



RESEARCH ARTICLE

RESEARCH OF DIFFERENTIAL METHODS OF INTESTINAL PARASITES IN HEALTH SERVICES  
VOCATIONAL SCHOOL STUDENTS

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ABSTRACT

In this study between March 2015 and May 2015, intestinal parasites were studied in stool samples of a total of 104 students, 40 males and 64 females studying at the Medical Laboratory Program of the School of Health Services, Iğdır University. Stool specimens were first examined macroscopically. Subsequently, studies were conducted using native-lugol and modified acid fast staining. Intestinal parasites were found in 52.9% of the total 104 students in whom stool samples were examined. *Blastocystis hominis* in 32.7%, *Giardia intestinalis* in 8.7%, *Entamoeba coli* in 6.7%, *Endolimax nana* in 3.8%, *Dicrocoelium dentriticum* in 1.9% and *Hymenolepis nana* in 0.9% were examined by native-lugol method and detected. Of the 55 students who were positive in terms of parasites, both *H. nana* and *G. intestinalis* were seen together in 3.6%. In modifye-acid fast staining method, it was detected that 2.9% of 104 students had *Cryptosporidium* spp. *Dicrocoelium dentriticum* was found to cause false parasitism in the diet given to patients. As a result of the study, it was concluded that Iğdır University Medical School Medical School Program students have an important intestinal parasitic health problem.

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INTRODUCTION

Intestinal parasitosis is considered one of the most important health problems for our country. Parasitic diseases are seen in all parts of the society, but they are more common, especially in community areas (Özcel et al., 2007). Many studies have been done in different places in our country about intestinal parasites. If we summarize a few of these works; In a survey conducted in Kocaeli, 33.3% (Tamer et al., 2008); 48.0% in Sivas (Saygi et al., 1995); 5.9% in Istanbul (Ozyurt et al., 2007); 45.77% in Hatay (Çulha et al., 2005); 17% in Elazığ (Salih et al., 2006); 4.77% in Bursa (Alver et al., 2005); 10.85% in Izmir (Türk et al., 2004); 24.13% in Kayseri (Yaman et al., 2008); 28.5% in Van (Yılmaz et al., 2012); 3.6% in Eskişehir (Doğan et al., 2008); in Şanlıurfa, 34.86% (Zeyrek et al., 2002) one or more parasites were encountered. In this study which we made in Iğdır Health Services Vocational School students case, intestinal parasites were found in 52.9% of the total 104 students who examined stool samples.

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We think that the results of our work are higher than the research done in other regions, because of the inadequacy of infrastructure and sanitation in the city.

MATERIALS AND METHODS

This study was carried out on stool specimens of 104 students, 40 male and 64 female students studying in Medical Laboratory Program of School of Health Services of Iğdır University between March 2015 and May 2015. Every pupil in the school was given plastic fountain cups with the label attached to the students' information, and the amount and type of the sample was described. The samples of the receiving stool were brought to HSVS's parasitology laboratory within 30 minutes. The stool samples brought to the laboratory were examined macroscopically. Then, it was examined by native-lugol method using saline. In addition, the prepared inner lugol solution was used to stain the inner structure of the protozoa. The prepared preparations were examined for helminth eggs using thick X10 lenses. Thin spreads were examined with the X40 lens and protozoan cysts and trophozoites. The samples were then stained with modified acid-fast staining method to search for opportunistic protozoons such as *Cryptosporidium* sp. and *Cyclospora cayetanensis*.

## RESULTS

In this study, intestinal parasites were found in 52.9% of the total 104 students whose fecal samples were 40 male and 64 female. Native - lugol method is used to examine students; *Blastocystis hominis* (*B. hominis*) in 32.7%, *Giardia intestinalis* (*G.intestinalis*) in 8.7%, *Entamoeba coli* (*E. coli*) in 6.7%, *Endolimax nana* (*E. nana*) in 3.8%, *Dicrocoelium dentriticum* (*D. dentriticum*) in 1.9% and *Hymenolepis nana* (*H. nana*) in 0.9% were detected. *Cryptosporidium* spp was detected in 2.9% of 104 students in the study using modified-acid fast staining method (Table 1). When students were asked whether they consumed liver in the last 10 days because of the possibility of false parasites in patients with *D. dentriticum*, two students were found to eat liver. That's why, students were offered a non-liver diet for a week. Later on, three stool samples were examined at different times. Since no *D. dentriticum* eggs were found in the stool specimens, it was determined that the two students were evaluated as false positives.

