

Prevalence of Intestinal Parasitic Infestation and Its Association With Sociodemographic Factors and Undernutrition Among Children Aged 6–59 Months Attending The General Outpatient Clinic, Federal Medical Centre, Bida

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Abstract

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Background: Intestinal parasitic infestation remains an important public health concern among young children and may adversely affect growth and nutritional status. This study assessed the prevalence of intestinal parasitic infestation and its association with sociodemographic factors and undernutrition among children aged 6–59 months attending the General Outpatient Clinic (GOPC), Federal Medical Centre (FMC), Bida.

Methods: We conducted a hospital-based cross-sectional study of children aged 6–59 months attending the GOPC at FMC Bida. We initially recruited 178 eligible children; however, five did not provide stool samples and were excluded from parasitological analysis, leaving 173 children for the final analysis. Data on sociodemographic characteristics, child-care practices and household factors were collected using a structured questionnaire. Anthropometric measurements and stool examination were performed. Intestinal parasitic infestation was assessed by stool examination, while nutritional status was assessed using anthropometric indicators. Data were analysed using IBM SPSS Statistics version 26. Associations between intestinal parasitic infestation and categorical variables were assessed using the chi-square test. Variables significantly associated with infestation at bivariate analysis ($p < 0.05$) were entered into a parsimonious binary logistic regression model. Adjusted odds ratios (AORs) with 95% confidence intervals (CIs) were reported.

Results: Intestinal parasitic infestation was detected in 32 of 173 children, giving a prevalence of 18.5%. Infestation was significantly associated with rural residence (27.2% vs 10.9%; $p = 0.011$) and maternal occupation (27.9% among children of civil-servant mothers vs 13.4% among other occupations; $p = 0.033$). In the adjusted analysis, rural residence was associated with higher odds of infestation (AOR=3.83, 95% CI: 1.61–9.10; $p = 0.002$), as was maternal civil-servant occupation (AOR=3.24, 95% CI: 1.41–7.45; $p = 0.006$).

Conclusion: The prevalence of intestinal parasitic infestation was 18.5% among children aged 6–59 months attending the study facility. Infestation was associated with rural residence and maternal occupation after adjustment, while no statistically significant association was demonstrated with the nutritional indicators assessed. These findings should be interpreted in view of the hospital-based design and relatively small final analytic sample.

Keywords: Intestinal parasites; Undernutrition; Children; Nigeria; Rural health

Introduction

Intestinal parasitic infections remain an important public health concern among children, particularly in low- and middle-income countries where inadequate sanitation, unsafe water and poor hygiene may facilitate transmission. These infections may adversely affect nutritional status through several mechanisms, including reduced appetite and food intake, impaired nutrient absorption and, in some helminth infections, chronic intestinal blood loss. They may consequently contribute to poor growth and other adverse health outcomes in children.^{1–3}

Undernutrition remains a major public health problem among children under five years of age. Globally, a substantial proportion of children experience stunting, wasting or underweight, with the burden disproportionately affecting populations in resource-constrained settings.^{4,5} In Nigeria, undernutrition among children aged 6–59 months remains substantial, with the Nigeria Demographic and Health Survey reporting considerable levels of stunting, wasting and underweight.⁶

The nutritional status of young children is influenced by multiple interacting factors, including household socioeconomic

circumstances, food security, environmental conditions, childcare practices and childhood illnesses. Intestinal parasitic infections may contribute to this burden, particularly where exposure to contaminated soil, water or food is common.⁷

Previous studies in Nigeria have reported an association between intestinal parasitic infections and poor nutritional status among children. Ihejirika et al. reported an association between intestinal parasitic infections and nutritional status among children in Imo State,¹ while Tyoalumun et al. reported a relationship between intestinal parasitic infections and nutritional status among rural and urban preschool children in Benue State.⁷ These findings suggest that intestinal parasitic infections may contribute to undernutrition among young children, although the strength and nature of this association may vary across populations and settings.

Given the continuing burden of both intestinal parasitic infections and undernutrition among Nigerian children, locally generated evidence is important for informing appropriate preventive and clinical interventions. This study therefore assessed the prevalence of intestinal parasitic infestation and its association with sociodemographic factors and nutritional status among children

aged 6–59 months attending the General Outpatient Clinic of Federal Medical Centre, Bida.

