	10(90.9)	2(20.0)	0(00.0)	4(40.0)	0(00.0)	2(20.0)	0(00.0)	0(00.0)	
	F 9	3(33.3)	2(66.7)	2(66.7)	2(66.7)	0(00.0)	0(00.0)	0(00.0)	0(00.0)	
	T 20	13(65.0)	4(30.8)	2(15.4)	6(46.2)	0(00.0)	2(15.4)	0(00.0)	0(00.0)	
Total	m 110	m(88(80.0)	23(26.1)	39(44.3)	15(17.0)	5(5.7)	9(10.2)	3(3.4)	6(6.8)	
	F 90	f(62(68.9)	13(30.0)	17(27.4)	7(11.3)	5(8.1)	3(4.8)	1(1.6)	4(6.4)	
	T 200	T-150	36(24.0)	50(37.3)	22(14.7)	10(6.7)	12(8.0)	4(2.7)	10(6.7)	

% Prevalence in parenthesis. *p>0.05

m = male f = female T = total

Parasite combination	No. infected	%infection
Ascaris + Hookworm	8	5.3
Ascaris + Trichiura	4	2.7
Ascaris + Hookworm + Trichiura	3	2.0
Ascaris + Strongyloidesstercorlis	2	1.3
Hookworm + T.spp	2	1.3
Hookworm + Schystogomamansoni	1	0.7
Ascaris + Hookworm + Enlerobiusvermicalaris	2	1.3

Table 3 · Po	ly paracitiem	in school	childron in	salactad to	when in Lim	Inneochi I. G. A
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Total number infected with intestinal helminths = 150.

% Prevalence of infection in parenthesis based on 150 infected.

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