

PERCEPTION AND PRACTICES TO LYMPHATIC FILARIASIS IN SOME ENDEMIC COMMUNITIES IN OGUN STATE, SOUTH WESTERN NIGERIA

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ABSTRACT

Objectives: The objectives of this study is to examine the risk factors associating with lymphatic filariasis with the main aim of eliminating the disease. Lymphatic filariasis impairs the lymphatic system and can lead to the abnormal enlargement of body parts, causing pain, severe disability and social stigma.

Methods: Certain communities in Ogun State have been reported endemic and are undergoing Mass Administration of Medicine (MAM). However, since 2003 certain communities are yet to reach the threshold level for an eventual elimination. Hence, there is the need to assess pattern of reinfection, attitude, practice and knowledge of people in these communities using uncommon method. Community awareness and involvement are considered vital tools for the success and sustainability of elimination. Market Survey was employed as it has been used in previous research studies in assessing the Attitude, Knowledge and Practice (KAP) of Onchocerciasis in Osun State. Market survey gives a wider coverage of responses especially for areas with bad roads, which when analyzed will enhance elimination process of Lymphatic filariasis. Three markets were used for the survey. These markets were Owode, Lusada and Ilaro, which were randomly selected with the assistance of the Local Government Secretariats as the markets located in endemic communities and which have participated in MAM. Overall 238 voluntary respondents were recruited for this study after the purpose of research was explained to them and the filling of informed consent forms.

Results: Each of the market had the following respondents: Owode, 82:29 (35.4%) males, 53 (64.6%) females, Lusada 74:27 (36.5%) males, 47 (63.5%) females and Ilaro 82:36 (43.9%) males and 46 (56.1%) females. Semi-structured questionnaires were administered to voluntary respondents in English language and interpreted in Yoruba the native language for illiterate respondents. Respondents from the three markets acknowledged the presence of the disease by the knowledge of the clinical signs of the disease which had different native names, Ipa/asopa/sopa by 42 (66.7%) from Owode, 38 (77.6%), from Lusada and 31 (39.2%) from Owode. However, 53 (89.8%) from Owode, 30 (71.4%) from Lusada and 90 (90.9%) from Ilaro were ignorant of the causes of the disease. Also 78 (97.5%) from Owode 56 (100%) from Lusada and 79 (96.3%) from Ilaro had never heard of Albendazole,

diethylcarbamazine or ivermectin, nor 62 (98.4%) from Owode, 56 (100%) from Lusada and 80 (97.6%) from Ilaro ever taken the medicine. Respondents also know specifically people in their locality that have both elephantiasis and hydrocele fore limb elephantiasis. 37 (50.76%) acknowledged they know them in Owode, so also 44 (59.5%) from Lusada and 31 (37.8%) from Ilaro. For hydrocele 20 (31.3%) respondents from Owode claimed to know individuals with it, so also 38 (54.3%) in Lusada and 20 (26.0%) in Ilaro. Most respondents: 57 (83.8%) from Owode, 50 (75.8%) from Lusada and 54 (75.0%) do not believe it is transmitted by mosquitoes.

Conclusion: *It is obvious from the results from this survey that most respondents are ignorant of the cause of disease, treatment pattern, control measures and MAM is yet to have acceptable coverage even though there is evidence of the disease. There is great need for effective advocacy from the grassroots at community level, for Mass Administration of Medicine to be effective in these communities if we look forward to an eventual elimination of lymphatic filariasis in these communities in Ogun State.*

KEY WORDS: *Lymphatic filariasis, Mass Administration of Medicine, Elephantiasis, hydrocele, Market Survey*

