

Incidence of Intestinal Parasites from Stool Samples Collected From members of unguwar Jeji Community in Kalgo Local Government Area, Kebbi State, Nigeria

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Article History	Abstract
Original Research Article	<p><i>This study aims to determine the incidence of intestinal parasites from stool samples collected from members of Unguwar Jeji Community, Kalgo Local Government Area, Kebbi State, Nigeria. A total of fifty (50) stool samples were examined using standard parasitological techniques, including direct wet mount and formol-ether concentration methods. Out of the 50 samples analyzed, 39 (78%) were positive for one or more intestinal parasites, while 11 (22%) showed no infection. The most frequently encountered parasites were Diphyllobothrium spp. (22%), Fasciola hepatica (20%), and Strongyloides stercoralis (18%). Other parasites detected included Dipylidium spp., Schistosoma mansoni, Endamoeba butschlii, and Giardia lamblia. Males recorded a slightly higher infection rate (82.35%) than females (68.75%). The absence of E. histolytica in the analyzed samples suggests that the parasite may not be common in the study area, although the presence of other intestinal parasites indicates ongoing exposure to fecal contamination. It is recommended that further investigations using molecular diagnostic techniques be conducted to confirm the identification of the parasites. Other recommendations are health education campaign among members of the community to adopt good hygienic habits to avoid food and water contamination with parasites and their eggs.</i></p> <p>Keywords: Incidence, Intestinal, Parasites, Stool, Unguwar Jeji.</p>
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<p>Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.</p> <p>Citation: Mshelia, M.B., & Muhammad Abdul malik Bunza. (2026). Incidence of intestinal parasites from stool samples collected from members of unguwar Jeji community in Kalgo Local Government Area, Kebbi State, Nigeria. UKR Journal of Medicine and Medical Research (UKRJMMR), Volume 2(1). 85-91.</p>	

INTRODUCTION

Parasitic infections continue to be a major public health concern in developing countries, particularly in rural and peri-urban communities where sanitation and hygiene practices are poor (Antoni *et al.*, 2017). Among these parasites, are intestinal parasite like *Entamoeba histolytica* *Giardia lamblia*, *G. intestinalis*, *Schistosoma mansoni*, *Strongyloids*, *Ascaris* and other species, remains some of the most important intestinal protozoa affecting humans. They cause diseases that can range from mild diarrhoea to severe dysentery and extra-intestinal complications such as liver abscesses. Transmission occurs mainly through the ingestion of mature cysts and eggs in contaminated food or water (Adam, 2021).

Globally, amoebiasis affects millions of people each year, with the World Health Organization (WHO) estimating that about 50 million individuals are infected and over 100,000

deaths occur annually (WHO, 2020). The burden of infection is particularly high in tropical and subtropical regions, where environmental and sanitary conditions favor the persistence and transmission of the parasite. In Nigeria, studies have consistently shown that intestinal protozoan infections are endemic, especially in communities where open defecation, unsafe water, and inadequate sanitation are prevalent (Olaniyan *et al.*, 2024). Unguwar Jeji, a community in Kalgo Local Government Area of Kebbi State, faces similar environmental and socio-economic challenges. The majority of residents rely on wells and streams as their main sources of water, and open defecation is still practiced in some areas. These conditions create a suitable environment for the transmission of intestinal parasites such as *Entamoeba histolytica* (Omanget *et al.*, 2022). Despite these risk factors, there is limited published

information on the occurrence and incidence of amoebiasis within this community. Therefore, assessing the incidence of *E. histolytica* from stool samples in Unguwar Jeji is essential to provide baseline data that will guide public health interventions aimed at improving hygiene and sanitation practices in the area.

Recent studies in Nigeria have reported varying prevalence rates of *E. histolytica* infection. Olaniyan *et al.* (2024) reported a prevalence of approximately 17% among young adults, while Omanget *al.* (2022) found that children in Calabar were significantly infected, emphasizing the role of poor hygiene and unsafe water sources. Similarly, Ohanuet *al.* (2022) identified key risk factors such as lack of clean water, inadequate toilet facilities, and poor handwashing habits as major contributors to transmission. These findings highlight the need for localized epidemiological studies in communities like Unguwar Jeji, where socio-economic and environmental conditions may enhance parasite transmission.

