

Intestinal Parasites Prevalence on Patients Visiting Afgoi General Hospital, in Afgoi District, Somalia

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Abstract:-

➤ Purpose

Intestinal parasitic infection stands as a significant public health concern in developing nations. This study aims to determine the intestinal parasites prevalence on patients visiting Afgoi General Hospital, in Afgoi District, Somalia.

➤ Methods

A cross-sectional study design was implemented involving 195 patients at Afgoi General Hospital. Stool samples were obtained to assess intestinal parasite prevalence, while questionnaires were administered to gather and analyze the demographic profiles of the patients.

➤ Results

The intestinal parasite prevalence was determined to be 61%. Among the identified species, *Giardia lamblia* exhibited the highest prevalence at 33.3%, followed by *Trichuris trichura* at 12.3%, *Ascaris lumbricoides* at 10.8%, *Entamoeba histolytica* at 9.2%, *Hymenolepis nana* at 3.6%, *Strongyloides stercoralis* at 1.5%, *Hookworm* at 1%, and both *Hymenolepis diminuta* and *Entamoeba coli* at 0.5%.

➤ Conclusion

The study revealed a notable prevalence of intestinal parasitic infections among Afgoi General Hospital patients. Thus, enhancing sanitation practices, improving access to clean water, and initiating routine deworming programs are imperative measures.

Keywords:- Prevalence, Intestinal Parasite, Afgoi General Hospital, Somalia.

I. INTRODUCTION

Parasitic infections are widespread in developing countries worldwide, affecting a large number of people. (Khan et al., 2017). These infections, which are the most common, impact 3.5 billion individuals, resulting in 450 million illnesses, and pose significant public health challenges in these regions(Tigabu et al., 2019).

Common intestinal parasites found in tropical and subtropical regions include soil-transmitted helminths(Guo et al., 2020). From a public health perspective, the most concerning parasites for humans are *Ascaris lumbricoides*, *Trichuris trichiura*, and hookworms (*Ancylostoma duodenale* and *Necator americanus*). These parasites collectively represent the most prevalent gastrointestinal worm infections in humans living in tropical and subtropical countries(Gupta et al., 2020). Intestinal parasites (GIP) are notably linked with poverty, inadequate access to safe drinking water, substandard sanitation, unhygienic practices, and limited education(Ahmed et al., 2023).

Intestinal parasitic infection is a significant public health concern in the southern region of Somalia. A previous study reported a high prevalence of 85%(Ilardi et al., 1987). Since the collapse of the central Somali government, various areas, including the current study location, have lacked updated prevalence data. Thus, this study seeks to assess the prevalence of intestinal parasitic infections among patients visiting Afgoi General Hospital in the Afgoi district of Somalia.

II. MATERIALS AND METHODS

➤ Study Design and Area

A cross-sectional study design was employed to evaluate the prevalence of intestinal parasitic infections in patients attending Afgoi General Hospital between June 2024 and August 2024. This research was carried out at Afgoi General Hospital, situated in the Afgoi district, approximately 30 km from Mogadishu, the capital city of Somalia. The study encompassed a sample size of 195 individuals, selected through random sampling methods until the desired sample size of 195 was attained. Socio-demographic data was gathered through the administration of a questionnaire. Strict confidentiality was maintained and all data obtained were securely stored and data will only be used for research purposes. Participants were comprehensive information about the study's objectives. Each participant gave written informed consent.

➤ *Stool Collection and Examination*

A drop of normal saline or Lugol’s iodine was mixed with approximately 2 mg of stool on a microscopic glass slide, covered with a cover slip, and observed under a microscope. Following the direct stool examination, the samples were dissolved in a 10% formalin solution and analyzed in the hospital's medical laboratory. Each specimen underwent screening for intestinal parasitic organisms

through a wet mount procedure. Positive samples were verified for parasite identification using a light microscope.

➤ *Data Analysis*

The analysis of descriptive statistics, including frequencies, percentages, and tabulated data, was conducted using the Statistical Package for the Social Sciences (SPSS) version 20 for Windows.

III. RESULTS

Table 1: Demographic Characteristics of Patients at Afgoi General Hospital.

Variables	Frequency	Percentage %
Sex		
Male	74	37.9
Female	121	62.1
Total	195	100
Age group		
< 5	99	50.77
5-10	22	11.28
11-18	20	10.26
> 18	54	27.69
Total	195	100

Table 2: Descriptive Statistics of Intestinal Parasite Species among Patients (n = 195) at Afgoi General Hospital.