INTRODUCTION

Lymphatic filariasis (LF) is an infection caused by nematodes of the Filarioididea family. Globally, 90% of infections are caused by *Wuchereria bancrofti*, while the remaining others are caused by *Brugia malayi* and *Brugia timori* (WHO, 2010). Man is the only known host of *W. bancrofti*, while *Culex*, *Aedes*, and *Anopheles* mosquitoes are mainly the carriers (Shawa *et al.*, 2013). A total of 44 million persons currently suffer from one or more of the manifestations of the infection or recurrent infections associated with damaged lymphatics. These patients are not only physically disabled but suffer mental, social and financial losses contributing to stigma and poverty (WHO, 1997; WHO, 2017). Currently 947 million people are living in areas that require preventive therapy to stop the spread of the infection (WHO, 2010). Nigeria records the highest number of LF in Africa and ranks third globally (Hotez *et al.*, 2012). About 106 million people in Nigeria are at risk of the infection (FMOH, 2012). Previous research noted that lymphatic filariasis indicates its presence in all states and geographical locations of Nigeria. 241 lymphodema and 205 hydrocele cases have been reported from research studies conducted in Nigeria (FMOH, 2012 and Okorie *et al.*, 2013). Nigeria started implementing MDA in 2000 (FMOH, 2012). Ogun started in 2003-2011 and still ongoing. It was noted that out of the 20 local governments in Ogun State, LF is present in 14 Local Government Areas. The National LF elimination program of Nigeria needs to scale up MDA in all the States of the federation in preparation for the elimination global goal of 2020 (FMOH, 2012). Hence it behooves Ogun State to access its MDA implementation program.

LF is concentrated among the poorest segments of society. It is clear that GPELF is also a programme effectively promoting health equity and poverty reduction, in full alignment with the globally accepted Millennium Development Goals

(Galvez, 2003). To determine the control to eliminate the disease, it will be necessary for Lymphatic filariasis control program to assess the real burden of the disease. Part of the control strategies will include mass treatment with Diethylcarbamazine and Ivermectin or Albendazole. The 50th World Health Assembly of 1997 launched the program to eliminate lymphatic filariasis globally as a public health problem by the year 2020 (WHO, 1997; Ottesen, 2006 and WHO, 2010). This Global Elimination for lymphatic filariasis (GPELF) is an initiative that offers hope to millions of suffering persons globally. The twin pillars of this initiative are: interruption of infection transmission through annual Mass Drug Administration (MDA) and alleviation of suffering and morbidity of infected persons through prevention and management of disease manifestations. A combination of any two of these drugs have been found to be effective in microfilaria clearance than when administered as monotherapy (Ottensen *et al.*, 2011). The effective administration of these three-drug therapy opened up the possibility of treating the entire population at risk, as absence of microfilariae in the blood is essential to achieve Lymphatic filariasis elimination in endemic communities (WHO, 2013). To achieve interruption of parasite transmission, MDA must achieve program coverage of at least 80% (of individuals at risk in an implementation unit: (usually the district in which MDA is happening). Over 5-6 years of annual treatment or longer in areas with high baseline microfilaria (mf) prevalence (Boyle *et al.*, 2010 and Karam *et al.*, 2000). The goal of MDA is to reduce the density of parasites circulating in the blood of infected persons and the prevalence of infection in communities to levels where transmission is no longer sustainable by the mosquito vector. (Gyapong *et al.*, 2005)

Therefore, evaluation of infection in communities is necessary before initiating mass treatment (Ottensen *et al.*, 1995; WHO, 2017b). Community participation has been found to be one of the major challenges to the success of the MDA program. A lack of community participation hampers program implementation of all drug administration programs rather than only MDA for Lymphatic filariasis. The nature of Lymphatic filariasis infection necessitates that whole communities have to be treated to ensure that <1% mf prevalence in endemic populations can be attained to stop transmission. The focus of community participation is to have communities direct and manage the recruitment of volunteers and strategies for drug distribution. This is expected to help communities own the programs and bridge the gap between them and the health system. When the process of community involvement does not function very well, myths and rumors about the program become rife and tend to hamper implementation (Njomo *et al.*, 2017)..

