



Socio – Demographic Characteristics and Clinical Findings associated with Prevalence of Intestinal Parasitic Infection in patients attending Tertiary Care Hospital in Lucknow

Authors

Taiyaba^{1*}, Farhat Tahira², Mohammad Azam³, Malay Banerjee⁴, Sana Jamali⁵

^{1*}Demonstrator, Dept of Microbiology, Career Institute of Medical Sciences and Hospital Lucknow

²Associate Professor, Dept of Microbiology, Career Institute of Medical Sciences and Hospital Lucknow

³Professor, Dept of Community Medicine, Career Institute of Medical Sciences and Hospital Lucknow

⁴Professor, Dept of Microbiology, Career Institute of Medical Sciences and Hospital Lucknow

⁵Assistant Professor, Dept of Microbiology, Integral Institute of Medical Sciences and Research Lucknow

Corresponding Author

^{1*}Miss Taiyaba

Demonstrator, Career Institute of Medical Sciences and Hospital Lucknow

Email: sabakhansktk91@gmail.com

ABSTRACT

Intestinal parasites are endemic worldwide and have been described as constituting the greatest single worldwide cause of illness and disease. Intestinal parasitic infections are responsible for considerable morbidity and occasional mortality among infected population throughout the world. The present study was conducted in the Department of Microbiology of a tertiary care Hospital in Lucknow, India. Samples were collected after taking informed consent a pre-designed questionnaire eliciting socio-demographic data such as age, sex, dietary habits, education and environmental factors such as hygiene/sanitation and water supply. A total of 502 stool samples were examined microscopically Out of all the samples examined, 97 samples were found to be positive for at least one parasite. This study analyzed demographic factors such as poverty, illiteracy, poor hygiene, lack of access to potable water affecting the prevalence of intestinal parasites. The findings of the study showed that the risk factors associated with intestinal parasitic infections are correlated positively with decreased rates of infection.

Keywords: Demographic profile, Parasitic load and Clinical co-relation of associated parasitic infection.

INTRODUCTION

The intestinal parasitic load is considered as a general indicator of the socio-economic status of the region ^[1]. One quarter of the world's population is infected and about 80% of all deaths annually are due to parasitic diseases ^[2]. In developing countries, 3.5 billion people are

affected, and 450 million are ill as a result of parasitic infection ^[3].

Intestinal parasites are widely prevalent in third world countries due to poverty, poor living conditions as well as people in over-crowded areas with poor environmental sanitation, improper garbage disposal, poor hygiene and lack of access to potable water ^[4, 5]. These factors are

the causes of a major proportion of the burden of disease and death in developing countries ^[6].

Amoebiasis, Giardiasis, Ascariasis, Hookworm infection, and Trichuriasis are responsible for high levels of morbidity, mortality and nutritional deficiencies including iron deficiency anemia, seizures, portal hypertension, chronic diarrhea and impaired physical development in patients ^[7,8,9].

The objective of the study was to find out the prevalence of the Intestinal parasitic infections and their associated risk factor.

MATERIAL AND METHODS

The study was conducted in the Department of Microbiology, Integral Institute of Medical Sciences and Research, Dasauli, Kursi Road, Lucknow. Study was carried out from January 2015 to June 2015. The study was approved by the Institutional Ethics Committee. Information pertaining to age, sex, marital status, occupation, socio-economic status, food hygiene, number of pets owned by the households, present illness, duration of illness, past treatment history was obtained from each patient using a structured questionnaire. Informed/written consent was obtained from all the patients including parents/guardians of the patients. A total of 502 samples were collected Out of which, 145 samples

were collected from the indoor patients and 357 were collected from outdoor patients. Naked eye examination was carried out in each stool sample All samples were subjected to routine microscopic examination by normal saline and lugol's iodine wet mount preparation, modified Ziehl-Neelsen staining including concentration and floatation technique.

RESULTS

Total 502 samples were included in present study, out of which 97 (19.32 %) revealed presence of parasites (fig no.1).

