

RISK FACTOR ANALYSIS OF FILARIASIS IN PIDIE REGENCY

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Abstract

Introduction: Pidie Regency is a regency in Aceh Province with the second-highest number of filariasis patients in 2020. One of the risk factors for filariasis is the presence of stagnant water near houses which serves as the breeding ground and resting place for mosquitoes. Other risk factors for filariasis include the type of work, habit of leaving the house, and increased mosquito density. **Methods:** This quantitative study used a case-control study design. The participants of this study consisted of 126 individuals with 63 being filariasis patients (case subjects) and 63 being non-filariasis patients (control subjects). **Results and Discussion:** The results showed that education (OR = 3.86, $p = 0.05$), type of work (OR = 1.30, $p > 0.05$), presence of stagnant water (OR = 1.05, $p > 0.05$), and habit of leaving the house (OR = 1.4, $p > 0.05$) had significant relationships with the incidence of filariasis or elephantiasis in Pidie Regency in 2022. **Conclusion:** The results showed that education was the most significant risk factor for filariasis (OR = 60.87). This suggested that individuals with a lower level of education had a higher chance of contracting the disease. Another factor that influenced the incidence of filariasis was the presence of animals around the house (OR = 18.97). This suggested that individuals who had pets were 60.87 times more likely to get filariasis ($p = 0.017$).

INTRODUCTION

Filariasis, an infectious disease caused by filarial worms, is transmitted by different species of mosquitoes. It is mainly caused by three different species of worms, including *Wuchereria bancrofti*, *Brugia timori*, and *Brugia malayi*. One of the acute symptoms of filariasis is adenolymphangitis, which primarily affects the groin, armpits, and other areas. Critical symptoms such as elephantiasis and hydrocele are caused by an obstruction of the initial lymphatic flow at the site of inflammation. All species of mosquitoes can transmit filariasis (1).

According to the Ministry of Health of the Republic of Indonesia, there had been 6,571 reported cases of filariasis over the course of 12 years since 2002, with an increase to 14,932 cases in 2014. The provinces with the highest number of cases were East Nusa Tenggara, Aceh, and West Papua, with 3,175 reported cases. Filariasis is prevalent in rural areas of Indonesia (2).

World Health Organization (WHO) stated that more than 1.4 billion individuals in 73 countries are at risk of contracting filarial worms (3). The majority of infected individuals, or approximately 65%, live in Southeast Asia, followed by 30% in Africa and 5% in tropical regions. More than 25 million males have a genital infection as a result of lymphatic filariasis, and more than 15 million individuals suffer from lymphedema.

Filariasis can be attributed to a variety of complex factors as the causative agent, humans as the vectors, as well as physical, biological, and social environments, particularly the socioeconomic status and societal norms of the local population. The environment plays a significant role in the transmission process in addition to the reservoir and vector organisms, which can survive in their habitats. This is crucial in understanding the epidemiology of filariasis because it can be predicted by examining the surrounding environment (3).

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According to the health profile statistics of Aceh Province, there were 523 reported cases of filariasis in 2021, spreading across 23 regencies and cities. The regencies with the highest number of filariasis cases included North Aceh with 95 cases, Pidie with 66 cases, East Aceh with 64 cases, Aceh Besar with 43 cases, Aceh Jaya with 48 cases, and Bireun with 41 cases. Risk factors such as sex, age, socioeconomic status, culture, occupation, physical environment, and individual behavior can influence the development of filariasis. These factors also play a significant role in the distribution of cases and act as a link in the transmission chain (4).

Pidie Regency is one of the regencies with the second-highest number of filariasis patients in 2021. There are several risk factors associated with filariasis, including the presence of stagnant water around the house, which can serve as a breeding ground and resting place for mosquitoes and lead to increased mosquito density, type of work, habit of leaving the house, role of health workers in combating filariasis, and presence of animals around the house, such as cats, long-tailed monkeys, and dogs, which contribute to the transmission of filariasis.

This study was conducted in an area where filariasis had not been declared as an endemic. Since Pidie Regency is not considered to have endemic status, there is very little research on the factors that influence the local transmission of filariasis in the area. Therefore, more studies are necessary because untreated filariasis can potentially spread and become an epidemic. In addition, the studies are important to raise awareness of the disease so that various stakeholders who support the initiative to eradicate filariasis in Pidie Regency can make use of them. In short, this study aims to examine the risk factors for filariasis in Pidie Regency based on the aforementioned background.