Other contributing factors to the increase in lymphatic filariasis disease transmission include unplanned urbanization, overcrowding and deteriorating sanitary conditions (Dogara *et al.* 2014). For a sound recommendation to be suggested for a given community it is of utmost importance to know how the inhabitants of that

community perceive the disease and their responses as a result of the impression formed on those already affected. Ignorance and wrong beliefs can lead to negligence in preventive and control measures, therefore affecting the much needed appropriate treatment. Community awareness and involvement are considered as vital tools for the success and sustainability of any disease control programme Acka *et al.*, 2010 and Dogara *et al.*, 2014). Evidence have shown that people's perception about disease risks such as transmission and health consequences do influence their attitudes and health seeking behaviors towards the disease concerned (Acka *et al.* 2010 and Wynd *et al.*, 2007). Community awareness and involvement are considered vital tools for the success and sustainability of MDA programs. Also the capacity to deliver interventions at the community level and in rural areas where access to health care is most challenged is also a proof of the success of MDA (Lehmann *et al.*, 2007 and Sander *et al.*, 2007). Hence there is a great need to access the, perceptions and practices of the people living in these endemic communities to evaluate their readiness for eventual elimination.

MATERIALS AND METHODS

Study Area

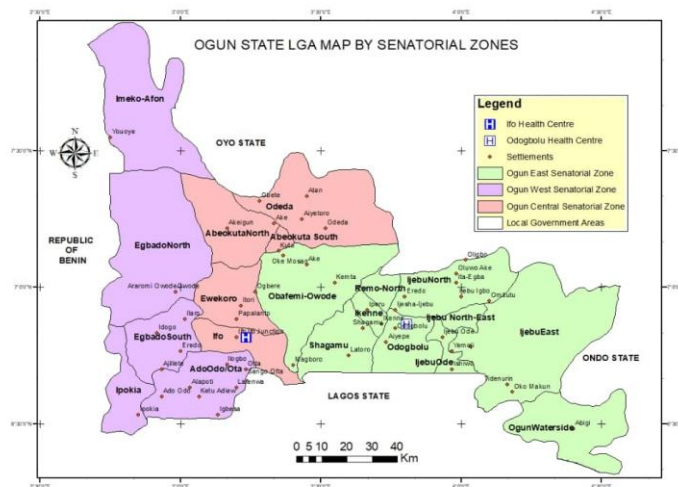


FIGURE 1: Map of Ogun State Showing the Three Local Government Areas Housing the Three Markets (Ogunstatebiz, 2020).

The three markets were randomly selected from three Local Government Areas in Ogun State. These markets were Ilaro market in Yewa South Local Government Area, Owode market in Obafemi Owode Local Government Area and Lusada, in Ado/Odo Ota Local Government Area. Ilaro is in Yewa South Local

Government Area of Ogun State 6°.88N 3°.03"E , Owode is in Obafemi Owode Local Government of Ogun State 6°.77N 2°.92"E and Lusada market is in Ado/Odo Ota Local Government Area of Ogun State 6°.61N and 3.05"E. Nigeria. Ilaro is a small town in Ogun state and bordered by the city of Lagos. The major industries in Ilaro include, the cassava processing industries, timber processing industries, and the local Aso oke weaving industry. Ilaro also has the Federal Polytechnic Ilaro, which was established in 1979. The people of Ilaro are predominantly farmers with a lot of rivers scattered around the town. Obafemi Owode Local Government Area in Ogun state has its headquarters in the town of Owode. The Local Government Area occupies a land mass of 1,410km³ (540m²) and has a total population of 228,851. The people of the Local Government Area are predominantly farmers too. But some of them trade in livestock and fishing. Ado-Odo/Ota Local Government Area is a semi-urban area of Ogun state with a population of 267,497 according to 1996 projection and a mass of 1,460 square kilometers. It has the highest number of industries in Ogun state that employ a lot of casual workers. The primary occupation of the people of Ado-Ado/Ota Local Government Area is farming (tukool.com, 2018).

Sampling and Questionnaire Administration

Criteria for selecting the three markets was based on reports from Local Government Secretariat which showed that the markets were located in endemic communities which had been involved in Mass Administration of Medicine (MAM) programs. The market survey approach was adopted because it has been used in previous research studies, where it was reported as an effective means of obtaining larger information from communities. It provides an interactive forum for people of diverse interest from nearby towns and villages and the local government. It is also considered rapid, cost effective and adequate for villages that cannot be easily assessed (Ibidapo *et al.*, 2008). Semi-structured questionnaires were administered to 238 respondents, 92 Males and 146 females from these three markets within the ages of ≥ 20 years to ≥ 60 years. Purpose of research was explained to each respondent in English language and Yoruba language for non-English speaking respondents. Informed oral consent of each respondents were sought and received before the structured questionnaire developed by the researchers were administered. Barriers were created to enable participants, give independent answers, without interference. People who could not communicate in the Yoruba language native to the communities had interpreters.

