STUDY OF HELMINTHIASIS IN ELEMENTARY SCHOOL CHILDREN IN JAMBI CITY

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ABSTRACT

Introduction: *Intestinal parasitic infection is a major health problem in developing countries, especially in children, which often causes mortality and morbidity. Worms affect one third of the world's population. School-age children between the ages of 5 and 15 years in most developing countries are at the highest risk of chronic helminthic infection and worm-related morbidity. This study aims to determine the prevalence and determinants of helminthiasis in school-age children.*

Methods: *This research is a quantitative study with a cross-sectional design. The research will be conducted at Jambi City Elementary School in August-October 2022. The total sample is 369 respondents using a simple random sampling technique.*

Results: *The type of worm eggs found were Ascaris lumbricoides worm eggs. The most gender is male (50.7%), the most sources of water for cooking and drinking at home are Refill Water (28.2%), the habit of washing vegetables and raw meat with running water is 90.8%, the number of children playing outside the house the most 76.2%, playing sand 75.9%, using sandals 94.5%, habit of biting nails 9.8%, washing hands after playing 85.6%, consuming worm medicine 53.1%, and still there are houses that have floors in the form of land as much as 3.3%.*

Conclusion: *The risk factor for helminthiasis in the community is still high. Only some children consume deworming drugs regularly at their own expense. Government intervention is needed in mass deworming treatment for school children*

Keywords: *Worms, Elementary School Children*

INTRODUCTION

Worms are an infection of the intestine caused by parasitic worms, such as hookworms (Necator americanus and Ancylostoma duodenale), whipworms (Trichuris trichuria), and roundworms (Ascaris lumbricoides)[1]. Intestinal parasitic infection is a major health problem in developing countries, especially in children, which often causes mortality and morbidity[2]. Worms affect one third of the world's population[3,4]. This is mainly due to poverty, poor personal hygiene, frequent outdoor exposure, a higher likelihood of engaging in high-risk behaviors such as eating soil, and the presence of

environmental conditions that favor transmission[5].

School-aged children between the ages of 5 and 15 years in most developing countries are at the highest risk of chronic helminthic infection and worm-related morbidity[6]. School-age children are the highest risk group because there is not enough research on the importance of the neurodevelopment and cognitive worms in toddlers[7,8] and preschool childre[9,10]. A condition heavily influenced by this demographic, helminthic morbidity occurs during critical periods of physiological, mental, and physical development. The chronicity of infection indicates that any mild-moderate nutritional, growth and cognitive deficits related to helminthiasis accumulate over the long term of the developmental course of life. The highest incidence of helminthiasis is found in tropical regions, such as South America, Sub-Saharan Africa, China, and Southeast Asia involving 1.5 billion infected people, including Indonesia[11]. This study aims to determine the incidence of helminthiasis in elementary school children in Jambi City as a basis for further research.

METHOD

This research is a quantitative study with a cross-sectional design to know the description of helminthiasis and its risk factors. The research was conducted at Jambi City Elementary School in August-September 2022 with a sample size of 369 people. The sampling technique used. The sampling technique is simple random sampling.

The examination was carried out by collecting student faeces and an examination was carried out at the Emerald Clinical Laboratory. Data processing using IBM SPSS 25. Each student's parents were given a questionnaire to fill out at home.helminthiasis and its risk factors. The research was conducted at Jambi City Elementary School in August-September 2022 with a sample size of 369 people. The sampling technique used. The sampling technique is simple random sampling.

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RESULTS

The results of this study indicated that only 5 people (1.36%) of the 369 research respondents had helminthiasis, the type of egg found was Ascaris lumbricoides. Based on gender, male respondents were 189 people (50.7%), female responses were 180 people (48.8%). Based on the source of water for cooking and drinking at home, 104 people (28.2%) used refilled water, 95 people (25.7%) used well water, 24 people (6.5%) used river water, 7 people (1.9%) used

rain collected water, 135 people (36.6%) used bottled water.

