The Prevalence Of Intestinal Helminthic Parasitic Infections Among Patients Attending The University Of Benin Teaching Hospital , South-south Nigeria: A Retrospective Study.

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ABSTRACT

Background: Intestinal parasite infection is one of the main Public health issue, particularly in developing countries like Sub-Saharan Africa. Around 450 million people, primarily children, are believed to be unwell as a result of such diseases, with an estimated 3.5 billion people affected globally. Intestinal helminths infections have continued to occur in Nigeria as a result of low living standards, unsanitary surroundings, and a lack of knowledge about fundamental health-promoting behaviours. The majority of those afflicted are children, and Children in developing nations are most often affected because of their typical hand-mouth conduct, uncontrolled faecal activity, and immature immune systems. These diseases are more common in the less affluent neighbourhoods. They share several characteristics, including poor household income, filthy living circumstances, crowded living quarters, limited access to potable water, tropical weather, and low altitude.Among the top 10 most common infections in the world are intestinal parasitic disorders, including trichiuriasis, ascariasis, and hookworm infestation. The severity of intestinal parasite infections and their determinants among patients at University Of Benin Teaching Hospital, Benin-city, Nigeria, are poorly understood.

Aims: To estimate the prevalence of intestinal helminthic parasites among patients attending University Benin Teaching hospital, Benin-city.

Method: The study is a Retrospective Cross Sectional Study. It involved a review of Case notes of Patients that were admitted in UBTH and managed for Intestinal parasitic diarrhoea diseases from June 2016 to December 2019. Also a review of their Medical microbiology laboratory test records during management especially their Stool Microscopy results was done. Patients with incomplete or missing medical data were excluded from the study. Data were analyzed using SPSS version 26.0 statistical software.

Results: A total of 200 stool samples were processed during the period under review, and 40(20%) Stool samples were positive for intestinal helminths,28 (14%)stool samples were positive for Protozoa, while 132(66%) stool samples showed no parasites .

The Prevalence of intestinal parasite over these three year and 7 months period was 20% (40/200). With Male prevalence 13%(26/200) and Female 7%(14/200).

Of the Forty(40) intestinal helminths isolated,Twenty-six (65%) were from male Stool samples, while 14 (35%) were from female stool samples.

Hookworm (*Ancyclostoma duodenale* and *Necator americanus*) was the most isolated intestinal parasite accounting for8 (20%) of the total intestinal isolates. This was followed by *Ascaris lumbricoides* which accounted for 6(15%) of the total intestinal helminths isolated. In Male stool samples Hookworm and Ascaris lumbricoides were the most isolated intestinal parasite, while *Schistosoma haematobium* and *Ascaris lumbricoides* were the most isolated intestinal parasites in female stool samples. The least identified intestinal parasite were *Hymenolopsisnana* and *Schistosomajapanicum.* Seven different kinds of intestinal helminths were identified.

There was no significant relationship between the Sex of patients and the acquisition of intestinal parasites (as P= 0.460)

There was a significant relationship between the age group of patients and the Species of intestinal parasites isolated (P= 0.000).

Conclusion: In adults and school-age children, intestinal parasite infections were highly prevalent. The findings suggest that in order to reduce intestinal parasite infections, coordinated eradicated measures must be strengthened. The results of this study will be a valuable contribution to any modifications made to intestinal parasite prevention and control programmes by the federal, state or local governments.
Keywords: **Intestinal helminths, Patients, University of Benin Teaching Hospital, Prevalence, Benin-city**

INTRODUCTION

Intestinal parasite infection is one of the main public health issues, particularly in developing countries like Sub-Saharan Africa. Around 450 million people, primarily children, are believed to be unwell as a result of such diseases, with an estimated 3.5 billion people affected globally [1].

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Intestinal helminths infections have continued to occur in Nigeria as a result of low living standards, unsanitary surroundings, and a lack of knowledge about fundamental health-promoting behaviours [2, 3]. Kids attending school have a higher probability of acquiring intestinal helminths infections, and they also tend to have them more frequently [4, 5, 6]. The majority of those afflicted are children, and Children in developing nations are most often affected because of their typical hand-mouth conduct, uncontrolled faecal activity, and immature immune systems(7).

Parasitic illnesses have been associated with a higher risk of nutritional anaemias, protein energy shortages, and stunted child growth. They may also result in a high risk of morbidity and mortality [10], as well as physical illness and subpar academic performance among pupils [8, 9]. Parasitic diseases are regulated by behaviour. Key components of health systems include biological, environmental, and social elements. The probability of disease transmission, infection, and associated death and morbidity is influenced by social and professional factors like education, local circumstances like well-maintained residential and rural infrastructure, and economic factors like monthly income [11, 12].

