



Soil-transmitted Helminthes's Infection, Prevalence, and risk factors Among School Children's from Hingoli District, (M.S), India.

B.S. Salve

P.G. Department of Zoology

Adarsh Education society's Arts, Commerce and Science College, Hingoli

Abstract:

The study was scheduled to find out the prevalence and risk factors of soil-transmitted helminthes infection among school children's in, Maharashtra, India. This school was randomly selected from Hingoli District and all the children's (n=30) of selected school were included in the study. Faecal samples were collected and examined by Kato-Katz techniques. Health related behavior data were obtained from the parents using interviewer questionnaire. Prevalence of soil transmitted helminths was found to be 14 (46.66%) in this study.

This study emphasizes the need for improved sanitation and better living condition for school-age children in rural area.

Key words- Prevalence, Soil -transmitted Helminthes, school children, Hingoli District.

Introduction:

Soil transmitted helminthiasis is one of the major causes of public health problems in developing countries, particularly in tropical regions. World Health Organization has estimated that *Ascaris lumbricoides*, *Ancylostoma duodenale* and *Trichuris trichiura* infect 2.5 billion, 1.5 billion and 1.0 billion people worldwide (WHO, 1997). Low socio-economic state and poor sanitation coupled with low educational rates of parents are the main causes influencing the transmission and distribution of the infection. The morbidity of STH infections is greatest among children of school age and may have an adverse effect on growth (Nematian et al., 2008). STH are a common problem in India due to poor socio-economic conditions, unhygienic environment and poor knowledge regarding health (Pawlowski, 1985). High

prevalence of intestinal parasitic infestation was observed (46.66%) in Z.P school children from Hingoli District

Materials and Methods:

The study was conducted in the rural area of Hingoli District Maharashtra, India during January 2019 to December 2019. This school was randomly selected from Hingoli District. All the selected students (30) of school were included in this study.

Data collection: An interviewer structured questionnaire was composed of the following components: -

- a) Socio economic and demographic data.
- b) Health practices towards prevention of soil transmitted helminths.

Collection and examination of faecal samples:

The school students were educated on the causes of intestinal helminthic infections and thereafter a wide mouth corked sterile bottles with labeled (ID) were given for the collection of their stool samples at home and structured questionnaires were distributed for the collection of demographic information such as name, age, sex, type of toilet facility used, and number of individuals in the house, parents' occupation, foot wear habits, pet/domestic animals reared, regularity of deworming etc.

The school children were taught how to collect stool samples with the help of their teachers. The stool samples were properly labeled and were carried in a cold box filled with Ice packs and transported to the laboratory, for analysis. All the slides were read by a pathologist.

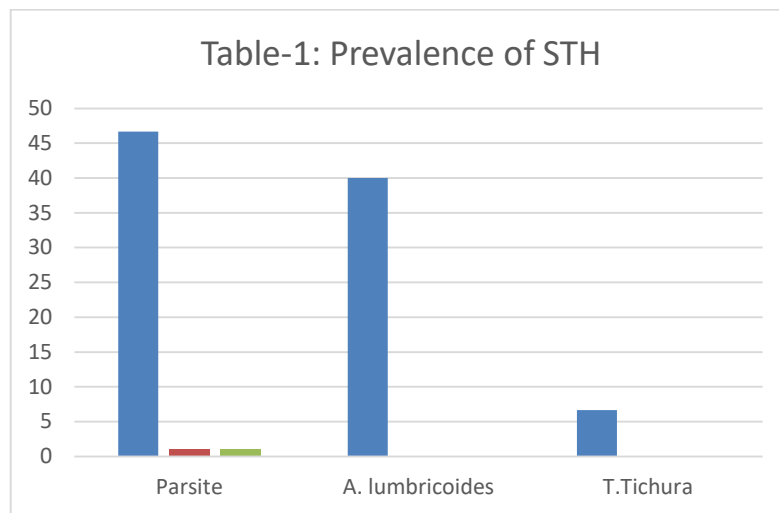
Results:

A total of 30 school children from the 14 had soil transmitted helminths infection. Prevalence of intestinal helminthes of the 14 stool samples contained ova of soil transmitted helminthes using Kato-Katz method.