Methods

Study Area

This study was conducted at the General Outpatient Clinic (GOPC) of the Federal Medical Centre (FMC), Bida, a tertiary healthcare institution located in Bida, Niger State, Nigeria. The town serves as the headquarters of the Nupe Kingdom and is inhabited by a diverse population, including Nupe, Gwari, Igbo, Yoruba, and Hausa-Fulani ethnic groups. The predominant occupations are brass work, subsistence farming, trading, and fishing, with Islam and Christianity being the main religions. The GOPC provides services daily, including weekends, from 8:00 a.m. to 9:00 p.m. The clinic records an average annual paediatric attendance of 3,876, with 3,368 visits from children under five years of age.

Study Population

A total of 178 children aged 6–59 months attending the GOPC of FMC Bida and meeting the inclusion criteria were initially recruited. Five children did not provide stool samples and were therefore excluded from the parasitological analysis. The final analytic sample comprised 173 children who provided stool samples and had complete relevant data for analysis.

Sample Size Determination

The minimum sample size for the study was determined using the single population proportion formula for cross-sectional studies. The calculation was based on a previously reported prevalence of underweight of 15.5% among children aged 6–59 months in Busia District, Kenya, reported by Jela.⁸ The choice of underweight for the sample-size calculation reflected the nutritional-status component of the study, which sought to assess the relationship between intestinal parasitic infestation and nutritional status among children aged 6–59 months. The principles for sample-size determination in cross-sectional studies were applied as described by Singh and Masuku.⁹ After allowing for a 10% non-response rate, the minimum required sample size was 178 children.

Sampling Technique

Systematic random sampling was employed using a sampling interval of four, derived from an estimated three-month attendance of 792 eligible children. The first participant was randomly selected among the first four attendees, followed by the recruitment of every fourth child thereafter.

Inclusion and Exclusion Criteria

Inclusion criteria comprised children aged 6–59 months whose caregivers provided informed consent.

Excluded were children with chronic debilitating conditions (e.g., HIV/AIDS), those requiring emergency care, and those too ill to participate in measurements.

Data Collection

Data were obtained through an interviewer-administered, semi-structured questionnaire administered face-to-face with caregivers. The main parasitological outcome was the presence or absence of intestinal parasitic infestation, determined by stool examination. Nutritional status was assessed as an important study outcome using anthropometric indicators, including weight-for-age, height-for-age, weight-for-height and mid-upper arm circumference (MUAC).

Independent variables included sociodemographic factors such as child and maternal age, sex, family size, parental education and occupation; child characteristics such as birth order and illness history; and childcare practices including breastfeeding, complementary feeding, hygiene, healthcare-seeking behaviour and immunisation.

Anthropometric Measurements

Weight was measured with minimal clothing using a hanging scale for children aged 6–24 months and an appropriate weighing scale for children aged 24–59 months. Length was measured in the supine position for children younger than 24 months, while standing height was measured for children aged 24–59 months. Anthropometric measurements were converted to weight-for-age (WAZ), height-for-age (HAZ) and weight-for-height (WHZ) Z-scores using the WHO 2006 Child Growth Standards. Children with Z-scores ≤ -2 SD were classified as underweight, stunted or wasted, respectively. WHO Child Growth Standards are applicable to children from birth to 5 years of age.

Stool Sample Collection and Analysis

Caregivers were instructed to collect fresh stool samples, which were analysed within 1–2 hours of collection. Initial examination involved direct wet mounts, followed by concentration using the Mini Parasep® SF faecal parasite concentrator (formol-ether sedimentation method). Microscopic examination was performed at $\times 10$ and $\times 40$ magnifications to identify ova, larvae, cysts and other parasitic forms.

Data Analysis

Data were analysed using IBM SPSS Statistics version 26. Descriptive statistics were presented as frequencies and percentages. Associations between intestinal parasitic infestation and categorical independent variables were assessed using the chi-square test. Variables significantly associated with intestinal parasitic infestation at bivariate analysis ($p < 0.05$) were entered into a parsimonious binary logistic regression model to assess their adjusted associations with intestinal parasitic infestation. Adjusted odds ratios (AORs), 95% confidence intervals (CIs) and p-values were reported. Given the relatively small number of children with intestinal parasitic infestation, the regression model was intentionally kept parsimonious. The adjusted estimates were interpreted as associations rather than as evidence of causation or as comprehensive adjustment for all potential confounding factors. Statistical significance was set at $p < 0.05$.

Ethical Considerations

Ethical approval was obtained from the appropriate Health Research Ethics Committee of FMC Bida. Written informed consent was obtained from the parents or legally authorised caregivers of participating children before enrolment. Participation was voluntary, and confidentiality of participants' information was maintained throughout the study.

