

*Short Report*

**GIARDIA INTESTINALIS IN THE GENERAL POPULATION AND DOGS  
OF A RURAL AREA, CENTRAL PART OF HAMADAN, IN WESTERN  
IRAN**

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**Dear Sir:**

Diseases caused by micro-organisms, including intestinal helminthes and protozoa, are prevalent in developing countries (1). Giardia intestinalis (also

known as duodenalis or lamblia) is one of the most common intestinal parasites in the world, with an estimated  $2.8 \times 10^6$  infections per year in humans. Such infections contribute to diarrhea and nutritional deficiencies in children of developing

regions. The wide prevalence of *Giardia* and its unique place in evolutionary biology have led to ongoing research (1). Continued study of the role of *Giardia* in chronic diarrhea and malnutrition in developing regions will help focus strategies to improve childhood health, growth, and nutrition (1). To adapt to environments both inside and outside of the host's small intestine, this protozoan parasite undergoes significant developmental changes during its life cycle (2).

Various studies in Iran revealed a high prevalence of *Giardia* in dogs and cats and suggested that humans who reside in regions with these infected animals are likely to suffer adverse consequences (3). *Giardia* causes a broad range of clinical symptoms, including no symptoms (in asymptomatic carriers); mild, recurrent diarrhea consisting of soft, light-colored stools; and acute, severe diarrhea. In different parts of the world, there have been increased levels of interest in this parasite due to its possible zoonotic transmission. Among domestic animals, dogs can contribute significantly to environmental contamination (4-5). Dogs and cats are the only domestic animals that still routinely reside in the same domicile as their owners around the world, and, hence, there is interest in their role as potential carriers of zoonotic agents. In the case of cryptosporidiosis and giardiasis, current data suggest that dogs and cats do not routinely infect healthy people (6).

The prevalence of *G. lamblia* varies markedly between studies, with higher levels in urban areas than in rural areas, more occurrences among the people in poor communities, slightly greater occurrences in males than in females who have children in the age range of 2-5 years, and also higher occurrences among university students, the elderly, HIV-positive patients, and gastric

carcinoma patients. Although *G. lamblia* is not a life-threatening parasite, it is still considered to be the most common water-borne, diarrhea-causing disease (7).

This study was designed to assess the co-prevalence extent of *Giardia* infections in the natives and their dogs in the rural areas near Hamadan City in western Iran. The flotation method with zinc sulfate was used to diagnose the *Giardia* cyst in the stools of dogs, and formalin ethyl acetate concentration and iodine staining were used for human stools. Samples of human stools totaled 614, and 1500 samples of dog stools were collected randomly in the rural areas near Hamadan City. The ages and genders of those providing the samples were recorded. The stool samples were kept at 5 °C and examined after 48 hours. No symptoms of diarrhea were observed in the dogs. Of the 614 human stool samples, 65 (10.6%) tested positive for *Giardia* cyst. Of the 1500 dog stool samples, only 20 tested positive, indicating that the prevalence of infestation in dogs was 0.8% for dogs less than five years old and 5% in dogs that were five years old or older. *Giardia* cyst was observed in 0.46% of dogs under the age of one year. The highest prevalence of *Giardia* (3.6%) was observed in human stools for children in the age range of 7-11 years.

According to the results, giardiasis has a relatively low prevalence in the studied region. But it could be concluded that routine surveillance, such as bi-annual follow-up treatments, treating *G. duodenalis* cysts and other protozoa oocysts detected in ground water sources, and providing continuous health education, are the most important preventive measures (7). People should practice good sanitation and hygiene to minimize environmental contamination, and they should avoid contact with the

infectious cysts that may be shed by their pets (6).

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