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Prevalence and Associated Risk Factors of Soil-Transmitted Helminthiasis among School-Aged Children in Jos North and Jos South, Plateau State, Nigeria

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ABSTRACT

Background: Soil-transmitted helminth (STH) infections remain a public health concern among children in low-resource settings. We aimed to assess the prevalence and associated risk factors of STH infections among school-aged children in Jos North and Jos South Local Government Areas, Plateau State, Nigeria.
Methods: This cross-sectional study was conducted between August 2022 and November 2024 among 1,200 pupils selected following the WHO guidelines. Stool samples were examined using the formal-ether concentration technique, and structured questionnaires were used to assess potential risk factors. Data were analyzed using chi-square tests and logistic regression at a 95% confidence level.
Results: The overall prevalence of STH infection was 2.5%. *Ascaris lumbricoides* (1.7%) was the most prevalent species, followed by hookworm (0.8%). No statistically significant associations were observed between infection and sex or age ($P > 0.05$), although children aged 9–12 years had the highest prevalence (2.9%). Multivariate analysis identified access to well water as a significant protective factor against infection (OR = 0.11, 95% CI: 0.02–0.56, $P = 0.01$).
Conclusion: Despite the relatively low prevalence, ongoing transmission risks remain. Strengthening WASH interventions alongside targeted school-based health education is essential to sustain progress toward the WHO 2030 STH control targets.

Keywords: Soil-transmitted helminths, Prevalence, Risk factors, *Ascaris lumbricoides*, Hookworm, School-aged children, Nigeria

Introduction

Soil-transmitted helminths (STHs) are intestinal parasites that include *Ascaris lumbricoides*, *Trichuris trichiura*, and hookworms (*Necator americanus and Ancylostoma duodenale*) (1,2).

They are transmitted through contact with contaminated soil and remain a major cause of morbidity in tropical and subtropical regions, particularly where poverty, poor sanitation, and limited access to healthcare prevail (3).

Children are disproportionately affected, often carrying multiple worm species that contribute to malnutrition, stunted growth, impaired cognition, and reduced school performance (4). Globally, more than 5.3 billion people are at risk of STH infection, with an estimated 1.5 billion currently infected, accounting for 1.9 million disability-adjusted life years (DALYs) in 2019 (5,6). Sub-Saharan Africa, including Nigeria, bears one of the highest burdens, with over 650 million school-aged children and 260 million preschoolers requiring preventive interventions.

Transmission occurs through ingestion of parasite eggs in contaminated food or water or via skin penetration in the case of hookworm (7). Warm and moist climates, such as those in Nigeria, favor parasite development in soil and promote year-round transmission (8,9). Reinfection after treatment is common, highlighting the need for integrated approaches that combine preventive chemotherapy with improvements in water, sanitation, and hygiene (WASH) (10). Risk factors for infection are well documented and include poor hygiene practices (geophagy, inconsistent handwashing and untrimmed nails), consumption of unwashed or raw vegetables, animal husbandry practices and inadequate sanitation fa cilities (11,12). Cultural practices such as communal feeding and inadequate post-defecation hygiene further contribute to persistent transmission (13,14).

In Nigeria, several studies have documented varying prevalence rates across different regions. For instance, 60.6% in Kano state (15), and 11.27% in Cross Rivers state (16). Within Plateau State, previous reports documented varying prevalence rates; for instance, 42.6% and 24.0% (17,18), but few have explored both prevalence and risk factors in detail. Importantly, no study has comparatively assessed these factors among school-aged children in Jos North and Jos South Local Government Areas.

This study was therefore designed to determine the prevalence of STH infections and identify associated demographic, behavioral, and environmental risk factors among school-aged children in Jos North and Jos South, Plateau State. By combining parasitological screening with risk factor analysis, the study provides evidence needed to guide targeted interventions for STH control in the study area.

Materials and Methods

Study area

The study was conducted in Jos North and Jos South LGAs of Plateau State, Nigeria. Plateau State, located in the North-Central region, covers 26,899 km² with an estimated population of 3,206,531. It lies between latitudes 08°24'N and longitudes 008°32' and 010°38'E. The Plateau, with altitudes ranging from 1,200 m to 1,829 m, has a temperate climate (13°C – 22°C). Harmattan winds cause cold weather from December to February, while the hottest period is March – April. Annual rainfall ranges from 131.75 cm to 146 cm, with peaks in July and August. The Jos Plateau mining region covers 3,670 km² (43% of the Plateau), while Jos South features hills, rivers, ponds, and fertile farmland suitable for year-round farming (19).