METHODS

This quantitative study used a case-control study design. The subjects were selected based on their diagnosis of filariasis to be analyzed for the risk factors for filariasis. The authors analyzed the relationship between risk factors and effect factors using the case-control approach, which examines the relationship between exposure and disease by comparing a group of individuals with the disease (cases) with a group of

individuals without the disease (controls). In addition, the authors compared the frequency of exposure in both groups. This study took place in Pidie Regency. The population consisted of filariasis patients between 2019 and 2022 according to the Health Office of Pidie Regency. The case group consisted of 63 filariasis patients, while the control group consisted of 63 non-filariasis patients. The majority of individuals in the control group live close to the individuals in the case group. Since the number of population (N) was smaller than 100, this study used a ratio of 1:1. This resulted in a sample size of 126 individuals, with 63 cases and 63 controls. The sampling technique used the Slovin's formula with a minimum sample size of 126 individuals from 23 sub-districts in Pidie Regency. The samples were selected using a probability sampling technique, specifically stratified random sampling. The data were processed and analyzed using the Stata/MP 64 application.

In this study, the data were collected from observations and interviews. Field observations were conducted to directly assess the risk factors for filariasis. Interviews were conducted using a questionnaire which was used by the authors to obtain information from the respondents through face-to-face interactions. The interview collected data on sex, education, presence of stagnant water around the house, presence of animals, habit of leaving the house, role of health workers, and knowledge. The analysis in this study consisted of three stages, namely univariate analysis, bivariate analysis, and multiple linear regression. These stages aim to examine the relationships between dependent variables and independent variables simultaneously in the population.

RESULTS

The Incidence of Filariasis And Sex

The results showed that 65.9% of the respondents were female and 34.1% of the respondents were male. Sex was not found to be associated with the prevalence of filariasis in this study. The results of the statistical analysis suggested that sex had no significant relationship with the incidence of filariasis ($p > 0.05$). According to observations in Pidie Regency, females constituted a large proportion of individuals with filariasis, which suggested that females are more likely to contract filariasis than males.

Table 1. Frequency Distribution of Independent Variables in Pidie Regency in 2022 (Univariate Analysis)

Variable	Frequency (f)	Percentage (%)
Sex		
Female	83	65.87
Male	43	34.13
Type of work		
No risk	88	69.84
Risky	38	30.16
Education		
High	11	8.73
Middle	110	87.30
Elementary	5	3.97
Knowledge		
Good	100	79.37
Not good	26	20.63
Presence of stagnant water		
Present	41	32.54
Absent	85	67.46
Habit of leaving the house		
Yes	102	80.95
No	24	19.05
Animals around the house		
Present	56	44.44
Absent	70	55.56
Role of health workers		
Good	68	53.87
Not good	58	46.03
Total	126	100

The Incidence of Filariasis and the Type of Work

The results showed that 21.4% of the respondents were self-employed, 16.7% were civil servants, 27.8% were farmers, 19% were freelance daily laborers, and 15.1% were contract employees. This study found that 30.16% of the works fell into the category of risky, while 69.84% of the works fell into the category of not risky. The results of the statistical analysis suggested that the type of work had no significant relationship with the incidence of filariasis ($p > 0.05$). Works that involved outdoor activities during the night were farmers and traders. According to the results of the interviews, farmers or gardeners worked from late afternoon to midnight in the fields or gardens during the harvest season.

The Incidence of Filariasis and Education

The results of the statistical analysis suggested that education had a significant relationship with the incidence of filariasis ($p < 0.05$). The odds ratio calculation resulted in a value of 3.869, suggesting that respondents with a moderate level of education are 3.869 times more likely to contract filariasis than respondents with a high level of education.

