



Document heading

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## Community awareness of intestinal parasites and the prevalence of infection among community members of rural Abaye Deneba area, Ethiopia

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### PEER REVIEW

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#### Comments

The paper showed a high prevalence of intestinal parasite infections in a community whose knowledge about the parasite was low. This suggests the necessity of integrated control strategies including health education to effectively prevent infection with intestinal parasites in regions endemic for the parasites.

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### ABSTRACT

**Objective:** To assess the knowledge of Abaye Deneba community members regarding intestinal parasites and prevalence of intestinal parasitic infections.

**Methods:** Knowledge about intestinal parasites was assessed by administering a questionnaire to 345 randomly selected household heads. Parasitological stool examination of 491 randomly selected individuals was done using the formol ether concentration technique.

**Results:** Knowledge of the Abaye Deneba community about parasitic diseases such as schistosomiasis, amoebiasis, ascariasis and taeniasis was very low. However, 204 (59.3%) members correctly responded that the cause of giardiasis is related to contaminated water and 176 (51.2%) knew how to prevent it. In some cases, respondents did correctly identify causes, symptoms of intestinal parasite infection and ways to prevent it, but they did not accurately link it to the appropriate disease caused by the different intestinal parasite species. Among the 491 stool samples examined, 50.2% of study participants showed infection with at least one intestinal parasite. *Schistosoma mansoni* was the most prevalent (41.3%) followed by *Trichuris trichiura* (9.4%), *Ascaris lumbricoides* (8.4%), *Taenia saginata* (2.4%), *Enterobius vermicularis* (2.0%) and hookworm (0.4%). Prevalence of schistosomiasis was highest in men aged 15–24 years.

**Conclusions:** Intestinal parasitic infection is highly prevalent in communities of the Abaye Deneba area. Nevertheless, the knowledge of the community members about the parasite is less. Implementation of preventive chemotherapy, supplemented with health education, provision and use of sanitary facilities would be recommended to reduce morbidity and control transmission of intestinal parasites in this area.

### KEYWORDS

Community awareness, Intestinal parasites, Prevalence, Ethiopia

## 1. Introduction

Soil-transmitted helminthiasis is a major public health problem in low and middle-income countries affecting about 2 billion people across the globe[1]. Schistosomiasis along with other soil transmitted helminths comprises over 40% of the illnesses caused by all tropical diseases

apart from malaria[1]. Intestinal parasitic infections are particularly rampant in areas of the world where climate and poor sanitary conditions promote their survival, reproduction and transmission[2].

Intestinal parasitic infection may have serious consequences on human health, such as hepatomegaly, splenomegaly, esophageal varices and bleeding[1]. Besides

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morbidity, intestinal parasitic infection can also cause mortality, growth retardation and poor mental development in children<sup>[3]</sup>. Furthermore, helminth infected individuals could be susceptible for other infections such as malaria and HIV<sup>[4–7]</sup>.

Prevention of intestinal parasitic infection usually involves treatment of cases with appropriate drugs. In most African countries where soil transmitted helminths and *Schistosoma mansoni* (*S. mansoni*) infections are endemic, world health organization recommends regular deworming of school age children with antihelmintic drugs to control infection with these parasites<sup>[1]</sup>. However, infection with these parasites remains to be a major public health problem in most of the endemic areas due to re-infection<sup>[3]</sup>. Thus, there is a need to undertake integrated control strategies which involve improved sanitation, health education and chemotherapy to effectively control intestinal parasitic infections in endemic African countries<sup>[8]</sup>. This requires understanding of the knowledge of the target communities about intestinal parasites. For example, people in Uganda were interested in receiving treatment for schistosomiasis after they were informed about the benefits of the treatment<sup>[9]</sup>.

In Ethiopia, intestinal parasitic infection is a major public health problem throughout the country<sup>[10,11]</sup>. There is a need to ascertain the knowledge of affected communities regarding intestinal parasites in order to choose the best prevention strategy which is acceptable and effective in local settings. Thus, this study was conducted to assess the knowledge of Abaye Deneba village community, living in the shore of Lake Ziway, Ethiopia, towards intestinal parasites and determine prevalence of the parasites in this area.

## 2. Materials and methods

### 2.1. Study area and population

A community-based cross-sectional study was conducted in Abaye Deneba village in June 2008 to investigate the awareness of the community regarding intestinal parasites and to determine prevalence of the parasites in the area. The village is located approximately 18 km to the south east of Ziway Town and lays adjacent to the Lake Ziway. Ziway Town is situated at a distance of 180 km from south of Addis Ababa on the main road to Hawassa. The community members are engaged in mixed farming such as cultivation of maize, fishing and rearing livestock. Most of the community members meet their daily water needs for drinking and bathing from Lake Ziway.

### 2.2. Selection of study participants

Assuming 50% of the households had knowledge of intestinal parasitic infections (95% confidence and 5% degree of accuracy), a total of 384 adult participants were supposed to be included in the study. Initially, contact was made with the chairman of the village and the objective of the study was discussed. Following the discussion, permission was obtained from the community leader and study participants

were systematically selected from a list of household heads obtained from the office of the community leader. Then, the selected participants were informed to come to a central place for interview and stool examination. In addition to the requirement that study participants be a member of preselected household, participants were only deemed eligible if they were either a husband or wife. In the absence of that appellation, they had to be the next older member of the household age over 15 years. Further, participants had to be willing to be included in the study on a voluntary basis. The interviewee was also requested to bring children to the center for intestinal parasite examination.

### 2.3. Data collection on awareness

A questionnaire having structured and open-ended questions was designed in order to collect data on socio-demographic characteristics and knowledge about the cause, mode of transmission and preventive methods of common intestinal parasites in English language. The questionnaire was then translated into the local language (Oromifa). The questionnaire was piloted on 20 household heads and then modified to fit the local situation before starting the actual data collection. A household heads or the oldest household member (in the absence of household heads) was interviewed in the local language by data collectors (12 grade graduate) selected from the study village for the purpose. Each interview was made independently in a convenient place. During the piloting process local names of the parasites of interest was documented and these names were used during data collection. Hence, the local name for schistosomiasis was 'Bilharzia', for ascariasis was 'MagaFerda', for taeniasis was 'Minni', for amoebiasis was 'Amoeba' and for giardiasis was 'Giardia'. Other intestinal parasitic diseases like trichuriasis and hookworm infection were not familiar to the community and had no local name; hence they were excluded from the interview questions. At the end of each interview, each interviewee was requested to provide his/her fresh stool sample and also the fresh sample of his/her child.

### 2.4. Stool sample collection and diagnosis

Participants were requested to provide their stool samples on a small piece of plastic sheet. Samples were placed in vials containing 10% formalin and processed by the formol-ether concentration method<sup>[12]</sup>, and qualitatively examined for eggs and larvae of helminths and cysts of protozoan parasites after being transported to the Aklilu Lemma Institute of Pathobiology.

### 2.5. Ethical considerations

The study protocol was approved by the Institutional Review Board of the Aklilu Lemma Institute of Pathobiology, Addis Ababa University. As the study population was mainly illiterate, the Institutional Review Board endorsed obtaining oral consent of study participants. Seeing that the study involved minimal risk, the committee did not require tape recording or any other form of preserving the

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