Ethical Consideration

This was sought for and given by the Local government secretariat with the following identification number IFLG.45/137.

Data Analysis

The research study were analyzed using SPSS version 16.0 (Chicago, USA). The results were entered into Microsoft Excel broad sheets. The sociodemographic

features of respondents were presented in percentages and frequencies. Association of the knowledge of filariasis with some sociodemographic factors of the respondents was analyzed using Chi-square test. P-value of less than 0.05 was considered to be significant in the determination of association between the variables.

RESULTS AND DISCUSSIONS

Socio-demographic characteristics of respondents

A total of 238 respondents were sampled using structured questionnaires to ascertain their levels of knowledge, attitudes and practices towards lymphatic filariasis. The respondents fell within the ages of ≥ 20 years and above ≥ 61 years. They were grouped into six different stratified age groups. These were below 20 years, 21-30 years, 31-40 years, 41-50 years, 51-60 years and 61 years and above. Each of the market has the following respondents: Owode, 82: 29 (35.4%) males, 53(64.6%) Females. Lusada 74:27(36.5%) males, 47 (63.5%) females and then Ilaro 82: 36 (43.9%) males and 46 (56.1%) (Table1).

The total number of respondents that are married from the three markets are 166 (69.75%). More respondents were married than single. Lusada had 59 (79.7%), Owode 61 (74.4%) and then Ilaro 46 (56.1%). For single, the total number of respondents are 72 (30.25%) from Lusada, 15 (20.3%) from Owode 21 (25.6) and 36 (43.9%) from Ilaro. Ilaro market had the highest number of single respondents 36 (43.9%) while Lusada had the least number of single respondents 15 (20.3%) (Table 2).

Socio-demographic characteristics of respondents

The occupation of the respondents was highest among traders with a total of 149 (62.61%) with Owode having 57(69.5%), Lusada 48 (64.9%) and Ilaro 44 (53.7%). This was followed immediately by business men 22 (9.2%), with Owode having 7 (8.5%), Lusada 9 (12.2%) and Ilaro 6 (7.3%). Students had a total of 23 (8.1%), with Owode having 5 (6.1%), Lusada 6 (8.1%) and Ilaro 12 (14.6%). This was followed by Artisans with a total of 15(6.3%), with Owode having 3 (3.7%), Lusada having 2 (2.7%) and Ilaro having 10 (12.2%). Farmers had a total of 9 (3.78%), with Owode having 3 (3.7%), Lusada having 1 (1.4%) and Ilaro having 5(6.1%). The dependents had a total of 2 (0.84%), with Owode 1 (1.2%), Lusada 0 (0.00%) Ilaro 1 (1.2%) and lastly Civil servants had a total of 18 (0.48%), with Owode having 6 (7.3%), Lusada 8 (10.8%) and Ilaro 4 (4.9%) (Table 3).

Educational Qualification of respondents

Most respondents had secondary education as the highest educational qualification, 123 (59.68%) in the three markets which is a reflection of the educational qualification of respondents in the society. Ilaro 47(59.5%) had most of the respondents from secondary school, followed by respondents from Lusada 38 (52.1%) and then from Owode 38 (46.3%). Owode had the largest number of illiterates,

17(20.7%). Lusada had the highest number of respondents in tertiary institution (Table 4).

