Effectiveness of Health Education in Increasing the Knowledge on Filariasis Mass Drug Administration among Primary Health Care Workers in South Jakarta, 2013

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Abstract

Eight new cases of chronic filariasis have been discovered in South Jakarta, a non-endemic area. To cut the chain of transmission, administration of diethylcarbamazine (DEC) and albendazole yearly for five years should be performed.[1] Therefore, primary health care workers in South Jakarta require health education to perform filariasis prevention correctly. This research aimed to study the effectiveness of health education on filariasis mass drug administration (MDA) among primary health care workers in South Jakarta. This study used experimental design with pre-post study method. Data collection was done in South Jakarta on the 26th of June 2013 by asking all the attending primary health care workers to fill the questionnaires comprised of eight questions regarding filariasis MDA. The results show that before health education, 83.3% of participants had poor knowledge, 14.8% had average knowledge and 1.9% of participants had good knowledge on filariasis MDA. Following health education, 64.8% of participants had good knowledge on filariasis, 27.8% had average knowledge and only 7.4% of participants had poor knowledge (marginal homogeneity test <0.001). It was concluded that health education is effective in increasing the knowledge of primary health care workers on filariasis MDA.
Keywords: *filariasis, health education, health care workers, mass treatment*

Efektivitas Penyuluhan Kesehatan Mengenai Pemberian Obat Masal Pencegahan Filariasis pada Petugas Puskesmas di Jakarta Selatan, 2013

Abstrak

Delapan kasus baru filariasis kronis ditemukan di Jakarta Selatan yang bukan merupakan daerah endemis. Untuk memutus rantai penularan, pemberian obat dietilkarbamazin dan albendazol tiap tahun selama lima tahun harus dilakukan.[1] Oleh karena itu, petugas puskesmas di Jakarta Selatan memerlukan pengetahuan untuk melakukan pencegahan filariasis dengan benar. Penelitian ini bertujuan untuk mengetahui efektivitas penyuluhan kesehatan mengenai program pemberian obat massal pencegahan (POMP) filariasis pada petugas puskesmas di Jakarta Selatan. Desain penelitian ini adalah eksperimental dengan metode pre-post studi. Pengumpulan data dilakukan di Jakarta Selatan pada 26 Juni 2013. Semua petugas puskesmas yang hadir diminta untuk mengisi kuesioner yang berisi 8 pertanyaan mengenai POMP filariasis. Hasil penelitian menunjukkan bahwa sebelum penyuluhan kesehatan, 83,3% petugas memiliki pengetahuan yang buruk, 14,8% memiliki pengetahuan rata-rata dan 1,9% memiliki pengetahuan yang baik mengenai POMP filariasis. Setelah penyuluhan kesehatan, 64,8% petugas memiliki pengetahuan baik mengenai POMP filariasis, 27,8% memiliki pengetahuan rata-rata dan hanya 7,4% memiliki pengetahuan kurang (tes marginal homogeneity <0.001). Disimpulkan bahwa penyuluhan kesehatan efektif meningkatkan pengetahuan petugas puskesmas mengenai POMP filariasis.
Kata kunci: *filariasis, penyuluhan, pekerja kesehatan, pengobatan masal*

Introduction

Lymphatic filariasis (LF) is a parasitic disease caused by three known nematodes (roundworms): *Wuchereria bancrofti*, *Brugia malayi* and *Brugia timori*. The sign and symptoms of LF are lymphedema and lymphangitis. In chronic LF, non-reversible and permanent disability occurs which reduces the quality of life of patients. Because LF reduces the quality of life, the World Health Organization (WHO)[1] initiated the Global Programme to Eliminate Lymphatic Filariasis (GPELF) in 2000. The primary elements of the program are to interrupt transmission and manage morbidity and limit disability. To interrupt transmission, WHO initiated mass drug administration (MDA) of filariasis. Filariasis MDA involves the administration of albendazole 400 mg and diethyl carbamazine (DEC) 6 mg/kg body weight once a year for five years. This treatment is given to all people in areas (one *kabupaten*/district) with microfilarial rate of more than 1% and if a chronic filariasis case is found.[2] With MDA, it is hoped that filariasis will not emerge as a public health problem in Indonesia. Following the administration of MDA, adverse reactions have been widely noted. The side effects include general (fever, chills, headache, nausea, myalgia and joint pain) and local (lymphadenitis, lymphangitis, orchitis, abcess, ulcer and lymphedema).[3-6]

Filariasis is endemic in Indonesia and during the period of 2000-2009, there were 11.914 cases of chronic filariasis in Indonesia.[3] In Jakarta, filariasis is rarely found but in 2013, eight cases of chronic filariasis were identified in South Jakarta, a non-endemic area. Based on that fact, MDA should be implemented to eliminate the source of infection.[7]

To carry out MDA, it is important for the primary health care workers in South Jakarta to have knowledge on filariasis MDA including the adverse reactions that follows. Hence, we would like to provide health education to the primary health care workers in South Jakarta on filariasis MDA. We plan to evaluate the effectiveness of health education on filariasis MDA among the primary health care workers by performing pre and post-test with health education as intervention.

