International Journal of Academic and Applied Research (IJAAR)
ISSN: 2643-9603
Vol. 9 Issue 8 August - 2025, Pages: 81-86

Prevalence And Risk Factors Of Ascariasis And Amoebiasis Among Chukwuemeka Odumegwu Ojukwu University (C.O.O.U) Students Uli Campus Anambra State.

N.A. Mgbemena, I.O. Emmy-Egbe and L.C. Anyaegbunam

Affiliation: Department of Biological Science, Chukwuemeka Odumegwu Ojukwu University Uli, Nigeria

Email: mgbaemenangozika508@gmail.com

ABSTRACT*Amoebiasis and Ascariasis are common life-threatening parasitic diseases affecting 12% of the world population. In Nigeria, infection occurs more commonly in areas of low socio-economic status, poor sanitation and nutrition. It is with this regard that the study sought to determine the prevalence and risk factors of acariasis and amoebiasis among students of Chukwuemeka Odumegwu Ojukwu University (C.O.O.U), students of the Uli campus, Anambra State. The study used a cross-sectional survey to analyze 210 stool samples for amoebiasis and ascariasis using both macroscopic and microscopic methods. Transmission risk factors were assessed through questionnaires alongside laboratory identification of parasites. Data collected were analyzed and interpreted using analysis of variance (ANOVA) to determine associations between variables., 119 were positive for various types of intestinal parasites, including protozoans, cestodes and nematodes. The prevalence of amoebiasis was 50 (23.80 %), while the ascariasis prevalence was 38 (18.00 %). The prevalence of ascariasis and amoebiasis amongst genders, from the result highest prevalence of ascariasis was found in males, 22 (57.89 %) and the least prevalence in females, 16 (42.10 %). As for amoebiasis, the highest prevalence was found in males, 33(66.00 %), while the lowest prevalence was found in females, 17(34.00 %). Findings indicate a high rate of prevalence of acariasis and amoebiasis among students of C.O.O.U Uli campus caused by unsanitary habits, the contamination of food and water by human faeces already infected with the parasite. Educating the public on the cause, prevention and control of Ascariasis and Amoebiasis, which involves proper hygiene, will help to reduce the prevalence.*

Key words: Prevalence, Ascariasis, Amoebiasis, C.O.O.U Students.

INTRODUCTION

In impoverished nations, parasitic infections in humans are caused by intestinal helminths and protozoan parasites. Nigeria's tropical climate provides ideal conditions for parasites to grow and multiply rapidly (Emmy-Egbe *et al*,2010).

They are among the most common illnesses. Public health issues with intestinal parasite infections exist in schools. Although infection can occur at any age, school-aged children (5–9 years) are particularly susceptible to intestinal parasite infection due to their behavior and greater exposure (Zavala & Sklyarova, 2017), and they are also at the highest risk of morbidity across all age groups (Buonsenso, 2019). Ascaris lumbricoides, a helminth parasite, causes ascariasis. The most common human helminthiasis, *A. lumbricoides* is carried by one billion people, or 25% of the world's population. *Ascaris lumbricoides* is the most common intestinal helminthes found in the soil (Anyaegbunam and Uwa 2019).It usually has a benign course and low rates of morbidity and death. 20,000 people each year dies as a result of the high prevalence of Ascaris worldwide, primarily from intestinal blockage (Chijoke *et al*., 2011). Ascariasis affects 0.8 to 1.2 billion individuals worldwide, with sub-Saharan Africa, Latin America, and Asia having the highest rates of infection (Keiser and Utzinger, 2010). With 807 to 1221 million infections worldwide, ascariasis continues to be the most prevalent intestinal parasite (Senior, 2008).

Children in tropical nations frequently get ascariasis due to inadequate sanitation. Adults rarely experience it, though. By consuming food, water, or soil contaminated with embryonated eggs, an infection is contracted through faecal-oral transmission (Gaash, 2004). Ascariasis is often diagnosed by locating Ascaris eggs in a stool sample under a microscope. A concentration method is advised because it could be challenging to locate eggs in light infections. Improved sanitation, which includes improving access to bathrooms and adequate faeces disposal, is the best method of prevention (Ziegelbauer *et al*., 2012). It appears protective to wash your hands with soap (Fung & Cairncross, 2009). It is advised to treat everyone on a frequent basis in locations where more than 20% of the population is affected (Dold & Holland, 2011).Ascariasis is typically treated with anti-parasite drugs Albendazole (Albenza), ivermectin (Stromectol). mebendazole (Hagel, 2010). Helminths infection should be one of the first problems addressed to enhance the quality of life, health, and productivity of people throughout Nigeria (Emmy-Egbe,2006).

