The Effect of Habits on Wearing Footwear And hand washing after playing on the ground Against Worms in Primary School Al-Wasliyah In Medan Deli

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Abstract. World Health Organization reported in 2015 more than 1.5 billion population is infected with Ascaris Lumbricoides and in Indonesia on 2013 the average prevalence of infection reaches more than 28%, this study aims to investigate the effect of habits on wearing footwear and hand washing after playing on the ground against worms. The type of this research is Explanatory Research, Data were collected through interviews, documentation and examination of stool, Data was analyzed by univariate, bivariate and multivariate test. The results showed of the effect of wearing footwear Against Worms with p value 0.002 and Exp (B) 43.587 in Confidence Interval 95% is 3.848 until 493.702 and handwashing habits after playing on the ground had an effect on helminthiasis with a p value of 0.007 and Exp (B) of 28.629 in Confidence Interval of 95% between 2.482 to 330.196. According to researchers, worms live on the ground and are very quickly transmitted through the skin of the soles of the feet therefore every child needs to use footwear every time they leave home and the best way to break the chain of transmission of worms by maintaining personal hygiene, such as washing hands with soap after playing on the ground.

Keywords: Effect, Habits, wearing footwear, worms, hand washing.
1. Introduction

Infectious disease is a common public health problem, one of is Soil Transmitted Helminths, including roundworms (Ascaris lumbricoides), hookworms (Ancylostoma duodenale and Necator Americanus) and whip worms (Trichuris trichiura). This worm disease can lead to a decrease in health conditions, nutritional status, intelligence and productivity of sufferers.[1][2]

Based on data from the World Health Organization in 2015, more than 1.5 billion people infected with Ascaris Lumbricoides, 795 million people infected with Trichuris trichiura and 740 million people infected with hookworms (Ancylostoma duodenale and Necator Americanus) or 24% of the world's population infected with worm infections which is transmitted through soil. Infection is widespread in tropical and subtropical regions, with the largest numbers occurring in Sub-Saharan Africa, America, China and East Asia. More than 270 million pre-school age children and more than 600 million school-age children live in areas where these parasites can intensively transmit. [1]

In Indonesia in 2013, the average prevalence of helminthiasis reached more than 28% with different levels in each region. The high prevalence of worms in Indonesia is inseparable from the tropical climate which allows several types of worms to grow and develop. Distribution of Soil Transmitted Helminths in Indonesia covers all islands in Indonesia, where the highest prevalence is found in Papua and North Sumatra, which ranges from 50-80%. Consisting of A. lumbricoides 30.4%, T. trichiura 21.2% and A. duodenale and N. americanus 6.5%.[2][3]

Worms in humans are influenced by many behavioral factors and living environments. This disease is even influenced by the low level of personal sanitation (healthy and clean living behavior). Other factors that influence the incidence of helminthiasis are natural and climatic conditions, the environment that supports the development of Soil Transmitted Helminths eggs, namely moist and loose soil conditions, socioeconomic conditions, education and population density. [2]

Factors that cause high helminthiasis are low levels of personal sanitation (hygiene behavior) such as hand washing habits before eating and after defecation (bowel movements), cleanliness of nails, snacking behavior in places where cleanliness cannot be controlled, defecation behavior is not in the toilet which causes soil and environmental pollution by faeces containing worm eggs and the availability of clean water sources. [3]

Based on data obtained from the Tsanawiyah-Aliyah Primary School in 2011, there were 142 students, 92 of whom were positive for helminthiasis (65%) including A.Lumbricoides, 56 students (39.5%), Trichuris Trichiura as many as 25 students (17.7%), Hookworm as many as 11 students (7.8%) and a negative proportion of 50 students (35%).

Based on the Preliminary Survey conducted by researchers at the AL-Washliyah KM.6 Primary School, Tanjung Mulia Sub-District, Medan Deli Subdistrict using observational methods found there were still many Elementary School students who had the habit of not wearing shoes while studying or playing.

2. Methods

The research design used was Explanatory Research with a cross sectional design. This research was conducted at AL-Washliyah Elementary School KM.6, Tanjung Mulia, Medan Deli District in September 2016 - January 2017.

The population in this study were all students in grades 1-6 AL-Washliyah Primary School KM.6, Tanjung Mulia, Medan Deli Subdistrict which is as many as 180 students. The sample in this study amount of 64 people, sampling using the proportioned stratified random sampling technique.
2.1 Data Type

1) Primary data obtained directly through interviews using questionnaires asked to respondents and observations of students of AL-Washliyah School.

2) Secondary data obtained through data from the Medan City Health Office regarding research and through documentation obtained from the AL-Wasliyah School.

