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Original Research Article

**Prevalence of intestinal parasitic infection/infestation in differently abled people of Dharan, Nepal**Poudyal N<sup>1</sup>, Shrestha LB<sup>1</sup>, Gautam S<sup>2</sup>, Yadav DK<sup>3</sup>, Baral R<sup>1</sup> and Gurung R<sup>1</sup><sup>1</sup>Department of Microbiology & Infectious Diseases, B. P. Koirala Institute of Health Sciences Dharan-18, Sunsari District, 56700 Nepal<sup>2</sup>Department of Microbiology, B. P. Koirala Institute of Health Sciences Dharan-18, Sunsari District, 56700 Nepal<sup>3</sup>School of Public Health and Community Medicine, BP Koirala Institute of Health Sciences Dharan-18, Sunsari District, 56700 Nepal

## QR Code

**\*Correspondence Info:**Dr. Nimesh Poudyal,  
Department of Microbiology & Infectious Diseases,  
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Dharan-18, Sunsari District, 56700 Nepal**\*Article History:****Received:** 21/09/2017**Revised:** 26/09/2017**Accepted:** 26/09/2017**DOI:** <https://doi.org/10.7439/ijbr.v8i9.4400>**Abstract****Introduction:** Intestinal parasitic infestations are one of the most common causes of morbidity and mortality, infecting millions of people world-wide. Due to the various disability, differently-abled people are unable to maintain proper sanitation, making them more prone to intestinal parasitic infection.**Objective:** The objective of this study is to know the various parasitic infections in differently abled persons of Dharan municipality.**Materials and Methods:** Stool specimen were collected from individuals attending health camp for differently-abled in Dharan municipality and direct wet mount was prepared using normal saline (0.9%) and Lugol's iodine (0.5%). The wet mount was observed under microscope for parasites.**Results:** Among 112 individuals screened, intestinal parasitosis was seen in 32.1% of people. *Giardia lamblia* (17%) was the most common parasite followed by *Entamoeba histolytica* (9%) and *Ascaris lumbricoides* (7.3%). Co-infection was a common trend with 33.3% of positive samples being co-infected with multiple parasites.**Conclusion:** The study shows that although the differently-abled people are prone to parasitic infection, the prevalence is same as normal people. *Giardia lamblia*, *Entamoeba histolytica* and *Ascaris lumbricoides* are the common parasites they harbour.**Keywords:** Intestinal parasitosis, differently-abled, co-infection.**1. Introduction**

Intestinal parasitic infestations are one of the most common causes of morbidity and mortality, infecting millions of people world-wide [1]. Among the risk factors is poor sanitation and increase vulnerability to infection. Disability is a one of the major health problems in south-east Asia with second and third highest prevalence rate of moderate disability and severe disability respectively. In Nepal 1.6% of total population are disabled with mobility disability being most common followed by speech and hearing, visual and finally intellectual disability [2]. Due to the various disability, differently-abled people are unable to

maintain proper sanitation, making them more prone to intestinal parasitic infection. About 60% of Nepalese are infected with one or more parasite with soli-transmitted helminthes being most common [3]. It has been shown that intestinal parasitic infections are prevalent in mentally disabled from as low as 7.3% in New-York to as high as 76.69% in Egypt, while Iran had 20.5% and Korea had 35.7% [4-7]. In this study we aim to know the prevalence of various parasitic infestations in differently-abled persons of Dharan municipality.

## 2. Methods

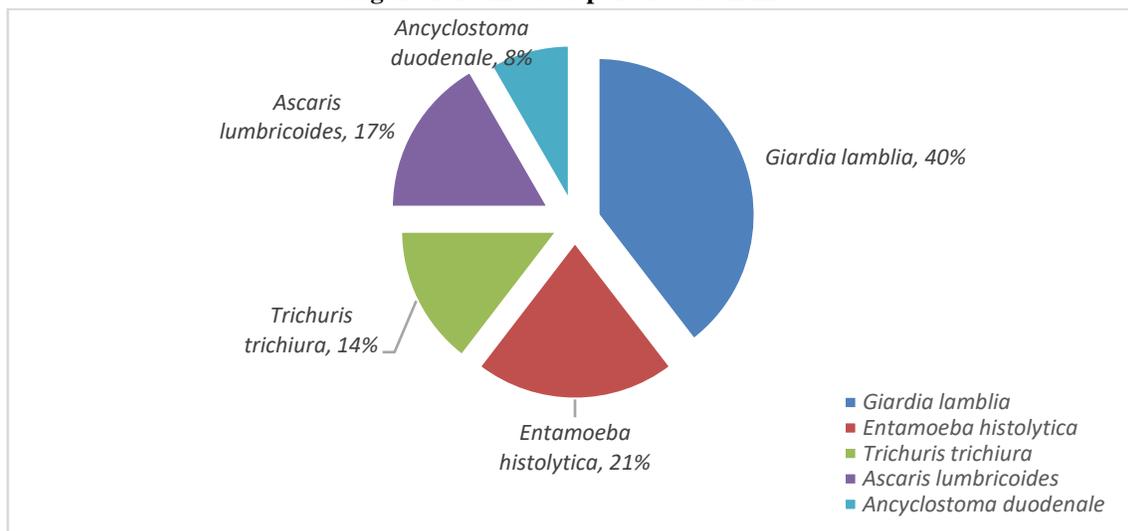
Individuals attending a health camp for differently-abled in Dharan municipality, were provided with a wide mouth transparent container and asked to collect stool for screening of intestinal parasitosis. A direct wet-mount was done using saline (0.9%) and Lugol’s Iodine (0.5%) mount, at the spot and observed under the microscope for stool parasites. Socio-demographic data, nature of disability were also recorded, along with the microscopic finding, and analyzed. Chi-square test was used to evaluate apparent differences for significance. Various variables were studied in association to intestinal parasitosis.