Entamoeba histolytica is a parasite that can cause amoebiasis or amoebic dysentery (Farrar *et al*., 2013). No, mild, or severe signs of amoebiasis may be present (Farrar *et al*., 2013). Lethargy, weight loss, colonic ulcerations, stomach pain, diarrhoea, or bloody diarrhoea are some of the symptoms that may be present (Rawat *et al*., 2021). Amoebiasis is a common and widespread disease in Nigeria (Ajero *et al*., 2008). Numerous epidemiological studies have revealed that Nigerian children are very susceptible to intestinal parasite diseases (Agbolade *et al*., 2004). Rarely do infants under a year old get amoebiasis (Ajero *et al*, 2008). The incidence gradually increases during childhood and usually reaches its highest incidence in young adults (Azikiwe, 2006). Entamoeba cysts can survive under fingernails for up to 45 minutes or for up to a month in soil (Farrar *et al*., 2013).Worm infestation results in malnutrition, anaemia and retarded growth, they cause absenteeism in children of school age and affect their performance, other physical and mental health problems with serious consequences may occur and overall development (Nwoke, 2004).The primary method of diagnosis is stool examination under a microscope, but this method may not be able to conclusively rule out infection or distinguish between certain strains. In severe situations, there may be an elevated white blood cell count. The most reliable test is looking for certain antibodies in the blood, but it may continue to be positive after therapy. Amoebiasis can be prevented by improving cleanliness, which includes isolating faeces from food and drink. Depending on where the infection is, there are two different treatments. Metronidazole, tinidazole, nitazoxanide, dehydroemetine, or chloroquine are used to treat amoebiasis. For effective control of these intestinal parasites, Health authorities should provide treatment, health education, toilets, and clean water to reduce environmental contamination by intestinal parasites (Emmy-Egbe,2010). it is of importance to discuss outstanding measures to ensure proper environmental sanitation, regular de-worming of oneself and personal hygiene, which are the major factors in preventing malnutrition, morbidity and mortality caused by these intestinal parasites and also to analyse the public's knowledge, practices and attitudes of the population of these intestinal parasites in the study area.

MATERIALS AND METHOD

This study was conducted in Chukwuemeka Odumegwu Ojukwu University Uli,in Ihiala Local Government Area of Anambra State. The area lies at 5°47' N latitude and 6°52' E longitude, with a tropical rainforest climate, averaging 1932 mm of rainfall and 27°C daily temperature. It has two main seasons: a wet season (April–October) and a dry season (November–March). Several streams serve as the primary water source. Basic amenities like good roads, pipe-borne water, and proper sewage systems are generally lacking, except in student-populated areas.

Ethical approval

Ethical consideration and informed consent

A letter of introduction was obtained from the Head of Department, and informed verbal consent was secured from all participants. They were briefed on the study's purpose, assured of voluntary participation, and guaranteed confidentiality of all data collected for research use only.

Study design

The study used a cross-sectional prevalence survey involving students of Chukwuemeka Odumegwu Ojukwu University, Uli Campus, aged 15 to 35 years.

Sample Population

The sample population comprised 210 stool samples collected from students of Chukwuemeka Odumegwu Ojukwu University, Uli, Anambra State. Informational sessions and interviews were conducted, and consent was obtained using a systematic questionnaire from willing participants.

Sample Collected and handling

Students filled out survey forms providing their personal and hygiene details, including name, sex, age, water source, toilet type, and last deworming date. They were given clean, labeled plastic bottles and instructed on proper stool sample collection. After collecting the samples, they were taken to the laboratory for analysis, and each participant completed a structured form.

Examination of Samples

The stool samples collected was examined in batches using Direct smear methods with normal saline and iodine solution.

Statistical Analysis Summary:

Data were entered into Microsoft Excel 2007 and cleaned for accuracy. Statistical analysis was conducted using SPSS version 17. ANOVA was used to analyze and interpret variables, while descriptive statistics summarized continuous and categorical variables to understand socio-demographic characteristics. A p-value of ≥0.05 was considered statistically significant.

RESULT

Table 1, The highest prevalence of ascariasis (42.10%) and amoebiasis (52.00%) occurred among the 21–25 age group, while the lowest prevalence for both infections was observed in the 31–35 age group (13.15% for ascariasis and 10.00% for amoebiasis)

Sex related prevalence, males had higher prevalence rates for both ascariasis (57.89%) and amoebiasis (66.00%) compared to females (42.10% and 34.00% respectively) in Table 2.

In Table 3,Socio-economic risk factors considered were toilet availability, drinking water source, and deworming history; sachet water users had a lower risk of Amoebiasis infection.

