

Prevalence of intestinal helminth infection in Fiji

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Introduction

Intestinal nematode infections are probably the commonest among chronic infections occurring in man. They are endemic in most tropical developing countries where human excreta contaminate soil. Infections due to *Ascaris lumbricoides*, *Trichuris trichiura* and *Enterobius vermicularis* are acquired by ingestion of embryonated ova, while the larvae of hook worms and strongyloides gain entry through the skin. Strongyloides is the only worm that is capable of 'multiplying' within the body.

Clinical manifestations of these infections will depend on the worm load and the type of worm involved. Although many infections are asymptomatic, they can contribute

Table 1. Prevalence of intestinal helminth infection in 123 villagers

	Female	Male	Total
Number tested	61	62	123
Ascaris	*8	5	13
Hook worms	24	38	62
Strongyloides	5	7	12
Trichuris trichiura	0	2	2
Mixed infection*	5	3	8
Total positive	42	55	97

* Mixed infections were present in 5 females and 3 males i.e. *Ascaris* and hook worms in 3, hook worms and strongyloides in 3, *ascaris* and strongyloides in 1 and hook worm and trichuris in 1.

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significantly to morbidity and occasionally cause mortality. For example, hook worms can cause anaemia, and strongyloides hyperinfections in the immunocompromised and severely malnourished can be fatal.

There is little data available on the prevalence of these infections in Fiji and hence this study.

Methods

Stool samples were collected from two groups. First group consisted of people residing in villages in a coastal area of Tailevu province of Viti Levu island in Fiji. The second group consisted of children attending a primary school in an interior mountainous area of Naitasiri province of the same island.

A small portion of the stool sample was mixed with a drop of saline on a slide and examined microscopically. Only one sample per person was tested.

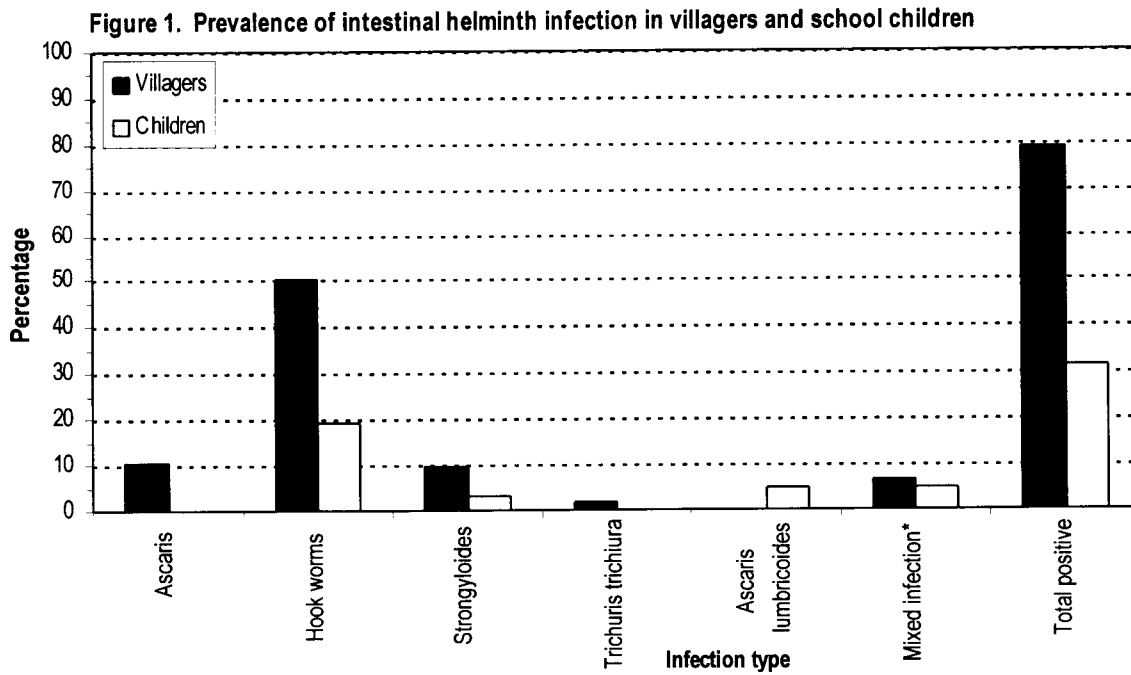
Results

The first group consisted of 123 villagers belonging to eight villages. Ninety seven (79%) were found to have intestinal helminth infection (see Table 1). Infection was present in 69% of females and 89% of males tested. Sixty nine of the 97 infected individuals (71%) had hook worms. Sixteen individuals had strongyloides. Infection was present in all age groups (see Figure 1). Highest prevalence of hook worms and

Table 2. Prevalence of intestinal helminth infection in primary school children

	Girls	Boys	Total
Number tested	57	73	130
Hook worms	10	15	25
Ascaris lumbricoides	3	3	6
Strongyloides sp	0	4	4
Mixed infection*	2	4	6
Total positive	15	26	41

* 2 girls and 4 boys had mixed infections i.e., hook worm and *Ascaris* in 1 girl and 2 boys, hook worm and strongyloides in 1 girl and 2 boys.



Note: Villagers (123): all ages. School children (130): 7-14 years

Ascaris infections were in persons aged between 21–30 years. Strongyloides infection however, was highest in children below five years.

In the second group, there were 57 girls and 73 boys aged between seven and 14 years. Among these, 41 (31.5%) were infected (see Table 2). This includes 15 (26%) girls and 26 (36%) boys. Hook worms were present in 31 of the 41 (76%) infected. Seven children (17%) had strongyloides. Highest prevalence was noted in the 10 year old children (see Figure 1).

Discussion

Intestinal helminth infections remain high in Fiji. These infections occur only in areas where human faeces contaminate the soil. Although most homes in the villages had sanitary latrines, significant fecal pollution of open land still occurs. Ignorance about hazards associated with improper excreta disposal is an important reason for this.

Prevalence rates were much higher in the coastal areas compared to interior mountainous areas. Villagers in the coastal areas were predominantly farmers and therefore, people belonging to all age groups had much contact with infected soil. Also, in these low lying areas, interconnected water collections develop frequently following rains, facilitating wider distribution of infected soil. Children included in the second group were from a community involved in dairy farming. Lower infection rates in children, reflect lower rates in adults also in this community.

In both these areas, hook worm infections were most prevalent. This shows that direct contact with contaminated soil is more important in transmission in these areas than contamination of food or water with infective stages. This contact can occur during activities involved in farming, while playing in the soil or while walking barefoot.

It is noteworthy that several individuals in both groups has strongyloides infection. This nematode has the potential to cause serious life threatening infections in the immunocompromised and malnourished individuals. The extent of these complications occurring in Fiji is unknown.

Better public awareness regarding transmission of these infections and implication of public health measures are required to control these infections.

References

Available from the author on request.

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