



Personal Hygiene Behavior Relationships with Helminthiases Infestation on Craftsmen Brick in Bonto Ba'do' Village Bonto Nompo' District Gowa Regency

Sulasmi^{a*}, Haderiah^b, Erlani^c

^{a,b,c}*Environmental Health Department of the Ministry of Health Polytechnic Makassar*

^a*Email: laksmi.kesling@gmail.com*

Abstract

Helminthiases caused by parasites such as worms, which can occur mild or severe infestation. Helminthiases infestation is a worm infestation caused by intestinal nematodes class Lumbricoides including *Ascaris*, *Trichuris trichiura*, and Hookworms (*Ancylostoma duodenale* and *Necator Americanus*). Helminthiases is one disease in Indonesia due to lack of knowledge and personal hygiene community. The purpose of this study to determine the relationship of personal hygiene with the incidence of infestation helminthiases craftsmen brick. The method used are analytical survey with *Cross Sectional* approach, and using the chi-square test. The population is all worker craftsmen brick in the Ba'do Village. Bonto Nompo District. Gowa Regency in 2014 as many as 76 respondents, samples are 63 respondents. The distribution result of the data obtained personal hygiene habit of washing hands before eating eligible (50.8%), which are not eligible (49.2%), the habit of cutting nails are eligible (46.0%), which are not eligible (54.0%) footwear use are eligible (33.3%), which are not eligible (66.7%). Craftsmen bricks positive helminthiases (84.1%), negative (15.9%). Statistical test result data obtained wash their hands before eating $X^2_{hit} = 6.54 > X^2_{table} = 3.841$, cutting nails $X^2_{hit} = 5.52 > X^2_{table} = 3.841$, footwear use $X^2_{hit} = 32.6 > X^2_{table} = 3.841$.

* Corresponding author.

Conclusion there is association between washing hands before eating, cutting nails, and footwear use with infestations of intestinal worms. Suggested to counseling about personal hygiene, helminthiases infestation as well as the impact that the respondents can be more understanding and more productive at work.

Keywords: Worm; worm infestation; Observational descriptive.

1. Introduction

According to H.L. Blum essentially the health status influenced by four (4) factors, ie environmental, behavioral, health services and descent [1,2]. Based on these factors, behaviors, living environment and manipulation of the environment affects the worm infection that is commonly found in areas with high humidity, especially communities with poor hygiene and sanitation [2,3]. Clay, humid and shady with temperatures ranging from 25 °C - 30 °C are things that are very good for the development of the worms eggs, especially *Ascaris Lumbricoides* and *Trichuris trichiura* into shape ineffective [2,4].

Craftsmen bricks have an important role in the development in Indonesia, people rely largely on their job as a craftsmen brick. Apart from that, they rarely pay attention to basic sanitation and hygiene conditions of their environment. There is a great possibility that they can suffer from worm infections that can enter through the nails are not clean, as a result of contamination of soil each day is used as the main material brick making, and so on. One of the production of bricks in Makassar found in Bonto Ba'do' Village Bonto Nampo' District Gowa Regency, who did most of the income of the citizens of the results obtained there to make bricks.

Based on the results of a preliminary survey conducted by the author unknown number of residents work as craftsmen brick is as many as ± 76 people, Craftsmen bricks in processing the raw material that is used clay from the beginning to become bricks ready for sale always in touch with the ground. The craftsmen less maintain personal hygiene such as not wearing footwear and gloves during the process of making bricks. Therefore, they are extremely vulnerable to contracting germs are transmitted through the ground especially worm infection. The author also has conducted preliminary tests on soil samples in Bonto Ba'do' which is the main ingredient in the production of bricks. These checks are performed in the laboratory of environmental health on April 3, 2014, based on the examination done of the positive results obtained are the eggs of *Ascaris Lumbricoides*.

Based on data from health Bonto Nampo' helminthiases data obtained during the year 2013 as many as 74 residents suffer from *Ascaris* worm infection *Lumbricoides*, and in 2014 as many as five people in January and February as many as four people were infected. At the level of 10 illnesses highest at Bonto Nampo' Health center helminthiases not included in the 10 supreme illnesses, but seen from the data helminthiases can be said that the helminthiases much enough affects people, and based on the testimony of an health center employee that worm infection is often overlooked by the public due to lack understand the causes, symptoms, and the impact, they only check to the clinic when they are in a chronic condition.