Table 2. Factors Contributing to the Filariasis Epidemic in Pidie Regency (Bivariate Analysis)

Different Independent Variables	Filariasis				Total		OR	CI 95%	P-Value
	Control		Case		n	%			
	n	%	n	%					
Sex									
Female	44	69.84	39	61.90	83	65.87	1.384	0.768-2.825	0.371
Male	19	30.16	24	38.10	43	34.13			
Type of work									
No risk	46	73.02	42	66.67	88	69.84	1.307	0.635-2.692	0.467
Risky	17	26.98	21	33.33	38	30.16			
Education									
High	8	12.70	3	4.76	11	8.73	3.869	1.125-13.30	0.032
Middle	55	87.30	55	87.30	110	87.30			
Elementary	0	0	5	7.94	5	3.97			
Knowledge									
Good	39	61.90	61	96.83	100	79.37	0.043	0.005-0.321	0.002
Not good	24	38.10	2	3.17	26	20.63			
Presence of stagnant water									
Present	21	33.33	20	31.75	41	32.54	1.055	0.553-2.011	0.869
Absent	42	66.67	43	68.25	85	67.46			
Habit of leaving the house									
Yes	10	15.87	14	22.22	24	19.05	1.4	0.621-3.151	0.416
No	53	84.13	49	77.78	102	80.95			
Animals around the house									
Present	43	68.25	13	20.63	56	44.44	8.5	3.016-23.95	0.000
Absent	20	31.75	50	79.37	70	55.56			
Role of health workers									
Good	45	71.43	23	36.51	68	53.97	2.294	1.297-4.055	0.004
Not good	18	28.57	40	63.49	58	46.03			
Total	63	100	63	100	126	100			

The Incidence of Filariasis and Knowledge

The results showed that 79.37 of the respondents had good knowledge of filariasis, while 20.63% of the respondents had poor knowledge of filariasis. The lack of knowledge among the respondents can be attributed to their low level of education, making it difficult for them to understand the nature of the disease. The odds ratio calculation resulted in a value of 0.043, suggesting that respondents with poor knowledge are 0.043 times more likely to contract filariasis than those with good knowledge.

The Incidence of Filariasis and the Presence of Stagnant Water

This study found that 32.54% of the respondents reporting the presence of stagnant water, while 67.46% of the respondents not reporting the presence of stagnant water. The odds ratio calculation revealed that respondents with stagnant water around their houses are 1.05 times more likely to contract filariasis than those without stagnant water. The results of a survey in the respondents' houses showed that stagnant water as a breeding ground for mosquito larvae was not found in many areas. The presence of stagnant water is also directly influenced by the location, which happened to be in the highlands where stagnant water is uncommon in populated regions. The results of this study showed that filariasis is not associated with the presence of ditch.

The Incidence of Filariasis and the Habit of Leaving the House during the Night

This study found that 80.95% of the respondents had the habit of leaving the house during the night, while 19.05% of the respondents did not. The results of the statistical analysis revealed that the habit of leaving the house during the night had no significant relationship with the incidence of filariasis ($p > 0.05$). However, the odds ratio calculation revealed that respondents who had the habit of leaving the house during the night are 1.4 times more likely to contract filariasis than those who did not. The results showed that the habit of leaving the house above 9 PM had no relationship with the incidence of filariasis. This can be attributed to the fact that respondents who left the house did so while wearing protective clothing and solely for work reasons. In addition, respondents who worked outdoor regularly used mosquito repellents at night to avoid mosquito bites.

The Incidence of Filariasis and the Presence of Animals around the House

This study found that 55.56% of the respondents reported the presence of animals around the house, while

44.44% of the respondents did not report the presence of animals around the house. The odds ratio calculation revealed that respondents who had pets, particularly dogs, cats, and monkeys were 8.5 times more likely to contract filariasis than respondents who did not have pets ($p < 0.05$). The results of a survey in the respondents' houses showed that there are several respondents had pets such as cats and dogs, making the transmission of filariasis possible. This study found that the presence of animals around the house had a relationship with the incidence of filariasis

The Incidence of Filariasis and the Role of Health Workers

This study found that 53.87% of the health workers had a positive influence, while 46.03% of the health workers had a negative influence. The results of the statistical analysis revealed that the role of health workers had no significant relationship with the incidence of filariasis ($p > 0.05$). The odds ratio calculation resulted in a value of 2.294, suggesting that respondents who hold negative views about the role of health workers are at an increased risk of filariasis by 2.294 times compared to respondents who hold positive views about the role of health workers.