Based on the habit of washing raw vegetables/meat, 34 people (9.2%) did not use running water, 335 people (90.8%) used running water. Based on the habits of children playing outside the home, 85 people (23%) rarely played outside the house, 281 people (76.2%) often played outside the house. A total of 280 people (75.9%) did not like playing with sand, 87 people (23.6%) liked playing with sand. In the variable habit of using sandals, 23 people (6.2%) do not like to use sandals outside the home, 345 people (93.5%) always use sandals when outside the home. Based on the habit of biting their nails, 36 people (9.8%) had the habit of biting their nails, 53 people (14.4%) did not have the habit of washing their hands after playing, 46 people (12.5%) did not have the habit of washing their hands before eating, 196 people (53.1%) did not regularly take deworming medication. There are 4 people (1.1%) who do not have a toilet in the house and 12 people (3.3%) have a dirt floor in their house.

Table 1. Univariate analysis

Variable	Amount (*n* = 369)
The presence of worm eggs in the feces	
Ascaris lumbricoides	5 (1,36%)
Egg Free	264 (98,64)
Gender	
Male	189 (50,7%)
Female	180 (48,8%)
Source of water for cooking and drinking at home	
Refilable water	104 (28,2%)
Well Water	95 (25,7%)
River Water	24 (25,7%)
Rain Water	7 (1,9%)
Bottled Water	135 (36,6%)
Habit of washing raw vegetables/meat with running water	
No	34 (9,2%)
Yes	335 (90,8%)
The habit of children playing outside the house	
No	85 (23%)
Yes	281 (76,2%)
The habit of children playing in the sand	
No	280 (75,9%)
Yes	87 (23,6%)
The habit of wearing sandals	
No	23 (6,2%)
Yes	345 (93,5%)
Habit of biting nails	
No	332 (90%)
Yes	36 (9,8%)
Habit of washing hands after playing	
No	53 (14,4%)
Yes	316 (85,6%)

Habit of washing hands before eating	
No	46 (12,5%)
Yes	323 (87,5%)
Habit of taking worm medication	
No	196 (53,1%)
Yes	172 (46,6%)
Availability of toilet in the house	
No	4 (1,1%)
Yes	365 (98,9%)
The floor of the house is earth	
No	357 (96,7%)
Yes	12 (3,3%)

DISSCUSSION

The World Health Organization (WHO) estimates that more than two billion people with helminthiasis worldwide experience severe morbidity, causing 9000 to 135 000 deaths per year[11,12]. Diseases caused by STH infection are associated with chronic and asymptomatic morbidity in children[13]. Morbidity associated with helminthiasis includes iron deficiency anemia, malnutrition, impaired growth and development including short stature, and impaired cognitive development[14-16]. The impact on child growth and development is caused by changes in appetite, digestion, absorption of nutrients, and iron deficiency[17]. Worms cause poor school performance and attendance so that when they are adults their productivity tends to decrease and pregnancies tend to be detrimental, which in turn disrupts the progress of children's education and the nation's economic development[13,18].

Worm morbidity is related to the intensity of infection[19]. The lack of attention to helminthiasis in children is due to the assumption of low prevalence and intensity of infection and the belief that low-intensity infection will not cause significant morbidity[20]. Shumbej et al. (2015) found mild helminthiasis in A. lumbricoides (98%), T. trichiura (95.8%), and hookworms (91.6%); moderate intensity infections of A. lumbricoides (2%), T. trichiura (4.2%), and hookworms (8.4%); and there is no intensity of severe helminthiasis. A study in Indonesia showed that the most common helminthiasis was A. lumbricoides with mild intensity (24.4%)[21,22]. Wang et al.'s study. (2012) in China in 2010 reported finding helminthiasis in preschool children with mild, moderate and severe intensity.

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CONCLUSION

The government has launched Mass Prevention Drug Administration (POPM) for worms in Indonesia. However, in this study there were still cases of helminthiasis, risk factors for helminthiasis, and there were still children who did not take deworming medication. The government needs to provide regular education to parents and children regarding the importance of deworming and avoiding risk factors for worms.

ACKNOWLEDGEMENTS

The author would like to thank the LPPM Universitas Jambi for funding this research, also wish to thank elemntry school in Jambi City that have assisted in collecting data for this study.

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