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# Community Behavior towards Filariasis Mass Drug Administration in Tegaldowo Village, Pekalongan District, Indonesia

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## ABSTRACT

Mass drug administration (MDA) is a strategy to reduce lymphatic filariasis (LF) transmission, and finally eliminate it. This study aimed to identify community behavior towards MDA and the role of elimination officer in MDA campaign. This was a descriptive cross-sectional study conducted in Tegaldowo village, Pekalongan District (an endemic area of LF). Study subject consisted of 100 persons. LF was detected by ICT filariasis using finger blood. The result most of the subjects were female, who did not go to school, worked as laborer, and married. Prevalence of filariasis was 7.0%. Most subjects had good knowledge toward MDA and received drugs during MDA. Among subjects who received drugs, only 8.6% refused to take the drugs due to breastfeeding. Adverse reaction was also the case in Tegaldowo, 40,0% subjects experienced adverse reaction after taking the drugs. Less than half cadres had good performance as elimination officers/drug distributors. Most of the subject gained information about MDA from health officers (34.4%). However, nearly half (43.0%) of subjects admitted they did not receive any information about MDA. This study concluded the prevalence of filariasis in Tegaldowo Village has not met WHO target. Factor that may be associated with the coverage of mass drug administration was lack of MDA campaign.

**Keywords:** mass drug administration, elimination officer, adherence, adverse reaction

## INTRODUCTION

Lymphatic filariasis (LF) is a chronic disease in most of tropical countries. It caused by filarial worms *Wucheria bancrofti*, *Brugia malayi* and *Brugia timori*.<sup>1,2</sup> Filariasis rarely caused death in human, but it caused permanent disability.<sup>3</sup> The disease also affecting to the quality of life due to the loss of productivity, significant cost, and social stigma.<sup>4</sup> More than 125 million people in Indonesia are at risk of LF infection living in 337

districts, which are endemic of LF.<sup>5</sup> Pekalongan is an endemic area of LF in Central Java Province. The number of filariasis cases in Pekalongan (2016) were 108 cases, 38 of them were new cases.<sup>6</sup>

Lymphatic filariasis is targeted for elimination through mass drug administration (MDA). A micro-simulation model to determine the effect of MDA in the reduction of LF transmission demonstrated a number of MDA round is necessary to achieve elimination.<sup>7</sup> The compliance of community during MDA is needed to achieve LF elimination. MDAs were mainly conducted by involved community volunteers as elimination officer, either from the community (cadres) or from public health center (health officers). But combination of different groups of people was reported to be more effective to achieve high coverage of the treatment.<sup>8,9</sup>

Pekalongan District has been conducted MDA in 2011-2015. However, our previous study revealed

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there was ongoing transmission in the area. Most cases were found in Tegaldowo Village.<sup>10</sup> This study aimed to describe the community behaviour toward MDA filariasis in Tegaldowo village, Pekalongam District, Central Java

## METHOD

This research using a descriptive cross-sectional study design, conducted in June-August 2017. Study was located in Tegaldowo village, Pekalongan District, which is an endemic area of filariasis. This study involved 100 subjects, selected using consecutive sampling, i.e subject that came to the health checkpoint during study. Data collected using questionnaire. Study variables consisted of characteristic (sex, education level, occupation, marital status), LF infection (identified by immunochromatographic test/ICT), community behavior toward MDA (knowledge, receive drugs, reason not receive it, compliance, reason for non-compliance, time of taking the drug, side effect, action when side effect occurs), and source of information (from who, when, where, how many).

## RESULTS AND DISCUSSION

Characteristics of subject are shown in Table 1.

**Table 1: The characteristic of the subjects**

Characteristic		n = 100	%
Sex	Male	20	20.0
	Female	80	80.0
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
	Labourer	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
Filariasis status	Positive	7	7.0
	Negative	93	93.0

The result showed that most of the subjects were female (80.0%), do not go to school (44.0%), working as laborer (47.0%), and have been married (82.0%). The study also revealed prevalence of filariasis was 7.0%. It shows that Tegaldowo Village was considered as LF endemic area. The effectiveness of MDA in reducing the prevalence of LF in the community is directly related to coverage with treatment.<sup>11</sup> Therefore, MDA is still needed in the area.