Results

Prevalence of Intestinal Parasitic Infestation

Of the 178 children initially recruited, five did not submit stool specimens and were therefore excluded from the parasitological analysis. The final analytic sample comprised 173 children. Among these, 32 (18.5%) had intestinal parasitic infestation and 141 (81.5%) had no infestation.

Association of intestinal parasitic infestation with sociodemographic and child-related factors

The prevalence of intestinal parasitic infestation was higher among children aged 42–59 months (24.1%) than among those aged 6–23 months (12.7%) and 24–41 months (18.3%), although this difference was not statistically significant ($p = 0.295$). Infestation was significantly more common among children residing in rural areas than among those residing in urban areas (27.2% versus 10.9%; $p = 0.011$). No statistically significant associations were observed with sex, tribe, religion, birth order, immunisation status, breastfeeding duration or history of diarrhoea. The proportion of children with infestation was higher among those whose complementary feeding was initiated at a time other than 6 months (29.7% versus 15.4%); however, this difference was not statistically significant ($p = 0.081$).

Table 1: Association Between Intestinal Parasitic Infestation And Sociodemographic Characteristics Of Study Participants

Variable	Infestation	No infestation	χ^2	p - value
Age group				
6-23	7(12.7)	48(87.3)	2.440	0.295
24-41	11(18.3)	49(81.7)		
42-59	14(24.1)	44(75.9)		
Sex				
Male	19(17.9)	87(82.1)	0.002	0.966
Female	13(19.4)	54(80.6)		
Child residential area				
Rural	22(27.2)	59(72.8)	6.541	0.011
urban	10(10.9)	82(89.1)		
Tribe				
Nupe	28(20.1)	111(79.9)	4.407	0.492
Yoruba	3(27.8)	8(72.2)		
Igbo	1(12.5)	7(87.5)		
Others	0(0.0)	15(100.0)		
Religion				
Christianity	3(7.9)	35(92.1)	2.786	0.095
Islam	29(21.5)	106(78.5)		
Childbirth order				
≤ 3	26(20.0)	104(80.0)	0.434	0.510
>3	6(14.0)	37(86.0)		
Fully immunized				
Yes	20(16.3)	103(83.7)	0.946	0.331
No	12(24.0)	38(76.0)		
Stopped breastfeeding				
<18 months	16(16.7)	80(83.3)	0.045	0.489
≥18 months	16(20.8)	61(79.2)		
Age at starting Complementary feeding				
6 months	21(15.4)	115(84.6)	3.048	0.081
Others	11(29.7)	26(70.3)		
Diarrhoea episode				
None	16(18.6)	70(81.4)	0.000	1.000
At least once	16(18.4)	71(81.6)		

Household and Maternal Factors

No statistically significant association was found between intestinal parasitic infestation and household size, household income, monthly expenditure on food, maternal education, handwashing practices, health-seeking behaviour, food availability, family structure or type of household.

Maternal occupation was significantly associated with infestation ($p=0.033$), with a higher prevalence among children whose mothers were civil servants than among those whose mothers had other occupations (27.9% vs 13.4%).

Table 2: Association between intestinal parasitic infestation and household and maternal characteristics

Variable	Infestation	No infestation	χ^2	p - value
Household size				
≤5	13(14.9)	74(85.1)	1.031	0.310
>5	19(22.1)	67(77.9)		
Household income				
≤50,000	16(22.5)	55(77.5)	0.888	0.346
>50,000	16(15.7)	86(84.3)		
Money spent on food				
≤30,000	22(20.0)	88(80.0)	0.220	0.639
>30,000	10(15.9)	53(84.1)		
Maternal education				
None	5(21.7)	18(78.3)	0.020	0.887
Primary & above	27(16.9)	133(83.1)		
Maternal occupation				
Civil servant	17(27.9)	44(72.1)	4.571	*0.033
Others	15(13.4)	97(86.6)		
Maternal handwashing after using the toilet				
Always	18(17.8)	83(82.2)	0.005	0.942
occasional	14(19.4)	58(80.6)		
Maternal handwashing before preparing food				
Always	17(15.3)	94(84.7)	1.533	0.216
Occasional	15(24.2)	47(75.8)		
Health-seeking behaviour when child is ill				
Hospital to see doctor	28(18.4)	124(81.6)	0.000	1.000
Others	4(19.0)	17(81.0)		
Availability of required food at home				
Always	27(17.9)	124(82.1)	0.064	0.800
Occasional	5(22.7)	17(77.3)		
Family structure				
Monogamous	28(18.5)	123(81.5)	0.000	1.000
Polygamous	4(18.2)	18(81.8)		
Type of household				
Nuclear	17(16.3)	87(83.7)	0.482	0.487
Extended	15(21.7)	54(78.3)		

Prevalence of intestinal parasitic infestation

The total number of children who were parasitised was 32 out of the 173 participants studied, constituting 18.5%. Therefore, the prevalence of intestinal parasitic infestation was 18.5%.