Table 3. Factors that Increased the Risk of Filariasis in Pidie Regency (Multivariate Analysis)

Filariasis	OR	CI (95%)	p-value
Animals around the house	18.97	3.18-113.14	0.001
Education	60.87	2.07-1785.9	0.017
Knowledge	0.011	0.0006-0.21	0.003
Role of health workers	4.53	1.30-15.75	0.017

DISCUSSION

Relationship Between the Incidence of Filariasis and Sex

According to the observations, females constituted a large proportion of individuals with filariasis. This can be attributed to increased mosquito density in the house where they spent most of their time engaging in activities that increase their risk of contracting filariasis. Therefore, females are more likely to come into contact with mosquitoes that carry filariasis parasites than males.

According to a study on the influence of environmental factors on the incidence of positive microfilariae and filariasis in Labuhanbatu Selatan and Asahan Regencies, females were more likely to contract filariasis than males, with 57.1% and 60%, respectively (5). Another study suggested that the majority of individuals in Pidie Regency, especially females, engage in recitations (6). However, 68.6% of them do not take precautions to avoid mosquito bites. Therefore, it is likely

that females have a higher chance than men to come into contact with mosquitoes that spread filariasis if they engage in risky behaviors.

According to studies on sex and filariasis, it is likely that females are at the same risk as males. According to Sofia's study on the risk analysis of lymphatic filariasis transmission in North Aceh Regency, females were at risk of contracting filariasis from their partners who worked in the fields. Males had a greater risk of contact with mosquitoes that spread filariasis due to their outdoor activities during the night. Therefore, the risk of contracting filariasis is associated with outdoor activities during the night (6).

Nevertheless, both males and females should take precautions against mosquito bites in order to prevent the spread of filariasis. While males are more likely to get bitten from outside the house, females are more likely to get bitten from inside the house.

Relationship between the Incidence of Filariasis and the Type of Work

Brugia malayi and *Dirofilaria spp.* as the causes of filariasis in reservoir animals in endemic areas in Kalimantan collected data from housewives. According to the results of a survey, the majority of patients in Batu Bara Regency were females and worked as housewives. This type of work did not increase the risk of contracting filariasis because individuals who got bitten did not suffer from filariasis (7). In addition to getting bitten at work, individuals can get bitten at home due to the absence of protective measures against mosquito infiltration (7).

Workers engaged in dangerous activities are at a higher risk of being bitten by filariasis vectors. Most filariasis patients had dangerous jobs, including farming, farm laboring, and trading, which involved outdoor activities during the night. Male patients with filariasis were at a higher risk compared to female patients (8). According a study conducted in Tangerang Regency, 60% of the patients had dangerous jobs, including farmers, farm laborers, and traders. It was also found that 72% males and 37% females had dangerous jobs. Therefore, males are more likely to come into contact with mosquitoes that carry filariasis parasites in dangerous work environments.

The majority of respondents worked in rice fields, gardens, and other agricultural fields. The characteristics of Sambas Regency is not significantly different from those of Tangerang Regency in terms of the types of work that the individuals had. In addition, it was found that the majority of individuals with filariasis worked as farmers and the majority of the control group used insect repellents (7).

It was found that the type of work had no significant relationship with the incidence of filariasis. This can be attributed to the fact that farmers spend more time in the fields than at home, which increases their contact with mosquitoes. In other words, individuals who spend the night in the gardens are more likely to get bitten by mosquitoes because they only use improvised equipment for protection. Farmers typically prepare their equipment prior to their work in the gardens, including mosquito nets for sleeping and insect repellents. According to the results of the interviews with the respondents, it was found that they burnt wood or made bonfires to protect themselves from mosquito bites.

Relationship between the Incidence of Filariasis and Education

Education is a process that influences or persuades individuals so that they take action or apply what they have learned into practice to maintain and improve their health. Health education results in changes and improvements in health based on information and awareness gained through learning. Having a higher level of education makes it easier to understand the advice given by health professionals regarding how to maintain a healthy lifestyle. Health promotion is one of the initiatives undertaken by community health centers or public health centers. Disseminating knowledge about healthy lifestyles to reduce or prevent disease transmission through counseling is one aspect of health promotion activities. Community health centers have conducted direct counseling sessions on filariasis, distributed stickers, and shown videos as outreach initiatives to prevent the spread of filariasis. Individuals with higher levels of education will find it easier to understand the advice given during the counseling sessions. However, individuals with lower levels of education will find it more challenging to understand the advice given, especially individuals who have never attended school (9).