These diseases are more common in the less affluent neighbourhoods. They share several characteristics, including poor household income, filthy living circumstances, crowded living quarters, limited access to potable water, tropical weather, and low altitude. Among the top 10 most common infections in the world are intestinal parasitic disorders, including trichiuriasis, ascariasis, and hookworm infestation [13].

Intestinal helminths have a major role in the development of gastrointestinal problems, including dysentery, vomiting, diarrhoea, anorexia, haematuria, abdominal distension, and sometimes cognitively associated disorders. [14, 15]. Malnutrition and anaemia can be caused by severe chronic infections with *Ascaris lumbricoides* and hookworms (*Ancylostomadoudenale*or *Necator americanus*) in high-risk individuals. [16, 17, 18].

The severity of intestinal parasite infections and their determinants among patients at University Of Benin Teaching Hospital, Benin-city, Nigeria, are poorly understood.

In order to ascertain the types and prevalence of human intestinal helminthic parasites among patients arriving at the University of Benin Teaching Hospital in Benin City,the current retrospective Study was carried out.

MATERIAL AND METHODS

Study setting:

The study was conducted in UBTH and the department of medical microbiology of the University of Benin Teaching Hospital, a

900-bedded tertiary centre located in Benin-city, south south Nigeria. The hospital is dedicated to teaching, research and specialist services and serves Lagos State and neighbouring States in south south Nigeria.

Study design:

The study was a Retrospective Cross Sectional Study. It involved a review of Case notes of patients that were admitted in UBTH and managed for Intestinal parasitic diarrhoea diseases from June 2016 to December 2019. Also, a review of their medical microbiology laboratory test records during management especially their Stool Microscopy results was done.

Patients with incomplete or missing medical data were excluded from the study.

Ethical considerations

Ethical approval for the study was obtained from University of Benin Teaching Hospital Research and Ethics Committee, with PROTOCOL NUMBER: ADM/E22/A/VOL.VII/14830112981. As data were retrospectively obtained from the laboratory records and did not involve contact with patients nor was recruitment of patients done, informed consent was not deemed necessary. However, privacy and confidentiality of patients' data were protected in accordance with the Declaration of Helsinki.

RESULTS

A total number of 200 stool samples were processed during the period of review(Table 1). 40(20%) Stool samples were positive for intestinal helminths,28 (14 %) stool samples were positive for Protozoa, while 132(66%) stool samples showed no parasites. (Table 2)

The Prevalence of intestinal parasite over these three year and 7 months period was 20%(40/200). With Male prevalence of intestinal parasite of 13%(26/200) and Female prevalence of intestinal parasite of 7%(14/200).

Of the Forty (40) intestinal helminths isolated , Twenty-six(65%) were from male Stool samples, while 14 (35%) were from female stool samples. (Table 3, Fig1)

Table 1: Socio-demographic characteristics of subjects

VARIABLE	TOTAL NUMBER OF STOOL SAMPLES				NUMBER OF STOOL SAMPLES POSITIVE FOR HELMINTHS ISOLATION			
AGE GROUPS	MALE		FEMALE		MALE		FEMALE	
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
1-5	13	10.83	7	8.75	0	0.00	0	0.00
6-10	17	14.17	10	12.5	6	5.00	3	3.75
11-15	6	5.00	5	6.25	3	2.50	2	2.50
16-20	5	4.17	5	6.25	2	1.67	0	0.00
21-25	18	15.00	15	18.75	3	2.50	2	2.50
26-30	19	15.83	10	12.5	4	3.33	2	2.50
31-35	16	13.33	10	12.5	5	4.17	3	3.75
36-40	5	4.17	8	10.00	0	0.00	1	1.25
41-45	11	9.17	5	6.25	3	2.50	0	0.00
46-50	10	8.33	5	6.25	0	0.00	1	1.25
Total	120	100	80	100	26	21.67	14	17.5

Table 2: Isolates from stool sample and their percentages

PARASITE IN STOOL SAMPLE	NUMBER	%
Intestinal helminth	40	20
Protozoan	28	14
No parasite	132	66
Total stool sample	200	100

Table 3: Age and Sex

		STOOL SAMPLE WITH INTESTINAL HELMINTHS	
		MALE	FEMALE
Age range	6-10	6	3
	11-15	3	2
	16-20	2	0
	21-25	3	2
	26-30	4	2
	31-35	5	3
	36-40	0	1
	41-45	3	0
	46-50	0	1
	Total	26	14

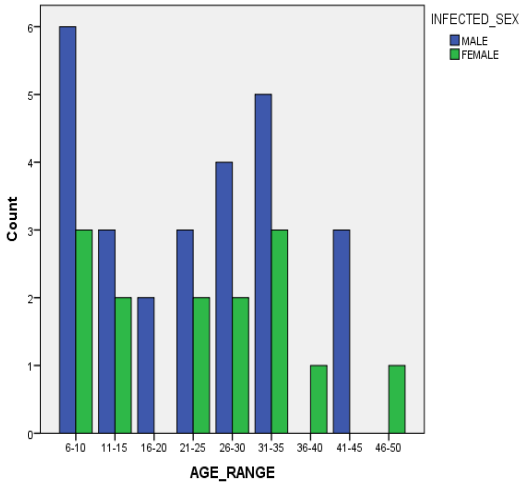

Figure 1: Age and sex of patients with helminths infected stool sample.

