Epidemiology of Soil Transmitted Helminthes Among Children Living in Internally Displaced Persons Camps in Logo and Guma Local Government Area of Benue State

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Abstract
The study empirically explored the epidemiology of soil transmitted helminths among children living in Internally Displaced Persons' Camps in Logo and Guma Local Government Areas of Benue State, Nigeria. The study employed mixed research design of a cross sectional survey and experimental research design. Population comprises approximately 175,070 displaced persons in the IDP camps in the two LGAs. A sample size of 102 respondents were selected from the two LGAs using multistage sampling techniques. Laboratory test and questionnaire alongside interview were adopted as instruments for data collection. Data was analysed using charts, frequencies, percentages and logit regression analysis. The results of the study indicated that the dominant soil transmitted helminths were hookworm 35.7% (20), followed by A. lumbricoides constituted 19.6% (11). More so, the study found that respondents who used nothing to purified drinking water had 3 time chances of getting infected by soil-transmitted helminths than those who disinfected their drinking water treatment and the respondents without latrine for family used only were 6.1 times more likely to be infected with soil-transmitted helminths as well as the respondents who used open field for disposal of solid waste were 2.6 times more likely to be infected with soil-transmitted helminths among others. Finally, the study established that the age of the children has significant relationship with soil transmitted helminths especially children who aged 0-10 years. Equally, average family income per month had significant relationship with soil transmitted helminths. Therefore, the study concluded that there is prevalent of soil-transmitted helminths among children in IDP camps in Guma and Logo Local Government Areas in Benue State, Nigeria. The study recommends that both government and other stakeholders interested in humanitarian matters should provide potable water, sanitary facilities, and promote personal hygiene in camps in Guma and Logo Local Government Area.

Keywords: *Helminthiasis, Ascariasis, Hookworm, Whipworm, Internally Displaced Persons, Camps*

INTRODUCTION

Soil transmitted helminthiasis (STH) is a type of helminthes infection (helminthiasis) caused by different species of roundworms and are among the most common infections worldwide (Geleto, Kassa & Erko, 2022). Soil transmitted helminthiasis are particularly caused by those worms which are transmitted through soil contaminated with faecal matter and are therefore called soil-transmitted helminthes. Alemu, Degefa, Bajiro and Teshome (2022) explained that soil-

transmitted helminths (STHs) are infections caused by intestinal worms mainly due to A. lumbricoides, T. trichiura, and hookworm species which are transmitted through contaminated soil. According to Yaji, Agba and Onah. (2023), parasitic worms are referred to as helminthes because they live and feed on living hosts. They receive both nourishment and protection by disrupting the host's ability to absorb nutrients, resulting in weakness and disease of the host (Olaniran, Adekunle, Odetoyin, et al., 2015).

In view of foregoing, people infected with parasite larvae such as T trichiura and A lumbricoides by ingesting the fully developed eggs which released larvae moult and travel to the colon where they burrow into the epithelia and develop into adult whipworms within about 12 weeks (Yaji, Agba & Onah, 2023; Centre for Disease Control (CDC), 2024; Jeffrey, Simon, Marco, Stefan, Alex, David & Peter, 2006). The authors further explained that Ascaris larvae penetrate the intestinal mucosa and after an obligatory extra-intestinal migration, they enter the liver then the lungs, before passing over the epiglottis to re-enter the gastrointestinal tract and develop into egg-laying adult worms about 9–11 weeks after egg ingestion. Infected children are nutritionally and physically impaired (WHO, 2022).

Consequently, soil-transmitted helminth infections are high and cause a huge burden (Assefa, Alemu & Ayehu, 2023). Hence, STHs have become a momentous public health problem, especially in tropical and subtropical regions where sanitation and hygiene conditions are poor (Garba, Asowe, Dirie, et al., 2025; Eyayu et al., 2022; Njoba, Ekejindu, Ezeagwuna & Nnamani, 2022; Mitra & Mawson, 2017). The three types of soil-transmitted helminthiasis are whipworm, hookworm, and *Ascaris* and their infection occur in areas with warm and moist climates and where sanitation and hygiene are poor (CDC, 2024). Gurmassa, Gari, Solomon, Goodson, Walsh, Dessie and Alemu (2024); Kamdem et al (2022); Lebu, Kibone, Muoghalu, Ochaya, Salzberg, Bongomin and Manga (2023) added that infections are caused by four major species of nematodes, namely, the roundworm (*Ascaris lumbricoides*), the whipworm (*Trichuris trichiura*), the hookworms (*Ancylostoma duodenale* and *Necator americanus*), and the threadworm (*Strongyloides stercoralis*), most at times referred to as geohelminths.

There are varying diseases cause by soil-transmitted helminthiasis such as ascariasis caused by the roundworm Ascaris lumbricoides, trichuriasis caused by Trichuris trichiura, and the diseases caused by hookworms are Ancylostoma duodenale, Ancylostoma ceylanicum, and Necator americanus which are jointly referred to as hookworm disease (Parija, Chidambaram & Mandal, 2017). The symptoms of STHs include abdominal pain, diarrhea, blood and protein or nutrient loss, rectal prolapse and low physical and cognitive growth in infants and children (CDC, 2024). The diseases caused by all the three soil-transmitted helminths may lead to impairments in physical, intellectual, and cognitive development (Jeffrey, Simon, Marco, Stefan, Alex, David & Peter, 2006).