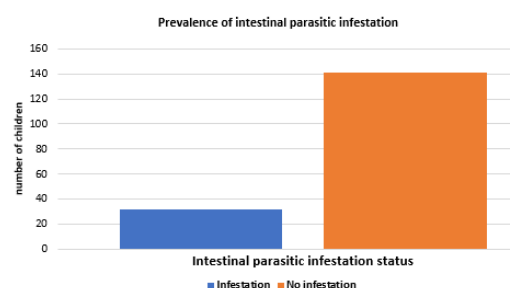


Figure 1: Prevalence of intestinal parasitic infestation

Nutritional Status

There was no statistically significant association between intestinal parasitic infestation and underweight ($\chi^2=1.909$, $p=0.167$), stunting ($\chi^2=0.640$, $p=0.424$), wasting ($\chi^2=0.000$, $p=0.983$) or MUAC-defined acute malnutrition ($\chi^2=0.297$, $p=0.586$).

Table 3: Association between intestinal parasitic infestation and anthropometric indicators

Variable	Infestation		χ^2	p
	Yes, n (%)	No, n (%)		
WAZ				
Underweight	8 (27.6)	21 (72.4)	1.909	0.167
Normal	24 (16.7)	120 (83.3)		
HAZ				
Stunting	5 (13.9)	31 (86.1)	0.640	0.424
Normal	27 (19.7)	110 (80.3)		
WHZ				
Wasting	8 (18.6)	35 (81.4)	0.000	0.983
Normal	24 (18.5)	106 (81.5)		
MUAC				
Acute malnutrition	7 (21.9)	25 (78.1)	0.297	0.586
Normal	25 (17.7)	116 (82.3)		

Note: WAZ = weight-for-age Z-score; HAZ = height-for-age Z-score; WHZ = weight-for-height Z-score; MUAC = mid-upper arm circumference.

Parasitological findings and infestation pattern

Among the 32 children with intestinal parasitic infestation, 27 (84.4%) had single infestation and 4 (12.5%) had mixed infestation. *Hymenolepis nana* was the most frequently recorded parasite category, occurring in 16 (50.0%) of the affected children (Table 4).

Table 4: Parasitological findings and infestation pattern among children with intestinal parasitic infestation (n=32)

Parasite category	n	% of 32
<i>Hymenolepis nana</i>	16	50.0
<i>Trichomonas hominis</i>	6	18.8
Hookworm	4	12.5
<i>Entamoeba histolytica</i>	2	6.3
<i>E. histolytica</i> /T. hominis	3	9.4
Hookworm/T. hominis	1	3.1
Infestation pattern	n	% of 32
Single	27	84.4
Mixed	4	12.5

Multivariable Analysis

Variables significantly associated with intestinal parasitic infestation at bivariate analysis were entered into a parsimonious binary logistic regression model. After adjustment within the model, rural residence was associated with higher odds of intestinal parasitic infestation compared with urban residence (AOR=3.83, 95% CI: 1.61–9.10;

$p=0.002$). Maternal civil-servant occupation was also associated with higher odds of infestation compared with other maternal occupations (AOR=3.24, 95% CI: 1.41–7.45; $p=0.006$).

Table 5: Parsimonious multivariable logistic regression model of factors associated with intestinal parasitic infestation

Variable	Reference category	B	SE	Wald	AOR	95% CI	p-value
Residential area	urban	1.343	0.441	9.27	3.83	1.61–9.10	0.002
Maternal occupation	Other occupations	1.175	0.425	7.63	3.24	1.41–7.45	0.006
Constant	—	-2.722	0.435	39.10	0.066	—	<0.001

Note: AOR = adjusted odds ratio; B = regression coefficient; CI = confidence interval; SE = standard error. The model was parsimonious and included variables significantly associated with intestinal parasitic infestation at bivariate analysis.