**Table 1. Distribution of parasites in students HSVS**

Parasite Detected	Number(n)	Percent (%)
<i>Blastocystis hominis</i>	34	32.7
<i>Giardia intestinalis</i>	9	8.7
<i>Entamoeba coli</i>	7	6.7
<i>Endolimax nana</i>	4	3.8
<i>Dicrocoelium dentriticum</i>	2	1.9
<i>Hymenolepis nana</i>	1	0.9
<i>Cryptosporidium spp</i>	3	2.9

## DISCUSSION AND CONCLUSION

Intestinal parasitosis is considered one of the most important health problems for our country. Parasitic diseases are seen in all parts of the society, but they are more common, especially in community areas (Özcel et al., 2007). Many studies have been done in different places in our country about intestinal parasites. If we summarize a few of these works; In a survey conducted in Kocaeli, 33.3% (Tamer et al., 2008); 48.0% in Sivas (Saygi et al., 1995); 5.9% in Istanbul (Ozyurt et al., 2007); 45.77% in Hatay (Çulha et al., 2005); 17% in Elazığ (Salih et al., 2006); 4.77% in Bursa (Alver et al., 2005); 10.85% in Izmir (Türk et al., 2004); 24.13% in Kayseri (Yaman et al., 2008); 28.5% in Van (Yılmaz et al., 2012); 3.6% in Eskişehir (Doğan et al., 2008); in Şanlıurfa, 34.86% (Zeyrek et al., 2002) one or more parasites were encountered. In this study which we made in Iğdır Health Services Vocational School students case, intestinal parasites were found in 52.9% of the total 104 students who examined stool samples. We think that the results of our work are higher than the research done in other regions, because of the inadequacy of infrastructure and sanitation in the city.

*Blastocystis hominis* has a very large host population such as mammals, birds, reptiles and arthropods. *B. hominis* is found in the intestines of humans. The relationship between gastrointestinal symptoms in both humans and animals has not been fully understood. Fecal-oral transmission of *B. hominis* is more common all over the world, especially in tropical and subtropical regions. It has been reported at up to 50% in developing countries and in communities where sanitation is low. Prevalence is reported to be 10% in developed countries and in those with good hygiene conditions (Al and Hökelek, 2007). Many studies have been done with *B. hominis* in our country. *B. hominis* rate was 4.78% in a study by Inceboz et al. (Inceboz et al., 2011); 0.96% by Alver and Töre (Alver and Töre, 2006), 17.3% by Cengiz et al. (Cengiz et al., 2009); 44.04% by Usluca et al. (Usluca et al., 2006); 39.44% by Türk et al. (Türk et al., 2004); 19.3% by (Yazar et al., 2005). In our study, *B. hominis* was detected in 32.7% of the students. The prevalence of *B. hominis* in our study is similar to that of the whole country. The high prevalence of *B. hominis* throughout the country has once again revealed that parasites should not be ignored as affecting human intestinal infection. Giardiasis caused by *G. intestinalis*, one of the important pathogens, causes mainly chronic diarrhea, steatorrhea, malabsorption, weight loss, abdominal pain in humans. It is known as the most common protozoan infection for

human. It varies between 2-5% in developed countries, while it is up to 20-30% in developing countries (Tamer et al., 2008).

If we will summarize the main studies about giardiasis in our country; *G. intestinalis* rate was 5.2% (Daldal et al., 2002) in a study conducted by Daldal and his colleagues, 13.5% by Çiçek and Yılmaz (Çiçek and Yılmaz, 2011), 16.4% by Taş Cengiz and his friends (Cengiz et al., 2009), 2.6% by Yazar and his friends (Yazar et al., 2005), 26.3% by Kaya and his friends (Kaya et al., 2004), 24.76% by Kuk and his friends (Salih et al., 2006), 24.9% by Karaman and his friends (Karaman et al., 2004), 30.81% by Uzun and his friends (Uzun et al., 2004). When assessed according to giardiasis regions; the rates are 11.1% in the Central Anatolia Region, 7.3% in the Eastern Anatolia Region, 9.9% in the Black Sea Region, 7.8% in the Marmara Region, 11.6% in the Aegean Region, 28% in the South Eastern Anatolia Region, 10.2% (Özçelik and Değerli, 1998). In our study, *G. intestinalis* was detected in 8.7% of the students. It is similar to the work done before. Higher education in university students; infrastructure inadequacy and mass living areas are considerable factors for this problem.

*Entamoeba coli* 6.7%, *E. nana* 3.8%, *D. dentriticum* 1.9%, *H. nana* 0.9%, and *Cryptosporidium* spp 2.9% were found to be the less frequently detected intestinal parasites in our study. These results are similar to other studies conducted in our country (Inceboz et al., 2011; Karaman et al., 2004; Yaman et al., 2008; Yılmaz et al., 2012). In two students, both *H. nana* and *G. intestinalis* were detected as mixed infection. It should be remembered that patients with *D. dentriticum* may be subject to false parasitism due to liver consumption during positive cases, since false positives are detected. As a result, Iğdır University Health Laboratory School Medical Laboratory Program maintains its importance as an intestinal parasitic health problem in its students. The inadequacy of the infrastructure in the region, and of the dormitory environments, the socio-economic level and the lifestyle are the reasons. The fact that the intestinal parasites are so high in university students has once again revealed that the parasites are to be struggled against in every generation. We believe that solution of this important health problem is to improve the infrastructure of the settlement units, make the necessary studies for pollution of drinking water, improve the domestic environments, establish a business association between the schools and the families and solve them with public health trainings.

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