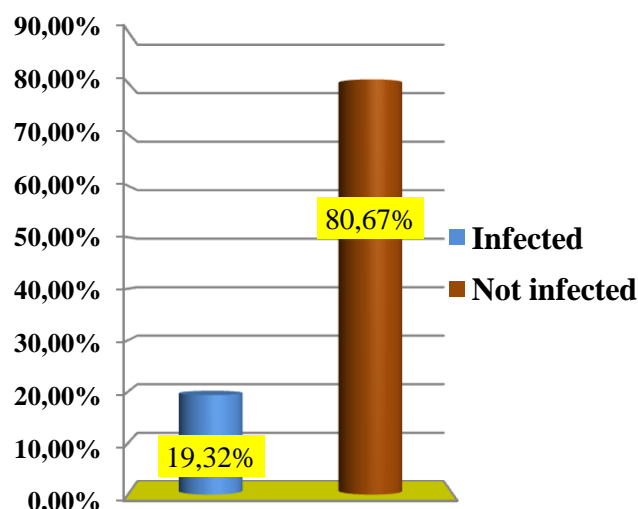


Fig no.1: Prevalence of intestinal parasites

Table no.1: Frequency of detection of parasite from stool specimen (N=97):

Highest number of detected intestinal parasite was *E.histolytica* followed by *B. homini*, *G. lamblia*, *A. lumbricoides*, *A. duodenale*, and *H. nana* (Table no.1 fig no.2)

Name of parasite	No. of positive sample	Percentage %
<i>Entamoeba histolytica</i>	46	47.4
<i>Blastocystis hominis</i>	17	17.5
<i>Giardia lamblia</i>	15	15.4
<i>Ascaris lumbricoides</i>	11	11.3
<i>Ancylostoma duodenale</i>	3	3.09
<i>Trichomonas hominis</i>	2	2.01
<i>Hymenolepis nana</i>	2	2.01
<i>Enterobius vermicularis</i>	1	1.03

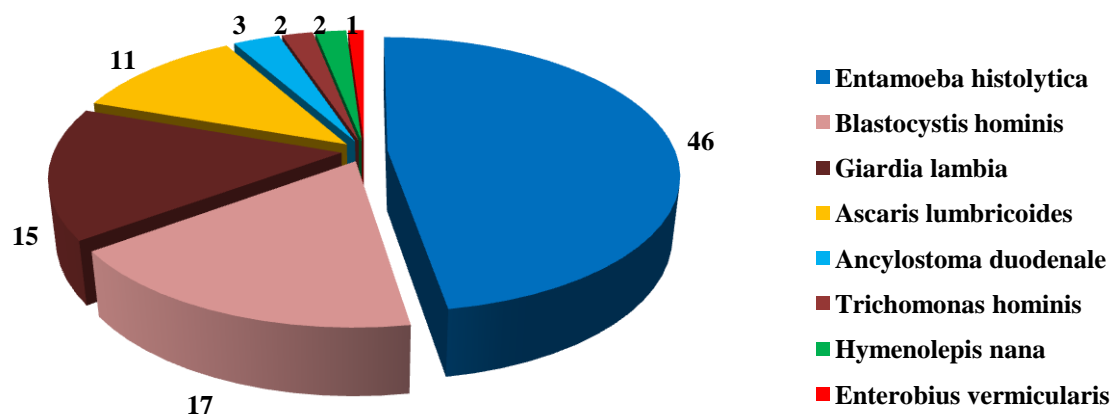


Fig no.2 Frequency of detection of parasite

Table no.2: Gender wise distribution of parasitic infection

Sex	No. of samples	No. of Positive sample
Male	246	33
Female	256	64

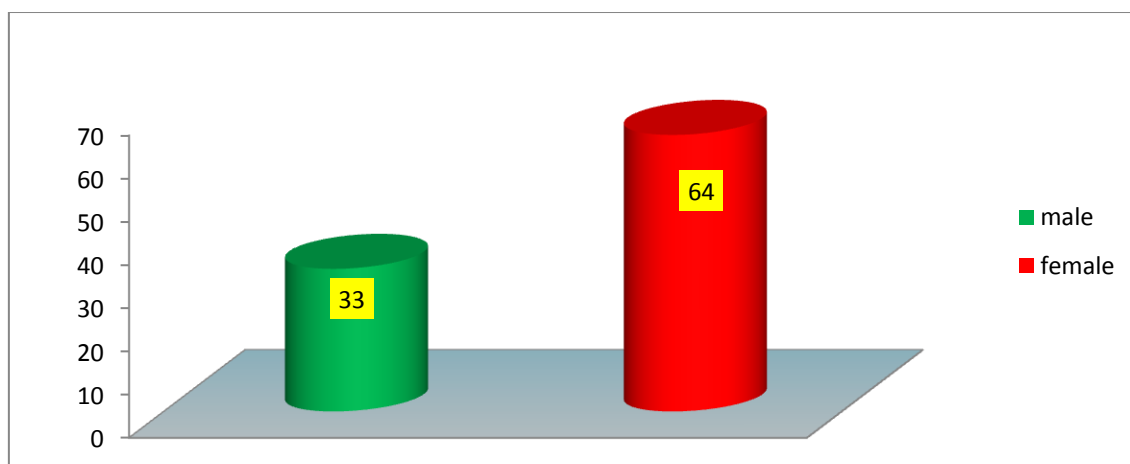


Fig no.3 Gender wise distribution of parasitic infection

Table no.3: Clinical finding associated with intestinal parasitic infection (n=97)

