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RESEARCH

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Evaluation of Filariasis "MDP" Implementation on Changing Aspects of Knowledge, Environment, and Behavior of Filariasis Sufferers

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Abstract

Filariasis is an infectious disease caused by filarial worms and transmitted by mosquitoes. Efforts to suppress the case of filariasis are eliminated through the administration of filariasis *Mass Drug Prevention* (MDP). The filariasis MDP program in Ende Regency has been conducted since 2011-2015, and the first phase evaluation was conducted in 2017. This study aims to find a picture of community knowledge about the filariasis elimination program in Ende Regency, to find a picture of behavioral change and environmental management after the implementation of the filariasis elimination program. This research is qualitative research with an ethnographic approach. There were 20 informants consisting of 10 sufferers, 5 patients' families, 3 health workers, and 2 village officials. The results showed that almost all informants had known the Filariasis MDP program and had taken the filariasis drug. Most informants still had behaviors that were at risk of filariasis. The environment where the informant lives did not have a risk for filarial worm breeding. The conclusion of the research shows that the success in handling and preventing filariasis in Detusuko and Welamosa villages are supported by the community's understanding of the MDP program and consuming filariasis medicine, vanishing filarial mosquito breeding places. However, it was still found that community behavior has not changed which are activities outside the home at night, not using long-sleeved clothes and the habit of hanging dirty clothes.

Keywords: MDP evaluation, filariasis

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1. INTRODUCTION

Filariasis (elephantiasis) is a chronic infectious disease caused by filarial worms that attack the channels and lymph nodes (Kementerian Kesehatan RI, 2018). There are three species of worms that cause filariasis which are *wuchereria bancrofti*, *brugia malayi*, *brugia timori* (WHO, 2013). It is estimated that around 120 million people in the world suffer from illness and 1.3 billion people are at risk in 83 countries. Meanwhile, in Indonesia, there are 236 regencies and cities in almost all provinces (WHO, 2013). The province of NTT is one of the most endemic areas of filariasis in Indonesia. As many as 18 of the 22 regencies in the city in East Nusa Tenggara (NTT) are the areas of filariasis endemic. The Regency of Ende is one of the 5 highest districts with filariasis case in NTT province with a total number of 2018 cases in 2018 (Kementerian Kesehatan RI, 2018).

One of the efforts to create an Indonesia free of filariasis in 2020 is through the Filariasis Elimination Program. Filariasis elimination program in the world was started based on the WHO declaration in 2000. In Indonesia, the elimination of filariasis program was started in 2002. To achieve filariasis elimination in Indonesia, one of the programs through the provision of medical treatment for the prevention of filariasis (MDP filariasis) in the epidemic regions to break the link (Erlan, 2014). *Mass Drug Prevention* (MDP) filariasis program is a DEC medicine application combined with albendazol every year once respectively for 5 years (Yanuarni, 2015) (Santoso and Suryaningtyas, 2015).

The filariasis MDP program in Ende District has been conducted since 2011-2015 and the first phase evaluation was implemented in 2017. After 5 years of treatment an evaluation of treatment, activities was conducted through the *Transmission Assesment Survey* (TAS) to assess whether the program was successful and the target area was free from filarisis transmission. Based on data on average MDP coverage, it reaches 87% with a target number of 90% of 281,858 residents (Dinas Kesehatan Provinsi Nusa Tenggara Timur, 2017).

Filariasis elimination activities other than through two main pillars which are through filariasis MDA programs and also need to be supported by preventive practices through promotive, preventive efforts and aspects of community behavior and environmental factors. Preventive behavioral practices such as behavior of using mosquito nets, using mosquito coils, night out behavior, and habit of hanging clothes. Meanwhile, the environmental factors include the presence of standing water, vegetation and aquatic plants as mosquito breeding places (Onggang F, 2018) (Irfan et al., 2018).