Apparently, soil transmitted helminthiasis was the targeted diseases of London Declaration on Neglected Tropical Disease [(Launched on 30 January 2012) to be controlled/eradicated by 2020 (Crompton, 2012)]. The reason was that about 1.5 billion people or 24% of the world's population were infected with soil transmitted infections out of which 875 million were children in areas where the parasitic infection was intensive (WHO, 2018; WHO, 2023).

In Nigeria, the Infectious Disease of Poverty (2018) reported that 54.8% of Nigerian children aged 0-17 years were infected with one or more species of STHs. Researches carried out elsewhere on children in IDP camps showed that 2.6% Khartoum State, Sudan (Sun, 2015) and 21.8% in Borno State, Nigeria (Hamidu et al, 2016). Geleto, Kassa and Erko (2022) observed that internal displacement, unimproved water, absence of latrine and sanitary services were among significant

determinants for STH infections. Therefore, there is need to appraise the prevalence, distribution and disease burden of STH among children living in the IDP camps in Guma and Logo Local Government Areas of Benue State with the view to limiting the spread of infections from soil-transmitted helminthes in the IDP amps in the study areas.

Statement of the Problem

In Nigeria, a considerable amount of human and animal wastes is discharged into the soil daily, leading to the contamination of the soil with STHs eggs and larvae (Damen, Lar, Mershak, P., et al., 2010). Regrettably, morbidities attributable to soil-transmitted helminthes has continue to be one of the major health issue leading to chronic infections that resulted to malnutrition, anemia, impaired growth, and cognitive problem. The spread of soil-transmitted helminthes is usually through soil or water contaminated by human feces or poop that contain the parasite larvae. The IDP camps are generally characterize with high rate of contamination of human feces that contain the parasite larvae.

Unfortunately, globally, there were about 50.8 million internally displaced people in 2020, of whom 42% were in sub-Saharan Africa (Geleto, Kassa & Erko, 2022). In Nigeria and Benue State in particular, there were indications that as at March, 1, 2018, no fewer than 79,452 children trapped in eight IDP Camps established by the Benue State Government to cater for the victims of herdsmen incursion in the state. According to the official figures obtained from the State Emergency Management Agency (SEMA), of the said figure 39,543 are male while 39,909 were female children (Crompton, 2012). A further breakdown of the figure indicated that the Local Government Education Authority (LGEA) Primary School Camp and UNHCR Shelter Camps all in Daudu, Guma LGA houses a total 10,871 children, 6527 are male while 4,344 are female. The Tse-Gbinde Camp also in Guma LGA with a total of 10,021 children, 4,468 of them are male while 5,553 are female. At the Gbajimba Camp where there were 9,393 children in the camp, 2,941 were male while 6,453 were female children. The Abagena or Agam Camp, in the outskirt of Makurdi, the state capital, of the 16,583 children taking refuge in a gigantic camp 8,773 were female whereas 7,810 were female.

In Logo Local Government Area, the figures from SEMA shows that the Anyiin Camp was hosting 19,283 children of this number 9,845 were male whereas 9,438 were female. At the Abeda Camp also in Logo LGA, 5,365 children were staying in camp out of the number of 1,677 were male while 3,688 were female. The camp at LGEA Primary School Ugba, the Logo Local Government Headquarters, it houses 7,568 children. The male children were 5,312 while female children were 2,623. Meanwhile, as at March 1, 2018, the total number of persons displaced stood at 175,070.

In light of the above facts, there is likelihood that the IDP Camps will be prone to soil-transmitted helminthes if there are no proper sanitary facilities around the camps. Hence, the study assessed the epidemiology of soil transmitted helminthes among children living in Internally Displaced Persons' Camps in Logo and Guma Local Government Areas of Benue State.

Objectives of the Study

The main objective of the is to assess the epidemiology of soil transmitted helminthes among children living in Internally Displaced Persons' Camps in Logo and Guma Local Government Areas of Benue State. The study specifically set to:

i. determine the prevalence of soil transmitted helminthes among children living in the IDP camps in Logo and Guma LGAs of Benue State

ii. determine the accessibility of sanitary facilities used by occupants of the IDP camps in Logo and Guma LGAs of Benue State
iii. determine the kind of sanitation practices employed by occupants of the IDP camps in Logo and Guma LGAs of Benue State, and;
iv. determine the socio-demographic characteristics of occupants of the IDP camps in Logo and Guma LGAs of Benue State

Research Questions

The following research questions were answered in the study:

i. How prevalence is soil transmitted helminthes among children living in the IDP camps O2in Logo and Guma LGAs of Benue State?
ii. How accessible are sanitary facilities used by occupants of the IDP camps in Logo and Guma LGAs of Benue State?
iii. What are the kind of sanitation practices by occupants of the IDP camps in Logo and Guma LGAs of Benue State?
iv. What are the socio-demographic characteristics of occupants of the IDP camps in Logo and Guma LGAs of Benue State

Research Hypotheses

The study postulates that:

H_{O1}: Socio-demographic characteristics do not significantly influence the prevalence of soil transmitted helminthes among children living in the IDP camps in Logo and Guma LGAs of Benue State