The incidence of filariasis is not directly associated with education. Education plays a role in obtaining information, which influences attitudes and shapes behaviors. Moreover, a study regarding risk factor of filariasis in Brebes Regency in 2020 revealed a relationship between the incidence of filariasis and education (10).

The results seem reasonable since not all individuals with a college degree are familiar with filariasis, its causes, modes of transmission, and methods of prevention. For instance, compared to health professionals with elementary or middle school education, graduates from the economics major do not necessarily have knowledge about filariasis.

Relationship between the Incidence of Filariasis and Knowledge

According to Annashr's study only a small percentage of respondents had a solid understanding of filariasis prevention. The results of the bivariate analysis revealed a strong relationship between knowledge about filariasis prevention and the corresponding behaviors. This is consistent with a study conducted in the Kumpeh Ulu Subdistrict, Pekalongan Regency, Demak Regency, and Muaro Jambi Regency (11).

According to the results of the study, the respondents had a solid understanding because they had received counseling about filariasis prior to the mass drug administration (MDA) program, which influenced their involvement in taking medications. Many respondents acquired knowledge about filariasis from various existing media channels, such as television commercials, posters at the community health centers, banners, and brochures distributed by the community health centers. As a result, the respondents had good knowledge and understanding of the importance of taking medicines to prevent and reduce the transmission of filariasis. It can be concluded that respondents' knowledge of filariasis prevention had a significant relationship with the incidence of filariasis. This can be attributed to the fact that having sufficient knowledge about filariasis prevention influences their actions, such as wearing personal protective equipment before leaving the house, regularly using mosquito nets, and maintaining a clean environment.

Relationship between the Incidence of Filariasis and the Presence of Stagnant Water

The results of this study showed that the incidence of filariasis had no significant relationship with the presence of rice fields, rivers, swamps, or puddles. Filariasis is a common endemic in lowlands, particularly in rural areas, beaches, rice fields, wetlands, and inland. Rice fields are ideal for the development of filariasis mosquitoes because of the presence of stagnant water and direct contact with the ground (12).

Filariasis is transmitted by disease vectors that survive in stagnant water, including those found at excavation sites. However, not all puddles and swamps have predatory fish. As a result, the presence of larva-eating fish does not influence the mosquito population. In addition, different species of mosquitoes have different preferences of breeding grounds. For instance, the *Culex quinquefasciatus* mosquitoes prefer stagnant, polluted water which is less likely to have predatory fish (13).

The observations of this study revealed that house yards served as the primary location for open wastewater storage. Poor wastewater storage resulted

from household wastewater, such as water used for bathing, and washing, which was discharged through holes dug in the soil on the side or in front of the house. In some cases, the respondents discharged the wastewater from the house through pipes. These two methods of wastewater storage eventually led to the water collected in open ditches. Additionally, some respondents discharged the wastewater into nearby rivers or rice fields.

Relationship between the Incidence of Filariasis and the Habit of Leaving the House During the Night

The habit of leaving the house during night is one of the host factors that influences the incidence of filariasis. A study conducted in the Parigi Moutong Regency showed that the habit of seeking entertainment outside the house during the night had a significant relationship with the incidence of filariasis (14).

Based on the results of this study, the majority of filariasis patients in Pidie Regency had a habit of leaving the house during the night. However, based on the results of the statistical analysis, the habit of leaving the house during the night had no significant relationship with the incidence of filariasis. This can be attributed to the fact that the respondents left their houses wearing protective clothing as is required by the Islamic law in Aceh Province. In addition, insect repellents were used to avoid mosquito bites during the night.

Relationship between the Incidence of Filariasis and the Presence of Animals around the House

According to a study, the respondents kept semi-intensive (partially domesticated) and extensive (wild) animals (10). Based on the field observations, dogs were purposefully kept for hunting and guarding purposes. Cats and dogs are domesticated animals that have coexisted with humans for a very long time. Despite being domesticated, these animals have a certain level of independence and can occasionally wander or search for food by their owns, causing difficulty for their owners in locating them. Reservoir animals that carry microfilariae in their blood can actively contribute to filariasis transmission across regions through their wandering activity. In West Bangka, it was reported that 40.7% of cats serving as filariasis reservoirs were found close to residential houses (7). In addition, 2% of the respondents had large livestock, such as cows and goats, near their houses. The presence of reservoir hosts influenced the spread of *B. malayi*.

