

Endemisitas dan Pengetahuan Masyarakat Tentang Filariasis di Desa Tegaldowo, Pekalongan, Jawa Tengah

THE ENDEMISITY AND THE COMMUNITY KNOWLEDGE OF FILARIASIS IN TEGALDOWO VILLAGE, PEKALONGAN, CENTRAL JAVA

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Submitted : 13-02-2020, Revised : 21-03-2020, Revised : 13-04-2020, Accepted : 18-05-2020

Abstract

Lymphatic filariasis is still a public health problem in Pekalongan District. Previous research revealed that there was ongoing filariasis transmission in Tegaldowo village. For that reason, there was a need for further research. The purpose of this study was to determine the prevalence of filariasis and community knowledge regarding this disease. This research used a descriptive cross-sectional research design conducted in June-August 2017 in Tegaldowo Village, Pekalongan District. This study involved 100 participants. The sample was selected using simple random sampling. The prevalence of infection in this village was 7%. The results showed that 69.0% of the community did not know the cause of filariasis, did not know the type of mosquito that transmit microfilariae (52.0%) and did not know how to prevent filariasis infection (97%). It is recommended that health workers increase the knowledge of people in Tegaldowo village to succeed filariasis elimination program.

Keywords : endemicity, knowledge, filariasis, pekalongan

Abstrak

Filariasis limfatik masih menjadi masalah kesehatan di Kabupaten Pekalongan. Penelitian sebelumnya mengungkapkan bahwa terdapat transmisi filariasis di desa Tegaldowo. Untuk itu diperlukan penelitian lebih lanjut. Tujuan penelitian ini adalah mengetahui prevalensi filariasis beserta pengetahuan masyarakat terkait penyakit ini. Penelitian ini menggunakan desain penelitian *cross sectional* deskriptif yang dilakukan pada bulan Juni-Agustus 2017 di Desa Tegaldowo, Kabupaten Pekalongan. Penelitian ini melibatkan 100 peserta. Sampel dipilih menggunakan *simple random sampling*. Hasil penelitian didapatkan bahwa 7% responden positif mikrofilaria dalam sampel darah mereka. Hasil penelitian juga menunjukkan 69,0% dari masyarakat tidak tahu penyebab filariasis (69,0%), tidak tahu jenis nyamuk yang menularkan mikrofilaria (52,0%), dan tidak tahu bagaimana mencegah penyakit filariasis (97%). Disarankan bagi petugas kesehatan untuk meningkatkan pengetahuan masyarakat di Desa Tegaldowo untuk mensukseskan program eliminasi filariasis.

Kata kunci: endemisitas, pengetahuan, filariasis, pekalongan

INTRODUCTION

Lymphatic filariasis (LF) is a chronic infection of parasite transmitted by mosquito.¹ Nematode worms such as *Wucheria bancrofti*, *Brugia malayi*, *Brugia timori* cause the infection. Several vectors are known to play an essential role in transmitting filarial worms to humans, including Pld refer to the proper write of latin names of species.

The distribution of filariasis includes all of the tropical and subtropical areas.³ The disease is a significant contributor to permanent and long-term disability in the world after leprosy.⁴ Lymphatic Filariasis causes severe damage to the lymphatic and renal system.⁵ The disease also responsible for a loss of worker productivity, significant treatment cost, and social stigma.⁶ More than 125 million Indonesian people are at risk of LF infection living in 337 endemic districts but only reported as many as 11,914 chronic cases.⁷ Central Java Province is one of the provinces that have several filariasis endemic areas. In 2015, Pekalongan District was responsible for contributing the largest filariasis cases with 108 cases with 37 new cases.⁸ Pekalongan District has been conducted mass drug administration in 2011-2015. Report from the District Health Office of Pekalongan state that the microfilaria rate was still >1%, not following the target of WHO, so it was declared a failure.

Tegaldowo village was an endemic area of filariasis in the Pekalongan District. A study conducted by Ginandjar et al. in Tegaldowo Village found that there were ongoing transmissions of filariasis in the area, most cases found in Tegaldowo village.⁹ A study carried out in Haiti and Egypt showed that knowledge about filariasis and its transmission mode was positively associated with MDA compliance, which affected the disease prevalence.^{10,11} The prevalence of filariasis in this village and the knowledge of the community-related filariasis in this area was still unknown. For this reason, this study aims to know the prevalence of filariasis and the level of knowledge of the community related to filariasis and its prevention in Tegaldowo village.