**Table 2: The community behaviour towards MDA**

Variables	n	%
<b>Knowledge toward MDA (n = 100)</b>		
Good	65	65.0
Poor	35	35.0
<b>Receive anti filariasis drugs during MDA (n = 100)</b>		
Yes	93	93.0
No	7	7.0
<b>Reason not receive anti filariasis drugs (n = 93)</b>		
Currently move to the village	1	14.3
Outside the village during MDA	4	57.1
Others	2	28.6
<b>Compliance (n = 93)</b>		
Yes	85	91.4
No	8	8.6
<b>The reason don't take anti filariasis drugs (n = 8)</b>		
Pregnant	2	25.0
Forget	1	12.5
Breast feeding	3	37.5
Feeling healthy	2	25.0
<b>When you take the filariasis drugs? (n = 93)</b>		
Before eat	2	2,4
After eat	79	92,9
Before go to bed	4	4,7
<b>Experience side effect (n = 85)</b>		
Yes	34	40,0
No	51	60,0
<b>What to do when experiencing side effect</b>		
Report to elimination officer	1	2,9
Go to Community Health Center	2	5,9
Take another drug to relief the pain	1	2,9
Ignore side effect	30	88,2

Table 2 showed that most subjects had good knowledge toward MDA. Only 7.0% subjects admitted they did not receive anti filariasis drugs, mostly either

because they were out of town during MDA or currently moved to the village. Compliance in Tegaldowo village was high (91.4%). This result was in accordance with previous study that demonstrated effective coverage rate was significantly higher in rural areas compared to the urban areas.<sup>12</sup> Other study in Srilanka reported similar MDA coverage.<sup>13</sup>

Among subjects who received drugs in this study, 8.6% refused to take the drugs. Most of them mentioned breastfeeding as the reason for not taking anti filariasis drugs. This was on the contrary to Weerasooriya et al who reported the reason for not comply was because they did not receive the drugs (29.4%),<sup>13</sup> which was not the case in this study. Other study revealed the most common reason quoted for not consuming drugs was that they simply do not want to, followed by the fear of adverse drug reactions.<sup>12</sup>

In this current study, nearly half (40.0%) of them experienced side effect after taking the drugs. From the interview, subjects mentioned nausea, dizzy, fever, and others. This results are similar with the a previous study that reported dizziness, nausea, fever, and other symptom such as scrotal or chest pain.<sup>14</sup> Surprisingly, most of subject of this study decided to ignore their side effect (88.2%) and only a few went to public health center to seek treatment or reported the adverse reactions to the elimination officer. Although the adverse event of MDA was not severe, the previous study showed that the adverse event affected the compliance of the community toward MDA.<sup>15</sup>

Several previous studies mentioned the similar factors regarding to compliance during MDA. In total, 29 of the 36 reviewed studies reported factors associated with low compliance, the most common being fear of side effects, lack of perceived need for the drugs and being away from home when the drugs were delivered to relatives. These are similar to those found in a global review of compliance, whose five recommendations included tailoring programs to local conditions, minimizing the impact of adverse events and promoting the broader benefits of the MDA program.<sup>16</sup>

Almost all of the subjects took the drugs after eating (93.0%). Hal ini menunjukkan mereka tidak minum obat di hadapan petugas seperti yang dianjurkan dalam program. Hasil ini sesuai dengan penelitian sebelumnya, bahwa among those who had consumed the tablets, only

35 (8.0%) did that in front of the drug distributors. The most common reason for not consuming the tablets in front of drug distributors was that they had not taken food at the time of distribution.<sup>12</sup>

**Table 3: The source of information and role of elimination officers towards MDA**

Variables	n	%
<b>The role of elimination officer</b>		
Poor	52	52.0
Good	48	48.0
<b>Do you know there is MDA in your village?</b>		
Yes	93	93.0
No	7	7.0
<b>Who give information about MDA?</b>		
Cadres	21	22.6
Health officers	32	34.4
None	40	43.0
<b>Where you receive the information about MDA?</b>		
Home	3	3.2
Community Health Center	24	25.8
Public building	26	28.0
Others	40	43.0
<b>How many times subjects receive the information of MDA</b>		
1 times	31	33.3
2 times	32	34.4
3 times	13	14.0
More than 3 times	7	7.6
Forgot	10	10.7

Table 3 showed the study subjects mentioned less than half cadres had good performance as elimination officers/drug distributors. Most of the subject gained information about MDA from health officers (34.4%) during mass counselling such as in *posyandu* (integrated health service for under-five children). However, nearly half (43.0%) of subjects admitted they did not receive any information about MDA. From those who received information, subjects usually got the information from public health centre or other public buildings. A previous study found the related factors to the non-compliance of MDA mostly because of the health worker/drugs distributors has not visited their family (75.0%).<sup>17</sup> Gosh et al found the reason of MDA non-compliance was fear of the side effect of the drugs.<sup>18</sup>

## CONCLUSIONS

Prevalence of filariasis in Tegaldowo Village was 7.0%. This means MDA for filariasis in Tegaldowo village has not met WHO target. Factor that may be associated with the coverage of mass drug administration was lack of MDA campaign, either from health officers or cadres.

**Conflict of Interest:** The authors declare no conflicts of interest in this work.

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