Methods

An experimental design (pre and post-test) was chosen for this research with health education as intervention. This research was carried out at *Suku Dinas Kesehatan Jakarta Selatan* on the 23rd of June 2013.

Questionnaire comprising of eight questions on filariasis MDA was used to study the level of knowledge among primary health care workers in South Jakarta before and after health education.

The researchers, would first request the subjects to participate by verbal inform consent. Participants who agreed to be subjects were given a questionnaire before and following health education. The resource person was a parasitology professor from Faculty of Medicine Universitas Indonesia.

The minimum sample size required for this study was calculated using the formula: minimum sample size = z^2 x SD x (1-SD)/ CI^2 **=** (1.96 x 1.96 x 0.5 x 0.5) / 0.15^2 which equals to 43, where z= z value, SD = standard deviation and CI = confidence interval of 95%. However, total sampling method was used for this research and all the attending health personnel participated in this study. This also ensured that the attending participants had equal opportunity to participate.

SPSS program for Macintosh version 20 was used for data analysis. The association of gender, level of education and level of knowledge was analysed using chi square test separately. Marginal homogeneity test was performed to analysed whether there was significant difference between pre and post-test scores.

Results

A total of 55 participants agreed to become research subjects of this study. However, one participant did not complete the post-test therefore she was dropped out of this study. Hence, a total of 54 people were used for data analyses to determine whether health education is effective in increasing the knowledge of health care workers on filariasis MDA.

Table 1 shows the participants stratified according to gender and formal education. The 54 participants were equally divided into male and female. Most of the participants (66.7%) were diploma holders.

Table 1. Participants Stratified According to Gender and Education

Variables	Frequency	%
Gender		
Male	27	50
Female	27	50
Education		
High school	10	18.5
Diploma	36	66.7
Undergraduate	08	14.8

Table 2 shows the pre-test questionnaire revealed that majority of the participants did not have prior knowledge of filariasis MDA; 23

(85.18%) males and 22 (81.48%) females had poor knowledge on filariasis MDA. There was only one male (1.85%) who had good knowledge. Stratification by education revealed that there was no significant difference between the pre-test scores and the level of knowledge on filariasis. Therefore, the level of knowledge on filariasis was not associated with gender and education.

Table 2. The Level of Knowledge on MDA before Health Education

Variables	Knowledge			Chi Square
	Poor	Average	Good	
Gender				
Male	23	3	1	
Female	22	5	0	0.467
Education				
High school	9	1	0	0.852
Diploma	30	5	1	
Undergraduate	6	2	0	

Table 3 shows that before health education, majority of the participants (83.33%) had poor knowledge on filariasis MDA. Participants had average level of knowledge was 8 (14.8%) and only one participant had good knowledge on filariasis MDA. After the health education, only 4 (7.4%) participants had poor level of knowledge. A majority (64.8%) of participants had good level of knowledge on filariasis MDA.

Table 3. Level of Knowledge on MDA Before and After Education

Variables	Level of Knowledge		
	Poor	Average	Good
Pre-Test	45 (83.3%)	8 (14.8%)	1 (1.9%)
Post-Test	4 (7.4%)	15 (27.8%)	35 (64.8%)

Table 4 shows the distribution of the participants' answers of each question pre- and post-test. We can observe that the overall trend is an increase in the scores of the participants in the post-test. The question that most of the participants answered correctly in the pre-test was question number six regarding MDA should be administered in front of a health care worker (70.4%). In the post-test, 92.6% of the participants answered this question correctly. In the pre-test, the question with the least number of participants who answered correctly was question number eight regarding the side effects of DEC, the correct answers were A, B and C. Only 5.6% of participants chose all three answers. However 66.70% of participants answered question number eight correctly in the post-test.