METHODS

This research was conducted in June-August 2017 using a descriptive cross-sectional study design. The study's location was in Tegaldowo village, Pekalongan District, which belongs to filariasis's endemic area. This study involved 100 participants who obtained from previous research, calculated with Lemeshow formula as follow.¹²

$$n = \frac{Z^2 1x/2xp q}{d^2}$$

note :

- n = sample size
- p = the estimation proportion of dependent variable/ outcome in community
- q = 1-p
- $Z^2 1-\alpha/2$ = Z statistic
- d = absolute presition

In this study, we use

$$p = 0,5, q = 0,5$$

$$\alpha = 0,05 \text{ so, } Z^2 1-\alpha/2 = 1,96^2$$

$$d = 10\%$$

Sample size obtained:

$$n = \frac{1,96^2 \times 0,5 \times 0,5}{0,1^2}$$

$$n = 96,04, \text{ rounded to } 100$$

The sample was selected using a simple random sampling technique. Data collected using a questionnaire. Ethical clearance obtained from the Ethics Commission of Health Research, Faculty of Public Health, Diponegoro University No 113/EC/FKM/2017. All participants signed informed consent to join this study. Variable in this study consist of the prevalence of filariasis, where the blood samples tested using immunochromatographic tets (ICT) from Alere Scarborough Inc., USA. We used 100µl of blood, then added to the card's white pad according to manufacturer protocol. The result of the test appeared after 10 minutes. Pink lines were visible in control (C) and test (T) column if the respondent positive filariasis. However, if only in the control column, which visible the pink line, so the result was negative. The other variable was the level of knowledge of the disease, source

of infection, transmission, clinical symptoms, and disease prevention collected by using a questionnaire. The respondents' level knowledge related to filariasis was defined as "good" if the total score above the median due to the data were not in a normal distribution. Data collected were checked for completeness and analyzed using data processing software.

RESULTS

The result of this study showed that most of the respondents are female (80%), aged 51-60 years old (23%), do not complete the elementary school (44%), working as a laborer (47%), have been married (82%), and 7% of the respondent are found microfilaria on their blood sample

Table 1. Characteristic of the respondents

Characteristic	n=100	%
Sex	Male	20, 20,0
	Female	80, 80,0
Age	≤ 20 years old	6, 6,0
	21- 30 years old	14, 14,0
	31-40 years old	18, 18,0
	41-50 years old	19, 19,0
	51-60 years old	23, 23,0
	>60 years old	20, 20,0
Education Levels	No School	44, 44,0
	Elementary School	39, 39,0
	Junior High School	14, 14,0
	Senior High School	3, 3,0
Occupation	Farmer	1, 1,0
	Laborer	47, 47,0
	Non-government employee	3, 3,0
	Entrepreneur	6, 6,0
	Pedicab driver	2, 2,0
	Unemployed	41, 41,0
Marital status	Married	82, 82,0
	Divorce	11, 11,0
	Single	7, 7,0
The presence of microfilaria in the blood	Positive	7, 7,0
	Negative	93, 93,0

Table 2. The knowledge level of filariasis

Knowledge of Filariasis	n=100	%
Knowledge level of filariasis		
- Good	61	61,0
- Poor	39	39,0
Ever heard about elephantiasis		
- Yes	73	73,0
- No	27	27,0
Other names of elephantiasis		
- Yes	1	1,0
- No	87	87,0
- Do not know	12	12,0
Elephantiasis is a genetic disease		
- Yes	20	20,0
- No	76	76,0
- Do not know	4	4,0
Elephantiasis is an infectious disease		
- Yes	58	58,0
- No	39	39,0
- Do not know	3	3,0
The cause of filariasis is a prolonged activity in the rice fields		
- Yes	49	49,0
- No	45	45,0
- Do not know	6	6,0
Filariasis causes disability		
- Yes	84	84,0
- No	12	12,0
- Do not know	4	4,0
Filariasis cause mortality		
- Yes	84	84,0
- No	12	12,0
- Do not know	4	4,0
Filariasis affects all age groups		
- Yes	83	83,0
- No	12	12,0
- Do not know	5	5,0
Filariasis cause many years of symptom		
- Yes	77	77,0
- No	18	18,0
- Do not know	5	5,0
Filariasis cannot be cured		
- Yes	54	54,0
- No	41	41,0
- Do not know	5	5,0
Filariasis is a dangerous disease		
- Yes	94	94,0
- No	6	6,0