In many rural communities across Nigeria, intestinal parasitic infections continue to cause significant health problems, contributing to malnutrition, reduced productivity, and increased morbidity, especially among children. *Entamoeba histolytica*, the causative agent of amoebiasis, is among the most common intestinal parasites found in humans. However, due to poor diagnostic facilities and limited epidemiological data, the specific role of *E. histolytica* in these health issues remains uncertain. The absence of documented data on the incidence of intestinal parasitic infections in Unguwar Jeji has made it difficult for health workers and policymakers to design appropriate preventive and control measures. Furthermore, the reliance on simple microscopy for stool examination often leads to misidentification of intestinal parasites with non-pathogenic species such as *E. dispar*, resulting in misdiagnosis and inappropriate treatment. This study therefore seeks to fill this gap by determining the incidence of intestinal parasites infection in the community and highlighting the associated risk factors that promote its transmission.

This study is justified by the need to provide accurate and up-to-date information on the incidence of intestinal parasites infections in Unguwar Jeji community, Kalgo Local Government Area. Reliable epidemiological data are essential for designing effective control and prevention programs. The findings will help local health authorities and other stakeholders to understand the burden of intestinal parasites and promote public health awareness. In addition, the study will serve as a source of baseline data for future research and contribute to improving sanitation and hygiene practices in the community. The information obtained will also be valuable in guiding interventions

aimed at reducing the spread of intestinal parasitic infections and improving the overall quality of life of residents in Unguwar Jeji Community.

1.4 Aim and Objectives of the Study

The aim of the study was to determine the incidence of *Entamoeba histolytica* from stool samples of residents of Unguwar Jeji community, Kalgo Local Government Area, Kebbi State.

MATERIALS AND METHODS

Study Area

The study will be carried out in Unguwar Jeji, a peri-urban community within Kalgo Local Government Area of Kebbi State, Nigeria. The area has limited access to potable water and is marked by poor sanitation and open defecation practices, which are conducive to fecal-oral transmission of intestinal protozoa. The area lies in the Sudan savanna belt and experiences a tropical climate with distinct wet and dry seasons, conditions known to influence the prevalence of gastrointestinal parasites.

Study Population

The study will target both symptomatic and asymptomatic individuals within the community, covering different age groups and sexes.

Inclusion and Exclusion Criteria

To ensure a focused and ethically sound study, well-defined inclusion and exclusion criteria are established for participant selection:

Inclusion Criteria

Participants are eligible for inclusion in the study based on the following conditions:

- Individuals who have been permanent residents of Unguwar Jeji Community for at least six months.
- Individuals of all age groups (children, adults, and elderly) and both sexes.
- Participants who gave informed consent (or whose guardians gave consent in the case of minors).
- Individuals not currently undergoing treatment with antiparasitic or antibiotic drugs for at least two weeks prior to sample collection.
- Those willing to provide fresh stool samples, following proper collection procedures.

Exclusion Criteria

Participants are excluded from the study based on the following conditions:

- Individuals who had received antiparasitic or antibiotic therapy within the two weeks prior to sample collection (to avoid false-negative results).
- Individuals with incomplete consent or who withdrew from participation.
- Samples that were contaminated with urine, soil, or water or those not submitted within the required time frame.
- Residents who refused to provide samples or failed to follow instructions regarding specimen collection and container handling.

Sample Size and Sampling Technique

A total of 50 stool samples will be collected using purposive sampling, focusing on participants who met the defined inclusion criteria and are available and cooperative during the sample collection period. This smaller sample size is selected for feasibility due to time, logistics and laboratory resource constraints, while still ensuring diversity in age and sex representation. The sample still allowed for preliminary estimation of the incidence of *Entamoeba histolytica* in the community and is adequate for exploratory analysis (Cheesbrough, 2010; WHO, 2020).

Ethical Considerations

Ethical approval will be obtained from the Health Research Ethics Committee of Kebbi State Ministry of Health. Prior to sample collection, the study will be explained to participants in Hausa, and informed consent will be obtained in writing or verbally (for illiterate individuals). Parental consent will be sought for minors. Anonymity and confidentiality of participants will be strictly maintained in accordance with the declaration of Helsinki (World Medical Association, 2018).