Discussion

Intestinal parasitic infestation remains an important public health problem among children, particularly in settings where sanitation, water quality and environmental conditions facilitate transmission. In the present study, 32 of 173 children analysed had intestinal parasitic infestation, giving an overall prevalence of 18.5%. This finding is comparable with the prevalence reported by Ihejirika et al. among children in Imo State, Nigeria (16.6%)¹ and Ayele et al. among kindergarten children in northwest Ethiopia (16.7%)¹⁰. However, it was lower than the prevalence reported by Usman et al. among primary school children in north-central Nigeria (46%)¹¹ and Amare et al. among schoolchildren in northwest Ethiopia (22.7%)¹². Differences in prevalence across studies may reflect variations in study population, geographical and environmental conditions, timing of data collection, sampling approaches and diagnostic methods. The present study was conducted among children attending a hospital outpatient clinic and therefore may not reflect the prevalence in the wider community.

Sociodemographic factors associated with intestinal parasitic infestation

Rural residence was significantly associated with intestinal parasitic infestation in the present study. After adjustment within the parsimonious multivariable model, children residing in rural areas had higher odds of infestation than those residing in urban areas (AOR=3.83, 95% CI: 1.61–9.10; $p=0.002$). This finding is biologically plausible because intestinal parasites, particularly soil-transmitted helminths, are transmitted through environmental contamination and may be associated with inadequate sanitation, unsafe water and exposure to contaminated soil. WHO identifies poor sanitation and hygiene as important conditions facilitating transmission of soil-transmitted helminths.¹³ Similar rural–urban differences have been reported among preschool children in Benue State, Nigeria.⁷

The observed association should nevertheless be interpreted cautiously. Residential location may represent a cluster of environmental and socioeconomic circumstances, including sanitation, water source, housing conditions and patterns of exposure, rather than an independent biological determinant of infestation. Furthermore, the regression model was parsimonious and included only variables meeting the predefined criterion for entry based on bivariate analysis. It therefore does not represent comprehensive adjustment for all potential confounding factors. The relatively small number of infestation events (n=32) also limits the

precision and stability with which the adjusted associations can be interpreted. The cross-sectional design further limits conclusions regarding temporality or causality.

Maternal occupation was also associated with intestinal parasitic infestation. Children whose mothers were civil servants had higher adjusted odds of infestation compared with children whose mothers were in other occupational categories (AOR=3.24, 95% CI: 1.41–7.45; $p=0.006$). This finding should be interpreted cautiously because maternal occupation may act as a marker for other household, environmental or socioeconomic characteristics that were not fully captured or adjusted for in the analysis. The finding therefore does not establish that maternal occupation itself is a causal determinant of intestinal parasitic infestation.

Other variables examined in the present study, including household characteristics, handwashing practices, immunisation status, breastfeeding history, complementary feeding and recent diarrhoeal illness, were not statistically associated with intestinal parasitic infestation in the final analysis. In particular, children with and without a history of diarrhoea had very similar proportions of infestation. These variables should therefore not be described as risk factors on the basis of the present data.

Pattern of intestinal parasitic infestation

Among the 32 children with intestinal parasitic infestation, 27 (84.4%) had single infestation while 4 (12.5%) had mixed infestation. The parasite findings comprised four individually recorded parasite species *Hymenolepis nana*, *Trichomonas hominis*, hookworm and *Entamoeba histolytica* together with two recorded mixed-parasite categories, *E. histolytica*/*T. hominis* and hookworm/*T. hominis*. *H. nana* was the most frequently recorded parasite category, accounting for 16 (50.0%) of the 32 affected children. The predominance of *H. nana* in this study differs from findings in some Nigerian and African studies in which *E. histolytica*, hookworm or other intestinal parasites were more frequently reported.^{7,10-12,14} Such differences may reflect variation in local transmission patterns, age distribution, environmental exposure and laboratory diagnostic methods. For example, Tyoalumun et al. reported *E. histolytica* as the predominant parasite among rural and urban preschool children in Benue State.⁷ These differences reinforce the importance of describing the parasite distribution within the specific study population rather than assuming that patterns reported elsewhere apply uniformly.

The designation of *E. histolytica* in this study should also be interpreted in the context of the diagnostic method used. Identification was based on conventional stool microscopy. Morphologically, *E. histolytica* cannot reliably be distinguished from *E. dispar* and some other morphologically similar *Entamoeba* species by routine microscopy alone. Molecular methods or appropriate antigen-based assays provide more reliable species differentiation.¹⁵ Consequently, the *E. histolytica* findings in this study should be regarded as microscopy-based identification rather than definitive molecular confirmation of *E. histolytica* infection.

