

Research Article

Comparative Analysis the Coverages of Filariasis Mass Prevention Drug (POPM) in Central Java Year 2018: Case Study in Grobogan, Semarang, and WonosoboSetya Ningrum¹, Rokhmayanti Rokhmayanti^{1*}, Mieng Nova Sutopo²¹ Faculty of Public Health, Ahmad Dahlan University, Yogyakarta, Indonesia² Center for Environmental Health Engineering and Disease Control, Yogyakarta, Indonesia***Correspondence:** rokhmayanti@ikm.uad.ac.id. Tel: +6281229517992

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ABSTRACT

Background: Filariasis is a disease caused by filarial worms and transmitted by mosquitoes that contain filarial worms. *Pemberian Obat Pencegahan Masal* (POPM) filariasis or Mass Prevention Drug is a program aimed to reduce the number of filariasis. The Survey of POPM in Grobogan, Semarang, and Wonosobo, shows there are different coverages of 65% and 85%. The purpose of this study is to compare the survey coverage of POPM filariasis. Seek the reason not to participate, and the characteristics of the respondents who did not take filariasis medicine in Grobogan, Semarang, and Wonosobo.

Methods: Descriptive quantitative study was used in this study by collecting secondary data of POPM survey coverage in Grobogan, Semarang, and Wonosobo year 2018. Descriptive and comparative analysis was applied to respondent characteristics, filaria POPM coverage, and elaborate the unconformity to the filaria medication.

Results: Grobogan coverage is low compared to Semarang and Wonosobo. The respondent said about traveling, don't know, and age as the reason to not take the filariasis medication.

Conclusions: Among the three districts, Grobogan is the district with low filariasis medication coverage compared to Semarang and Wonosobo.

Keywords: Filariasis, POPM, Grobogan, Semarang, Wonosobo**INTRODUCTION**

Filariasis is a chronic infectious disease caused by the filarial worms and transmitted by mosquitoes that contain filarial worms in their body. The worm grows into an adult in the human body and settles in the lymphatic tissue, causing swelling in the feet, legs, breasts, arms, and genital organs (1). Currently, globally there are 1.3 billion people at risk of transmitting the filariasis that spreads in more than 83 countries, and 60% of cases are in Southeast Asia (2).

In Indonesia, found three species of filarial worms: *Wuchereria bancrofti*, *Brugia malayi*, and *Brugia timori* (3). From 2014-2018, 2014 was the highest filariasis case, recorded 14,932 cases during that year, and declined in 2018 with 10,681 cases. Filariasis in Indonesia spread across 34 provinces. Five provinces with the most cases of chronic filariasis are Papua, East Nusa Tenggara, West Java, West Papua, and Aceh (2). In Central Java, in 2018, there were 439 cases of chronic filariasis that mostly found in nine districts/cities that became endemic

areas: Pekalongan, Pekalongan, Brebes, Wonosobo, Semarang, Grobogan, Blora, Pati and Demak (4).

Indonesia Minister of Health leads the filaria control program under the regulation No. 94 the Year 2014 about filariasis elimination. This regulation states about the main activity on the elimination is implementing a POPM (Filariasis Mass Prevention Drug) program. Filariasis elimination goal is reducing the microfilariae number to less than 1% in each district. Surveys of the program implementation can identify filariasis POPM coverage.

The POPM filariasis coverage survey was conducted for all people living in endemic filariasis areas. The subject of this survey is divided into two groups, namely POPM target, and non-POPM target respondents. POPM target is each residence who aged 2-70 years in all education levels. Non POPM target respondents are every residence outside the target group, such as pregnant women, people with chronic illness, aged less than 2 years, and above 70 years. POPM filariasis coverage is measured by two categories: 65% coverage and 85% coverage. 65% coverage is the ratio of the number of respondents taking the drug, with the total number of respondents multiplied by 100%. High coverage for this standard means the proportion of taking medication is above 65% for all respondents. 85% coverage is the ratio of the number of respondents taking the drug with the number of target respondents multiplied by 100%. 85% coverage can be called as high if the proportion of taking filaria drugs is above 85% of the target respondents (5)-(7).

$$65\% / 85\% \text{ coverage} = \frac{\text{Number of respondent takes filaria drug}}{\text{All respondents}} \times 100\%$$

In 65% target coverage, Grobogan, Semarang, and Wonosobo are stand in 81%, 84%, 83%, respectively. When in 85% target coverage, they stand in 85%, 91%, and 91%, respectively (5)(6)(7). This study aims to compare the coverage of POPM filariasis and people's motivation not to participate, include their characteristics in Grobogan, Semarang, and Wonosobo.