Results of research conducted by [5] about helminthiases craftsmen brick in District Baolan Toli-Toli show from 26 respondents surveyed, the infected worm infection as many as 15 (57.7%), and based on the laboratory

results obtained *Ancylostoma duodenale* types of worms as much as 8 respondents (30.8%), 4 respondents (15.4%) infected with *Ascaris Lumbricoides*, 2 (7.7%) infected with *Trichuris Trichuria* and 1 (3.8%) of respondents declared infected with *Ascaris lumbricoides* and *Trichuris Trichuria*.

Based on the above background, the authors are interested in doing research with the research title is “*Personal Hygiene Behavior Relationships With Helminthiases Infestation In Craftsmen Batu-Bata in Bonto Ba’do’ Village Bonto Nempo’ District Gowa Regency*”

1. General purpose:

To determine the relationship of personal hygiene behavior helminthiases infestation on craftsmen brick in Bonto Ba’do’ Village Bonto Nempo’ District Gowa Regency.

2. Special purpose

- a. To determine the relationship of washing hands before eating with helminthiases infestation craftsmen brick in Bonto Ba’do’ Village Bonto Nempo’ District Gowa Regency.
- b. To determine the relationship with the occurrence of nail cutting helminthiases infestation on a craftsmen brick in Bonto Ba’do’ Village Bonto Nempo’ District Gowa Regency.
- c. To determine the relationship of the footwear use with the incidence of infestation of intestinal worms in a craftsmen brick in Bonto Ba’do’ Village Bonto Nempo’ District Gowa Regency.

2. Materials and Methods

2.1 Types of research

This type of research used in this study is a survey using cross sectional approach.

2.2 Place and Time Research

Research Sites

The research location is Bonto Ba’do’ Village Bonto Nempo’ District Gowa Regency in South Sulawesi, which was conducted in April to May 2014.

2.3 Research Variable

The variables in this study are:

2.4 Operational Definitions and Objective Criteria

Operational Definition:

- a. Washing hands before eating is an attempt or action taken to remove any dirt or allow contaminated eggs / larvae done before eating.
- b. Habits nail cuttings are cut nails up short activity performed regularly at least once a week, including a condition that is measured by the presence or absence of dirt at the end of the nail.
- c. Use of the footwear is the business or the actions taken to protect the feet so that the foot is not in direct contact with the ground.
- d. Genesis helminthiases infestation is the presence of worm eggs found in feces of respondents based on the results of the examination in the laboratory.

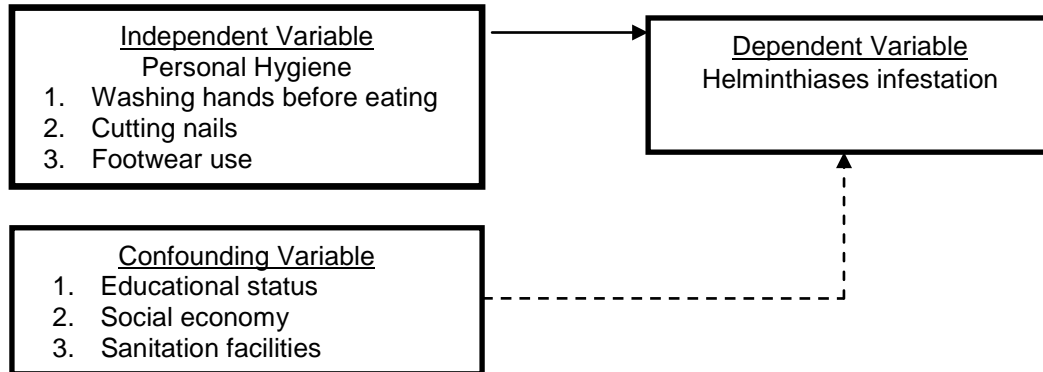


Figure 1

Objective Criteria

- a. helminthiases
 - 1) It said if there are helminthiases worm eggs are found in the stool of respondents.
 - 2) Helminthiases not be said if there is no worm eggs are found in the stool of respondents.
- b. Personal hygiene
 - 1) Washing hands
 - a) Hand washing is said if the respondents always washes his hands with soap before meals and after meals.
 - b) Told not wash hands if the respondents do not wash hands with soap before and after eating.
 - 2) Cutting nails
 - a) If the respondents said to nail cuttings cut nails regularly at least 1 x per week.
 - b) Told not nail cuttings if the respondents do not cut nails regularly at least 1 x per week.
 - 3) Footwear Use

- a) It is said to wear footwear when respondents wear footwear regularly.
- b) If the respondent does not wear footwear regularly.

2.5 Population and Sample

Population

The population is workers craftsmen brick in the Bonto Ba'do' Village Bonto Nempo' District Gowa Regency.

Samples

The total number of craftsmen brick in the village of Bonto Ba'do 'as many as 76 people and based on the provisions obtained in Sugiono table, then taken as a sample of 63 people [6].