The practice of preventing filariasis transmission in endemic areas has been conducted by regency health offices and by primary health center (primary health center) through various health efforts including health promotion through counseling and outreach about filariasis to increase public knowledge, filariasis elimination programs, clean fridays in endemic areas, and practicing using mosquito nets while sleeping (Lismayanti et al., 2013) (Yanuarni, 2015). Health promotion activities can increase the knowledge, attitudes and behavior of individuals and the community to be active in the efforts to eliminate filariasis. The objective of this study is to evaluate changes in knowledge, behavior and environmental changes in Ende Regency community, East Nusa Tenggara Province after the MDA program. It is hoped that changes in knowledge, attitudes and changes in environmental management will minimize the emergence of filariasis cases in the years to come.

2. RESEARCH METHOD

This type of research is a qualitative research with an ethnographic approach. The focus of this research is the evaluation of the implementation of the filariasis elimination program from the aspect of knowledge, behavioral aspects including medication taking behavior, behavior to prevent mosquito bites including nighttime habits, using mosquito nets and mosquito repellent, habit of hanging clothes. The study was conducted in two endemic villages, Detusoko and Welamosa, Ende Regency. The sample used a purposive sampling method with 12 participants. Criteria for informants were people infected with filariasis, who have participated in MDA programs and were willing to become participants. Triangulation data were obtained from 3 health workers and 2 village heads. The researcher was the main instrument in this study and used data collection instruments in the form of interviews, voice recording devices and cameras. Data collected by in-depth interviews and observation. Data was processed using (1) data reduction which was after data of in-depth interviews, FGD, observations and documentation were collected, the researcher sorted out the main points, focuses the data, simplifies the data and then adjusts it to the pattern (2) of data presentation that was the research data was presented in narrative form (sentence) of (3) conclusion drawing or verification that was drawing conclusions by researchers presented in the form of descriptions based on the research data (in-depth interviews, FGD, observations and documentation) that referred to the subject matter being investigated. This research has been registered to the Health Research Ethics Commission (KEPK) of Health Polytechnic of Kupang and has received research ethics permission.

3. RESULTS AND DISCUSSION

Most respondents believe that Detusoko and Welamosa villagers have already had good knowledge about filariasis. In general, people have known that the cause of filariasis due to mosquito bites, but some perceive that they suffer from filariasis is associated with environmental factors such as the presence of buffalo puddle water, the presence of shrubs and swamps, because of stepping on small animals in the field called "Tiwu Bou" which causes itching in the legs and then the body becomes feverish and causes swelling in the legs, as expressed by the following participants:

"Because of the water in the swamps, there are buffalo puddles people say tiwu bou, inside there are mosquitoes that cause filariasis, many people have been killed by it" (Informant 1).

"Because entering one of puddles which called as "detumeke", people get bitten by a mosquito that has filariasis fever" (Informant 8).

However, there are still participants who claim that filariasis is caused by a kind of green frog that stays in the rice fields or buffalo pools. This animal when trampled cause itching on the feet, the body becomes fever and cause pain in the thighs and body. Like the following participant expression:

"Because of the stomping green-spots toad, it immediately reacts to itching and pricking, thighs continue to ache and swell, the body becomes feverish and hot too" (Informant 10).

Another informant said that the cause of filariasis was due to malaria. The result of this study is consistent with the result of the study (Agustiantiningsih, 2013) which found that the level of knowledge had a significant relationship to the practice of preventing filariasis. The low level of education "primary school" in almost all informants is also an influential factor in the behavior of filariasis prevention. It is supported by research (Agustiantiningsih, 2013) that the level of education has a significant relationship with the practice of preventing filariasis.

a. Description of community behavior after the filariasis elimination program

1) Medicine-taking behavior

The microfilaria rate (Mfrate) coverage rate from the MAS evaluation results in 2017, it has been 100% negative, and the target coverage was 87% more than the national target coverage of 85%. Participants have been taking filariasis medicine regularly as directed by the health worker, and even the medicine is delivered directly by the local health center staff to ensure that patients take the medicine regularly. The most dominant reason why sufferers want to take medicine regularly is because they want to heal quickly and feel fit because there are no side effects, the body becomes refreshed. This is as the participant said:

"Taking medicine 3 times 1 after taking medicine is less sick ... fresh and suitable body. Take medicine so that you don't get sick anymore (Informant 11).