Study Design

We employed a cross-sectional descriptive design to assess the prevalence and risk factors associated with soil-transmitted helminth infections among school-aged children in Jos North and Jos South LGAs.

Study Duration

The study was conducted between August 2022 and November, 2024. This period excluded school holidays, when the pupils were observing their school holidays (study sites), while other aspects of sampling continued.

Study Population

We targeted male and female pupils from public and private primary schools in Jos North and Jos South LGAs of Plateau State. The selection followed the WHO guidelines for helminthiasis surveys in schools. Sixty pupils per school were chosen to provide stool samples for screening (20). A total of 20 primary schools (10 from each LGA) were included in the study. Pupils were selected through stratification by class grade (Primary 1 to 6), with quotas proportionally allocated based on the number of students in each grade. Random selection was conducted within each grade without bias toward sex or age.

Sample Size Determination

The sample size was estimated using the sample size formula by Swinscow and Campbell (21) as calculated below: $n = \frac{Z^2 \times p(1-p)}{e^2}$,

Where:

Z = 1.96 (95%),

p = prevalence of STH = 50%,

e = error rate 0.05 (5%).

$$n = \frac{1.96^{\,2} \times 0.05(1-0.5)}{0.05^2}$$

$n \simeq 384 + 20\%$ non-respondent value

$n \simeq 384 + 77 = 461$.

The minimum sample size for each LGA was estimated to be 461 pupils. Hence this figure was multiplied by 2, to get a total minimum sample size of 922 pupils. To decrease the chances for errors, a total sample size of 1,200 pupils was selected for this study. Comprising 600 pupils each from the two Local government areas.

Inclusion and Exclusion Criteria

Only participants who provided informed consent signed by their parent or guardian were included in the study. Those who failed to return the questionnaire and sample bottles were excluded.

Ethical Clearance and Informed Consent

Ethical clearance for the study was obtained from Plateau State Ministry of Health, with an approval reference number MOH/MIS/202/VOL1/148. Permission was also obtained from the Jos South and Jos North Education Departments. Verbal and written informed consent were obtained from parents of the pupils of the selected schools after explaining the aim and objective of the study to them. Only pupils who consented to the study and whose parent agreed by signing the informed consent forms or gave verbal consent were included in the study.

Sensitization

Visits were made to schools and the pupils were informed about the aim and importance of the study to encourage participation. Appropriate instructions on how to collect the stool hygienically and how to fill the questionnaires were given to the pupils.

Collection of Stool Samples

A clean, well labeled screw capped plastic sample bottle was given to each participating pupil for the collection of early morning stool sample (22). The stool samples were retrieved from the pupils and labelled appropriately. Using a cooler box, the samples were transported to the Parasitology Laboratory of Federal College of Veterinary and Medical Laboratory Technology, Vom, Plateau State for parasitological examination.

Questionnaire Administration

A structured questionnaire was administered to each participating pupil to collect data on their demographic characteristics, and information on the risk factors (knowledge, attitude, and practices) associated with soil transmitted helminths. The class teachers were requested to assist pupils in filling the questionnaire where necessary.

Parasitological Analysis of Stool Samples

Stool samples were analyzed using formal-ether concentration method (22). A pea-sized amount (approximately 1g) of feces was emulsified in 4ml of 10% formol water and placed in a screw-cap tube. An additional 3 – 4 ml of 10% v/v formol water was added, and the tube was capped and shaken to mix thoroughly. The emulsified sample was sieved using a cotton gauze, and the filtered suspension was collected in a beaker. This suspension was transferred to a conical centrifuge tube, where 3 – 4 ml of diethyl ether was added. The tube was closed and shaken for one minute. Afterward, the stopper was loosened with a tissue wrapped around the top of the tube, and the preparation was immediately centrifuged at about 3000 rpm for 1 minute. The faecal debris layer was loosened from the side of the tube with a stick, and the tube was inverted to discard the ether, faecal debris, and formol water. The remaining sediment was left at the bottom. The tube was then placed upright to allow the fluid to drain to the bottom, and the bottom was gently tapped to re-suspend and mix the sediment. The sediment was transferred to a microscope slide, covered with a cover slip, and observed under the low-power (X10) objective. The slide was scanned systematically to examine the entire area of the cover slip. If any organisms or suspicious objects were identified under the low-power objective, the higher magnification (X40) objective was used for a detailed observation of their morphology (20).

