**Journal of Indonesia Laboratory Technology of Student (JILTS)**
Vol.5, No.2, Oktober 2026, pp. 326~330

# Prevalence of Worm Infection in Elementary School Children in Saba Village, Janapria District, Central Lombok

**Wenny Ayu Lestary[1], Ersandhi Resnhaleksamana[2], Maruni Wiwin Diarti[3], Fihiruddin[4]**
[1-4] Jurusan Teknologi Laboratorium Medis, Poltekkes Kemenkes Mataram, Indonesia
wennylestary06@gmail.com

**ABSTRACT**

**Background:** A parasitic worm infection occurs when a person becomes infected by specific types of worms known as *soil-transmitted helminths*. These worms inhabit the intestines, and transmission takes place through soil contaminated with worm eggs. Primary school-aged children are particularly vulnerable to infection because they frequently play outdoors and have not yet adopted clean and healthy living habits. Such infections can lead to growth impairment, nutritional decline, anemia, and reduced learning ability. **Objective:** To determine the prevalence of helminth infections among elementary school children in Saba Village, Janapria District, Central Lombok. **Research Methods:** This study employed an observational analytic approach with a cross-sectional design. The sample consisted of 30 stool specimens collected from students in grades 1 through 6, selected using a purposive sampling technique. Testing was conducted using the Kato-Katz method to identify helminth egg types. **Research Results**: The study revealed that out of the 30 samples analyzed, 5 were infected with worms, while the remaining 25 were uninfected. The worm eggs identified were of the species *Ascaris lumbricoides* and *Trichuris trichiura*. A total of 11 *Ascaris lumbricoides* eggs were found, corresponding to an infection level of 264 EPG, along with 3 *Trichuris trichiura* eggs, corresponding to an infection level of 72 EPG. The observed infection intensity fell into the category of mild infection. The similarity of results between the two methods indicates 100% agreement. **Conclusion**: A total of 16.7% of elementary school children in Saba Village, Janapria District, were found to have helminth infections. The types of worms identified were *Ascaris lumbricoides* and *Trichuris trichiura*.

**Keywords:** Prevalence, Worm infection, Elementary school children, *Soil Transmitted Helminths.*

**Article Info**

***Article history:***

Received
August, 2026
Revised
September, 2026
Accepted
October, 2026

## Introduction

Worm disease is widely found in several places or regions. This situation is caused by several conditions that still lack attention to worm disease. The type of worm that is less noticed is worm infections caused by *Soil Transmitted Helminths* (STH). In Indonesia, the types of worms that most often cause health problems are roundworms, whip worms, and hookworms. These worms are among the types that infect humans the most. (Lalangpuling, 2023).

According to *the World Health Organization* (WHO), soil-borne worm infections called *Soil Transmitted Helminths* (STH) are one of the most widespread types of infections globally in 2023, with more than 1.5 billion individuals infected, equivalent to 24% of the global population. These infections affect the poorest and poorest groups of people, especially in tropical and subtropical regions, where access to clean water, sanitation facilities, and inadequate hygiene cases of infection are most found in sub-Saharan Africa, China, South America, and Asia (WHO, 2023).

The highest number of worms in Indonesia is found in West Nusa Tenggara Province which ranks first with a percentage of worms reaching 83.6%. Furthermore, in the West Sumatra region it reaches 82.3%, in the Central Kalimantan region 65%, in the North Sumatra region 60.4%, and in the Surabaya region 49.35 (Martila, 2016).

Worm disease in Indonesia is still a big problem among elementary school-age children, because the number of sufferers is still very high, around 45 to 65% in some areas with poor sanitation conditions, the rate of worms can reach up to 80% (Afrakhteh et al., 2016).

Worm infection in elementary school children is greatly influenced by personal hygiene and how to practice daily sanitation. This infection occurs because knowledge, habits, and healthy living attitudes such as cutting nails, bathing regularly, washing hands, and using footwear have not been done correctly, so it has the potential to increase the risk of contracting worm infections. Children are susceptible to contracting worm infections through the soil because of their immunity that has not been maximized and clean living habits that have not been fully implemented. Therefore, increasing awareness and knowledge about the importance of personal hygiene is needed to reduce worm infections in school children (Rahmawati, 2024).

Based on an initial survey that has been carried out on several residents in the residential area of Saba Village, Janapria District, Central Lombok, there is a worm examination program by the health center which is carried out on elementary school students. However, this has long been replaced by a deworming only program which is routinely given every 6 months (NTB Provincial Health Office, 2017).

## Research Methods

The research was conducted at the Parasitology Laboratory of the Ministry of Health of Mataram in January-May 2026. The method in this study is to use an observational analytical approach with a *cross-sectional* design. The sample taken consisted of 30 fecal samples of elementary school students selected using *the purposive sampling* method. Examination of worm eggs and *calculation of Eggs Per Gram* (EPG) were

carried out using the Kato-Katz method. Data analysis was carried out descriptively to determine the percentage (%) of worms in elementary school children.