Table 4. Pre and Post-test Frequencies According to the Scores of Questions

Questions	Score	Pre-test	Post-test
1	0	88.9%	37%
	5	11.1%	63%
2	0	64.8%	51.9%
	5	35.2%	48.1%
3	0	46.3%	16.7%
	3	1.9%	0%
	5	51.9%	83.3%
4	0	72.2%	3.7%
	5	27.8%	96.3%
5	0	7.4%	0%
	1	18.5%	1.9%
	2	38.9%	11.1%
	3	13.0%	5.6%
	4	5.6%	3.7%
	5	16.7%	77.8%
6	0	27.8%	5.6%
	3	1.9%	1.9%
	5	70.4%	92.6%
7	0	3.7%	0%
	1	33.3%	4%
	2	3.7%	0%
	3	22.2%	5.6%
	4	25.9%	7.4%
	5	11.1%	83.3%
8	0	5.6%	0%
	1	46.3%	14.8%
	2	20.4%	14.8%
	3	11.1%	1.9%
	4	11.1%	1.9%
	5	5.6%	66.7%

Discussion

From the total 54 participants, a majority of 83.3% of participants had poor knowledge on filariasis MDA. This showed that health education on MDA filariasis is really needed by the primary health care workers because they would be educating the society. Educating the society is crucial because they need to understand the importance of MDA as well as the adverse reactions that could occur as a result of filariasis MDA.[8,9] This is why it is important for primary health care workers to know and understand about filariasis MDA themselves so that they can educate the society.

Both males (85.18%) and females (81.48%) had poor level of knowledge. Therefore, we drew a conclusion that there was relationship between gender and level of knowledge. One possible explanation to this finding is that both males and females have equal rights to education, therefore there was no difference between knowledge on filariasis MDA and gender. In this era, both males and females have equal opportunities to attend school and this is evident with the increased number of women in universities as well as in higher learning. This finding is in line with another study by Wijensinghe et al[10] in Sri Lanka. They found that there was no significant difference between sexes and their perception and level of knowledge of chronic lymphedema due to filariasis.

Most of the participants in this study were diploma holders. They accounted for 66.7% of the total participants. High school leavers (18.5%) and degree holders (14.8%) on the other hand form the remaining number of participants. Reflected by the level of knowledge of the participants in the pre-test, there was no significant difference between high school leavers, diploma and degree holders. Many studies that have been carried out demonstrate otherwise that the higher the education level, the more knowledge one has on filariasis. Babu et al[11] are two studies that proved so. To explain this finding, one may infer that filariasis is not part of education at any level. The incidence of filariasis is also very low in Jakarta thereby making people in Jakarta ignorant. This includes the ignorance of the government in providing knowledge of filariasis. We would expect that at a certain level of education, filariasis will be taught. However, we observe here that even at degree level, filariasis is not taught evident by the lack of significance in the education level. Therefore, it is safe to deduct that all the participants had equal knowledge and its lack thereof prior to health education. Our findings was also supported by a previous study performed by Eberhard et al[12] that revealed demographics including gender and level of education do not influence the level of knowledge of filariasis. They however found that having the disease increases their level of knowledge thereby making the status of their disease as an influence to the level of knowledge on filariasis.

One of the essential determinants in an individual's behaviour towards health is knowledge. Multiple researchers have demonstrated that health education is effective in increasing knowledge. Following health education, marginal homogeneity revealed a significant increase in level of knowledge between pre and post-test with health education as intervention. Therefore, this study demonstrated that health education is effective in increasing the level of knowledge on filariasis among health workers. A Haitian research conducted by Mathieu et al[13] also concluded that health education is effective in increasing the level of knowledge on filariasis.

Because health education is effective in increasing the level of knowledge on filariasis, the government should implement more health education programmes of various forms to increase the level of knowledge of health care workers. Health campaigns by giving out handouts or by giving mass lectures could also be very useful. For smaller groups, seminars and workshops would be even more effective. By increasing the level of knowledge on filariasis, we hope we can cut the chain of transmission of filariasis. By educating health workers, we empower them to go out into the community to educate people.

Conclusion

From the 54 participants of this study, 10 (18.5%) were high school graduates, 36 (66.7%) were diploma holders and eight (14.8%) of them have degree as their last formal education. Before health education, 83.3% of participants had poor knowledge, 14.8% had average knowledge and 1.9% of participants had good knowledge of filariasis MDA. Following health education, 64.8% of participants had good knowledge on filariasis, 27.8% had average knowledge and only 7.4% of participants had poor knowledge. Statistical analysis revealed a significant increase in level of knowledge between pre- and post-test with health education as intervention. Because health education can significantly increase the knowledge of health care workers, they should be provided with health education regarding filariasis MDA regardless of their age, gender and education level.

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