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Intestinal Parasites among Undergraduate Students of Michael Okpara University of Agriculture, Umudike Abia State, Nigeria

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Abstract: A study was conducted on the prevalence of intestinal parasites among undergraduates of Michael Okpara University of Agriculture, Umudike Umuahia Abia State, Nigeria. A total of 333 faecal specimens from the students were microscopically examined for presence of intestinal parasites using direct wet smear and formol ether concentration techniques. Out of the total of 333 samples examined, 240 (72.0%) were infected. The parasite species identified and their prevalence were *Ascaris lumbricoides* (25.2%), Hookworm (20.4%), *Trichuris trichuria* (3.0%), *Taenia* species (7.5%), *Strongyloides stercoralis* (6.6%) and *Entamoeba histolytica* (9.3%). Out of the total number of faecal specimen collected, residential prevalence showed that infection in male hostel was (22.5%), female hostel (25.8%), off campus (22.5%), students from their various homes (15.8%), post graduate hostel squatters (13.3%) with higher rate among those in female hostel. There was no significant difference in gender related prevalence ($P>0.05$). The result of the study therefore shows that intestinal helminthes are prevalent among undergraduate students of Michael Okpara University of Agriculture Umudike. This calls for education on measures of reduction of parasitic infections, which are associated with poor environmental sanitation and unhygienic personal behaviours. Periodic treatment of individuals with antiparasitics is also encouraged.

Key words: Parasites · Faecal · Undergraduates · Prevalence

INTRODUCTION

Human intestinal parasite and other microbial agents like viruses and bacteria invade the stomach and intestinal mucosa causing various forms of diseases [1]. The endemicity of intestinal parasites in the tropical and subtropical regions especially among rural dwellers is due to poor environmental sanitation [2] as well as general ignorance of the mode of transmission of parasitic diseases. These infections lead to malnutrition, iron deficiency anaemia, foetal stunted growth and increased vulnerability to other infections.

Intestinal parasites are leading cause of diseases among young people and adult in the world today. They are almost the most prevalent human infections affecting approximately one quarter of the world's populations, mainly school children and undergraduates due to their poor hygienic nature or poor sanitary conditions coupled with their voracious eating habits [3]. Helminthic infection has been among the prevalent of all human infectious diseases and today, the global picture is still similar, thus we are still living in a ''wormy world''. Studies have shown sufficient evidence that intestinal parasites are endemic in Nigeria [4]. Yet the infection has not receive any serious attention both from the health authorities and the individual in the communities. The high prevalence in certain parts of the world is closely correlated with poverty and poor environmental hygiene namely lack of safe water supply, contamination of the environment by human faeces. Commonly, people become infected with helminthes by coming into contact (by consumption or active penetration depending on the species) with the soil, water or food that contain infective stages of these parasites.

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Intestinal helminthes cause morbidity in human by affecting nutritional equilibrium inducing intestinal bleeding, inducing mal-absorption of nutrients, competing for micro nutrients, reduce growth and food intake, cause surgical complications [5, 1]. Infection with intestinal parasites has also been associated with so many havoc both physically and mentally. These include anaemia, wasting, stunting, cognitive impairment and lowered educational achievement [5] all of which have in turn interfered with productivity and wage earning capacity in adults. Intestinal parasitic infections do exhibit a significant negative impact on the educational/ institutional enrolment, attendance and even the ability, also affecting concentration and work capacity and increasing absenteeism from lecturers. Chronic infection with intestinal worms affects social and economic development and also endangers reproductive health [5]. In light of the above, there is the need to constantly study the status of intestinal parasitic infection especially among the school aged and also the undergraduates, which form the objective of this study.

MATERIALS AND METHODS

Subjects: The subjects were undergraduate students from Michael Okpara University of Agriculture Umudike (MOUAU) in Umuahia Abia state, Nigeria. A single faecal specimen was collected from each student after consent in labelled clean dry specimen bottles with necessary precautions. The students were instructed to collect stool specimen at home the next morning and return same immediately. The specimens were taken to National Veterinary Research institute Laboratory (NVRI) in National Root Crop Research Institute (NCRI) Umudike, Umuahia for examination and identification.