**Research and Discussion Results**

The data on the results of the examination of intestinal nematodes in *the Soil Transmitted Helminths* (STH) group in students in grades 1-6 can be seen in the following table.

Table 4.1. Results of Examination of the Types of Worm Eggs found

| No. | Types of Worm Eggs | Number of Samples |
|---|---|---|
| 1. | *Ascaris lumbricoides* | 4 |
| 2. | *Trichuris trichiura* | 1 |
| Total | | 5 |

Based on the analysis of the types of STH worm eggs listed in table 4.1, it is known that the types of worm eggs found in the students' feces samples are *Ascaris lumbricoides* and *Trichuris trichiura*. Ascaris lumbricoides *worm eggs* are the most dominant type among other types of worm eggs.

Table. 4.2 Results of Worm Egg Count and Infection Intensity

| Types of Worms | Number of Eggs Found | EPG | Intensity Category |
|---|---|---|---|
| *Ascaris lumbricoides* | 11 | 264 | Lightweight |
| *Trichuris trichiura* | 3 | 72 | Lightweight |

Based on the results of the examination of the number of worm eggs and the intensity of infection, 11 *Ascaris lumbricoides* eggs were obtained with an infection intensity of 264 eggs per gram of feces (EPG). In addition, 3 *Trichuris trichiura worm eggs* were found with an infection intensity of 72 eggs per gram of feces (EPG). Based on the WHO classification, the species is included in the category of mild infection.

Table 4.3. Results of Prevalence of Worm Infection in Primary School Children

| Examination Results | Number of Samples | Percentage (%) |
|---|---|---|
| Positive | 5 | 16,7% |
| Negative | 25 | 83,3% |
| Total | 30 | 100 |

The results of worm analysis in elementary school children contained in table 4.3 of the 30 fecal samples analyzed, there were 5 samples (16.7%) infected with worm eggs and 25 samples (83.3%) no worm eggs were

found. These results show that the percentage of elementary school children in Saba Village, Janapria District who experienced worm infection reached 16.7%.

**Discussion**

Worm testing was carried out using the Kato-Katz method to find out how many people were infected with worms. The results of the examination showed that of the 30 students examined, 5 students tested positive for worm infection, while 25 other students were negative for worm infection. The two types of worms that cause infection were identified as *Ascaris lumbricoides* and *Trichuris trichiura*, based on the characteristics of the worm eggs observed.

Examination showed that 5 samples were detected positive for STH worm eggs, while the other 25 samples showed no worm eggs. Morphological examination under a microscope identified two species of STH, namely *Ascaris lumbricoides* and *Trichuris trichiura*. The identification was based on the morphological characteristics of the eggs, such as the shape, size, color, and structure of the egg walls seen in the preparation using Kato-Katz. The number of eggs counted showed 11 *Ascaris eggslumbricoides* dengan intensitas 264 eggs per gram of feces (EPG), as well as *Trichuris trichiura eggs* with an intensity of 72 eggs per gram of feces (EPG). According to the WHO classification, both values belong to the category of mild infection. This mild category indicates that the number of eggs found is still far below the threshold of the medium or severe category.

Most health problems will arise because the personal hygiene of school children is still not considered. Healthy living behaviors, developmental disorders, and learning are some of these health problems. Personal and environmental hygiene, such as brushing teeth properly, getting used to washing hands with soap, and various other ways to maintain personal hygiene, are usually health behavior problems related to school-age children. In addition, unhygienic environmental conditions and poor *personal hygiene* can cause worm transmission in humans (Fattah et al., 2020).

**Conclusion**

**A. Conclusion**

1. The type of worm eggs found showed the presence of eggs from intestinal nematode worms belonging to the *group of Helminths*, namely *Ascaris lumbricoides* and *Trichuris trichiura* in students in grades 1 to 6.
2. The total number of worm eggs detected were 3 *Trichuris trichiura* worm eggs with an infection investment of 72 eggs per gram of feces (EPG) which were included in the mild category. In addition, 11 *Ascaris lumbricoides worm eggs* were found with an infection investment of 264 eggs per gram of feces (EPG) which is also included in the mild category.
3. The percentage of examination results showed that 83.3% were negative for STH worm eggs and 16.7% were positive for those containing *Ascaris lumbricoides* and *Trichuris trichira worm eggs*.

**B. Suggestions**

1. For future researchers:

Researchers are expected to determine and pay attention to more detailed sample criteria so that the samples taken can be in accordance with the purpose of the research and can improve the accuracy of the results obtained.

2. For the Community:

   It can increase awareness of personal and environmental hygiene by implementing a clean and healthy lifestyle, for example the habit of washing hands with soap, using footwear when doing outdoor activities, and maintaining the cleanliness of the area and sanitation. This action is very important to minimize the spread of worm infections and improve health levels in the community.

3. For related agencies:

   Perlu memperkuat upaya dalam mencegah dan mengendalian infeksi cacing melalui penyuluhan kesehatan, pemantauan rutin, dan pelaksanaan program pemberian obat cacing kepada anak-anak di usia sekolah.

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