

***PLASMODIUM* AND INTESTINAL HELMINTHS CO-INFECTIONS AMONG
SCHOOL CHILDREN IN IGBO-EZE SOUTH LOCAL GOVERNMENT
AREA, ENUGU STATE**

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CERTIFICATION

This is to certify that this research work was carried out by Ekpenyong, Ekaette Asuquo (PG/MSc/03/34435) of the Department of Zoology, University of Nigeria, Nsukka.

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DEDICATION

This research work is dedicated to my beloved parents, Mr. and Mrs. A. O. Ekpenyong.

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ABSTRACT

Plasmodium and intestinal helminths co-infections among school children in Igbo-Eze South Local Government of Enugu State were studied between July and December 2005. The relationship between the use of malaria control measures, types of latrine system used and source of drinking water on the prevalence of *Plasmodium* and intestinal helminths infections was also investigated. Blood smears and faecal samples were obtained from 1,296 school children (ages 4 - 15 years) from six schools randomly sampled from the study area. Drugs were given to infected children. Epidemiological questionnaires were administered to the children. Out of 1,296 school children examined, 376 (28.9 %) were infected thus: *Plasmodium falciparum*, 270 (20.8 %), *Ascaris lumbricoides*, 64 (4.9 %), hookworm, 33 (2.5 %) and *Trichuris trichiura*, 9 (0.7 %). There was significant difference in the prevalence of infections ($P < 0.05$). Among the 1,296 school children examined, 30 (2.4 %) had *P. falciparum* and intestinal helminths co-infections as follows: 18 (1.4 %) were co-infected with *P. falciparum* and *A. lumbricoides*, 7 (0.5 %) with *P. falciparum* and hookworm, 2 (0.2 %) with *P. falciparum* and *T. trichiura*, 2 (0.2 %) with *P. falciparum*, *A. lumbricoides* and hookworm and 1 (0.1%) with *P. falciparum*, *A. lumbricoides* and *T. trichiura*. However, among the 376 infected pupils, 30 (8.0 %) had *P. falciparum* and intestinal helminths co-infections as follows: 18 (4.8 %) with *P. falciparum* and *A. lumbricoides*, 7 (1.9 %) with *P. falciparum* and hookworm, 2 (0.5 %) with *P. falciparum* and *T. trichiura*, 2 (0.5%) with *P. falciparum*, *A. lumbricoides* and hookworm, and 1 (0.3 %) with *P. falciparum*, *A. lumbricoides* and *T. trichiura*. There was significant difference in the occurrence of co-infections among subjects ($P < 0.05$). Among the schools sampled, Township School 1, Ibagwa had 25.9 % *P. falciparum*, 7.9 % *A. lumbricoides*, 3.2 % hookworm and 1.4 % *T. trichiura*. Community Primary School 3, Itchi had 13.9 % *P. falciparum*, 2.8 % *A. lumbricoides*, 0.5 % hookworm and 0.0 % *T. trichiura*. Central School, Ovoko had 30.1 % *P. falciparum*, 9.3 % *A. lumbricoides*, 6.0 % hookworm and 2.3 % *T. trichiura*. Central School, Iheaka had 14.8 % *P. falciparum*, 4.6 % *A. lumbricoides*, 0.9 % hookworm and 0.5 % *T. trichiura*. Community Primary School, Unadu had 20.8 % *P. falciparum*, 2.8 % *A. lumbricoides*, 2.9 % hookworm and 0.0 % *T. trichiura*. Community Primary School, Iheakpu-Awka had 19.4 % *P. falciparum*, 2.3 % *A. lumbricoides*, 1.9 % hookworm and 0.0 % *T. trichiura*. Prevalence of these parasitic infections varied

significantly among schools ($P < 0.05$). Among the age groups, 4 ñ 6 had 35.1 % *P. falciparum*, 7.0 % *A. lumbricoides*, 2.2 % hookworm and 0.0 % *T. trichiura*. 7 ñ 9 had 20.5 % *P. falciparum*, 5.7 % *A. lumbricoides*, 3.0 % hookworm and 1.2 % *T. trichiura*. 10 -12 had 14.2 % *P. falciparum*, 3.1 % *A. lumbricoides*, 2.1 % hookworm and 0.6 % *T. trichiura*. 13 ñ 15 had 22.0 % *P. falciparum*, 4.9 % *A. lumbricoides*, 3.7 % hookworm and 0.6 % *T. trichiura*. Prevalence of these parasitic infections varied significantly among the age groups ($P < 0.05$). Among the sexes, males had 23.1 % *P. falciparum*, 4.5 % *A. lumbricoides*, 1.9 % hookworm and 0.6 % *T. trichiura* while females had 18.5 % *P. falciparum*, 5.4 % *A. lumbricoides*, 3.2 % hookworm and 0.8 % *T. trichiura*. Prevalence of these parasitic infections varied significantly between the sexes. For latrine system, those using bush had 19.3 % *A. lumbricoides*, 7.2 % hookworm and 1.6 % *T. trichiura*. Those using pit latrines had 3.5 % *A. lumbricoides*, 2.1 % hookworm and 0.6 % *T. trichiura*. Those using water closet had no intestinal helminths infections. Prevalence of intestinal helminths infections varied significantly based on the type of latrine system used ($P < 0.05$). For drinking water source, those using tank had 37.5 % *A. lumbricoides*, 30.3 % hookworm and 22.2 % *T. trichiura*. Those using pump had 35.9 % *A. lumbricoides*, 48.5 % hookworm and 44.4 % *T. trichiura*. Those using tap had 26.6 % *A. lumbricoides*, 21.2 % hookworm and 33.3 % *T. trichiura*. There was significant difference in the prevalence of *A. lumbricoides* and water source ($P < 0.05$). For malaria control measures, pupils using mosquito bed nets had malaria prevalence of 5.9 % while those not using mosquito bed nets had malaria prevalence of 21.2 %. Those living in screened houses had malaria prevalence of 4.6 % while those not living in screened houses had malaria prevalence of 24.1 %. There was significant difference between the use of preventive measures against malaria and the prevalence of malaria ($P < 0.05$). The study revealed that among the 376 pupils infected, malaria was the most prevalent infection (71.8 %) and thus a major public health problem in the area. Malaria and intestinal helminthiasis control measures such as use of mosquito bed nets, screening of houses with nets, chemotherapy, provision of adequate sanitary facilities and potable drinking water, improved personal hygiene and health education were emphasized.

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