Stool Examination: Twenty (20) specimen containers were distributed each day for specimen collection and examined the same day or kept in the refrigerator (4°C) until examined according to [6]. The analysis was done microscopically using direct wet mount in fresh normal saline and formol ether concentration technique for presence of intestinal parasites. Specimen with no parasite was regarded as negative. The data obtained were analysed using descriptive statistics. Level of significance was set at $P<0.05$.

RESULTS

Out of 333 subjects examined, 240 (72.0%) were positive (Table 1). The prevalence rate of intestinal parasite species found were: *Ascaris lumbricoides* 25.2%, Hookworm 20.4%, *Trichuris trichuria* 3.0%, *Taenia* spp 7.5%, *Strongyloides stercoralis* 6.6% and *Entamoeba histolytica* 9.3%.

Table 1: Overall prevalence of intestinal parasites among undergraduate students (Number examined = 333)

Parasite identified	Number infected	Prevalence (%)
Ascaris lumbricoides	84	25.2
Hookworm	68	20.4
Trichuris trichuria	10	3.0
Taenia solium	25	7.5
Strongyloides stercoralis	22	6.6
Entamoeba histolytica	31	9.3
Total	240	72.0

Table 2 shows the prevalence of intestinal parasite infections from different residential locations in the study area. The students from female hostel had higher infection (25.8%) than others. The prevalence rate of parasite infection among female and male students are shown in Table 3. One hundred and eleven (38.7%) of the male students and 129 (33.3%) of female students were infected and this was comparably not significant ($P>0.05$).

DISCUSSION

Intestinal parasite pose serious threats to our hopes for healthy living, our environment and to socio-cultural habits of the people. The high prevalence of intestinal parasities in this study area suggests that the prevailing environmental conditions support the transmission of a wide range of parasites. *Ascaris lumbricoides*, Hookworm and *Entamoeba histolytica* were the commonest intestinal parasites in the study area. These observations corroborate with the finding of Gilles [7-8] who conducted a survey at Akufor village near Ibadan metropolis and Abia State respectively.

The high prevalence of intestinal parasite infection among undergraduates in this study was similar to that reported by Egwunyenya *et al*. [5] in Jos. The occurrence of intestinal helminth infections at high rates among the study group is indicative of faecal pollution of the environment around schools and homes due to poor sanitation and improper sewage disposal Several studies [2,9-11] have highlighted the hyperendermicity of soil transmitted helminthes especially among children who are at highest risk of the infection. The prevalence of *Ascaris lumbricoides*, among the subjects was the highest followed by Hookworm. While the other parasites were of lower prevalence. These results obtained here are lower than that reported by Parakoyi and Musa [12] in Ilorin. The difference could be due to the poor sanitary

Table 2: Residential Related prevalence (Number examined = 333)

Parasite identified	Male hostel	Female hostel	Off-campus	Student home	PG hostel squatters	Total
Number examined	66	66	69	66	66	333
Number infected	54	64	59	37	30	240
Ascaris lumbricoides	19	20	21	14	10	84
Hookworm	15	21	15	8	9	68
Trichuris trichuria	3	2	4	2	3	14
Taenia solium	7	9	2	5	2	25
Strongyloides stercoralis	4	7	4	2	5	22
Entamoeba histolytica	6	5	13	6	1	31

Table 3: Gender related prevalence

Gender	Number examined	Number infected	Prevalence (%)
Male	166	111	33.3
Female	167	129	38.7
Total	333	240	72.0

condition of the study area. Hookworms actively suck blood from mucosal capillaries, other worms cause some physical and chemical damage to tissues including inflammatory and immunopathological changes [1] and therefore efforts for their control should not be overlooked.

It was also discovered that the infection in female students were of high prevalence (53.8%) than that of the male students (46.3%), but not significant. This means that both gender are equally exposed in the same unhygienic environment that is directly associated with high endemicity of these intestinal parasites. The findings reveal high prevalence of intestinal parasites, which predispose undergraduates to lower educational achievement.

CONCLUSION

Intestinal parasite infections are highly prevalent in the study area. These parasites interfere with productivity and wage earning capacity in adults. They also exhibit significant negative impact on the educational/ institutional enrolment, attendance and even the ability affecting concentration, work capacity and increasing absenteeism from lectures. Sustainable control efforts through repeated chemoprophylaxis should be encouraged.

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