Clinical Feature	Number	%
Diarrhoea	72	74.22
Abdominal pain	60	61.85
Nausea	59	60.82
Vomiting	33	30.02
Mucus	29	29.89
Bloody stool	11	11.34
Body ache	7	7.21
Constipation	4	4.21

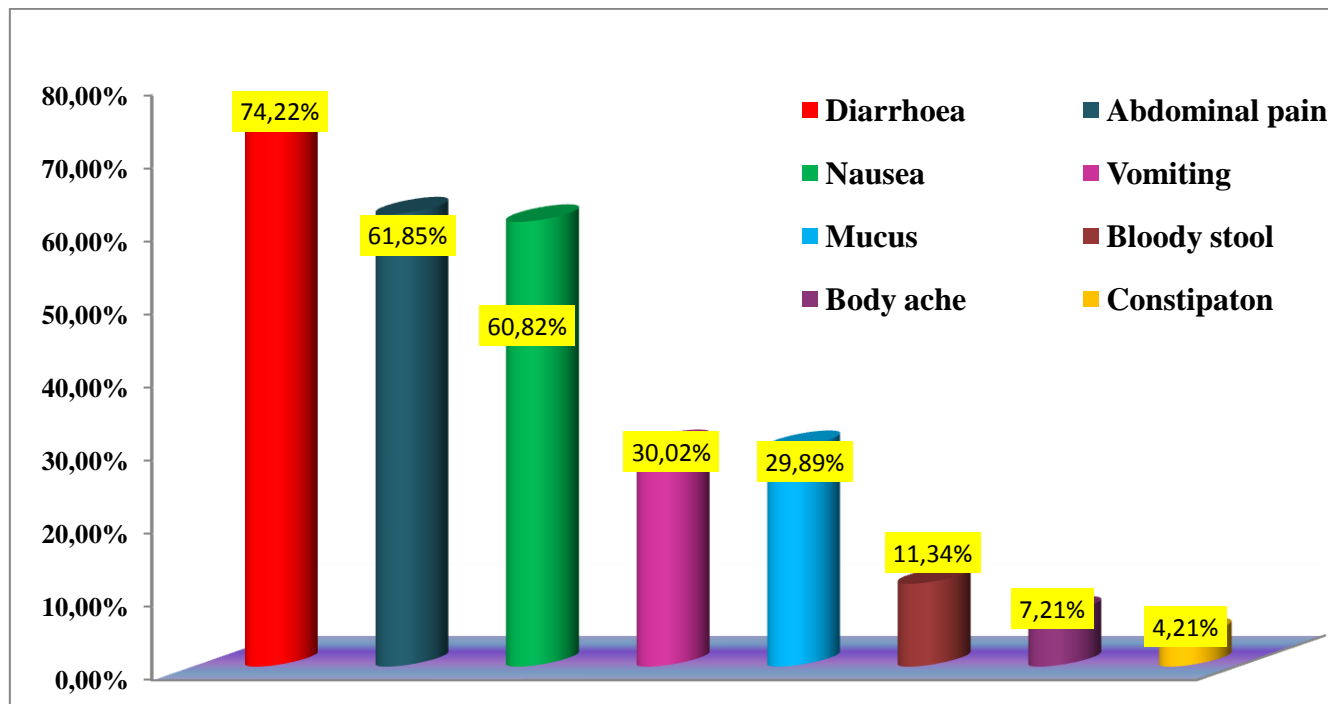


Fig no.4: Clinical finding associated with intestinal parasitic infection (n=97)

Table no.4: Season wise distribution of intestinal parasitic infection (n=502):

Month	Number of samples	Number of parasites	Total %
January	35	4	0.7968
February	36	12	2.390
March	79	17	3.386
April	97	15	2.988
May	146	23	4.581
June	109	26	5.179
Total	502	97	19.32