H_{02}: The kind of sanitation practices employed by occupants of the IDP camps do not significantly influences the prevalence of soil transmitted helminthes among children living in the IDP camps in Logo and Guma LGAs of Benue State

METHODOLOGY

This study was carried out in Guma and Logo Local Government Areas. The justification of chosen the two LGAs was due to the fact that there is displacement of persons in these two Local Government Areas because of herdsmen attack. Guma and Logo Local Government Areas are among the twenty-three (23) Local Government Area in Benue State, Nigeria and they were created in 1989 and 1996 respectively. With a landmass of 2,882 square kilometers, Guma local government area is situated in the northern region of Benue State. It is situated at latitudes 06° 33' and 07° 03' North and longitudes 07°60' and 08° 12' East. Meanwhile, Logo Local Government is located on the map of Benue State around longitude $9^0$4' east and latitude $7^0$40' north. The study employed mixed research design of a cross sectional survey and experimental research design. Population comprises approximately 175,070 displaced persons in the IDP camps in the two LGAs. A sample size of 102 respondents were selected from the two LGAs using multistage sampling technique.

Laboratory test and questionnaire alongside interview were adopted as instruments for data collection. Two scholars' sciences have done face validation of the instruments. The specimen containers where retrieved from the children with about 4g of stool sample in each. The specimens where first examined by direct method. Specimens that test negative with direct method were further subjected to formol ether concentration (FEC) technique as described by Cheesbrough (2009). By Direct wet mount method, a drop of normal saline (0.90%) and iodine solution was

added to each slide separately. With a wire loop a portion of the faecal sample was placed on the slides. The set ups were homogenized and covered with cover slips. Each slide (with two preparations) was then examined under the microscope using $X^{10}$and X^{40} objective lens with the condenser iris close enough to give a good contrast. The glass slides were labeled and numbered to avoid treating wrongly. Observations were recorded as type of STH eggs found on the preparation.

In terms of Formol Ether Concentration, for each sample, a gram was placed in the baker and 4ml of 10% formalin was added to it and mixed. Again, 3ml of formalin was added. The solution was sieved to remove large particles and then transferred to into a test tube. 4ml of ethyl acetate was added into the test tube containing the solution and shaken very well. The content was then transferred into centrifuge tubes and inserted into the centrifuge and the machine was run at 3,500revolutions per minute for five minutes. The tube was removed and the supernatant decanted. two smears, one with saline and another with iodine were then prepared from the remaining content, cover slipped and examined microscopically for eggs of soil-transmitted helminthes. Observations were recorded as type of helminthes and number of eggs per gram of stool sample (Yaji, Agba & Onah, 2023).

In regards to questionnaire, the reliability index of 0.50 obtained from Cronbach Alpha techniques through pilot study was considered reliable for use in the study. The principal researcher conducted the research with the help of a co-researchers and research assistants when they were educated on how to administered the questionnaires. Charts, frequencies and percentages were used in answering research questions while logit regression analysis was employed to test the hypotheses formulated at 0.05 alpha level of significance.

RESULTS/FINDINGS

Prevalence of soil transmitted helminthes among children living in the IDP camps in Logo and Guma LGAs of Benue State

Figure 1 showed the prevalence of soil transmitted helminthes among children living in the IDP camps in Logo and Guma LGAs of Benue State