Hookworm (*Ancyclostoma duodenale* and *Necator americanus*) was the most isolated intestinal parasite accounting for 8 (20%) of the total intestinal isolates. This was followed by *Ascaris lumbricoides* which accounted for 6(15%) of the total intestinal helminths isolated. In Male stool samples, Hookworm and Ascaris lumbricoides were the most isolated intestinal parasite, while *Schistosoma haematobium* and*Ascaris lumbricoides* were the most isolated intestinal parasites in female stool samples. The least identified intestinal parasite were *Hymenolopsis nana* and *Schistosoma japanicum.*Seven different kinds of intestinal helminths were identified. (Figure 4)

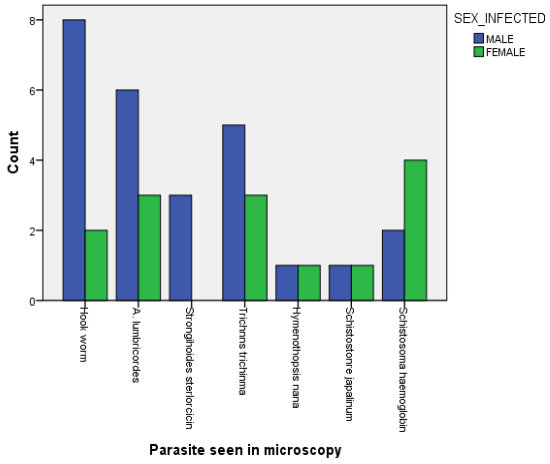

Figure 4: Gender and parasites isolated

There was no significant relationship between the Sex of patients and the acquisition of intestinal parasites (as P= 0.460). (Table 4)

Table4: Gender and Parasite isolated.

		INFECTED STOOL SAMPLE MALE	FEMALE	X^2	P-VALUE
Parasite seen in microscopy	Hook worm	8	2	5.678	0.460
	Ascaris lumbricoides	6	3		
	Strongiloidesstercoralis	3	0		
	Trichuris trichura	5	3		
	Hymenolopsis nana	1	1		
	Schistosoma japanicum	1	1		
	Schistosoma haematobium	2	4		

There was a significant relationship between the age group of patients and the Species of intestinal parasites isolated(P= 0.000). (Table 5)

Table 5. Frequency of parasite species seen across the various age groups

		PARASITE SPECIE							X^2	P-value
		Hook	*A. lumbricord*	*Strongihoi dessterlorc*	*Trichuris trichura*	*Hymenolo psis nana*	*Schistosto nreipanic*	*Schistoso ma*		
Age range	1-5	0	0	0	0	0	0	0	97.872	0.000
	6-10	5	2	0	1	0	0	1		
	11-15	1	1	0	1	0	0	2		
	16-20	0	0	1	0	1	0	0		
	21-25	1	1	0	2	0	0	1		
	26-30	2	0	0	2	0	0	2		
	31-35	1	5	0	2	0	0	0		
	36-40	0	0	0	0	0	1	0		
	41-45	0	0	2	0	1	0	0		
	46-50	0	0	0	0	0	1	0		
	Total	10	9	3	8	2	2	6		

DISCUSSION

In this Study, the Prevalence of intestinal helminths over the 43months period was 20%(40/200).This Findings were similar to another study done in North eastern Nigeria by Ibrahim

et al(19). Another study done in Irrua reported prevalence of 40% intestinal parasitic infection [20] which was not consistent with the findings in this study.

The Male prevalence of intestinal parasite (13%) was higher than the Female prevalence of intestinal parasite (7%.). This was similar to a study done by Ibrahim at tal (19).

Hookworm (*Ancyclostoma duodenale* and *Necator americanus*) was the most isolated intestinal parasite (accounting for 20%of the total intestinal isolates) in this study. This was followed by *Ascaris lumbricoides*.This was similar to findings of Elemuwa e tal (21) .

The finding that gender doesnot affect the acquisition of intestinal parasite in this study was similar to other previous studies (22-24).

In this Study, Age did not affect the acquisition of intestinal parasites. This was similar to the study by Elemuwa e tal(21), but contrary to some studies which found higher prevalence within the age groups (22, 25).

CONCLUSION

In conclusion, a prevalence of 20% of intestinal Helminthic infections was observed in this study and the parasites that was most frequently isolated from patients accessing care in the University of Benin Tertiary Care centre was Hookworm (Ancyclostoma *duodenale* and *Necator americanus*).

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