Data Analysis

Statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) software for Windows, version 20.0 (IBM Corp., Armonk, NY, USA). Pearson's Chi-square test was used to assess associations between dependent and independent variables. Odds ratio (OR) was used to evaluate the strength of the association between variables. Logistic regression was applied to identify risk factors for parasitic infections. *P*-value of less than 0.05 was considered statistically significant, with a 95% confidence interval.

Results

Demographic Characteristics of Participants

A total of 1,200 school-aged children participated in the study, with equal representation of males (600, 50%) and females (600, 50%). Participants were stratified into four age groups: 5–8 years (363, 30.3%), 9–12 years (665, 55.4%), 13–16 years (169, 14.1%), and >16 years (3, 0.3%). The predominant ethnic groups were Berom (471, 39.3%). Farming (296, 24.7%) was the most common parental occupations, while 45.2% of parents had secondary education. Christianity was the predominant religion (87.3%) (Table 1).

Table 1: Demographic characteristics of school-aged children across Jos North and Jos South LGAs, Plateau State

Categories	***Demographic Characteristics***	***Number examined (%)***		***Total (%) (N=1200)***
		Jos North (n=600)	Jos South (n=600)	
Sex	Male	300(50.0)	300(50.0)	600(50.0)
	Female	300(50.0)	300(50.0)	600(50.0)
Age group (yr)	5-8	179(29.8)	184(30.7)	363(30.3)
	9-12	343(57.2)	322(53.7)	665(55.4)

	13-16	78(13.0)	91(15.2)	169(14.1)
	>16	0(0.0)	3(0.5)	3(0.3)
Tribe	*Berom*	192(32.0)	279(46.5)	471(39.3)
	Angas	60(10.0)	49(8.2)	109(9.1)
	Taroh	35(5.8)	40(6.7)	75(6.3)
	Afizere	10(1.7)	20(3.3)	30(2.5)
	Magavou	48(8.0)	51(8.5)	99(8.3)
	Hausa	123(20.5)	77(12.8)	200(16.7)
	Other	132(22.0)	84(14.0)	216(18.0)
Parent's occupation	Farming	150(25.0)	146(24.3)	296(24.7)
	Artisan	66(11.0)	97(16.2)	163(13.6)
	Civil-Servant	138(23.0)	147(24.5)	285(23.8)
	Trader	148(24.7)	143(23.8)	291(24.3)
	Other	98(16.3)	67(11.2)	165(13.8)
Parent's educational level	Primary	98(16.3)	106(17.7)	204(17.0)
	Secondary	275(45.8)	267(44.5)	542(45.2)
	Tertiary	203(33.8)	198(33.0)	401(33.4)
	None formal	24(4.0)	29(4.8)	53(4.4)
Parent's Religion	Christian	497(82.8)	551(91.8)	1048(87.3)
	Islam	99(16.5)	46(7.7)	145(12.1)
	Traditional	4(0.7)	3(0.5)	7(0.6)

Table 2: Distribution of STH Species across the Jos North and Jos South, Plateau State, Nigeria

STH Species	*Jos North (n = 600)*	*Jos South (n = 600)*	*Total (N = 1,200)*	*χ^2*	*P-value*
Ascaris lumbricoides	14 (2.3)	6 (1.0)	20 (1.7)	2.74	0.097
Hookworm	5 (0.8)	5 (0.8)	10 (0.8)	0.00	1.000
Overall STH infection	19(3.2)	11(1.8)	30 (2.5)	2.58	0.108

Table 3: Prevalence of STH in relation to demographic characteristics among school-aged children in Jos North and Jos South LGAs, Plateau State, Nigeria (N = 1,200)

Demographic characteristics	*Variables*	*Jos North LGA*			*Jos South LGA*		
		No. Exam	No. Positive (%)	χ^2 (*P*-value)	No. Exam	No. Positive (%)	χ^2 (*P*-value)
Sex	Female	300	14 (4.7)	3.48 (0.062)	300	2 (0.7)	3.33 (0.067)
	Male	300	5 (1.7)		300	9 (3.0)	
Age Group (years)	5–8	179	6 (3.4)	0.10 (0.99)	184	2 (1.1)	1.66 (0.647)
	9–12	343	11 (3.2)		322	8 (2.5)	
	13–16	78	2 (2.6)		91	1 (1.1)	
	>16	0	0 (0.0)		3	0 (0.0)	