2.6 Data Collection

Primary data

Personal hygiene data obtained through surveys using the mailing checks and direct observations in the field. For data obtained through the helminthiases n infestations stool examination craftsmen brick in environmental health laboratory.

Secondary data

Data obtained from books that are relevant to the research and related agencies such as health centers and village offices.

2.7 Data Analysis Technique

Data were obtained through observations and responses to questionnaires and the results of laboratory tests, presented in tables and chi-square analysis, namely:

Formula:

$$X^2 = \sum \frac{(O - E)^2}{E}$$

Information:

x^2 : chi square observation

O : Value Observation (observation)

E : Expected Value (expectations)

Σ = sum (sigma)

Where:

While the degrees of freedom (df) can be calculated using the formula:

$$Dk = (K-1) (b-1)$$

Where: k = column

B = row

3. Results

Table 1: Distribution of Respondents by Hand Washing Habits on Craftsmen Bricks 2014

No.	Hand wash Before Eating	Craftsmen bricks	
		Frequency	%
1	Qualify	32	50.8
2	Not eligible	31	49.2
	Number	63	100.0

Based on the results of statistical test showed that the X^2 count > X^2 table, namely X^2 X^2 count = 6.54 and 3.841 table then H_0 is rejected and H_1 accepted. This suggests there is a relationship between washing hands before eating with the incidence of infestation of intestinal worms.

Table 2: Distribution of Respondents by Habits of Cutting nail on Craftsmen Bricks 2014

No.	Habits Cut Nails	Craftsmen bricks	
		Frequency	%
1	Qualify	29	46.0
2	Not eligible	34	54.0
	Number	63	100.0

Source: Primary Data

Based on the statistical test showed that there is a relationship between the incidence of infestation cut nails with intestinal worms, which obtained X^2 count = 5.52 and X^2 table = 3.841, meaning that the value of X^2 count > X^2 table then H_0 is rejected and H_1 accepted.

Table 3: Distribution of Respondents by Footwear Use on Craftsmen Bricks 2014

No.	Use of Footwear	Craftsmen bricks	
		Frequency	%
1	Qualify	21	33.3
2	Not eligible	42	66.7
	Number	63	100.0

Source: Primary Data

Based on the statistical test showed that there is a relationship between the footwear use with the incidence of infestation helminthiases craftsmen bricks, which were obtained by the results of X^2 count = 5.48 and X^2 table = 3.841 means that the value of X^2 count > X^2 table. Hence H_0 refused and H_1 accepted.

Table 4: Distribution of respondents Infected Worm Eggs on Craftsmen bricks 2014

No.	Eggs Worm Infestation	Craftsmen bricks	
		Frequency	%
1	Positive	53	84.1
2	Negative	10	15.9
	Number	63	100.0

Source: Primary Data

Table 5: Distribution of Respondents by Type Worm Eggs which infested on Craftsmen bricks 2014

No.	Type of worm eggs	Craftsmen bricks	
		Frequency	%
1	Ascaris Lumbricoides	45	84.9
2	Trichuris trichiura	8	15.1
	Number	53	100.0

Source: Primary Data

4. Discussion

4.1 Relations habit of washing hands before eating with the incidence of infestation helminthiases craftsmen brick

When someone wash hands before eating, it is expected that he eluded helminthiases. What is meant by washing hands before eating is to wash hands with soap or running water. So the infective eggs attached to the hand can

be removed.

Washing hands is a simple activity. Even so, not many people who make it a habit and do it the right way. Even hand washing is usually only done sparingly, without soap or water flow. Factors habit of washing hands before eating will affect the occurrence of intestinal worms infestations that transmission occurs in the soil, because usually the fingers of their hands dirty then into the mouth, or eat rice without washing hands. Thus it should be socialized to wash their hands before eating so that the worm larvae are not ingested with food.

From the results of the laboratory examinations on environmental health is obtained from 32 respondents (50.8%) were eligible and helminthiasis infected as many as 22 people (41.5%), while 31 respondents (100%) are not eligible bigger MB type impact as many as 31 people (100%). This is affected because most workers craftsmen bricks do not wash hands with soap before eating, or eating snacks like pastries and the like. When the respondents completed their work simply washing hands with water provided on the container used during the making of bricks, where the water has been mixed with the soil. This is because people are used to eating without washing hands with soap, so it is probable worms egg will stick to the hands and enter with food that is ingested into the stomach.

This study is in line with research conducted by [7] Childhood SD 32 Bungloe Bonto Tallasa' Ulu Ere District of Bantaeng about hand washing with helminthiasis infestation incidence from 35 respondents (19.6%) who did not wash their hands before eating 21 people (11.76%) positive helminthiasis.