Intestinal parasitic infestation and nutritional status

No statistically significant association was demonstrated between

intestinal parasitic infestation and the nutritional indicators assessed in this study. Specifically, there was no significant association with weight-for-age ($p=0.167$), height-for-age ($p=0.424$), weight-for-height ($p=0.983$) or MUAC ($p=0.586$). Among children with infestation, 24 (75.0%) had normal weight-for-age, 27 (84.4%) had normal height-for-age, 24 (75.0%) had normal weight-for-height, and 25 (78.1%) had normal MUAC.

The absence of a statistically significant association in this study does not necessarily imply that intestinal parasitic infestation does not affect nutritional status. Soil-transmitted helminths can adversely affect nutrition through mechanisms including impaired nutrient absorption, reduced appetite and, for hookworm, chronic intestinal blood loss.¹³ However, the magnitude of these effects may vary according to parasite species, duration of infection, dietary intake and other environmental and socioeconomic factors.

The present findings differ from those of several studies reporting associations between intestinal parasitic infection and undernutrition. Hailegebriel, for example, reported associations between parasitic infection and thinness and underweight among schoolchildren in Bahir Dar, Ethiopia.¹⁶ Feleke also reported differences in nutritional status between infected and uninfected school-age children.¹⁷ In contrast, Yoseph and Beyene reported an association between intestinal parasitic infection and stunting among children aged 6–59 months in southern Ethiopia.¹⁸ Conversely, the Benue State study by Tyoalumun et al. also examined preschool children and reported significant relationships between parasitic infection and nutritional status.⁷

The differences between these studies and the present findings may partly reflect differences in age groups, sample sizes, study settings, parasite profiles and diagnostic procedures. The present study also had a relatively small number of infected children ($n=32$), which limits statistical power to detect modest associations. In addition, the hospital-based design may have produced a study population that differs from children in the general community.

Implications of the findings

The findings suggest that intestinal parasitic infestation remains present among young children attending the study facility, with rural residence showing an independent association with infestation. The results support continued attention to environmental sanitation, safe water, hygiene and appropriate diagnosis and treatment of intestinal parasitic infestation. WHO recommends a combination of preventive chemotherapy, health education and improvements in sanitation and hygiene as components of control of soil-transmitted helminth infections.¹³ However, the present study does not provide evidence that the observed infestation was caused by any particular behavioural or socioeconomic factor, nor does it demonstrate a significant relationship between infestation and undernutrition. Public health recommendations should therefore be framed around the established burden of infestation and the broader principles of parasite control rather than attributing causality to variables that were not statistically associated with infestation in this study.

Limitations

This study has several limitations. First, it was conducted at a single

hospital-based outpatient clinic; consequently, the findings may not be generalisable to all children in Bida or the wider community. Children attending a health facility may differ systematically from children who do not seek healthcare, introducing the possibility of selection bias. Second, although 178 children were initially recruited, five did not submit stool samples and were excluded from the parasitological analysis, leaving 173 children for the final analysis. The relatively small number of infected children may have limited the statistical power to detect modest associations. Third, the cross-sectional design permits identification of associations but does not establish temporality or causality. Fourth, parasite detection was based on conventional stool microscopy, which may have limited sensitivity and may underestimate some infections, particularly when only a single stool specimen is examined.¹⁵ Finally, the microscopy-based identification of *E. histolytica* cannot reliably distinguish it from morphologically similar *Entamoeba* species without confirmatory antigen or molecular testing.¹⁵ These limitations should be considered when interpreting the prevalence and parasite-specific findings.

Conclusion

The prevalence of intestinal parasitic infestation among children aged 6–59 months attending the GOPC of FMC Bida was 18.5%. In the parsimonious multivariable model, rural residence and maternal occupation were associated with intestinal parasitic infestation after adjustment for the variables included in the model. However, no statistically significant association was demonstrated between intestinal parasitic infestation and underweight, stunting, wasting or MUAC-defined acute malnutrition. These findings should be interpreted cautiously because of the hospital-based cross-sectional design, the relatively small number of children with infestation and the limitations of conventional stool microscopy. Continued attention to environmental sanitation, hygiene and other appropriate preventive measures remains important, particularly in rural communities.

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