Tribe	Berom	192	10 (5.2)	5.54 (0.477)	278	6 (2.2)	3.00 (0.809)
	Angas	60	2 (3.3)		49	2 (4.1)	
	Taroh	35	0 (0.0)		41	0 (0.0)	
	Afizere	10	0 (0.0)		20	0 (0.0)	
	Magavou	48	2 (4.2)		51	1 (2.0)	
	Hausa	123	2 (1.6)		77	1 (1.3)	
	Others	132	3 (2.3)		84	1 (1.2)	
Occupation	Farmer	149	7 (4.7)	4.99 (0.288)	146	3 (2.1)	6.31 (0.177)
	Artisan	66	4 (6.1)		96	4 (4.2)	
	Civil Servant	138	4 (2.9)		147	2 (1.4)	
	Trader	148	2 (1.4)		144	0 (0.0)	
	Others	99	2 (2.0)		67	2 (3.0)	
Parent's Educational Level	Primary	98	2 (2.0)	4.39 (0.222)	106	2 (1.9)	0.60 (0.896)
	Secondary	274	13 (4.7)		266	5 (1.9)	
	Tertiary	203	4 (2.0)		198	4 (2.0)	
	None formal	25	0 (0.0)		30	0 (0.0)	
Parent's Religion	Christian	496	19 (3.8)	4.11 (0.128)	550	11 (2.0)	1.02 (0.601)
	Islam	100	0 (0.0)		47	0 (0.0)	
	Traditional	4	0 (0.0)		3	0 (0.0)	
TOTAL			19			11	

Table 4: Univariate analysis of Factors Associated with STH infection among school-aged children in Jos North and Jos South LGAs, Plateau State

Factor Group	***Variable (Category with Higher Risk)***	***Jos North***		***Jos South***	
		OR (95% CI)	*P*-value	OR (95% CI)	*P*-value
Demographic Factors	Sex (male)	0.35 (0.11–0.92)	*0.05	4.59 (1.17–30.29)	*0.05
	Age group (9–12 years)	0.96 (0.36–2.81)	0.93	2.32 (0.57–15.47)	0.29
	Tribe (Berom)	0.05 (0.02–0.12)	0.00	0.02 (0.01–0.06)	0.00
Environmental / WASH Factors	Pit toilet at home	0.02 (0.01–0.07)	0.00	0.02 (0.01–0.06)	0.00
	Water from wells	1.58 (0.46–7.21)	0.50	0.13 (0.02–0.60)	*0.01
	Lack of running water for handwashing	0.03 (0.01–0.07)	0.00	0.3(0.01–0.08)	0.00
	Contamination of surroundings (home)	5.62 (1.40–22.50)	<0.05	0.60 (0.17–2.77)	0.46
Behavioral Factors	Not washing fruits regularly	1.97 (0.68–5.10)	0.18	1.96 (0.58–6.87)	0.27
	Irregular footwear use	0.51 (0.12–1.57)	0.30	1.59 (0.45–5.35)	0.45
	Poor handwashing after toilet	0.67 (0.15–2.07)	0.53	1.12 (0.28–3.98)	0.86
	Presence of pets (dogs/cats)	2.47 (0.96–7.11)	0.07	2.49 (0.71–11.46)	0.18

	Dewormed >1 year ago	1.67 (0.58–5.99)	0.38	0.42 (0.13–1.65)	0.18
Knowledge-Related Factors	No prior knowledge of STH	0.03 (0.02–0.07)	0.00	0.02 (0.01–0.06)	0.00
	Source of knowledge: Radio	0.09 (0.04–0.19)	0.00	0.02 (0.01–0.07)	0.00
	Source – Not heard	0.34 (0.12–0.98)	*0.04	1.51 (0.25–9.00)	0.70

OR, Adjusted Odds Ratio. CI, Confidence interval. *Significant key risk factors (*P*<0.05).

Table 5: Multivariate Analysis of Factors Associated with STH in Jos North and Jos South LGA, Plateau State