Age and Sex -related prevalences of Ascariasis and Amoebiasis infections among Chukwuemeka Odumegwu Ojukwu University Students (n= 210)

Variable	No. examined for each categories	Number of infected with amoebiasis (%)	Number of infected with ascariasis (%)	Total number of co-infected (%)	P- value
Age group					
15-20 yrs	60	8 (16.00)	9 (23.68)	19 (27.14)	
21-25 yrs	90	26 (52.00)	16 (42.10)	27 (38.57)	
26-30 yrs	50	11 (22.00)	8 (21.05)	17(24.28)	
31-35 yrs	10	5 (10.00)	5 (13.15)	7 (10.00)	
Total	**210**	**50 (100.00)**	**38 (100.00)**	**70 (100.00)**	**1.100**
Gender					
Male	114	33 (66.00)	22 (57.89)	23 (8.57)	
Female	96	17 (34.00)	16 (42.10)	47(23.80)	
Total	**210**	**50 (100.00)**	**38 (100.00)**	**70 (100.00)**	**0.300**

Socio-economic risk factors associated with ascariasis and amoebiasis among C.O.O.U Students in relation to their demographics and family data.

Variable	No. examined for each categories	Number of infected with amoebiasis (%)	Number of infected with ascariasis (%)	Total number of co-infected (%)	*P- value*
Availability of toilet					
Pit latrine	27	24 (44.44%)	18 (33.33%)	21 (20.00%)	
Flush toilet	71	20 (14.08%)	14 (9.90%)	17 (16.19%)	
Portable toilet	7	6 (42.85%)	6 (42.86%)	6 (5.71%)	
Total	**210**	**50 (23.80%)**	**38 (18.00%)**	**70(58.82%)**	**1.100**
Source of drinking water					
Borehole	61	15 (24.59%)	3 (4.92%)	18 (17.14%)	
Table/sachet water	33	5 (15.15%)	10 (30.30%)	15 (14.28%)	
Rain water	8	4 (50.00%)	5 (62.50%)	9(8.57%)	
Total	**210**	**25(23.80%)**	**19 (18.00%)**	**70(58.82%)**	**0.300**
Water treatment					
Treated	27	8 (14.81%)	8 (14.81%)	8 (7.61%)	
Untreated	210	42 (26.92%)	30 (19.23%)	36 (34.28%)	
Total	**105**	**50(23.80%)**	**38 (18.00%)**	**70(58.82%)**	**0.050**

DISCUSSIONS

A notable finding was the distribution of infections by age group. The 21–25-year-old participants had the highest prevalence of both ascariasis (42.10%) and amoebiasis (52.00%), while the lowest rates were observed in the 31–35 age group (13.15% for ascariasis and 10.00% for amoebiasis). This age-related trend may be attributed to behavioral and exposure patterns; young adults may engage in more outdoor activities or have less adherence to hygiene practices, increasing their risk of contact with contaminated soil or water. (Pham *et al*., 2011) demonstrated a high prevalence of 31.0% among younger pupils between the age range of 10-20 years, however the lowest level of infection was noted among those within the age categories of 21 to 30 and >30 years.

Gender differences were also evident, with males showing higher infection rates for both ascariasis (57.89%) and amoebiasis (66.00%) compared to females (42.10% and 34.00%, respectively). This aligns with other studies which have reported higher rates of intestinal parasitism among males, potentially due to greater environmental exposure, occupational activities, or behavioral risk factors. The same results have been reported by Yasmeen and Singh (2015). In contrast to what we found, a study done in 2012 by Panda found that females were more contagious than males. Nyenke (2008) found that females (12.3%) had higher infection rates than males (8.8%) in another investigation.

The study also assessed the impact of socio-economic risk factors, particularly toilet availability, drinking water source, and recent deworming. Importantly, individuals who consumed sachet water had a significantly lower risk of amoebiasis, highlighting the

protective role of treated or packaged water against waterborne protozoan infections. This finding supports existing evidence that access to safe drinking water is a critical determinant in reducing the transmission of enteric protozoa.

CONCLUSIONS

Given the significant proportion of students infected, routine screening, health education campaigns, and improvements in water quality and sanitation infrastructure are recommended. Periodic deworming programs and hygiene promotion, especially targeted toward young adults and male students, could further reduce the prevalence of these infections.

RECOMMENDATION

1. Periodic mass deworming campaigns should be organized for students
2. Improve Access to Clean Water Sources
3. Promote Health Education on Hygiene and Sanitation.

REFERENCES

Agbolade, O.M., Akinboye, D. and Awolaja, A.(2004). Intestinal helminthiasis and urinary schistosomiasis in some villages of Ijebu North, Ogun State, Nigeria. *African Journal of Biotechnology*, **3(**20):206-209.

Ajero C.M., Nwoko, B.E.B., Nwoke, E.A. and Ukaga, C.N. (2008) Human Amoebiasis: Distribution and Burden; and the Nigerian Environment. *International Journal of Scientific Research*, **1(**2):130–134.