"The drug is taken 1 day 3 tablets, drink the drug so that it can recover quickly, there is taking medication from the officers, taking medicine so it does not swell" (Informant 5).

During the treatment of filararias through MDP program, people also use traditional medicine as an alternative treatment, for example using ginger mixed papaya leaves by drinking, crushed garlic or chili which is rubbed on the swollen legs or thighs. The following is participant's expression:

"The drug was delivered to the house by the officer then, we treat also with papaya leaf village medicine with garlic, papaya leaves boiled to drink water, rub garlic in the swollen part" (Informant 10).

Handling and prevention of filariasis in the study area was successful because patients and the community had taken antifilarial medicine distributed by the primary health center in the Filariasis MDP program. Positive drug reactions in patients make the patient and family feel happy because complaints experienced so far have been reduced and even nothing. This success was due to the high role of primary health center nurses in socializing the MDP program to all patients and the community. The administration of MDP drugs properly to the act of administering drugs by the home visit method was also an appropriate action in the success of the MDP program (Willa and Noshirma, 2015) (Munawwaroh and Pawenang, 2016). It was revealed by triangulation:

"Counseling was conducted both individually and in groups" (Nurse 1).

"The MDP program has succeeded in preventing filariasis because there are currently no new latrines for filariasis (Nurse 2)."

"Socialization was implemented by program managers from the detusoko primary health center" (Nurse 3).

The results of this study are consistent with the statement of the Indonesian Ministry of Health that one of the important factors in the success of the filariasis POPM program is influenced by the ability of health workers to disseminate and motivate the public to take filariasis drugs. The results of this study are not in accordance with the results of the study (Agustiantiningsih, 2013) which found that the socialization of mass treatment of filariasis had no relationship with the practice of preventing filariasis.

b. Behavior preventing mosquito bites

1) Using mosquito nets and insect repellent

The results illustrate that as many as 11 out of 12 participants (92%) have used mosquito nets as an effort to prevent mosquito bites that cause filariasis, and all participants no longer use mosquito repellent to prevent mosquito bites either mosquito coils or spray. The community stated the opinion that the distributed mosquito nets have already contained mosquito repellent so there is no need to use mosquito repellent. The use of mosquito nets is very effective to protect themselves from mosquito bites while sleeping. This is confirmed by the nurse's statement below:

“People want to drink because they are afraid of getting hit by filariasis. The community has used malaria mosquito nets distributed by primary health center” (Nurse 2).

The use of mosquito nets is one way to prevent filariasis mosquito bites (Lismayanti et al., 2013). This is in accordance with the results of the study (Jontari et al., 2014) which found that sleeping not using a mosquito net had a significant relationship with the case of Lymphatic Filariasis. The results of this study are also supported by the results of the study (Garjito et al., 2013) which found that there are significant differences between residents who slept using mosquito nets and mosquito repellent in relation to filariasis infections.

2) Activities outside the house

The results showed that most people still have the habit of going out at night for activities such as working in the garden and rice fields, choir practice, going to the prayer places, party events and sitting together with neighbors. 4 out of 12 participants rarely leave the house at night because of cold weather that can cause colds, at night, there are many mosquitoes roam. The following are the reasons of participants who rarely leave the house at night:

“It is rarely going out of the house at night because of the cold weather, many mosquitoes roam around and it is also easy to get cold” (Informant 6).

When leaving the house at night, most of the community members have the habit of using short or long-sleeved clothes and even almost always accompanied by trousers or gloves. The habit of wearing a sarong is a custom in the villages of Detusoko and Welomasa. There are no more fathers who have the habit of going out at night without wearing clothes.

Garjito et al., (2013) found that activities outside the house at night had a significant relationship with the case of filariasis. (Onggang, 2017) also found that the activity behavior at night has a significant relationship with the case of filariasis transmission. The results of the study (Jontari et al., 2014) found that the use of mosquito nets had a significant relationship with the case of *Lymphatic Filariasis*.