Risk Factor		***Jos North***		***Jos South***	
		OR (95% CI)	*P*-value	OR (95% CI)	*P*-value
Sex	Female	-	-	-	-
	Male	0.36 (0.11-0.99)	0.06	4.22 (1.03-28.51)	0.07
Tribe	Angas	1.04 (0.15-4.65)	0.96	-	-
	Magavou	1.09 (0.15-5.18)	0.92	-	-
	Hausa	0.45 (0.06-2.00)	0.34	-	-
	Others	0.62 (0.13-2.20)	0.49	-	-
Source of drinking water	Well water	-	-	0.11 (0.02-0.56)	0.01*
	Borehole	-	-	0.79 (0.15-3.56)	0.76
	Stream	-	-	1.89 (0.07 -21.55)	0.64
	Other	-	-	-	-
Contamination of home surroundings	Yes	5.26 (1.01-96.98)	-	-	-
Wear footwear	Sometimes	2.70 (0.79-8.75)	0.10	-	-
Wash hand after toilet	Sometimes	0.50 (0.10-1.84)	0.34	1.54 (0.36 - 6.09)	0.54
	Never	3.79 (0.17-33.99)	0.28	4.76 (0.17 - 59.36)	0.26
Trimmed nails	Yes	4.12 (0.74-79.92)	0.19	-	-
Dogs at home	Yes	2.13 (0.78-6.43)	0.15	2.83(0.73 - 13.93)	0.15
Dewormed	>1 year ago	-	-	0.49(0.13 - 2.09)	0.31

OR= Adjusted Odds Ratio, CI=Confidence interval, *Significantly associated with STH infection (*P*<0.05), - = Not applicable

Distribution of STH Species across the Jos North and Jos South

The overall prevalence of STH infection was 2.5% (n=30). The prevalence was higher in Jos North (3.2%, n=19) than in Jos South (1.8%, n= 11), although the difference was not statistically significant (χ^2 = 2.58, P = 0.108). *A. lumbricoides* was the most frequently detected STH species, occurring in 1.7% (n=20) of the participants, with a higher prevalence in Jos North (2.3%) than in Jos South (1.0%); however, this difference was not statistically significant (χ^2 = 2.74, P = 0.097). Hookworm infection occurred at an equal prevalence of 0.8% in both study areas, with no significant difference between the LGAs (χ^2 = 0.00, P = 1.000) (Table 2).

Prevalence of STH in relation to Demographic Characteristics

The overall prevalence of STH was 3.2% in Jos North LGA and 1.8% in Jos South LGA. In Jos North, STH prevalence was higher among females (4.7%) compared to males (1.7%), whereas in Jos South, males had a higher prevalence (3.0%) than females (0.7%). These differences were not statistically significant in either LGA (Jos North: χ^2 = 3.48, *P* = 0.062; Jos South: χ^2 = 3.33, *P* = 0.067). Across age groups, children aged 9–12 years had the highest prevalence in both LGAs; however, age was not significantly associated with STH infection (*P*>0.05). The highest prevalence in Jos North was observed among Berom (5.2%) and Magavou (4.2%) children, while in Jos South, Berom children had the highest prevalence (2.2%). No statistically significant association was found between tribe and infection in either LGA (*P*>0.05). Children of artisans and farmers in Jos North had higher prevalence (6.1% and 4.7%, respectively), while in Jos South, children of artisans had the highest prevalence (4.2%). Children of parents with secondary education had the highest prevalence in Jos North (4.7%), whereas in Jos South, prevalence was similar among children of parents with secondary or tertiary education. STH prevalence was observed only among children of Christian parents in both LGAs (Jos North: 3.8%; Jos South: 2.0%), with no infection recorded among children of Islamic or Traditional faith parents. Overall, STH prevalence was low across both LGAs, and no significant associations were observed between infection and demographic characteristics (*P* > 0.05) (Table 3).

Univariate logistic regression analysis of Risk Factors associated with STH

In Jos North, male children had lower odds of infection compared to females (OR = 0.35, *P* = 0.05). Berom children had significantly lower odds of infection compared to other tribes (OR = 0.05, *P* < 0.001). Children with access to running water for hand washing were significantly less likely to be infected compared to those without running water. Other demographic, behavioral, and environmental factors showed no significant association (*P*>0.05). In Jos South, male children had higher odds of infection compared to females (OR = 4.59, *P* = 0.05). Children using well water had reduced odds of infection (OR = 0.13, *P* = 0.01). Similar to Jos North, children of the Berom tribe (OR = 0.02, *P* < 0.001) and those with no prior knowledge of STH (OR = 0.02, *P* < 0.001) were significantly less likely to be infected. Use of pit toilets and lack of running water also remained strong protective factors. Behavioral factors such as not washing fruits, irregular footwear use, poor handwashing after toilet use, presence of pets, and time since last deworming were not significantly associated with STH infection in either LGA. The source of knowledge about STH also influenced infection risk, with radio as a source being protective in both LGAs (Table 4).