Anyaegbunam, L. C. and Chinyere, U. (2019). Soil transmitted helminths among primary school children in Okija. Ihiala Local Government Area, Anambra State. *Tropical Journal of Applied and Natural Sciences*, **2**(3):71-76.

Azikiwe A.N. (2006). Prevalence and pattern of intestinal infestation in an African University Community. *Annals of Tropical Medicine and Parasitology*, **78:**333-334.

Buonsenso, D. (2019). Intestinal parasitic infections in internationally adopted children: a 10-year retrospective study. *The Pediatric Infectious Disease Journal*, **38**(4):983–989.

Dold, C. and Holland C.V. (2011). Ascaris and ascariasis. *Microbes and Infection*, **13**(7):632–637.

Chijioke, I.R., Ile, C., Ilechukwu, G.C.A., Okafor, C.I., Ekejindu, I. M. and Sridhar, M.K.C. (2011). A community based survey of the burden of *Ascaris lumbricoides* in Enugu. *The Annals of Medical and Health Sciences Research*, **1**(2):165-171.

Emmy-Egbe, LO. (2006): Tropical Diseases as a Major Obstacle to Global development - A review. *Journal of Science, Engineering Technology* (JSET) 13: (12) 68727-6837.

Emmy-Egbe, I.O. (2006): Implications of Intestinal Helminthiasis in Childhood Development. School of Science, Nwafor Orizu College of Education, Nsugbe, Anambra State, Vol **(1)**:53 - 62.

Emmy-Egbe, I.O. (2010): Prevalence of Intestinal Helminths parasites in Relation to Age and Occupation in Ihiala, Anambra State Nigeria. *Natural and Applied Science Journa*l, **11**: 238-243.

Farrar, J., Hotez, P., Junghanss, T., Kang, G., Lalloo, D. and White, N. J. (2013). *Manson's Tropical Diseases*. Elsevier Health Sciences. Pp. 664–671.

Fung, I. C. and Cairncross, S. (2009). Ascariasis and hand washing. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, **103**(3):215–22.

Gaash, B. (2004). *Ascaris lumbricoides*. *Indian Journal Practising Doctor*, **1**(3): 11-12.

Hagel, I. and Giusti, T. (2010). *Ascaris lumbricoides*: an overview of therapeutic targets". *Infectious Disorders Drug Targets*, **10**(5):349–367.

Keiser, J. and Utzinger, J (2010). The drugs we have and the drugs we need against major helminth infections. *Advances in Parasitology*, **73**: 197–230.

Nwoke B.E.B. (2004). Our Environment and Emerging and Reemerging parasitic and infectious diseases. *Supreme Publication* Owerri Nig., **4**(2):3.

Nyenke, C., Chukwujekwu, D. C., Stanley, H. O. and Awoibi, N. K. (2008). School of Medical Laboratory Science, College of Health Science and Technology Port Harcourt. Department of Mental Health, University of Port Harcourt Teaching Hospital. Department of Microbiology University of Port Harcourt. School of Medical Laboratory Science, College of Health Science and Technology Port Harcourt. *Journal of Applied Sciences and Environmental Management*, **12**(3)83-87.

Panda, S., Rao, U.D. and Sankaram, K.R. (2012). Prevalence of intestinal parasitic infections among school children in rural area of Vizianagaram. *International Journal of Pharmacy and Biological Sciences*, **3**:42-44.

Pham Duc, P., Nguyen-Viet, H., Hattendorf, J., Zinsstag, J., Dac Cam, P. and Odermatt, P. (2011). Risk factors for Entamoeba histolytica infection in an agricultural community in Hanam province, Vietnam. *Parasitology Vectors*, **4**:102.

Rawat, A., Roy, M., Jyoti, A., Kaushik, S., Verma, K. and Srivastava, V. K. (2021). Cysteine proteases: Battling pathogenic parasitic protozoans with omnipresent enzymes. *Microbiological Research*, **249**:(12) 6784.

Senior, K. (2008). Neglected tropical diseases affect thousands in the USA. *Lancet*. **8**(4):27.

Yasmeen, M. and Singh, S. (2015). Study of the prevalence of intestinal parasitic infection in children of Ghaziabad. *Indian Journal of Research*, **4**:43-45.

Zavala, G. A. and Sklyarova, V. O. (2017). Energy and food intake are associated with specific intestinal parasitic infections in children of rural Mexico. *International Journal of Parasitology*, **66**:831–836.

Ziegelbauer, K., Speich, B., Mäusezahl, D., Bos, R., Keiser, J. and Utzinger, J. (2012). Effect of sanitation on soil-transmitted helminth infection: systematic review and meta-analysis. *PLOS Medicine*, **9** (1):100-116.