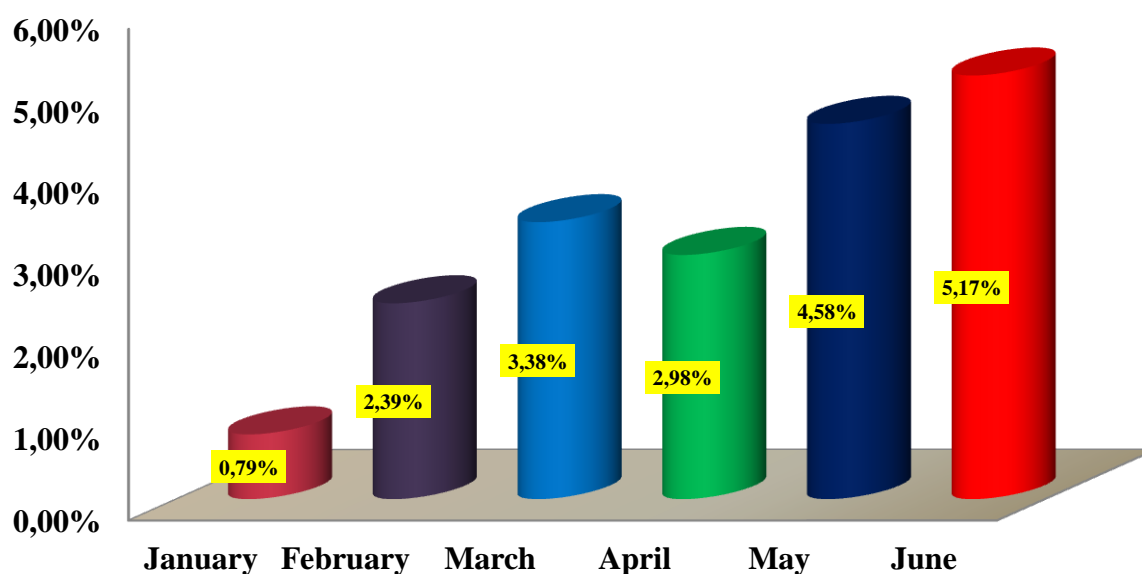


Fig no. 5: Season wise distribution of parasite.

Socio – Demographic Characteristics:

Demographics	No. (%)
Level of education	349 (69.5)
No education / Primary school	153
Secondary school, high school and more	(30.47)
Source of water	
Municipal water	70 (13.9)
Borehole	432(86.05)
Type of toilet	
Open fields	14 (2.78)
Private / Sharing	488(97.21)
Hand Washing With Soap	501(99.8)
Animal contact	
YES	413(82.27)
NO	89(17.72)
Take bath (Once a day)	
YES	312 (62.15)
NO	190 (37.84)

DISCUSSION

In the present study parasitic infection was seen in 97 (19.32%) patients out of the total 502 samples. Studies from different parts of India ^[10-13] and outside India ^[14-17] have reported a parasite prevalence rate of 25 to 70% this might be due to improper waste disposal, unsafe water supply, seasonal and geographic variations.

Low prevalence in present study might be due to improved sanitary practices, reduced slum areas, improved person hygiene, increased awareness, health education and seasonal variations. The prevalence of parasitic infection was more common in females as compared to that in males other studies also showed similar results with predominance of females ^[18-19]. This could be due to poor hygienic practice of hand washing and habit of nail growing as a fashion statement.

Entamoeba histolytica (47.4%) and *Giardia lamblia* (15.4%) were the most common intestinal parasites among our study participants. Both can be transmitted orally by drinking water and both are environmental contaminants of the water

supply. The higher infection with these parasites may be attributed to poor sewerage system in the community, and the fecal contamination of ground water, the ground water was the major source of drinking water in the region.

Similarly, higher helminthic infection, particularly by Hookworm and Ascaris, in this study suggests high soil contamination with infective stage of helminths. This report seems similar to that of another study and might be due to rapid, unplanned urbanization, open defecation and other unhygienic conditions and lack of health awareness ^[20].

In the present study Seasonal variations also affect the prevalence of parasitic infection. Summer and rainy season facilitate conditions and risk factors to intestinal parasitic infections. This may be due to faeces are washed into nearby streams and open sewers that flow along the shanties in the overcrowded urban informal settlements, and can lead to contamination of drinking water, hence, increased infections and higher prevalence.

In the present investigation the nausea, abdominal pain and diarrhoea are the most common clinical features which are associated with parasitic infection similar to other study ^[21].

CONCLUSION

This study shows that in the study population the risk factors for intestinal parasitic infections are decreased such as source of safe drinking water supply, decreased in open defecation habit, no hand washing after defecation, no wearing of footwear's.