Duration of stay of respondents in endemic communities

Most respondents from Owode, 46 (56.1%) claimed to have been in the community for ten years while 36 (43.9%) claimed they have been going and coming. In Lusada, 27 (36.5%) claimed to have lived only in the community while 47 (63.5%) claimed to have at one time or the other lived outside the community. Similarly, in Ilaro 47 (57.3%) claimed they have never lived outside while 35 (42.7%) claimed also that they have lived outside (Table 5)

Respondents' knowledge about the causes of lymphatic filariasis

The respondents seem to know about the existence of the disease, as they have various local names for it. Ipa/asopa/sopa were names given to hydrocele by 42 (66.7%) in Owode, 38 (77.6%) in Lusada and 31 (39.2%) in Ilaro. Ibi was another name given to it by 1 (1.6%) respondents in Owode, 1 (1.3%) respondents in Ilaro while Lusada had no such name. Other names given to hydrocele were Kolori, Akuriri, Hynea by 1 (1.3%) respondent in Ilaro market. The other markets, Owode and Lusada did not have such names

Most of the respondents do not seem to have idea of the cause of the disease, 53 (89.8%) in Owode, 30 (71.4%) in Lusada and 70 (90.9%) in Ilaro. Other causes attributed to the disease by respondents were charm/witchcraft/spirit by 4(6.8%) in Owode, 1 (2.4%) in Lusada and 2 (2.6%) in Ilaro. Stress, 2(4.8%) in Lusada, 1 (1.3%) in Ilaro. Sexual intercourse, 2 (3.4%) in Owode, 4 (9.5%) in Lusada and 1(1.3%) in Ilaro. Dirty environment, 2(3.4%) in Owode, 4 (2.4%) in Lusada and 1 (1.3%) in Ilaro. Hereditary factors were attributed by 1(2.4%) respondent in Lusada. Respondents from Owode 57 (83.8%) do not believe that the disease can be transmitted by mosquitoes neither do 50 (75.8%) respondents from Lusada nor 54 (72.0%) respondents from Ilaro (Table 6).

Respondent's knowledge on vector of disease

Respondents from Owode 57 (83.8%) do not believe that this disease can be transmitted by mosquitoes, neither do 50 (75.8%) respondents from Lusada nor 54 (72.0%) respondents from Ilaro. A greater proportion of respondents 75 (91.5%) in Owode, 43 (78.2%) and 63 (96.9%) opined no idea on how disease is transmitted. Other causes of lymphatic filariasis disease mentioned were witchcraft, sex and inheritance (Table.7).

Respondents' responses to the clinical signs of disease (Elephantiasis) showed that most of the respondents from Owode 70 (93.3%) did not have swelling in their bodies, so also 69 (93.7%) from Lusada and 76 (92.7%) from Ilaro. However some respondents agreed to have swelling in their bodies, from Owode 5(6.7%), from Lusada 5(6.8%) and from Ilaro 6 (7.3%). Respondents also know specifically, people in their locality that have both elephantiasis and hydrocele. For limb elephantiasis, 37

(50.76%) from Owode acknowledged they know people with such clinical signs, so also 44 (59.5%) from Lusada and 31 (37.8%) from Ilaro (Table.9). For hydrocele 20 (31.3%) respondents from Owode claimed to know individuals with hydrocele, so also 38 (54.3%) in Lusada and 20 (26.0%) in Ilaro (Table. 10). 10 (25.4%) respondents in Owode seems to be able to point out 3-5 individuals that have elephantiasis in their community, so also 15 (25.4%) in Lusada and 8 (11.48%) in Ilaro. Respondents 61 (82.4%) from Owode do not know the cause of elephantiasis, neither 57(77.0%) from Lusada nor 69 (85.2%) from Ilaro. Also respondents from Owode 37(50.7%), 44 (59.5%) from Lusada and 31 (37.8%) from Ilaro reported that they have seen people with leg elephantiasis in their community, 43 (71.7%) from Owode, 48 (69.6%) from Lusada and 67 (90.5%) Ilaro reported that they do not consider it as a health problem (Table 8).