Wash your hands without soap greater influence than the MB type washing their hands with soap. Another thing that can affect the behavior of any person helminthiasis is caused due to four principal reasons. Thoughts and feelings (thoughts and feeling), namely in the form of knowledge, perceptions, attitudes, beliefs, and judgments a person against an object (in this case is the object of health). Human behavior can be classified into two, namely the behavior of a closed (covert behavior) that still cannot be observed other people (from the outside) clearly, and behavior of a closed (overt behavior) is already in the form of acts or practices that can be observed others from outside. Then for hygiene sanitation less attention and lack of knowledge on health which is influenced by the level of education is very low.

4.2 Relations habit of nail cutting with the incidence of infestation helminthiasis craftsmen brick

Cleanliness nail in this research was the respondents cut nails at least 1 time per week. Craftsmen brick cutting nails and cleaning routine 1 week, then it pertained always keep the nails clean. helminthiasis transmission which can be via dirty hands, dirty nails are likely tucked worm eggs will be swallowed when eating, it is further aggravated if not used to wash hands with soap before eating. For the nails should always be cut short in order to avoid transmission of worms from hand to mouth.

Nail cutting relationship with the incidence of infestation helminthiasis craftsmen brick qualified nail cutting as many as 29 people (46.1%) and positive helminthiasis many as 21 people (39.6%), whereas that does not qualify as many as 34 people (53 , 9%) with a worm infection 32 (60.4%), thus it can be said that the percentage amount to nail cuttings are eligible to have less impact than the MB type that does not qualify. Personal hygiene

craftsmen brick in particular the behavior of cut nails are rarely cleaned regularly is one of the causes of the infestation of intestinal worms.

This study is in line with research conducted by [8,9]. In SD Muhammadiyah Student Village Rappocini of Makassar on cutting nails with the incidence of infestation helminthiases that of 62 respondents (61.4%) who do not clean your nails, as many as 48 respondents (81, 4%) positive worm infestation. Long and dirty nails into tiny place various impurities including worm eggs. This situation is certainly every moment experienced by the craftsmen of bricks, because every day they come into contact with the ground in processing the bricks, the hand is one important role in cultivating the soil into bricks of quality. If the nails are not cut and cleaned so the land can be tucked alongside the worm eggs which finally entered into the mouth with food.

4.3 Footwear use relationship with the incidence of infestation helminthiases on craftsmen brick

Very generally known that the use of the footwear can avoid Craftsmen bricks from direct contact with the ground. where the land is a good medium for the growth of the eggs become infective form. This worm eggs turn into larvae which then entered by penetrating the skin through the pores of the skin of hairless and then to other body tissue to the intestine and turn into adult worms.

Footwear use is a business or the actions taken to protect the feet so that the foot is not injured from environmental conditions such as soil surface moist, rocky, hot, cold, and no direct contact with the ground. barefoot habit can cause a variety of issues, such as the worm infection because the legs are in direct contact with the ground.

Barefoot relationship with the incidence of infestation helminthiases craftsmen brick eligible barefoot as many as 21 people (39.6%) are all positive people dan21 worm infection, whereas that does not qualify as many as 42 people (66.7%) with worm infection as many as 32 people (60.4%), thus it can be said that the percentage who are barefoot has a greater impact than the MB type which are barefoot. In Table 4.8 it can be seen that 21 (39.6%) were barefoot infested with eggs of the worm, which is different from not wearing footwear that is from 42 (66.7%) 32 (60.4%) of them helminthiases positive.

This study is in line with research conducted by [5,9] In the Craftsmen bricks in District Baolan Toli-Toli on the footwear use with the incidence of infestation helminthiases that of 17 respondents (65.4%) who did not use footwear, as many as 14 people (53.9%) positive worm infestation.

Use of the footwear is certainly important and influential on intestinal worms, as we all know that the worm eggs can enter through the nails were not clean so that the worm eggs can enter the human body, and direct contact with the ground [10,11]. but some people, especially the Craftsmen bricks often neglect to use footwear at work. In accordance direct observation and description of the workers that it is said that wearing footwear when working will interfere with the process of making bricks and takes a long time to make the bricks into the dough, because at the time of making bricks basic materials such land previously must treading up the ground evenly and ready to be printed [12, 13, 14].