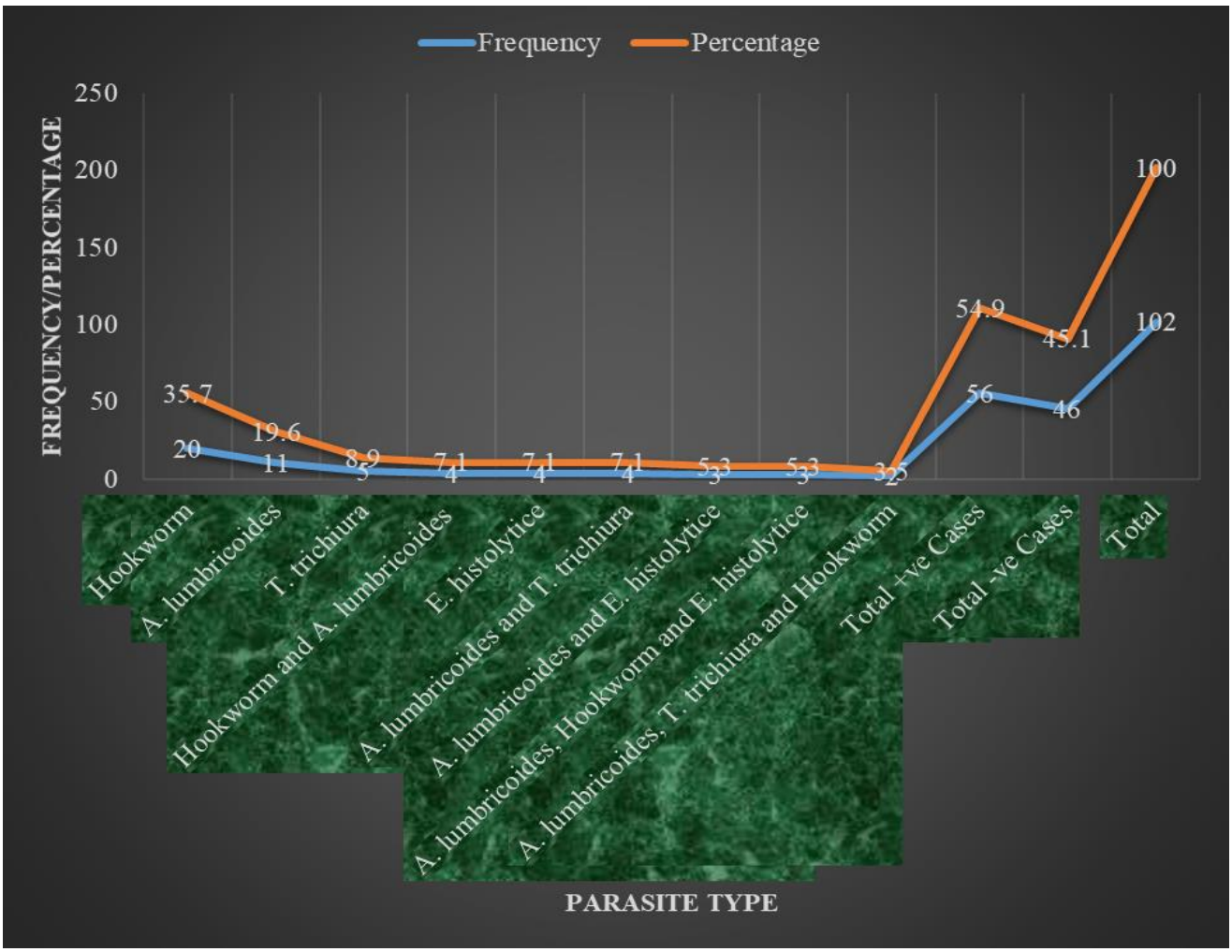

Figure 1: Line chart showing the prevalence of soil transmitted helminthes among children living in the IDP camps in Logo and Guma LGAs

The prevalence of soil transmitted helminthes among children living in the IDP camps in Logo and Guma LGAs of Benue State as in Figure 1 revealed that out of the total number of children 102 (100%) sampled and tested, 54.9% (56) of the children were infected with at least one type of soil transmitted helminths. Besides, 35.7% (20) were *hookworm* and represented the most dominant helminthic parasite. More so, *A. lumbricoides* constituted 19.6% (11) of the cases observed, while *T. trichiura* was responsible for 8.9% (5) of cases. Furthermore, 7.1% (4) *E. histolytice* case was found. Moreover, 7.1% (4) cases each were double infections caused by *Hookworm* and *A. lumbricoides* as well as *A. lumbricoides* and *T. trichiura* respectively. Co-infection by *A. lumbricoides and E. histolytice* were 5.3% (3) of the cases. Meanwhile, triple infection involving more than two of the major helminthic parasites were identified in the presence of *A. lumbricoides, Hookworm* and *E. histolytice* were 5.3% (3) of cases as well as *A. lumbricoides, T. trichiura* and *Hookworm* were 3.5% (2) of cases. Inversely, 45.1% (46) of the children were reported negative for any helminthic parasites.

Accessibility of sanitary facilities used by occupants of the IDP camps in Logo and Guma LGAs of Benue State

Figure 2 depicted accessibility of sanitary facilities used by occupants of the IDP camps in Logo and Guma LGAs of Benue State

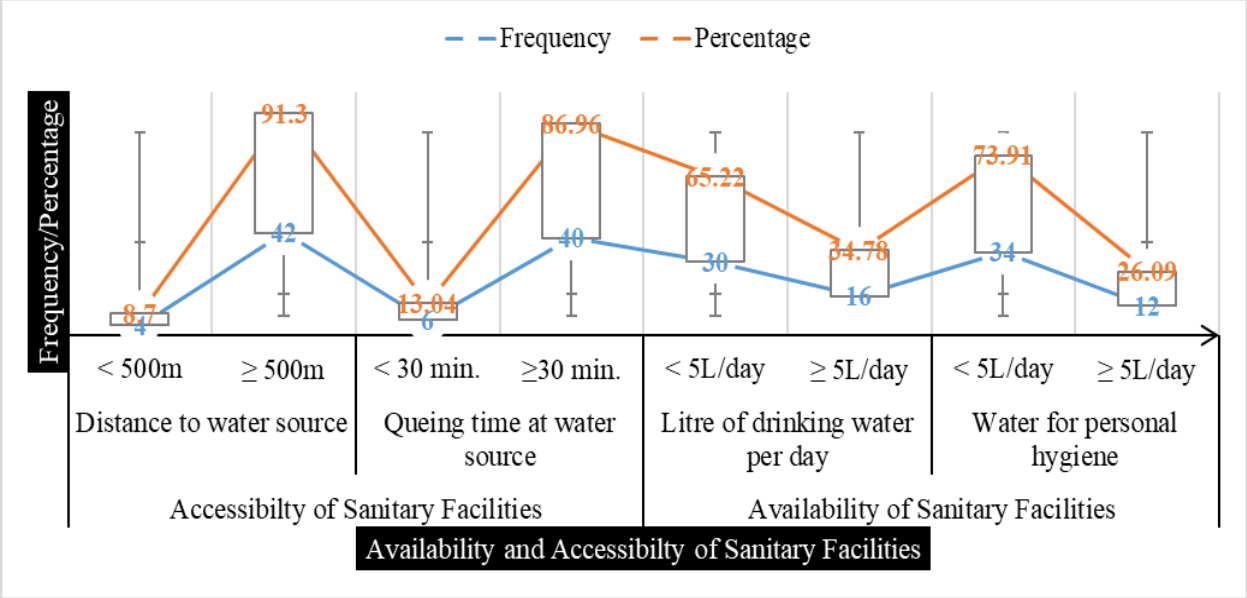

Figure 2: Line chart showing availability of sanitary facilities in IDP camps in Logo and Guma LGAs of Benue State