## 3. Results

A total of 112 individuals screened 74 were blind and 38 were mentally disabled of which 52.7% were male and 47.3% were female. The majority of the individuals

were between 16-30 years age-group with a mean age of 27.84 years. The prevalence of intestinal parasitosis was 32.1% in differently-abled people of Dharan. 34.2% of mentally-retarded and 31.0% of blinds were infected. There was no statistical difference in prevalence of intestinal parasitosis with respect to both sex and age. The most common intestinal parasite was found to be *G. lamblia* in 19 (17.0%) of the cases, of which 11 were present as co-infection. Second most common was *E. histolytica* (9%) followed by *A. lumbricoides* (7.3%), *T. trichuria* (5.4%) and *A. duodenale* (3.6%) respectively. Co-infection was a common trend with 33.3% of positive samples being co-infected with multiple parasites. *G. lamblia* was mostly seen in mixed infection associated with *E. histolytica* followed by *T. trichura* and *A. lumbricoides*. The details about the parasites and disability has been further elicited below on figure 1 and table 1.

**Figure 1: Number of parasites identified**



**Table 1: Distribution of parasites with type of disability**

Type of disability	Sex	Positive samples	parasites	Co-infection
Mental retardation	Male	8	<i>Giardia lamblia</i> -4 <i>Trichuris trichiura</i> -2 <i>Ancylostoma duodenale</i> -4	TT + AL=1 GL+ AL=1
	Female	5	<i>Giardia lamblia</i> -4 <i>Entamoeba histolytica</i> -2 <i>Trichuris trichiura</i> -1	GL+TT=1 GL+EH=1
Blindness	Male	14	<i>Giardia lamblia</i> -6 <i>Entamoeba histolytica</i> -4 <i>Trichuris trichiura</i> -2 <i>Ancylostoma duodenale</i> -3 <i>Ascaris lumbricoides</i> -2	GL+AL=1 GL+AD=1 GL+TT=1
	Female	9	<i>Giardia lamblia</i> -5 <i>Entamoeba histolytica</i> -4 <i>Trichuris trichiura</i> -2 <i>Ancylostoma duodenale</i> -1 <i>Ascaris lumbricoides</i> -2	GL+AL=1 GL+EH=3 GL+TT=1

#### 4. Discussion

Our study showed the prevalence of intestinal parasitosis in differently-abled persons to be 32.1% which is within the range of 27.0% - 76.4% shown by various studies done in general population at different geographic locations of Nepal [7-10]. This shows there is equal chance of people getting infected in Nepal irrespective of their presence or absence of disability. The rate of prevalence among mentally-retarded in our study was comparable to the study done in Korea but was higher than that in Iran, Italy, New-York [4, 6, 7]. A study done by Rai SK *et al* in people undergoing cataract surgery showed a very high prevalence of intestinal parasitosis (66.9%) in contrast to ours which showed only 31.0% it may be due to difficulty in maintaining proper sanitation given their visual impairment [11]. This study showed there was no difference in intestinal parasitosis prevalence among different sexes in differently-abled people which is in agreement to studies done in general populations [9, 10]. The most common intestinal parasitic infection in Nepal is helminthes, contrastingly this study shows protozoa (*G. lamblia*) to be most common [10, 12-14]. However, a study done in Dharan on school going children showed *G. lamblia* to be most common followed by *E. histolytica* and *A. lubricoidesa* finding similar to ours.<sup>15</sup> This study showed multi-parasitism or co-infection to be present in 10.7% of the total samples studied but studies has been reported to be as low as 1.2% in Dharan and as high as 63.2% in western Nepal [10, 15]. The high rate of *G. lamblia* co-infection may be due to continuous exposure to contaminated water even when a person is already infected with other parasite.

#### 5. Conclusion

Intestinal parasitosis is a major public health problem in Dharan municipality it becomes even more difficult to manage when associated with some disability. This study showed differently-abled people have equal chance of getting infection as general public so more efforts for increasing sanitation level, prompt diagnosis and treatment of infected person should be undertaken which will improve the overall health status of differently-abled people and help them live a comfortable life.

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