2.2 Data Collection Techniques

2.2.1 Methods of stool examination

The kato katz method is as follows:

1. Making Kato Solution

Add 100 cc of Aquades in a small plastic container, then add 100 cc of glycerin little by little and add 1 cc of malachite 3% green solution, then stir until homogeneous, it will get 201 cc Kato Solution. Malachite green glycerin solution.

2. Tools

   a. Glass objects
   b. Cellophane sheet, 40 - 50 μm thick, 2.5 cm in size
   c. Filter paper
   d. Stick stick applicator

3. Procedure

   a. Soak the cellophane sheet in a malachite green glycerine solution for more than 24 hours.
   b. Take faeces with the applicator in a 100 mg solution (the size of soybean seeds).
   c. Place it on the glass of an object then cover it with a cellophane that has been soaked and press the glass with the glass object.
   d. Dry the excess solution with filter paper.
   e. Leave the preparation for 20-30 minutes at room temperature.
   f. Check on a microscope.
4. Results
   a. Stool: Positive (+) found worm eggs.
   b. Stool: Negative (-) no worm eggs found

2.2.2 Interview Method and Questionnaire

Measurement of variable handwashing habits after playing on the ground with a questionnaire measuring instrument consisting of 2 questions with alternative answers "Yes" and "No" with provisions: if the respondent answers "Yes" given a score of 1. If the respondent answers "No" given a score of 0. Based on scoring values are categorized as follows:

a. Good if the respondent answers question 2 correctly (100%)
b. Less if the respondent answers questions 0-1 correctly (0-50%).

Measurement of footwear usage variables with measuring instruments observation questionnaire consists of 3 questions provided that if the respondent's answer is correctly given a score of 1, if the respondent's answer is wrong given a score of 0.

Based on the scoring of the value, the variable use of footwear is categorized, namely:

a. Good if the respondent answers questions 2-3 correctly (> 66.7%)
b. Less if the respondent answers questions 0-1 correctly (<33.3%)
Figure 3. Interview with Elementary School Students by Distributing Questionnaires

3. Results and Discussion

3.1 Univariate Analysis

3.1.1 Respondent Characteristics

The results obtained by the age of respondents were mostly 8 years old as many as 13 people (20.3%) and a small percentage of 10 years old as many as 8 people (12.5%). The majority of respondents were in grade 2 of elementary school as many as 13 people (20.3%) and a small number were in grade 4 elementary school as many as 8 people (12.5%). The majority of respondents' sexes were 33 women (51.6%) and a small number were 31 male (48.8%).

3.1.2 Worms

Based on the results of the study of respondents who were positive for helminthiasis as many as 36 people (56.3%) and respondents who were negative for helminthiasis as many as 28 people (43.7%). As many as 36 people (56.3%) with worm positive with details of Ascaris Lumbricoides (AL) worm infection were 19 people (29.7%), Trichuris Trichura (TT) worms as many as 8 people (12.5%), Necator Americanus worms (NA) as many as 5 people (7.8%) and Ancylostoma Duodenale (AD) worms as many as 4 people (6.3%).

3.2 Habits of Washing Hands After Playing on the Ground

Based on the results of the study of handwashing habits after playing on the ground, most of them had bad habits as many as 40 people (62.5%) and a small number had good habits as many as 24 people (37.5%).

3.3 Habits of Wearing Footwear

Based on the results of research on the habit of wearing footwear, most of them have good habits as many as 35 people (54.7%) and a small number have bad habits as many as 29 people (45.3%).

3.4 Bivariate Analysis

The chi square test results show that Hand washing habits after playing on the ground with an OR value of 0.289 (95% CI = 0.100-0.833) with a value of p = 0.019 means that there is a relationship between handwashing habits after playing on the ground with worms.

The habit of wearing footwear with an OR value of 0.212 (95% CI = 0.072-0.629) with a value of p = 0.004 means that there is a relationship between the habit of wearing footwear with helminthiasis.

| Table 1. Cross Tabulation of Chi Square Test Analysis |
|------------------------------------------------------|
| Variable | Helminthiasis | P | Odd Ratio (95% CI) |
|          | Positive | Negative |          |                        |
| The habit of washing hands after playing on the ground |        |          |          |                        |
| Good     | 9 | 15 | 2.4 | 0.019 | 0.289 (0.100-0.833) |
| Less     | 27 | 13 | 20.3                     |
| Habits of Wearing Footwear |        |          |          |                        |
| Good     | 14 | 21 | 32.8 | 0.004 | 0.212 (0.072-0.629) |
| Less     | 22 | 7 | 10.9                       |
3.5 Multivariate Analysis

3.5.1 The effect of Hand Washing Habits After Playing on the Ground Against Worms

Based on the results of the study, it was found that hand washing habits after playing on the ground had an effect on helminthiasis with a p value of 0.007 <0.05, the Exp (B) value of 28.629 in the 95% Confidence interval between 2,482 to 330.196 students who had handwashing habits after playing on poor soil has a chance of 2,482 times for worms.

