

# Identification of Soil-Transmitted Helminth Eggs in Adults in Koto Tengah District Padang City

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## ABSTRACT

Soil Transmitted Helminths (STH) are a variety of parasitic nematodes that cause soiling in humans through contact with parasitic eggs that grow in warm, wet soil. The STH species that most frequently contaminate humans are *Ascaris lumbricoides*, *Trichuris trichiura*, *Ancylostoma duodenale* and *Necator americanus*. Ascariasis, Trichuriasis is the second largest disease carried by parasitic animals, adult *Ascaris lumbricoides* can cause various mechanical effects such as intestinal obstruction, intestinal ulcer perforation, respiratory obstruction. Information from the Padang City Health Office in 2012 was 533 cases, in 2013 there were 1331 cases, in 2014 there were 1250 cases and in 2015 there were 776 cases of residents contaminated with worms. The reason for this review was to determine soil-transmitted helminth eggs in adult defecation in the city of Padang. The examination configuration used was observational, with a multistage-random sampling procedure. This exploration was led through field reviews, in particular clarification of educational approvals, circulation and segregation of waste pots and parasitological assessment of helminth eggs using the kato katz strategy. From the results of the review, 127 adults were taken from the stool test by fulfilling the pre-determined considerations and prohibition measures and the consequence of the stool test assessment was 24 (18.9%) subjects contaminated with ascariasis and tricuriasis in adults. examination of feces in the Koto Tengah Koto Area.

**Keywords:** Soil Transmitted Helminths

## 1. INTRODUCTION

Worm infection is a disease that threatens the health of the world's population in several developing countries, such as in Sub-Saharan Africa and the Asian region [6]. Parasitic infections can be associated with poverty, poor hygiene and sanitation [10]. Indonesia is one of the developing countries that has a high prevalence of helminth infections [16].

Information on the similarity of pollution due to STH in 27 selected areas reached 13.9% in 2012 [2]. West Sumatra occupies the second position with a commonness of 82.3% [2]. After West Nusa Tenggara with a similarity of 83.6% [15]. Judging from the Information Profile of the Padang City Health Office, it was revealed that from 2012 to 2015, the incidence of STH contamination was still very high with the most victims being children, but it did not rule out the possibility of getting STH disease. experienced by adults aged 20-60 years [19].

STH infections often attack children, but it is possible for STH infections to be suffered by adults aged 20-60 years [19]. In children it can cause losses such as anemia, decreased physical health, and cognitive and memory decline.[14] In addition,

STH infection can also occur in adults with varying symptoms [9].

## 2. MATERIALS AND METHODS

This study uses a Case Control design, with the sampling technique of Multistage Random Sampling which takes place from March 2021 to June 2021 in one of the villages in Padang City, Pasie Nan Tigo Village. The population in this study were adult men and women aged 20-60 years and domiciled in Pasie Nan Tigo Village, Padang City.

Data in the form of general characteristics were obtained through interviews, while data on faecal examinations were obtained from parasitological examinations at the Syedza Saintika Stikes Parasitology Laboratory. Stool samples were obtained from 127 adults who were willing to be research subjects by signing an informed consent. The results of stool examination on 127 research subjects showed that 24 of them were infected with STH (18.9%).

### 3. RESULTS AND DISCUSSION

Most of the research subjects were women, with the highest age range being 38-50 years. The types of STH that infect research subjects are *T. trichiura* (87.5%),

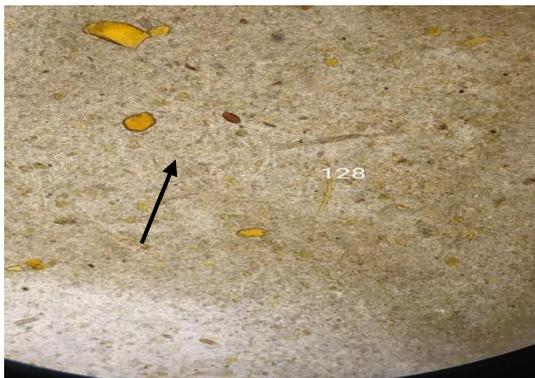
The average TNF- $\alpha$  and IL-4 levels in the STH-infected group were the highest percentage of *Trichuris trichuria* worms (87.5%) compared to *Ascaris lumbricoides* (12.5%).

**Table 1.** Characteristics of Research Subjects

Characteristics of respondents	Group infected with STH (n = 24)		Group healthy control (n =24)	
	f	%	F	%
Education				
Primary school	5	20,8	7	29,2
Junior high school	12	50,0	11	45,8
Senior high school	7	29,2	5	20,8
College	0	0	1	4,2
Work				
Work	9	37,5	6	25,0
Not working	15	62,5	18	75,0
Gender				
Woman	15	62,5	4	16,7
Man	9	37,5	20	83,3
Respondent Age (Mean $\pm$ SD)	38.08 $\pm$ 12.15		42.08 $\pm$ 9.60	

**Table 2.** Frequency Distribution of STH .

STH type	STH Infected Group (n = 24)	
	F	%
<i>Trichuris trichuria</i>	21	87,5
<i>Ascaris lumbricoides</i>	3	12,5



**Figure 1.** *Trichuris trichuria*



**Figure 2.** *Ascaris lumbricoides*



**Figure 3.** *Ascaris lumbricoides*



**Figure 4** (*Trichuris trichiura*)

The most famous types of STH found in Koto Tangah City are *Trichuris trichiura* and *Ascaris lumbricoides*, where they prefer tropical conditions with wet and warm soil or sand [3]. This is in accordance with the natural state of Koto Tangah City that has been described previously. Single disease predominance of *T. trichiura* was observed more (87.5%) than (12.5%). This is because the type of *T. trichiura* is more difficult to treat than other types of STH, where if it is generally contaminated by 2 types of worms (*A. lumbricoides* and hookworms) when taking medicine, it will soon recover. However, contamination of *T. trichiura* worms must take medication for three consecutive days before showing improvement [7]. because most of the drugs available in the market today have low viability against this type of worm [17]. The lack of viability of this drug makes eradication of *T. trichiura* more troublesome.

STH infection, infection caused by intestinal nematodes which in its transmission requires soil media. Worms belonging to STH are Ascariasis, Trichuriasis and hookworms [5]. STH infections are commonly found in tropical and subtropical climates such as Southeast Asia, because the eggs and larvae are more likely to develop in warm and wet soil [4]. Worms belonging to the STH group are worms that in completing their life cycle require

suitable soil to develop into an infective form. The eggs of *A. lumbricoides* and *T. trichiura* have almost the same development pattern, which is that they have a similar development time in the soil. However, few *A. lumbricoides* worms were found because *A. lumbricoides* worm eggs require 18 days to mature in the soil to become infective and *T. trichiura* eggs that are excreted in the feces become infective within 10-14 days [6].

The results of [11], where Trichuriasis is more common than Ascariasis. Research conducted in Petojo Selatan, Central Jakarta found that *Trichuris* infection was 94.7%, *Ascaris* was 81.8% and Hookworm was 0.37%. In contrast to the research above, the research conducted by [12] showed that Ascariasis infection reached 8.8%, while Trichuriasis was 2.6% and hookworm infection was only 0.9%. This could be due to the fact that *A. lumbricoides* had the best infective form resistance than other types of STH worms [18].

#### 4. CONCLUSIONS

Based on the results of the examination that has been carried out, it can be presumed that two types of earthworm diseases were found, namely *Ascaris lumbricoides* and *Trichuris trichiura*, most of which are *Trichuris trichiura*

contamination in Indonesia. adults in Koto Tangah City, Padang City

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