Twelve (12) children were positive for *A. lumbricoides*, whereas 02 children were positive for *T. trichiura* respectively. There is significant difference in the overall prevalence rates of STH (Table-1)

Table-1: Prevalence of soil-transmitted helminths (STH) in Z.P School Children of Hingoli district.

Parsite	14 (46.66%)
<i>A. lumbricoides</i>	12 (40)
<i>T. Tichura</i>	02 (6.66)

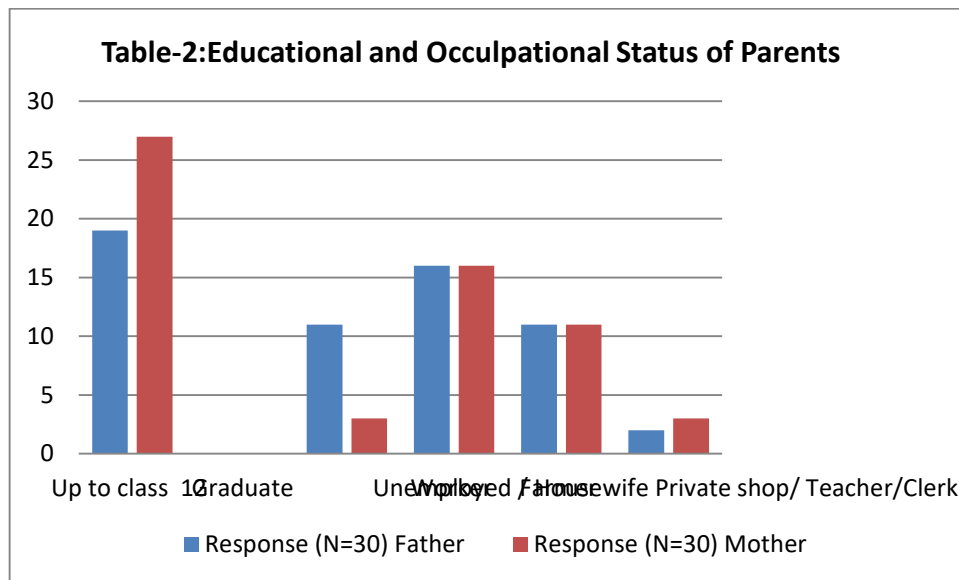


Demographic data of the parents:

More than half of the fathers 19 (63.3%) and mother 27 (90%) studied up to H.S.C and 11 (36.6%) father and 03 (10%) mother studied up to graduate. 16 (53.3%) father and 16 (53.3%) mother occupation was worker, 11 (36.6%) father and 11 (36.6%) mother was farmer, 02 (6.6%) father and 02 (6.6%) was mother as working in private and 03 (10%) mother was housewife. (Table 2).

Table 2: Educational and occupational status of parents of Z.P school children from Deola.

Variable	Category	Response (N=30)	
		Father	Mother
Educational Level	Up to class 5 to 12 (H.S.C)	19	27
	Graduate	11	03
Occupation	Worker	16	16
	Farmer	11	11
	Unemployed / Housewife Private	02	03
	shop/ Teacher/Clerk	01	00



Thirty-three (33.3%) parents stated that they were aware of worm infestation. Twenty-six parents (26%) stated that they used to clean their children after defecation. Among them, few (30%) always and majority (43.3%) sometimes washed their hands with soap and water after cleaning. An almost equal proportion of children used water sealed toilet (30%) and open air (56.6%) for defecation. Twenty three (23.3%) children always and (36.6%) children sometimes used foot ware when they go out. (Table 2).

Table 3: Hygienic habits useful in preventing STH.

Variable	Category	Response % (N=30)
Washing hands with soap and water after cleaning the defecated child	Always	08
	Some times	09
	Never	13
Toilet facility	Water sealed toilet	09
	Open air defecation	17
	other	07
Wearing slippers while going out	Always	07
	Some times	11
	Never	12

Discussion:

Intestinal parasitic infestations are endemic worldwide and a major public health problem in developing countries (Shakya et al., 2009). Many studies have been carried out in India (Paul et al., 1999), Pakistan (Ahmad Khan et al., 2004) and elsewhere in the world regarding intestinal helminthiasis. In and around Maharashtra the prevalence of intestinal parasitic infestation was reported as 90.8% (Hiware C.J et. al 2012).