Type of parasite	Frequency	Percentage
<i>Ascaris lumbricoides</i>	21	10.8%
<i>Trichuris trichura</i>	24	12.3%
<i>Hookworm</i>	2	1%
<i>Strongyloides stercoralis</i>	3	1.5%
<i>Hymenolepis nana</i>	7	3.6%
<i>Hymenolepis dimnuta</i>	1	0.5%
<i>Giardia lamblia</i>	65	33.3
<i>Entamoeba histolytica</i>	18	9.2
<i>Entamoeba coli</i>	1	0.5%

Table 3: Intestinal Parasite Infection Prevalence by Sex.

SEX		Intestinal Parasite		Total
		Not seen	Seen	
SEX	Female	46 (23.6%)	75 (38.5%)	121
	Male	30 (15.4%)	44(22.6%)	74
Total		76 (39%)	119(61%)	195

Table 4: Intestinal Parasite Infection Prevalence by Age

AGE		PARISITE		Total
		Not seen	Seen	
AGE	11-18	3 (1.5%)	17(8.7%)	20
	5-10	2 (1%)	20(10.3%)	22
	> 18	24(12.3%)	30(15.4%)	54
	< 5	47 (24.1%)	52(26.7%)	99
Total		76(39%)	119(61%)	195

Table 5: Prevalence of Type of Intestinal Parasite Infection by Sex

Type of infection		SEX		Total
		Female	Male	
Type of infection	Monoparasitism	56 (56.9%)	29 (26.4)	85(77.3%)
	Polyparasitism	11 (10%)	14(12.7%)	25(22.7%)
Total		67	43	110

Table 6: Prevalence Type of Intestinal Parasite Infection by Age Group

		AGE				Total
		<5	5-10	11-18	>18	
Type of infection	Monoparasitism	36 (32.7%)	17 (15.5%)	12(10.9%)	20 (18.2%)	85 (77.3%)
	Polyparasitism	12 (10.9%)	1(0.9%)	5(5.4%)	7(6.4%)	25 (22.7%)
Total		48	18	17	27	110

IV. DISCUSSION

The primary goal of this study was to determine the occurrence of intestinal parasites among patients receiving treatment at Afgoi General Hospital. The research revealed a 61% prevalence of intestinal parasites, lower than the 85% reported in a prior study conducted in the same area by Ilardi et al (1987). Moreover, this percentage is also below the 71.5% prevalence of intestinal parasites found in a study conducted in Pakistan by Rahman et al. Discrepancies in outcomes can be attributed to distinctions in the study population, geographical locations, and diagnostic methodologies employed.

The study revealed a prevalence of 59% for protozoan parasites compared to 41% for helminthic parasites. This finding will bolster the research conducted in the western Amazon by Sinhorin et al (Sinhorin et al., 2023), where protozoan parasites were reported at 96.4% prevalence, with helminthic infections at 3.6

The study showed patients infected with a single parasite infection were higher than patients infected with multiple parasite infections at 77.3% and 22.7% respectively, this finding is higher than the finding reported by (Dawaki et al., 2019) who found multiple parasite infections at 51.2%. and In French Guiana, Aboikoni et al found a prevalence of Multiple infections of 67.5%. also, in the northwest of Iran, Taherkhani et al (TAHERKHANI et al., 2019) reported a prevalence of polyparasitism at 0.7%. this difference in findings between researchers may be related to differences in Socio-demographic characteristics between populations and the level of infection control between regions.

The study identified *Giardia lamblia* as the most common parasite at 65 (33.3%), followed by *Trichuris trichura* at 24 (12.3%), *Ascaris lumbricoides* at 21 (10.8%), and *Entamoeba histolytica* at 18 (9.2%). Notably, *Trichuris trichura* emerged as the most prevalent intestinal nematode species at 24 (12.3%). This discovery aligns with previous research, such as the study conducted by Ilardi et al. in Afgoi. The resemblance in findings can be attributed to similarities in the study areas, despite being conducted at different times. On the contrary, multiple studies have indicated that *Ascaris lumbricoides* stands out as the predominant intestinal nematode species. This was evident in research conducted by Mwanthi et al (Mwanthi et al., 2008). among school-aged children in Nairobi, Kenya, and by Kabatereine et al. in Uganda (Kabatereine et al., 2001).

V. CONCLUSION

The intestinal parasite infection prevalence in this study was 61%. This prevalence highlights the significant public health challenge posed by intestinal parasitic infections in these regions. Addressing this issue requires a multifaceted approach, including improving sanitation, increasing access to clean water, and implementing regular deworming programs in schools. Education and awareness campaigns are also crucial in helping communities understand the importance of hygiene practices to prevent the spread of these parasites. Large community-based studies should be conducted to comprehensively assess all related risk factors to stop the transmission of intestinal parasite infections in the Afgoi district of Somalia.

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