From Table 2, we know that 61% respondents have good knowledge of filariasis, most of them ever heard about filariasis (73%), more than three-quarters of them stated that filariasis is not genetic (76%), and more than half of them know that it is an infectious disease (58%). Nearly half of them have misconceptions about the relationship of soaking in the rice field with filariasis. They consider that filariasis caused by prolonged activity in the rice field, such as soaking feet during rice planting. Most of the respondents know that filariasis causes disability (84%), and most of them understand that filariasis affects all age groups (83%). About 77% of respondents said that filariasis cause many years of symptoms; more than half of them know that filariasis can be cured (54%), and most of them stated filariasis is a dangerous disease.

As we can see in Table 3, more than half of the respondents stated that they know the filariasis' clinical symptom (56%). Most of them admit that fever, headache, and swelling in hand/foot are the filariasis' clinical symptoms. From those data, we can conclude that respondents still do not have sufficient information about filariasis disease's clinical manifestation.

From Table 4, we know that only two respondents who know the causative agent of filariasis it was the worm. More than half of the respondents know that the transmission of filariasis is by a mosquito; unfortunately, almost all do not know the kind of mosquito-transmitted microfilaria. See Table 4 for more details.

From Table 5, we know most of the respondents do not know how to prevent the disease (97%), even though more than half of them (52%) stated they know the prevention of the disease. For more detail, see Table 5.

On Table 6, as we can see, respondents are rare having activities at night outside the home (52%), just 11% of them who wear a jacket when going out at night, 61% wear long sleeves, 56% do not wear trousers, 77,8% wear lotion repellent every day, 40,4% using mosquito coil every day, 97% do not use mosquito repellent spray, 99% do not use an electrical mosquito coil, and 70,7% respondents do not wear mosquito nets. In comparison, respondents who wear mosquito nets in good condition only 24,2%.

Table 3. The knowledge of filariasis symptom

Knowledge of filariasis symptom	n=100	%
He/she ever heard about clinical symptoms of filariasis		
- Know*	56	56,0
- Do not know	44	44,0
Fever*		
- Yes	17	30,4
- No	39	69,6
Recurrent fever*		
- Yes	5	8,9
- No	51	91,1
Headache*		
- Yes	12	21,4
- No	44	78,6
Myalgia*		
- Yes	1	1,8
- No	55	98,2
Inflammation in lymph nodes/ gland*		
- Yes	0	0
- No	56	100
Swollen lymph glands*		
- Yes	0	0
- No	56	100
Edema in hand/foot*		
- Yes	23	41,1
- No	33	58,9
Genital swelling (scrotum/ breast)*		
- Yes	2	3,6
- No	54	96,4

Note: *only for respondents who answer "know" (n=56)

Table 4. The cause of filariasis

Causes of filariasis	n=100	%
Causes of filariasis		
- Worm	2	2,0
- Bacteria	1	1,0
- Virus	3	3,0
- Others	25	25,0
- Do not know	69	69,0
Filariasis is transmitted by		
- Mosquito*	64	64,0
- Do not know	36	36,0
Kind of mosquito*		
- Aedes aegypti	8	12,5
- Anopheles spp	5	7,8
- Do not know	51	79,7
Time of mosquito bite humans*		
- Morning	16	25,0
- Afternoon	15	23,4
- Evening	3	4,7
- Night	24	37,5
- Do not know	6	9,4
A potential place to be mosquito nest*		
- Know	61	95,3
- Do not know	3	4,7

Note: *only for respondents who answer "mosquito" (n=64)

Table 5. The knowledge of filariasis prevention

The prevention of filariasis	n=100	%
The knowledge level of prevention filariasis		
- Good	3	3,0
- Poor	97	97,0
Does he/she knows the prevention of filariasis		
- Know*	52	52,0
- Do not know	48	48,0
Avoid mosquito bite*		
- Yes	3	5,8
- No	49	94,2
Using lotion repellent*		
- Yes	9	17,3
- No	43	82,7
Using mosquito coil*		
- Yes	4	7,7
- No	48	92,3
Using electrical mosquito coil*		
- Yes	2	3,8
- No	50	96,2
Using mosquito repellent spray*		
- Yes	1	1,9
- No	51	98,1
Install wire netting in the window*		
- Yes	1	1,9
- No	51	98,1
Using long sleeve and trousers when going out at night*		
- Yes	3	5,8
- No	49	94,2
Using mosquito nets*		
- Yes	1	1,9
- No	51	98,1
Avoid activities at night outside the home*		
- Yes	0	0
- No	52	100
Preserve the larva-eating fish*		
- Yes	0	0
- No	52	100
Taking filariasis medication*		
- Yes	35	67,3
- No	17	32,7