But, according to our study carried out in 2018, a 63.33% prevalence of STH was observed in School children's in Hingoli District Regarding the educational level, majority of the parents studied up to H.S.C (fathers -63.3% and mothers – 90%). This educational level could have lead to a poor awareness level of worm infestations.

Studies carried out in Nepal (Gyawali et al., 2009) and in Pakistan (Ahmad Khan et al., 2004) have proved that the prevalence of intestinal helminthiasis was high among people going to the open fields for defecation. In this study, only 30% of respondents used water sealed toilet and 56.6% used open places for the defecation. Though almost amount of children used water sealed toilet and open place defecation, there were difference in the prevalence was observed in this study. However, the usage of toilets and foot ware may be nullified by the high usage of antihelminthic prophylaxis.

This study shows the higher prevalence rate of intestinal helminths infestation was observed in the group with hand washing practices after defecation (Gyawali et al., 2009). In our study, 26% of the parents stated that they cleaned their children after defecation. Among them, the majority always (43.3%) and a few (30%) sometimes washed their hands with soap and water after cleaning. This may be one of the factors which could attributed towards reducing the prevalence of intestinal helminthiasis, in addition to the main factor i.e., frequent antihelminthic prophylaxis.

As mentioned in the previous study carried out in Nigeria (Houmsou et al., 2010), there was an association between wearing footwear and reductions of intestinal parasitic infestation. In this study, (23.3%) school children always and (36.6%) children sometimes wore footwear when they went out. This foot wearing habit also has little impact on the prevalence of the intestinal nematodes. But, the impact of wearing foot ware could have been masked by the frequent antihelminthic prophylaxis.

Acknowledgments:

The author is thankful to the Principal, Adarsh Education Society's Arts, Science & Commerce College, Hingoli for providing necessary laboratory and library facility during this research work. Author is also thankful to the Education Officer (Z.P), Heads of the school, teachers, parents.

REFERENCES

- Ahmad Khan, Abida Sultana, Abdul Majid Khan Dar, Haroon Rashid and Syed Abdul Ahad Najmi. (2004). A study of prevalence, distribution and risk factors of intestinal helmithic infestation in district Bagh (Azad Kashmir). Pakistan Armed Force Med J 8(1): 14-17
- Gyawali N., Amatya R., Nepal HP. (2009). Intestinal parasitosis in school going children of Dharan municipality, Nepal. Trop Gastroenterol. 30(3):145-147.

- Houmsou, R.S., Amuta E.U. and Olusi T.A. (2010). Prevalence of intestinal parasites among primary school children in Makurdi, Benue State- Nigeria. *The Internet Journal of Infectious Diseases*. 8(1): 80-86. Karunaithas et al. Prevalence and associated factors 33 Ving. *Journal of Science*, Vol. 10, No. 1 2011
- Nematian J., Gholamrezanezhad A. and Nematian E. (2008). Giardiasis and other intestinal parasitic infections in relation to anthropometric indicators of malnutrition : a large, population-based survey of schoolchildren in Tehran. *Ann Trop Med Parasitol*. 102(3): 209-214.
- Paul I., Gnanamani G. and NaUam N. (1999). Intestinal Helminth Infections Among School Children in Visakhapatnam. *Indian J Pediatr*. 66(5): 669-673.
- Pawlowski Z. S. (1985). Ascariasis control. *World Health Forum* 6: 254-256.
- Shakya B., Bhargava D., Shrestha S. and Rijal B.P. (2009). Intestinal parasitosis. *J Institute of Medicine*. 31(3): 13-16.
- WHO. (1997). Conquers suffering enriching humanity. *The World Health Report*. Geneva pp 15-19. 28. WHO. (2003). Parasitology. In: *Manual of Basic Techniques for a health laboratory*. 2nd Edition. Geneva. pp 105-156.