Sample Collection

Clean, dry, wide-mouthed, screw-capped containers will be distributed to selected participants, each labeled with a unique identification number. Participants will be instructed to provide early morning stool samples, avoiding contamination with urine or water. Samples will be collected and transported in a cooler box at 4 °C to the laboratory at the Department of Microbiology, Federal University Birnin Kebbi, within 2 hours of collection (Cheesbrough, 2010).

Laboratory Procedures

Standard diagnostic parasitological procedures will be employed to detect the presence of *Entamoeba histolytica* through microscopic examination, direct wet mount technique and formol-ether concentration technique.

Macroscopic Examination

Each stool sample will be observed for consistency, color, presence of blood, mucus, or adult worms. Diarrheic or mucoid samples will be flagged for further protozoan analysis (WHO, 2020).

Direct Wet Mount Technique

A small portion of fresh stool will be emulsified with a drop of normal saline (0.85% NaCl) on a microscope slide and examined under the 10x and 40x objectives for motile trophozoites and cysts. Iodine-stained wet mounts will also be prepared to enhance visualization of internal structures (Cheesbrough, 2010).

Formol-Ether Concentration Technique

Stool samples was concentrated to increase diagnostic sensitivity, particularly in cases with low parasite load. Approximately 1 g of stool will be emulsified in 10% formalin, filtered, and mixed with diethyl ether. After centrifugation at 3000 rpm for 5 minutes, the sediment will be examined microscopically (CDC, 2020). This technique is highly effective for the detection of protozoan cysts and helminth ova.

Identification Criteria for *Entamoeba histolytica*

Entamoeba histolytica will be identified by its morphological features using standard parasitological criteria (Fotedaret *et al.*, 2020). Trophozoites were 10–60 µm in size, with finely granular cytoplasm and may contain ingested erythrocytes which is an important diagnostic feature distinguishing them from *Entamoeba dispar* (Fotedaret *et al.*, 2020). Cysts are round, 10–20 µm in diameter, with up to four nuclei and centrally located karyosomes. However, due to morphological similarity with *E. dispar*, the diagnosis was termed presumptive, unless molecular confirmation was available (Stark *et al.*, 2021).

RESULTS

Table 1 shows the overall infection rate among the 50 examined stool samples. Out of the 50 samples examined, 39(78.0%) were positive for one or more intestinal parasites, while 11 samples (22.0%) showed no evidence of parasitic infection (Table 1).

Table 1: Incidence of Intestinal Parasitic Infections among Members of Unguwal Jeji Community, Kalgo LGA, Kebbi State, Nigeria.

PARAMETER	NUMBER	PERCENTAGE (%)
Total Positive Samples	39	78.0
Total Negative Samples	11	22.0
Total Samples Examined	50	100

Frequency and Prevalence of Parasites Identified

Table2 presents the parasites identified from the examined stool samples and their frequencies. These are *Diphyllobothrium* spp. occurred most frequently with a prevalence of 22.0%, followed by *Fasciola hepatica* (20.0%) and *Strongyloides stercoralis* (18.0%). *Dipylidium* spp., *Endamoeba butschlii*, and *Schistosoma mansoni* each recorded 8.0%, while *Giardia lamblia*, *Ancylostoma* spp., *Enterobius vermicularis*, *Entamoeba coli*, *Ascaris lumbricoides*, and *Isospora* spp. each accounted for 4.0%. *Chilomastix mesnili*, *Trichuris trichiura*, *Taenia solium*, *Taenia saginata*, *Toxocara canis*, and *Taenia saginata* each had 2.0% occurrence.

Table 2: Frequency and Prevalence of Parasites Identified among Members of Unguwal Jeji Community, Kalgo LGA, Kebbi State, Nigeria.

Parasite Species	No. of Positive Samples	Percentage (%)
<i>Diphyllobothrium</i> spp.	11	22.0
<i>Fasciola hepatica</i>	10	20.0
<i>Strongyloides stercoralis</i>	9	18.0
<i>Dipylidium</i> spp.	4	8.0
<i>Endamoeba butschlii</i>	4	8.0
<i>Schistosoma mansoni</i>	4	8.0
<i>Giardia lamblia</i>	2	4.0
<i>Ancylostoma</i> spp.	2	4.0
<i>Enterobius vermicularis</i>	2	4.0
<i>Entamoeba coli</i>	2	4.0
<i>Ascaris lumbricoides</i>	2	4.0
<i>Isospora</i> spp.	2	4.0
<i>Chilomastix mesnili</i>	1	2.0
<i>Trichuris trichiura</i>	1	2.0
<i>Taenia solium</i>	1	2.0
<i>Taenia saginata</i>	1	2.0
<i>Toxocara canis</i>	1	2.0
<i>Taenia saginata</i>	1	2.0

Distribution of Infection by Gender

Table3 shows the distribution of intestinal parasite infections based on sex. Out of the 34 males examined, 28 (82.35%) were infected, while 11 (68.75%) of the 16 females were positive.