METHODS

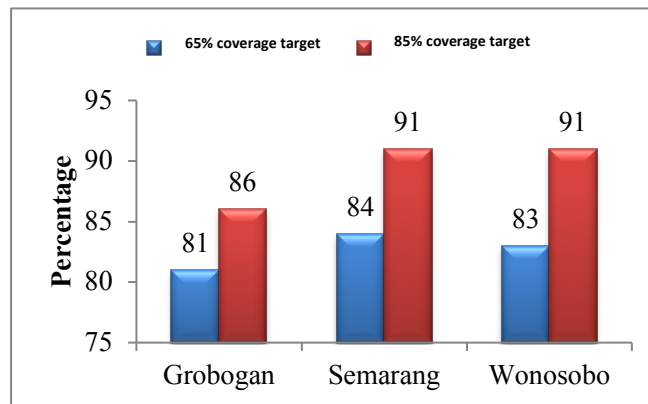
Descriptive quantitative design was applied to illustrate the comparative results POPM filariasis coverage in Grobogan, Semarang, and Wonosobo year 2018. The table and graphics were used to display the result. Secondary data (POPM coverage filariasis) was collected from BBTCLPP Yogyakarta from 5-31 August 2019. This data based on the BBTCLPP survey year 2018. The population of this research was all people aged 2-70 years living in Grobogan, Semarang, and Wonosobo, they are not pregnant, not sick, aged not less than two years and not more than 70 years were included in this study. In three districts (Grobogan, Semarang, and Wonosobo), we included 1,115; 1,242 and 1,170 respondents, respectively. The analysis was performed using descriptive and comparative analysis.

RESULTS

Comparisons of filariasis medication compliance in Grobogan, Semarang and Wonosobo year 2019

According to the data, Grobogan, Semarang, and Wonosobo have reached the national target (65% and 85%) (Figure 1). Filariasis POPM coverage in three districts was categorized as high both for 65% and 85 % measure. On 65% target, Semarang is the district with the highest

coverage (84%), and in 85% target, Semarang and Wonosobo have similar coverage (91%). This result implies in Semarang and Wonosobo, POPM targets have high conformity to take filaria drugs compared to Grobogan.



Source: BBTCLPP Yogyakarta, 2018

Figure 1. Results of Drinking Drug Coverage Filariasis in Grobogan, Semarang and Wonosobo 2018

The reason to not comply with filariasis medication in Grobogan, Semarang and Wonosobo year 2018

Among the three districts, Grobogan has the highest number of not conforming people to filariasis medication (208 people) compared to Semarang and Wonosobo, with 204 people each of them. However, the differences among them are not significant. Non-POPM targets said about pregnant, sick, and age reason to not adhere to the program. While for POPM target they said refuse, don't know, travel and other specific reasons (Table 1)

Table 1. The motivation of people to not comply with filariasis medications in Grobogan, Semarang and Wonosobo 2018

No.	Reason	Number of people		
		Grobogan	Semarang	Wonosobo
1	Not POPM Target			
	Pregnant	11	13	16
	Sick	16	28	46
	Age	44	62	53
	Amount	71	103	115
2	POPM Target			
	Refuse	25	18	7
	Do not know	28	49	9
	Travel	64	32	54
	Other: Breastfeeding, do not have an ID card, forget to drink, without explanation	20	2	19
	Amount	137	101	89
	Total	208	204	204

Source: BBTCLPP Yogyakarta, 2018

Characteristics of POPM Target Who Not Take Filariasis Drugs in Grobogan, Semarang and Wonosobo year 2018

Table 2 shows that Grobogan is the district with people's POPM target but not comply with the program. In three districts, most of the respondents are aged 16-70 years, hold primary school, and the majority of them are male (Table 2).

Table 2. Characteristics of POPM Target Who Not Take Filariasis Drugs in Grobogan, Semarang and Wonosobo year 2018

No.	Characteristics	Number of Respondents (People)		
		Grobogan	Semarang	Wonosobo
1	Age group (Yo)			
	3-5	14	3	3
	6-15	11	14	7
	16-70	112	84	79
	Amount	137	101	89
2	Level of education			
	Pre-School	15	12	4
	Basic School (Primary and Junior High School)	88	49	59
	Advance School (Senior High School and University)	34	40	26
	Amount	137	101	89
3	Gender			
	Male	75	61	46
	Female	62	40	43
	Amount	137	101	89

Source: BBTCLPP Yogyakarta, 2018

DISCUSSIONS

Grobogan is the district with low coverage of POPM. Some factors are influencing the low coverage of POPM filaria. For example, the information does not meet the target due to geographic conditions, inadequate communication facilities, people not in place when the program held, farming, schooling, insufficient knowledge and awareness of the community to take medicine. On the other hand, the POPM low coverage shows the weak performance of POPM staff. While the little POPM coverage compared to the target presents the unsuccessful of the medication (8).