5. Conclusions and Recommendations

5.1 Conclusion

- 1) Based on the results of research and discussion it can be concluded as follows:
- 2) There is a relationship washing hands before eating with the incidence of infestation helminthiasis craftsmen brick in Bonto Ba 'do district. Bonto Nempo' Kab. Gowa.
- 3) There is a relationship nail cuttings with the incidence of infestation helminthiasis craftsmen brick in Bonto Ba 'do district. Bonto Nempo' Kab. Gowa.
- 4) There is a relationship with the incidence of the footwear use helminthiasis infestation on craftsmen brick in Bonto Ba 'do district. Bonto Nempo' Kab. Gowa.

5.2 Suggestion

- 1) Health education needs to be done by health officials and related agencies about personal hygiene, helminthiasis infestation, and the consequences that may result from infestations of intestinal worms.
- 2) The citizens, especially Craftsmen bricks is expected to understand the importance of personal hygiene (personal hygiene) on the health of each individual, so that it can apply a clean and healthy behaviors in daily life, especially in the work so that it can be more productive.
- 3) For further research that would be able to examine another variable that has not been studied related to the factors that influence the occurrence of intestinal worms infestations.

References

- [1] Notoatmodjo Soekidjo, 2003. Pendidikan Dan Perilaku Kesehatan. Jakarta: Rineka Cipta.
- [2] Herdiana, 2012. Hubungan Perilaku Hygiene Perorangan Dengan Kejadian Infeksi helminthiasis pada Pekerja Pengrajin Batu-bata Desa Tanjung mulia , (online),<http://repository.usu.ac.id/bitstream/.../4/Chapter%20II.pdf>, diakses 27 Maret 2014.
- [3] Notoatmodjo Soekidjo, 2005. Promosi Kesehatan Teori Dan Aplikasi. Jakarta: Rineka Cipta.
- [4] Gandahusada Srisari, dkk, 1998.Parasitologi Kedokteran Edisi ketiga, Jakarta: Fakultas Kedokteran Universitas Indonesia.
- [5] Estiningsih, Yuniar. 2002. Hubungan Hygiene Perorangan Dengan Infeksi helminthiasis Pada Pengrajin Batu-bata di Kecamatan Baolan Kabupaten Toli-toli. Karya Tulis Ilmiah Tidak Diterbitkan. Makassar: Program Studi D.III Jurusan Kesehatan Lingkungan Politeknik Kesehatan Makassar.
- [6] Sugiyono, 1997.Statistik Untuk Penelitian. Bandung: CV.Alfabeta.
- [7] Muh Ilyas, 2008. Hubungan Hygiene Perorangan Dengan Kejadian Infeksi helminthiasis Pada Anak SD 32 Bungloe Desa Bonto Tallassa Kecamatan Ulu Ere Kabupaten Bantaeng. Karya Tulis Ilmiah Tidak

Diterbitkan. Makassar: Program Studi D.III Jurusan Kesehatan Lingkungan Politeknik Kesehatan Makassar.

- [8] Suriani, 2013. Hubungan Hygiene Perorangan Dengan Kejadian Infeksi helminthiasis pada Anak Sekolah Dasar Muhammadiyah Kelurahan Rappocini' Kecamatan Rappocini Kota Makassar. Karya Tulis Ilmiah Tidak Diterbitkan. Makassar: Program Studi D.III Jurusan Kesehatan Lingkungan Politeknik Kesehatan Makassar.
- [9] Republik Indonesia, 2009.UU RI No. 36 Tahun 2009 Tentang Kesehatan.
- [10] Inayah, dkk, 2012. Pedoman Praktikum Parasitologi. Makassar, Kementerian Kesehatan Republik Indonesia Politeknik Kesehatan Makassar Jurusan Kesehatan Lingkungan.
- [11] Irianto Kus, 2009.Parasitologi Berbagai Penyakit Yang Mempengaruhi Kesehatan Manusia. Bandung: Yrama Widya.
- [12] Safar Rosdiana, 2009. Parasitologi Kedokteran Protozoologi Helmintologi Entomologi. Bandung: Yrama Widya.
- [13] Siti Amina Daulay, 2010. Perilaku Ibu Yang Memiliki Anak Usia SD Dalam Mencegah Penyakit helminthiasis Pada Anak di Kelurahan Bandar Selamat Kecamatan Medan Tembung, Fakultas Keperawatan Universitas Sumatera Utara, (online), <http://repository.usu.ac.id/bitstream/123456789/.../cover.pdf>, diakses 4 april 2014.
- [14] Yuliati, 2009.Hubungan Sanitasi Lingkungan Dan Hygiene Perorangan Dengan Kejadian Infestasi helminthiasis Pada Murid Sekolah Dasar Di Kelurahan Pannampu Kecamatan Tallo Kota Makassar. Tesis Tidak Diterbitkan. Makassar: Program Pascasarjana Universitas Hasanuddin Makassar.