Table 3: Distribution of Infection by Sex among Members of Unguwal Jeji Community, Kalgo LGA, Kebbi State, Nigeria.

Gender	Number Examined	Number Infected	Percentage Infected (%)
Male	34	28	82.35
Female	16	11	68.75
Total	50	39	78.0

DISCUSSION

The absence of *Entamoeba histolytica* in this study may be due to misdiagnosis, because it is one of the most common intestinal parasites. The result of this study therefore, counteracts with the findings reported by Akinboet *al.* (2020), who observed *E. histolytica* in stool samples from patients in Benin City, Nigeria, and by Fotedaret *al.* (2020), who reported the presence of *E. histolytica* in clinical samples using morphological and molecular methods. The difference in findings may be due to variations in environmental conditions, diagnostic sensitivity, or population exposure. Moreover, the detection of other amoebae such as *Endamoeba butschlii* and *Entamoeba coli* suggests possible fecal contamination, even though these

species are non-pathogenic commensals. The high prevalence of other intestinal parasites such as *Diphyllobothrium* spp. (22.0%), *Fasciola hepatica* (20.0%), and *Strongyloides stercoralis* (18.0%) is consistent with reports from other regions of Nigeria, where similar parasitic infections have been linked to poor sanitation and contaminated water sources (Cheesbrough, 2010; WHO, 2020). Studies by Akinboet *al.* (2020) and CDC (2020) also documented comparable parasite diversity, particularly among rural populations with limited access to safe drinking water.

The occurrence of *Giardia lamblia* (4.0%) in this study agrees with findings by Stark *et al.* (2021), who reported that *Giardia* infections are commonly associated with

unfiltered surface water and inadequate hygiene. Similarly, the detection of helminths such as *Ascaris lumbricoides*, *Ancylostoma* spp., and *Trichuris trichiura* reflects a persistent pattern of soil-transmitted helminth infections across many Nigerian communities (WHO, 2020).

Infection was found to be higher in males (82.35%) than females (68.75%), a pattern also reported by Akinboet *al.* (2020) and Fotedaret *al.* (2020). This difference has been attributed to greater male involvement in outdoor and agricultural activities, which increases exposure to contaminated soil and water. However, the difference in infection rate between sexes was not pronounced, suggesting that both groups are at considerable risk of intestinal parasitism. The findings from this study highlight a broad part in intestinal parasitic infections in Unguwar Jeji Community, though *Entamoeba histolytica* was absent. The presence of multiple parasites, including both protozoa and helminths, points to ongoing environmental contamination and possible challenges in sanitation practices. The results align with reports from other developing regions where polyparasitism remains a major public health concern (WHO, 2020; Stark *et al.*, 2021).

CONCLUSION

The study investigated the incidence of *Entamoeba histolytica* from stool samples collected within Unguwar Jeji Community, Kalgo Local Government Area, Kebbi State, Nigeria. No sample tested positive for *E. histolytica*; however, other intestinal parasites were detected with an overall infection rate of 78%. The most frequent parasites were *Diphyllobothrium* spp., *Fasciola hepatica*, and *Strongyloides stercoralis*. This finding demonstrates that intestinal parasitism remains common within the community despite the absence of *E. histolytica* infection.

RECOMMENDATIONS

1. Further studies should employ molecular diagnostic techniques such as PCR to differentiate *Entamoeba histolytica* from morphologically similar species like *E. dispar* and *E. moshkovskii*.
2. Expanded sampling across multiple communities and seasons is also recommended to obtain a clearer picture of parasite transmission patterns.
3. Continuous surveillance and improved sanitation programs will enhance understanding and control of intestinal parasitic infections in the study area.

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