The results of this study are not in line with the research conducted by Rawina with the title Relationship of Self Sanitation to Worm Disease in Students of SDN X Paseba’n, Central Jakarta, who found that there was no relationship between washing hands after playing with worms with a value of p = 1,000. [4]

According to researchers, helminthiasis is more common in elementary school children because of activities that are more related to soil, the best way to break the chain of transmission of worms that are transmitted through soil, for example by maintaining personal hygiene for example by washing hands with soap after playing in soil.

3.5.2 The effect of Habits on Wearing Footwear Against Worms

Based on the results of the study, it was found that the habit of wearing footwear had an effect on helminthiasis with a p value of 0.002 <0.05 and Exp (B) of 43.587 in Confidence Interval of 95%, between 3,848 and 493,702 students who had less footwear habits good has a chance of 43,587 times for worms. Outside the home, you should wear shoes to avoid feet from dirt or other infections. By wearing shoes or sandals can prevent the entry of hookworms into the body through the soles of the feet. Feet can carry dirt from the road to the house, so it needs to be cleaned.[2]

The results of this study are in line with the research conducted by Wulandari Ayu based on research on elementary school students in Angkola Timur Subdistrict, South Tapanuli Regency in 2012 found that the use of footwear had a significant effect on helminthiasis with P value = 0,000 and OR 5.524 (95% CI: 2,840-10,743).[3]

According to researchers the habit of not wearing footwear has an effect on helminthiasis and a strong risk for worm infection. Worms live on the soil and are very quickly transmitted through the skin. For this reason, it is necessary to familiarize children to always use footwear every time they leave the house to avoid this worm.

Table 2. Logistic Regression Test Results

| Variable                           | B   | Sig  | Exp (B) | 95%CI          |
|------------------------------------|-----|------|---------|----------------|
| Hand washing habits after playing on the ground | 3.354 | 0.007 | 28.629  | 2.482 to 330.196 |
| Habits on Wearing Footwear         | 3.775 | 0.002 | 43.587  | 3.848 to 493.702 |

4. Conclusion

Based on the research it can be concluded that the habit of washing hands after playing on the ground has an effect on helminthiasis with a p value of 0.007, this study found that respondents who did not wash their hands after playing on the ground used water and soap in the positive helminthiasis group 42.2% and lower in the negative worm group, which was 20.3%. In this study, one of the factors that influence the incidence of helminthiasis is one of them is the personal sanitation factor, especially related to the way the worm eggs enter the body because they don't wash their hands after playing on...
The entry of worm eggs into the human body can occur through hands contaminated with worm eggs after respondents play on the ground, then enter their mouths or consume food and beverages contaminated with worm eggs. Worms that are transmitted through the soil, usually develop into an infective form in the soil, so that the soil becomes an important source of infection. Hand washing is one of the prevention of the infection of the source of the disease. Hand washing is a process that mechanically releases dirt and debris from the skin of the hand using ordinary soap and water. The purpose of hand washing is one of the elements to prevent transmission of infection. Hands are our body organs which are often used to take food and eat these foods. Hand Washing with Antiseptic Soap is recommended.

The results of this study are not in line with the research conducted by Rawina with the title Relationship of Self Sanitation to Worm Disease in Students of SDN X Paseban, Central Jakarta, who found that there was no relationship between hand washing and playing with helminthiasis with a value of \( p = 1.000 \). [8]

The results of the multivariate statistical test with multiple logistic regression tests showed that the habit of wearing footwear had an effect on helminthiasis with a value of 0.002. When viewed from the child's playing behavior, every day playing with the ground and removing footwear and during breaks at school the respondent also plays while opening his shoes, thus causing a risk for worm infection. Physical activity and exercise require equipment, including shoes and socks. Bad habits on someone are wearing dirty socks and shoes that are not clean. Before doing activities such as sports, you should get used to wearing shoes that are safe and clean. After exercise, you should also get used to cleaning your feet with soap or warm water. If it is not cleaned, mushrooms will appear that grow between the legs and can develop into more serious wounds. The results of this study are also in line with the research conducted by Wulandari with the effect of environmental sanitation, personal hygiene and characteristics of children on helminthiasis in elementary school students in Blang Mangat District, Loeksemawe City which shows that there is a relationship between footwear use and worm infection with a value of \( p = 0.002 \). [10]

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