3) Hanging clothes

The result shows that most people have a habit of hanging dirty clothes even though they know that hanging clothes is a den for mosquitoes. In general, clothes are hung behind the bathroom door, behind the bedroom door even on the wall of bedroom. Only 3 out of 12 participants had the habit of storing dirty clothes in special buckets or baskets.

c. Overview of environmental management after filariasis elimination program

1) Use of gauze wire

The result shows that only a small number of Welomasa and Detusoko villagers used gauze on house ventilation. The reason why the community did not install gauze wire was because the weather was quite cold, most of the houses were made of wood

and bamboo which did not have a ceiling so there were holes and fissures that allowed mosquitoes to easily enter so there was no need to install gauze wire. Since the MDP program, the community habit of installing gauze wire in ventilation was very low, although the gauze wire was effective in preventing mosquitoes from entering the house (Sopi and Mading, 2014).

2) Puddle of Buffalo

Welamosa and Detusoko villages are fertile rice fields, some swamp areas with sufficient raw water availability, even in the dry season, the availability of water for irrigating rice fields remains available. In addition to other types of livestock, buffalo is a type of livestock that is often found so that water puddles are often found in many places, especially rice fields. Puddle is one of the filariasis mosquito breeding places. According to the community, the environmental conditions after the filariasis elimination program were far better compared to the previous conditions, there were no more buffalo puddles in the rice fields, gardens or the environment around the residents' houses, as the following participant said:

"There is no puddle.... now the detumeke puddle is no longer there, it used to be flooded with that puddle so carrying the filariasis, we have been aware of environmental cleanliness" (Informant 7).

The researchers found that there was a good flow of water in to flow downwards the gutters built by the government so that the water was not inundated in the residential areas as before. The following is the statement of one of the local village heads.

"Now the environment is clean, there is no swamp; there is no puddle because the government has built drainage ditches. Buffalo puddles are gone because people rarely buy buffalo, but there are still many households that do not use gauze wire".

3) Bushes

Detusoko and Welamosa villages are characterized by thick vegetation, grass and bushes thriving everywhere. Rice fields and plantations such as bananas, coffee, cloves and some are grasslands. The result shows that most residents routinely had done joint work to clean grass and bushes around the yard, along waterways and clean the garden periodically, as the following participant said:

"There is no bushes like before. There are no more swamps around the house. Now, there is no "bou" in the fields anymore... it may have died due to the medicines that people spray. We have regularly cleaned the bushes" (Informant 10).

Even the public has realized that dirty bushes are a potential breeding ground for mosquitoes and cause filariasis. By periodically cleaning the bushes, they believe mosquitoes will diminish and even disappear. The following is the participant's expression:

"Water plants and bushes have already been much reduced. We routinely clean up the yard and garden. Health workers say that the grass and banana leaves are dependent on where mosquitoes live, so there are not as many mosquitoes as before" (Participant 4).

"There are no water plants and bushes. There are no lakes or swamps around the house. Now, the road is nice, there is no more mud; if it rains, the water has flowed into the rice fields".

The results of observations in this study did not find any place at risk for the formation or survival of filariasis mosquito vectors such as puddle, marsh swamps,

buffalo puddles, and bushes. The researchers' observations were supported by statements from informants, health workers and local village officials who said that swamps, puddles, buffalo puddles and bushes were no longer existed. The loss of breeding places for filaria mosquitoes is the most important factor in efforts to prevent transmission of filariasis in one place. A clean environment which is free of swamps, shrubs and standing water is a good environment in preventing transmission of filariasis (Ipa et al., 2014) (Lestari and Indarjo, 2017). This is consistent with the results of research (Onggang, 2017) which found that environmental factors have a significant influence on the case of filariasis transmission. The results of this study are also supported by the results of the study (Jontari et al., 2014) who found that living close to plantations had a significant relationship with the case of filariasis.

4. CONCLUSION

The success of the filariasis elimination program after the MDP program in Detusoko and Welamosa villages was supported by the community's understanding of the MDP program and taking filariasis medicine. There were no worm breeding environments, such as swamps, buffalo puddles, puddles, and bushes. However, it is still found the community behavior that has not changed after the program, which are activities outside the home at night, do not use long-sleeved clothing, and the habit of hanging dirty clothes.

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