Respondents' responses to clinical signs of disease (Hydrocele)

The knowledge of hydrocele was also acknowledged by respondents from Owode 39 (60.0%), 57 (79.2%) from Lusada and 37 (46.3%) from Ilaro. Although respondents acknowledged the knowledge of hydrocele, 50 (78.1%) from Owode, 53 (75.7%) from Lusada and 68 (86.1%) from Ilaro were unaware of the causes of hydrocele. Some respondents 44 (68.8%) from Owode, 32 (45.7%) from Lusada and 57 (74.0%) from Ilaro were not aware of people in their community with hydrocele. In addition, respondents from Owode 48(81.4%), 49 (74.2%) from Lusada and 64 (92.8%) from Ilaro did not recognize it as a health challenge (Table 9).

Responses of respondents from each market: Owode (49 67.1%), Lusada 41(75.9%) and Ilaro 56(73.7%) showed that majority of the respondents do not believe that the disease is treatable. Also most respondents 58(82.9%), Lusada 42 (71.2%) and 56 (68.3%) do not believe it is treatable. Only very few respondents 2(3.7%) from Owode, 6(15.0%) from Lusada and 0 (0.0%) from Ilaro believe that sleeping under nets and using insecticide can control the disease (Table 10)

Most of the respondents 48 (58.5%) from Owode, 58 (78.4%) from Lusada and 49(59.8%) from Ilaro believe that the disease is treatable. However, 31(55.4%), from Owode, 16 (30.2%) from Lusada and 32(57.1%) from Ilaro do not have idea of the means of treatment. Although very few respondents 2(3.6%) from Owode, 9 (17%) from Lusada and 7 (12.5%) indicated the use of herbs as a method of treatment.

Respondent's responses to the use of Albendazole, Ivermectine and diethylcarbamazine and treatment in the hospital.(Table 11)

Among the 79 respondents from Owode, none indicated they have been to hospital because of the disease (Table 12). Even those among them 5(6.7%) that indicated having swellings in their body (Table 9). No respondent from Owode knew the name of the drug for the treatment of Lymphatic filariasis. However, when asked whether they were aware of Albendazole, Ivermectine or diethylcarbamazine 2(2.5%)

from Owode, 0(0.00) from Lusada and 3 (3.7%) responded in the affirmative. Concerning whether they have taken the drug, 1 (1.6%) from Owode, none from Lusada and 2 (2.4%) from Ilaro responded to having done so. The same respondents 1(1.6%) agreed to have taken the medicine for 1 week and also have taken native medicine Agbo for the disease (Table. 12).

Respondents from Lusada: Respondents from Lusada were 74 participants. Among which 5 (6.7%) acknowledged they have swelling in their bodies and also 44 (59.50) acknowledged knowing individuals in their community with elephantiasis while 20 (26%) acknowledged those with hydrocele (Table 9 and Table 10). However none of the respondents acknowledged having been to hospital as a result of the disease. None knew the drug of cure, nor the dosage. All expressed ignorance of Albendazole, Ivermectine and diethylcarbamazine. Respondents were also ignorant of herbal cure (Table 12). Respondents from Ilaro: Respondents from Ilaro were 82 in number out of which 1 (1.6%) responded that they have gone to the hospital because of the disease. Same number responded they knew the name of medicine given for treatment. Ilaro had the highest number of respondents 3(3.7%) to Owode 2 (2.5%) and Lusada 0 (0.0%) that acknowledged the knowledge of Albendazole, Ivermectine and diethylcarbamazine. Among these number, 2 (2.4%) respondents acknowledged they have taken the medicine while 1 (1.6%) knew the dosage taken and 2 (3.0) knew the duration they took the medicine. No respondent from Ilaro acknowledged herbal treatment.

This experimental study was carried out in three markets situated in three Local Government Areas in Ogun State randomly selected with the assistance of the office of the directorate of the secretariat. The markets are situated in lymphatic filariasis endemic communities and there has not been data on the perception and practices of lymphatic filariasis in these communities. This survey is expected to provide an online data. Market survey was used because it has been used in previous research study. It is a means of obtaining information as it provides an interactive forum for people of diverse interest from nearby towns and villages with the local government. It is also rapid and cost effective and villages that cannot easily assessed (Ibidapo *et al.*, 2008).