Furthermore, a study revealed that from a total number of 12 cats tested for *B. malayi* in Jembatan Mas Village, Batanghari Regency, Jambi Province, two cats

were tested positive. Meanwhile, in Gulinggang Village, Balangan Regency, South Kalimantan Province, eight out of ten cats that were identified as reservoirs for filariasis transmission (15).

The results of these studies suggested that having infected pets such as cats and dogs around the house can increase the risk of contracting filariasis. This study also suggested that individuals who have pets are more likely to get filariasis. However, further research in related fields is necessary to establish a relationship between biology and epidemiology.

Relationship between the Incidence of Filariasis and the Role of Health Workers

One of the roles of health workers is to disseminate the mass medications to prevent filariasis. The failure of health workers to engage with the community or motivate them will result in low filariasis drug coverage in the community. Dissemination is necessary to increase public knowledge and awareness about filariasis to prevent the disease through mass medications and self-protection from mosquito bites, especially in areas with high endemicity and disease transmission rate. It also enables the community to respond properly in the event of any treatment reactions (16).

In addition, the government should actively disseminate the management of filariasis through the healthcare service. It is important to involve competent healthcare professionals in this process. In West Aceh, medications for filariasis were distributed to the general population without proper instruction or education, which made it appear as if distributing groceries rather than medications. To achieve the national target of 80% coverage, the filariasis treatment program should also include other components such as health promotion and disease prevention (16).

Education and continuous efforts in the local community can increase knowledge and awareness of this mass therapy. Long and repetitive mass medications can lead to complaints and disinterest from the participants, resulting in low treatment rates in certain areas. Providing them with first-hand knowledge from healthcare professionals about the benefits of mass medications will increase their awareness and willingness to participate in the treatment program (17).

Due to the extremely high treatment rates over a six-year period, the Ministry of Health has implemented a very effective treatment program for filariasis (18). In regencies with high endemicity, efforts were made to gradually visit patients and train health workers. Over four years, 34.8 million individuals have been reached (19). However, lack of trust among the community towards

the government remains. Therefore, the presence or absence of the government does not guarantee that the patients will take anti-filariasis medication. Even with the support from competent healthcare professionals, if the community perceive them as untrustworthy, they will act negatively, leading to continued refusal of anti-filariasis medication (20).

Lack of awareness of filariasis can be attributed to the limited information about the disease. It is essential that patients have access to information about filariasis through explanations from health professionals (21). The majority of respondents reported that health professionals were not actively involved in the implementation of filariasis treatment, including explaining the disease, signs and symptoms, modes of transmission, prevention strategies, mass treatment, benefits of taking medications, and administration of drugs (22).

In line with Hapsari's study on the influence of supporting factors on the behaviors to prevent filariasis in Semarang City, the chi-square statistical test resulted in a p-value of 0.021 ($p < 0.05$). This suggested that the behaviors to prevent filariasis had a significant relationship with the support of health professionals (23). In contrast, according to a biological study in 2018, the statistical test resulted in a p-value of 0.450, suggesting that the performance of health workers had no significant relationship with the coverage of filariasis mass drug administration program (24). Significant relationships were found between the support of health professionals and the use of medication for filariasis prevention (25).

The results of this study found that the respondents' non-compliance in taking filariasis medications can be attributed to several factors. Firstly, the respondents were afraid of the side effects of the drug. Additionally, they believed that they did not have to take the medications because they were not sick. Moreover, the lack of intensive counseling from the health offices and centers resulted in many respondents not attending the mass drug distribution program. Furthermore, during the field observations, it was found that many respondents did not take the medicines immediately in front of the health workers during the distribution.

The results of the observations also revealed that local health workers did not provide enough dissemination. It is crucial that they engage with the community to raise awareness of filariasis so that the administration can be done effectively and the patients can react properly in the event of any side effects. Additionally, health professionals rarely distributed anti-filariasis medication directly to residential houses in the village, making it impossible for them to verify if the medications were taken as prescribed. Anti-filariasis medication was only

distributed at specific drug distribution places. Several respondents did not immediately take the medicine in front of the health workers.

CONCLUSION

The results of this study showed that education, role of health workers, knowledge, and presence of animals around the house had significant relationships with the incidence of filariasis or elephantiasis in Pidie Regency. Meanwhile, sex, type of work, presence of stagnant water, and habit of leaving the house had no relationship with the incidence of filariasis.

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