The Figure 2 above indicated that 91.3% (42) of respondents accessed the nearest water sources by travelling 500m and above. Likewise, 86.96% (40) of the respondents spend 30 min. and above as a queuing time to accessed water when they reach at the nearest water sources. Considering the availability, 65.22% (30) of the respondents got less than 5 litres of drinking water per person per day whereas 73.91% (34) of the respondents got less than 5 litres of water for personal hygiene per person per day.

Kind of sanitation practices employed by occupants of the IDP camps in Logo and Guma LGAs of Benue State

Figure 3 showed the kind of sanitation practices employed by occupants of the IDP camps in Logo and Guma LGAs of Benue State

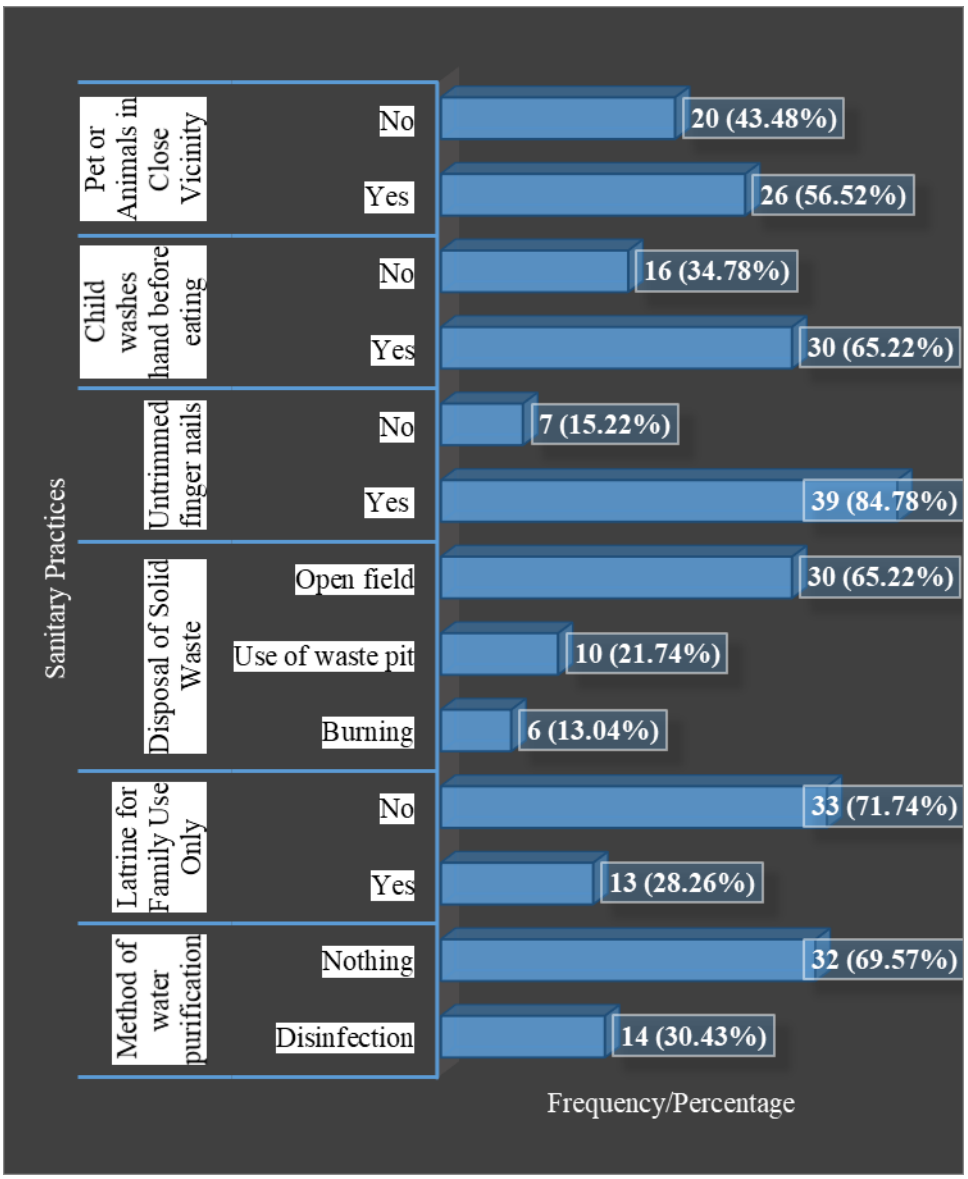

Figure 3: Bar chart showing kind of sanitation practices employed by occupants of the IDP camps in Logo and Guma LGAs of Benue State

The Figure 3 above revealed that 32 (69.57%) of the respondents used nothing to purified their drinking water before used. In the same vein, 33 (71.74%) of the respondents had no latrine for family used only. Also, 30 (65.22%) of the respondents used open field for disposal of solid waste. Furthermore, 39 (84.78%) of the respondents untrimmed their finger nails. However, 30 (65.22%) of the respondents ensured that their children wash hands before eating and 26 (56.52%) of the respondents had pet or animals in close vicinity.