In Africa, the elimination strategy is through annual MDA with Albendazole and Ivermectine or diethylcarbamazine (WHO, 2017). Knowledge of this drug, its modes of use is key to elimination of lymphatic filariasis. In this research study, it was observed that the level of education has a key role to play in the elimination of lymphatic filariasis. Ilaro had the respondents with the highest educational qualification. These respondents were the only community that have gone to hospital, acknowledge the knowledge of drug, had taken it, knew the dosage taken and knew the names of drugs and the duration taken. This is also in line with previous studies about

the effect of ignorance and wrong perception on disease elimination (Al-Abd, 2014 and Dogara *et al.*, 2014).

For the respondents from the three communities, only 2 (2.5%) from Owode and 3 (3.7%) from Ilaro claimed they have heard about the antifilarial drug and among those from Owode and Ilaro who have heard, only 1 (1.6%) from Owode and 2 (2.4%) from Ilaro claimed they have taken the drug. Among the two respondents from Ilaro 1 (1.6%) claimed to have taken a dosage of two tablets of the medicine (Table. 12) for a period of 1 week. To achieve interruption of parasite transmission, MDA must achieve program coverage of at least 80% (of individuals at risk in an implementation unit: (usually the district in which MDA is happening). Over 5-6 years of annual treatment or longer in areas with high baseline microfilaria (mf) prevalence (Boyle *et al.*, 2010 and Karam *et al.*, 2000). This is an indication of a noncompliance to the main tool for eliminating lymphatic filariasis in endemic communities. It has been reported in previous studies, that low compliance with treatment is a serious obstacle to elimination. Also the responses from respondents indicated poor coverage WHO, 2016). Previous studies have noted that MDA coverage supported by professionals is an important model for tackling Lymphatic filariasis. Also to achieve interruption of parasite transmission, MDA must achieve program coverage of at least 80% (of individuals at risk in an implementation Unit. Usually the district in which MDA is happening) over 5-6 years of annual treatment or longer in areas with high baseline microfilaria (mf) prevalence (WHO, 2017). In this research study, respondents from Owode do not seem to have heard of the medicine at all, its modes of use, even though there are indications of clinical signs and the person who indicated use does not know the name. There is a great need for proper campaign from grass root level house to house awareness especially because of the level of education as previous studies have observed (Omodu *et al.*, 2011).

The goal of MDA is to reduce the density of parasites circulating in the blood of infected persons and prevalence of infection in communities to levels where transmission is no longer sustainable by the mosquito's vector. During MDA, one of the three combinations of anthelmintic medicines is administered: Albendazole (ALB) (400 mg) + diethylcarbamazine (DEC) citrate (6 mg/kg); ALB (400 mg) + Ivermectine (IVM) (150–200 µg/kg) in areas co-endemic for onchocerciasis; or ALB (400 mg) preferably twice yearly in areas co-endemic for loiasis to all persons at risk of the disease living in endemic areas (Ottesene *et al.*, 2011, Hussain *et al.*, 2014 and Gypong *et al.*, 2017)

The 2 tablet dosage taken by the respondent from Ilaro (Table 12) could have been a combination of Albendazole and Ivermectine as certain reports from the health center claimed to have administered Albendazole and Ivermectine in Ilaro. Previous research work in Yewa South has reported such finding as certain communities in Ogun State have been reported to have co-endemicity of lymphatic

filariasis with onchocerciasis which could result to adverse effect (Ojuronbe *et al.*,2010).

The Ilaro community in which 1 (1.6%) responded indicated the administration of MAN is a semi-rural area with poor social infrastructure. Cassava pulp is their main occupation done very close to rivers. Often, the presence of open drums and tanks filled with water are common sights in the environment. These could serve as breeding sites for vector of Lymphatic filariasis. Previous reports from research studies have associated Lymphatic filariasis distribution with areas with poor social conditions and deficient sanitary infrastructure (Galvez, 2003) Also it has been reported that people living under poor environmental conditions were at a higher risk of exhibiting this disease (Galvez, 2003 and Hussain *et al.*, 2014)