Multivariate Analysis of Risk Factors for STH

The multivariate analysis of factors associated with STH are presented in Table 5. Odds ratios (ORs) were adjusted for confounders, highlighting the independent contributions of behavioral, environmental, and demographic factors to STH prevalence. In Jos North, although not statistically significant, contamination of home surroundings (OR = 5.26, 95% CI: 1.01–96.98) increased the likelihood of STH infection by 5 times. Inconsistent use of footwear (OR = 2.70, 95% CI: 0.79–8.75, P = 0.10) increased infection risk by approximately 3 times. Children in homes with pit latrines (OR = 3.79, 95% CI: 0.17–33.99, P = 0.28) also faced higher odds of infection by approximately 4 times. In Jos South, access to well water (OR = 0.11, 95% CI: 0.02–0.56, P = 0.01) significantly reduced the risk of STH infection by 89%. Children in Jos South who had not been dewormed in over a year (OR = 0.49, 95% CI: 0.13–2.09, P = 0.31) were less likely to be infected, although not statistically significant. Other factors such as inconsistent nail trimming (OR = 4.12, 95% CI: 0.74–79.92, P = 0.19) and the presence of dogs at home (OR = 2.83, 95% CI: 0.73–13.93, P = 0.15) increased the odds of infection, though the associations were not statistically significant.

Discussion

This study revealed that STH is still prevalent among school-aged children in Jos North and Jos South Local Government Areas of Plateau State, Nigeria. *A. lumbricoides* and hookworm were the only STH species found. The observed prevalence falls below the 20% WHO threshold for classification as a low-risk community for preventive therapy (23). This implies that mass administration of medicines may be re-evaluated in favor of targeted interventions, consistent with the WHO guidelines.

The low prevalence observed is far lower than national averages (>20%), likely reflecting improved WASH access, ongoing school-based deworming, and the cooler highland environment of the Jos Plateau that slows egg embryonation.

The low prevalence recorded in this study contrasts sharply with higher prevalence from other parts of Nigeria. For instance, studies by Opara et al., (16), Nzeukwu et al., (24,), Ojurongbe et al., (25), Idowu et al., (26), Ukibe et al., (27), Nwalozie et al., (28), and Akinsanya et al., (29) reported STH prevalence of 11.27%, 9.86%, 46.3%, 32.0%, 42%, 46%, and 6.5% respectively. It is also lower than reports from other countries, such as 35.2 % in Ethiopia (30) and 57.24% in Indonesia (31). The reduced burden of STH in Jos North and Jos South LGAs may be attributed to local interventions, including the level of implementation of periodic deworming by the Plateau State Ministry of Health, health education, and improvements in sanitation infrastructure.

The study found no significant association between sex and STH prevalence, with nearly equal infection rates among males (2.3%) and females (2.7%), consistent with the findings of Opara et al., (16), but contrast with the findings where males recorded a significantly higher prevalence (28,32). The absence of sex difference aligns with randomized exposure through shared school environments rather than occupational differences seen in adults. The highest prevalence (2.9%) observed among children aged 9–12 year is likely due to increased outdoor activities and greater exposure to contaminated environments, as reported in earlier studies (16,25). Children of farmers exhibited the highest prevalence (3.4%), reinforcing the association between agricultural activities and increased soil contact, a key transmission route for STH (33).

Lack of access to running water for handwashing significantly increased infection risk, reinforcing the necessity of hygiene infrastructure in schools and homes. Walking barefoot increased the likelihood of percutaneous transmission of hookworm parasites which is a common feature of school-aged children, a well-documented risk factor due to direct soil contact (6).

Poor hygiene practices such as untrimmed nails and failure to wash hands after toilet use were associated with higher infection rates, emphasizing the role of hygiene education in STH control (34). Children dewormed within six months had significantly lower infection rates, affirming the effectiveness of mass drug administration campaigns (35). Awareness campaigns via radio were effective in reducing infection rates, demonstrating the importance of media-based health education initiatives.

Conclusion

This study highlights the importance of demographic, environmental, and behavioral factors in STH transmission in Jos North and Jos South LGAs. Despite the relatively low prevalence observed in this study, continued efforts are needed to sustain and further reduce infection rates. Integrated control strategies that combine sustained health education campaigns and improvements in water, sanitation, and hygiene (WASH) infrastructure are essential for long-term STH control. Our data provide updated evidence for Plateau State to transition from blanket MAM to targeted surveillance-driven control, consistent with the WHO 2030 NTD roadmap.

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Conflict of interest

Non-declared

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