Note: *only for respondents who answer "know" (n= 52)

Table 6. The practice of filariasis prevention

The practice of filariasis prevention	n=100	%
Activities at night outside the home		
- Often	48	48,0
- Rare	52	52,0
Wear jackets when going out at night		
- Yes	11	11,0
- No	89	89,0
Wear long sleeves		
- Yes	61	61,0
- No	39	39,0
Wear trousers		
- Yes	44	44,0
- No	56	56,0
Using lotion repellent		
- Once a week	1	1,0
- Twice a week	3	3,0
- Three times a week	2	2,0
- Everyday	78	78,0
- Do not use	16	16,0
Using mosquito coil		
- Once a week	1	1,0
- Twice a week	1	1,0
- Three times a week	1	1,0
- Everyday	40	40,0
- Do not use	57	57,0
Using mosquito repellent spray		
- Twice a week	1	1,0
- Everyday	2	2,0
- Do not use	96	97,0
Using mosquito electric coil		
- Everyday	1	1,0
- Do not use	98	99,0
Using mosquito nets		
- Good condition	24	24,0
- Poor condition	6	6,0
- Do not use	70	70,0

DISCUSSION

The prevalence of filariasis infection in Tegaldowo Village was 7%. This result was higher than the previous study conducted in Pekalongan that found the mf rate only 1,9%.¹³

Several factors might associate with a higher mf rate in this village, such as the community's low awareness. According to Ginandjar et al., the elimination officer's role in this area was still lacking.¹⁴ So it might affect the community awareness towards this disease.

This study also found that nearly half of the respondents have misconceptions about the relationship of soaking in the rice field with filariasis. They consider that the cause of filariasis is by the prolonged activity in the rice field, such as soaking feet during rice planting. We can conclude that the knowledge of the community about the disease and its causes was still lacking. The lack of knowledge due to the low level of education of the community so that their knowledge related to diseases, especially filariasis, is also low. The other factor that might play a role was the lack of socialization or health education about filariasis in this area. These findings are in line with the previous study conducted in Ghana and Nigeria who found the knowledge level of the participant are still poor regarding filariasis.^{15,16}

From Table 3, our study revealed that respondents still do not have sufficient information about the clinical manifestation of filariasis. It might be caused by the role of is this the official term for the PPO in this area was still low.¹⁴ The lacking of the role agrees with the finding of the previous study that reported that the most common clinical manifestation of the disease are fever, swelling, and pains.¹⁷⁻¹⁹ Our study also found that most of the respondents were not aware of the transmission of filariasis; these findings are similar with the previous study conducted in Balgakot who found 68,99% of the community not aware with the transmission of the disease. A study conducted by Mukhopadhiyay et al. also reported that 35% of the participants are not aware of the transmission of filariasis.^{20,21}

As we can see in Table 5, the respondents' knowledge level regarding filariasis prevention was low. Contrary to the study reported by Dorle et al., who found 70,38% of the participants knowing the disease's prevention.²⁰ This is

probably caused by the respondents' ignorance about the source of filariasis, causing agents, and how they are transmitted so that they do not know how to prevent filariasis disease.

The results of our study also found that the prevention practice of the community regarding filariasis in the Tegaldowo village was still lacking (see Table 6). Various factors have been known for explaining individual differences in health behavior. Demographic variables show a significant relationship with the performance of health behaviors. In general, the level of education, socio-economic status, gender, and age affects a person's health behavior.²²⁻²⁵

CONCLUSION

The results showed that the prevalence of filariasis in this village was 7%, and people still did not understand the causes of filariasis, mode of transmission, and how to prevent it.

It is recommended for health workers to increase the knowledge of people in Tegaldowo village about filariasis, it caused, and the disease prevention to succeed filariasis elimination program.

ACKNOWLEDGMENT

All the author's thanks to the study participant, the District Health Office of Pekalongan District, with all their Public Health Centre to facilitate our study.

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