To conclude, the low prevalence of intestinal parasitic infections in this study suggests is due to increased awareness and improvement of sanitary practices, personal hygiene safe drinking water supply, Patients early treatment seeking behavior and health education in urban population in and around Lucknow. The peculiar observation regarding comparatively increased prevalence in female population could be due to lacking awareness of hand hygiene and practice of growing of nail as a fashion statement.

REFERENCES

1. Das R, Kumar P S, Biswas R., Prevalence of intestinal parasites & its association with sociodemographic, environmental & behavioral factors in children in Pokhara valley, Nepal. *Afr J Clin Exper Microbiol*, 2006; 7(2):106-15
2. Faten A. A., Is intestinal parasite infection still a public health concern among Saudi children. *Saudi Med J*, 2008(11):1630-35.
3. Teklu W., Tsegaye, T. Belete S., Takele, T., Prevalence of intestinal parasitic infections among high land and low land dwellers in Gamo area, South Ethiopia. *BMC Public Health*, 2013(5) 151.
4. Steketee RW., Pregnancy, nutrition and parasitic diseases. *J Nutr*, 2003(5)1661-67.
5. Mehraj V, Hatcher J, Akhtar S, Rafique G, Beg MA., Prevalence and factors associated with Intestinal parasitic infection among children in an urban slum of Karachi. *PLoSOne*, 2008(3)11.
6. Kang G, Mathew D, Prasana RD, Jasper DD, Minnie M, Mathan M, Mathan VI and Muliylil JP., Prevalence of intestinal parasites in rural Southern Indians. *Trop Med and Intrnl Health*. 1998(1):70-75.
7. Andersen PL., Amebiasis Ugeskr Laeger, *B. Med J*. 2000(11):1537-41
8. Bethony J, Brooker S, Albanico M, Geiger SM, Loukas A, Diemert D & Hotez., Soil transmitted helminth infections, *The Lancet*. 2006(367): 1521-1532
9. Rashid MK, Joshi M, Joshi HS, Fatemi K., Prevalence of Intestinal Parasites among School Going Children In Bareilly District, *NJIRM*, 2011 2(1).
10. Singh P, Gupta ML, Thakur TS, Vaidya NK, Intestinal parasitism in Himachal Pradesh, *Ind J Med Res*, 1991(45) 201-04.
11. Fernandez MC, Verghese S, Bhuvaneshwari R, Elizabeth SJ, Methew T, Anitha A, A Comparative study of intestinal parasites prevalent among children living in rural and urban settings in and around Chennai, *J communicable Diseases*, 2003(34) 34-39.
12. Rao VG, YadavR, Bhondeley MK, Das S, Agarwal MC, Tiwari RS, Worm infestation and anemia: A public health problem among tribal free school children of Madhya Pradesh, *J communicable Disease*, 2002 (34)100-05.
13. Singh HL, Singh NB, Singh YI, Helminthic infestation of primary school going children in Manipur, *J Communicable Disease*, 2004(36) 111-16.
14. Bandy DA, KanSP, Rose R, Age related prevalence intensity and frequency distribution of Gastrointestinal helminth infection in urban slum children from Kaula lumpur, Malaysia, *Trans R Soc Trop Med Hyg*, 1988 (82) 289-94.
15. De Siva NR, D Silva HJ, Jayapuri VP, Intestinal Parasitosis in Kandya area, Sri

- Lanka, South East Asia , *J Trop Med Pub Health*, 1994 (25) 469-73.
16. RiveroRodrvquez Z, ChourioLozano G, Ziaz I, Chong R, RucsonG, Intestinal Parasites in School Children at a public institution in Maracaibo Municipality, Venezuela, *Invest Clin J*, 2000 (41) 37-57.
 17. Lege SM, ErkoB, Prevalence of intestinal parasites among school children in rural areas close to South East of Lake Langano, *Ethopia J Health Dev*, 2004 (18) 116-20.
 18. Marothi Y, Singh B. The prevalence of intestinal parasites at Ujjain, Madhya Pradesh, India: a five-year study. *Afr J Microbiol Res* 2011(18):2711-4.
 19. Dudeja M, Nandy S, Das AK, alam S, tiwari R., Prevalence of intestinal parasites in slum area of southern Delhi, *Intrnational Jrnl of Microbiology Research*, 2012(8)312-15
 20. Shakya B, Bhargava D, Shrestha S, Rijal BP. Intestinal parasitosis. *J Inst Med Nepal*, 2009 (31):13-6.
 21. Gabbad A , Mohammed A. Prevalence of Intestinal Parasite Infection in Primary School Children in Elengaz Area, Khartoum, Sudan, *Academic Research International*, 2014(2)5.