Socio-demographic characteristics of occupants of the IDP camps in Logo and Guma LGAs of Benue State

Figure 4 depicted the socio-demographic characteristics of occupants of the IDP camps in Logo and Guma LGAs of Benue State

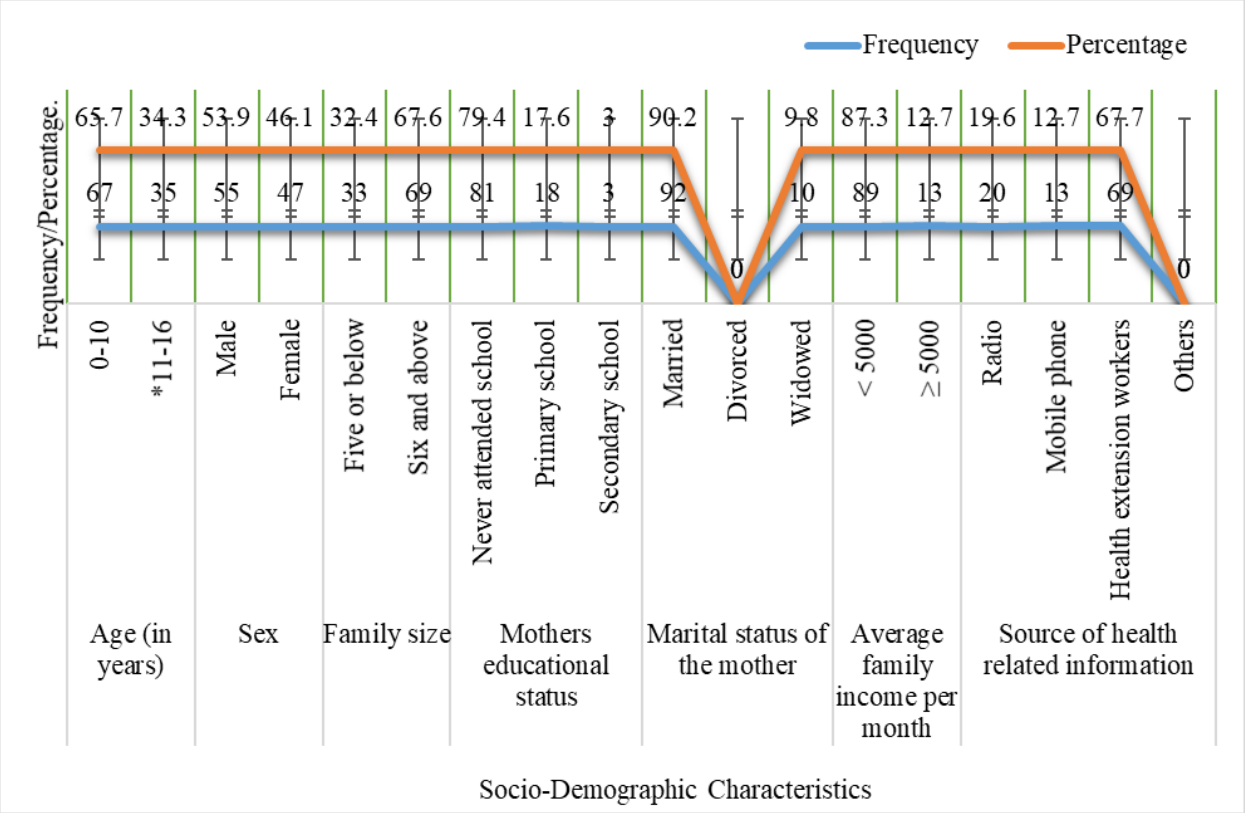

Figure 4: Line chart showing the socio-demographic characteristics of occupants of the IDP camps in Logo and Guma LGAs of Benue State

Figure 4 showed that children between the ages of 0–10 years were 65.7% (67) whereas 34.3% (35) were between the ages of 11–16 years. Males represented 53.9% (55) of the respondents. In respect of family size, 67.6% (69) of the respondents had family size of six and 79.4% (81) of the respondents never attended school. All the same, 90.2% (92) of the respondents were married and 87.3% (89) of the respondents earned average family income of less than ₦5000 per month. Regarding source of health related information, 67.7% (69) of the respondents obtained health related information from health extension workers.