The geographical conditions of Grobogan may be the reason for this situation. The various geographic area: plains, hills, and plateau could be a barrier for POPM staff to deliver information about POPM filariasis. Another reason, this district consists of mostly by productive age group (15-64 years), which is most of them do the activity away from they reside, such as schooling, laboring in other places. Accordingly, they are not in place when POPM was held. These results are consistent with research Harfaina et al. (2019), which stated there is a significant relationship between job by taking medicine filariasis (9).

Knowledge among the community in Grobogan is categorized as high indicated from the level of education in general. Unfortunately, it is in contrast with the low level of awareness on taking filaria medication. This is in line with research Nurlaila et al. (2017), who stated that there is a significant relationship between knowledge versus the conformity on medication filariasis (10).

A similar result was found by Rusmini and Suryawan (2014), who said there is no significant relationship between education versus filariasis medication. A busy person might neglect to take the filariasis drug (11). However, a person with good knowledge will have better health awareness, such as they comply with taking filaria medications because he knows the benefits of the drug compared to those who are not knowledgeable. Indeed, education was influencing the acceptance of health information, but education does not directly influence people to decide on to participate in the health program (12).

Semarang obtains the highest coverage compared to other districts. It demonstrates the high public awareness of the Semarang District to participate in taking medicine filariasis. This achievement shows high awareness among the Semarang population and the high performance of the health staff. On the other hand, indeed, the mobility of Semarang people is low compared to Grobogan due to the industrial setting in Semarang (13). Accordingly, people easy to meet with the POPM staff when the program held because they are in place. In addition, the high coverage of POPM filariasis is influenced by community participation on the take the drug, funding efficiency in socialization (14).

Increasing public knowledge about filariasis and the importance of taking medication is necessary for people who live in areas with filariasis endemic. Finding the way out for working people that also need to take medicine is essential to avoid the failure medication among them. If community participation on the POPM filaria program is excellent, it is expected the incidence of filariasis in Grobogan, Semarang, and Wonosobo can be reduced (15).

In the three districts, people as POPM targets have a similar reason for their unconformity to filaria medication. Most of them said about children less than 2 years or more than 70 years. It is following the program that targeting people in 2-70 years. Some of them talked about the side effect of the filaria drug, such as fever, headache, muscle aches, nausea, and dizziness. Another reason for the unconformity is the lack of information about the program that due to people's activities such as working, studying, or temporarily not living in the area. So, when health staff conducts socialization, they not in place. In addition, they talked about breastfeeding and the difference in address between the current location and what is written on the national identity card (KTP) (16).

Indonesian government uses DEC dan *Albendazole* on the filaria program. According to the national guidelines, DEC is allowed to be given to pregnant women but not allowed to children under 2 years. While *Albendazole*, totally prohibited for children under 2 years, pregnant woman, and sick person (17). The regulation considers the side effect of the two drugs. For example, *Albendazole* can cause *alopecia* or hair loss in high consumption of this drug (800mg/day). A pregnant woman is not the POPM target because *Albendazole* is embryogenic or embryo growth problem. In children aged under two, the safety is unknown, so the allocation of this drug is prohibited. While at people aged more than 70 years, the forbidden on using this drug-related decreased organ performance in the elderly (18).

Another reason to not participate in the POPM program is not in place or traveling for many purposes, such as work or schooling. In Semarang for POPM target said that don't know or lack of POPM information as to their reason for not participating in the program. This is in line with research Astuti, et al. (2014), which states that there is a significant relationship between the socialization of health workers to take medication POPM filariasis (19). In this case, the lack of health promotion on POPM may lead the inadequate coverage of filariasis.

The characteristics of POPM filariasis respondents in Grobogan, Semarang, and Wonosobo year 2018 mostly the same: aged 16-70 years, have primary education and are male. People who are holding primary school are the high proportion who not comply with the medications.

According to Alam and Marlina (2016), education is not related to filariasis medication; however, knowledge has an association with filariasis medication (20).

In this study, males mostly un-conform with filariasis medication. This is in line with the results of research Isabella, et al. (2018), which states that there is a significant relationship between the sex by taking medicine filariasis. Female found more conform to taking filaria medicine than the male. This is because the majority of men are working while most women are staying at home. As a result, most of the man does not take the medication for his absence related work (21).

CONCLUSIONS

Grobogan coverage is low compared to Semarang and Wonosobo. The respondent said about traveling, don't know, and age as the reason to not take the filariasis medication.

Authors' Contribution

SN contributed to the data collection, data analysis, and report writing and manuscript publication, RR contributed to licensing, data analysis, and report writing. MN participated as a provider of data and information, data analysis, and report writing.

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Conflict of Interest

There is no conflict of interest in this research.

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