Accessibility to sanitary facilities used by occupants of the IDP camps and prevalence of soil transmitted helminthes among children living in the IDP camps in Logo and Guma LGAs of Benue State

Table 1 presented the data on the accessibility to sanitary facilities used by occupants of the IDP camps and prevalence of soil transmitted helminthes among children living in the IDP camps in Logo and Guma LGAs of Benue State

Table 1: Relationship between accessibility to sanitary facilities and prevalence of soil transmitted helminthes among children living in the IDP camps in Logo and Guma LGAs of Benue State

Variables	Positive Cases		Unadjusted Odd Ratio (UOR)			Adjusted Odd Ratio (AOR)		
	N	(%)	UOR	95% CI	P-value	AOR	95% CI	P-value
Distance to water source								
< 500m	4	8.7	6.119	.243-154.038	.271	.163	.006-4.114	.271
≥ 500m	42	91.3						
Queuing time at water source								
< 30 min.	6	13.04	36.992	1.265-1081.581	.036	.027	.001-.790	.036
≥30 min.	40	86.96						
Litre of drinking water per day								
< 5L/day	30	65.22	3.885	.646-23.378	.038	.257	.043-1.549	.038
≥ 5L/day	16	34.78						
Water for personal hygiene								
< 5L/day	34	73.91	.986	.163-5.948	.008	1.014	.168-6.119	.018
≥ 5L/day	12	26.09						

Source: Computed by the Researcher, 2025

Table 1 above showed that queuing time at water source has significant relationship with soil transmitted helminths (p-value, < .036, AOR .027, CI .001-.790). This mean that the respondents who have to spend 30 minutes and above for queuing at water source were .04 times more likely to be infected with soil transmitted helminths than those who spend less than 30 minutes after adjusting for other variables included in the study. Furthermore, there was a significant relationship between litres of drinking water got per person per day and soil transmitted helminths (p value < 0.038, AOR .257, CI .043-1.549). This implies that the respondents who got less than 5 litres of water per person per day were .3 times more likely to be infected with soil transmitted helminths than those who got 5 litres and above per person per day when adjusting for other variables included in the study. Equally, there was a significant relationship between water for personal hygiene and soil transmitted helminths (p value < 018, AOR 1.014, CI .168-6.119). By implication, the respondents who got less than 5 litres of water per person per day for personal hygiene had 1.01 times chances to be infected with soil transmitted helminths than those who got 5 litres and above per person per day for personal hygiene when adjusting for other variables included in the study.

Kind of sanitation practices employed by occupants of the IDP camps and prevalence of soil transmitted helminthes among children living in the IDP camps in Logo and Guma LGAs of Benue State

Table 2 indicated the kind of sanitation practices employed by occupants of the IDP camps and prevalence of soil transmitted helminthes among children living in the IDP camps in Logo and Guma LGAs of Benue State

Variables	Positive Cases		Unadjusted Odd Ratio (UOR)			Adjusted Odd Ratio (AOR)		
	N	(%)	UOR	95% CI	P-value	AOR	95% CI	P-value
Method of water purification								
Disinfection	14	30.43	.286	.058-1.401	.022	3.497	.714-17.129	.022
Nothing	32	69.57						
Latrine for Family Use Only								
Yes	13	28.26	.165	.026-1.041	.054	6.056	.961-38.167	.054
No	33	71.74						
Disposal of Solid Waste								
Burning	6	13.04	.902	.167-4.861	.904	1.109	.206-5.978	.904
Use of waste pit	10	21.74	.377	.023-6.266	.049	2.652	.160-44.065	.049
Open field	30	65.22						
Untrimmed finger nails								
Yes	39	84.78	6.886	.479-99.004	.156	.146	.010-2.088	.156
No	7	15.22						
Child washes hand before eating								
Yes	30	65.22	.496	.107-2.300	.370	2.016	.435-9.353	.370
No	16	34.78						
Pet or Animals in Close Vicinity								
Yes	26	56.52	1.147	.278-4.740	.050	.872	.211-3.602	.050
No	20	43.48						

Source: Computed by the Researcher, 2025

Table 2 revealed that the respondents who used nothing to purified drinking water had 3 time chances of getting infected by soil-transmitted helminths than those who disinfected their drinking water treatment, (*p* value = 0.022, AOR: 3.497, CI .714-17.129). Similarly, the respondents

without latrine for family used only were 6.1 times more likely to be infected with soil-transmitted helminths, (*p* value = 0.054, AOR: 6.056, CI 961-38.167). Again, the respondents who used open field for disposal of solid waste were 2.6 times more likely to be infected with soil-transmitted helminths, (p value = 0.049, AOR: 2.652, CI .160-44.065). In the same vein, living in close proximity with pets and animals had been established to have significant relationship with been infected with soil-transmitted helminths (p value < 0.050, AOR: .872, CI .211-3.602), when adjusting for other variables included in the study.

Socio-demographic characteristics of occupants of the IDP camps and prevalence of soil transmitted helminthes among children living in the IDP camps in Logo and Guma LGAs of Benue State

Table 3 contained data on the socio-demographic characteristics of occupants of the IDP camps and prevalence of soil transmitted helminthes among children living in the IDP camps in Logo and Guma LGAs of Benue State

Table 3: Socio-demographic characteristics and prevalence of soil transmitted helminthes among children living in the IDP camps in Logo and Guma LGAs of Benue State

Variables	Positive Cases		Unadjusted Odd Ratio (UOR)			Adjusted Odd Ratio (AOR)		
	N	(%)	UOR	95% CI	P-value	AOR	95% CI	P-value
Age (in years)								
0-10	67	65.7	1.848	.725-4.709	.008	.538	.211-1.371	.004
11-16	35	34.3						
Sex								
Male	55	53.9	.898	.381-2.117	.805	.875	.396-2.075	.762
Female	47	46.1						
Family size								
Five or below	33	32.4	.689	.282-1.683	.413	1.499	.598-3.755	.387
Six and above	69	67.6						
Mothers educational status								
Never attended school	81	79.4	2.576	.135-49.052	.529	.378	.020-7.297	.519
Primary school	18	17.6	3.453	.161-73.948	.428	.280	.013-6.094	.418
Secondary school	3	3.0						
Marital status of the mother								
Married	92	90.2	3.407	.642-18.068	.150	.309	.056-1.689	.175
Widowed	10	9.8						

Average family income per month (₦)								
< 5000	89	87.3	1.026	.278-3.788	.019	.957	.258-3.548	.018
≥ 5000	13	12.7						
Source of health related information								
Radio	20	19.6	2.640	.833-8.368	.099	.380	.120-1.207	.101
Mobile phone	13	12.7	1.546	.369-6.483	.551	.655	.157-2.738	.562
Health extension workers	69	67.3						

Source: Computed by the Researcher, 2025

The results from Table 3 revealed that age of the children have significant relationship with soil transmitted helminths (p-value, < .004, adjusted OR .538, CI .211-1.371). This implies that children who aged 0-10 years were 5 times more likely to be infected with soil transmitted helminths than those who aged 11-16 years after adjusting for other variables in the study. Similarly, average family income per month had significant relationship with soil transmitted helminths (p-value, < .018, adjusted OR .957, CI .258-3.548). By implication, the children from families whose average family income per month was less than ₦5000 were .9 times more likely to be infected with soil transmitted helminths than those from families whose average family income per month was ₦5000 and above.

DISCUSSION OF FINDINGS

The established that the dominant soil transmitted helminthes hookworm, 35.7% (20) and represented the most dominant helminthic parasite, followed by *A. lumbricoides* constituted 19.6% (11) of the cases observed. Thus, this finding corresponds with that of Daggash, Okeke, Jimoh, Olayinka, Balogun and Nguku (2018) who found that Ascaris lumbricoides was the most common worm.

Furthermore, the study has proven that the accessibility of sanitary facilities used by occupants of the IDP camps in the study area was moderate given that 91.3% (42) of respondents accessed the nearest water sources by travelling 500m and above. Likewise, 86.96% (40) of the respondents spend 30 min. and above as a queuing time to accessed water when they reach at the nearest water sources. In case of kind of sanitation practices employed by occupants of the IDP camps in the study area, it has been shown that the kind of sanitation practices employed by occupants of the IDP camps were poor since 32 (69.57%) of the respondents used nothing to purified their drinking water before used, 33 (71.74%) of the respondents had no latrine for family used only, 30 (65.22%) of the respondents used open field for disposal of solid waste, 39 (84.78%) of the respondents untrimmed their finger nails and 26 (56.52%) of the respondents had pet or animals in close vicinity. Then, the study further affirms that respondents who used nothing to purified drinking water had 3 time chances of getting infected by soil-transmitted helminths than those who disinfected their drinking water treatment and the respondents without latrine for family used only were 6.1 times more likely to be infected with soil-transmitted helminths as well as the respondents

who used open field for disposal of solid waste were 2.6 times more likely to be infected with soil-transmitted helminths. In the same vein, living in close proximity with pets and animals had been established to have significant relationship with been infected with soil-transmitted helminths. These findings are in tandem with that of Daggash, Okeke, Jimoh, Olayinka, Balogun and Nguku (2018) that playing in dirty or stagnant water and not washing hands with soap after defecation were significantly associated with having soil-transmitted helminths. Bingaa, Houmsoub, Garbaa, Amutac and Suntayad (2022) concluded that the lack of hygienic measures exposed more individuals who do not wash their hands before eating' to soil-transmitted helminthiasis.

Finally, children between the ages of 0–10 years were dominant group constituting 65.7% (67) and males represented 53.9% (55) of the respondents with family size of 67.6% (69) of the respondents had family size of six as well as 79.4% (81) of the respondents never attended school. All the same, 90.2% (92) of the respondents were married and 87.3% (89) of the respondents earned average family income of less than ₦5000 per month. In addition, 67.7% (69) of the respondents obtained health related information from health extension workers. The study further proven that the age of the children has significant relationship with soil transmitted helminths especially children who aged 0-10 years were 5 times more likely to be infected with soil transmitted helminths than those who aged 11-16 years. Equally, average family income per month had significant relationship with soil transmitted helminths. By implication, the children from families whose average family income per month was less than ₦5000 were .9 times more likely to be infected with soil transmitted helminths than those from families whose average family income per month was ₦5000 and above. The findings are not consistent with that of Yaji, Agba and Onah (2023) who discovered that age related pattern of infection of age group 9-12 years had the highest overall prevalence for the three STH parasites recovered.

CONCLUSION AND RECOMMENDATIONS

The study concluded that there is prevalent of soil-transmitted helminths among children in IDP camps in Guma and Logo Local Government Areas in Benue State, Nigeria. Therefore, to overcome the menace, the study that both government and other stakeholders interested in humanitarian matters should provide potable water, sanitary facilities, and promote personal hygiene in camps in Guma and Logo Local Government Area. In addition, there should be orientation to the occupants of IDP camps in the study areas in terms sanitary practices, hygiene tips and free offer of anti-helminthic drug treatment to every infected child in the camps.

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