TABLE 1: Socio-demographic characteristics of respondents

Variables	OWODE YEWA SOUTH		LUSADA		ILARO	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Age categories						
Below 20 years	10	12.2	7	9.5	14	17.1
21-30 years	23	28.0	22	29.7	27	32.9
31-40 years	25	30.5	22	29.7	25	30.5
41-50 years	15	18.3	19	25.7	8	9.8
51-60 years	6	7.3	3	4.1	6	7.3
61 years a above	3	3.7	1	1.4	2	2.4
Total	82	100.0	74	100.0	82	100.0
Sex						
Male	29	35.4	27	36.5	36	43.9
Female	53	64.6	47	63.5	46	56.1
Total	82	100.0	74	100.0	82	100.0

Age of participants were significantly related to knowledge of infection $p < 0.05$

TABLE 2: Socio-demographic characteristics of respondents

Variable	Owode Yewa South		Lusada		Ilaro	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Marital Status						
Single	21	25.6	15	20.3	36	43.9
Married	61	74.4	59	79.7	46	56.1
Total	82	100.0	74	100.0	82	100.0

Marital status does not have significant relation with knowledge of disease $p > 0.5$

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TABLE 3: Showing Occupation of Respondents

Variable	Owode Yewa South		Lusada		Ilaro	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Traders	57	69.5	48	64.9	44	53.7
Artisans	3	3.7	2	2.7	10	12.2
Farmers	3	3.7	1	1.4	5	6.1
Civil Servants	6	7.3	8	10.8	4	4.9
Business men	7	8.5	9	12.2	6	7.3
Dependents	1	1.2	0	0.0	1	1.2
Students	5	6.1	6	8.1	12	14.6
Total	82	100.0	74	100.0	82	100.0

Occupation of respondents is significantly related to knowledge of disease $p < 0.05$

TABLE 4: Respondents' Educational Qualification

Educational Qualification	Owode Yewa South		Lusada		Ilaro	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Tertiary	16	19.5	15	20.5	12	15.2
Secondary	38	46.3	38	52.1	47	59.5
Primary	11	13.4	14	19.2	14	17.7
Illiterate	17	20.7	6	8.2	6	7.6
Total	82	100.0	73	100.0	79	100.0

Educational qualification is significantly related to knowledge of disease

TABLE 5: Respondents' response about the duration of stay in endemic community

Have you ever lived outside the community for the past 10 years	Owode Yewa South		Lusada		Ilaro	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
No	46	56.1	27	36.5	47	57.3
Yes	36	43.9	47	63.5	35	42.7
Total	82	100.0	74	100.0	82	100.0

Duration of stay is not significant to the knowledge of infection $p > 0.05$

TABLE 6: Respondents' response about the causes of lymphatic filariasis

What is the name of this disease in your Locality	Owode Yewa South		Lusada		Ilaro	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
No idea	20	31.7	11	22.4	44	55.7
Ipa / asopa /sopa	42	66.7	38	77.6	31	39.2
Ibi	1	1.6	0	0.0	1	1.3
Kolori	0	0.0	0	0.0	1	1.3
Akuriri	0	0.0	0	0.0	1	1.3
Hyena	0	0.0	0	0.0	1	1.3
Total	63	100.0	49	100.0	79	100.0
What do you know causes this disease						
No idea	53	89.8	30	71.4	70	90.9
Charm/witchcraft/spirit	4	6.8	1	2.4	2	2.6
Stress	0	0.0	2	4.8	1	1.3
Sexual Intercourse	2	3.4	4	9.5	1	1.3
Dirty environs	0	0.0	1	2.4	1	1.3
Hereditary	0	0.0	1	2.4	0	0.0
Parasite	0	0.0	3	7.1	2	2.6
Total	59	100.0	42	100.0	77	100.0

Respondents responses about the cause of disease is not significant to knowledge of disease $p > 0.05$

TABLE 7: Respondents' response on Knowledge of disease vector

How is the disease transmitted	Owode Yewa South		Lusada		Ilaro	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
No idea	75	91.5	43	78.2	63	96.9
Witchcraft	2	2.4	1	1.8	0	0.0
Sex	4	4.9	5	9.1	2	3.1
Hereditary	1	1.2	2	3.6	0	0.0
Parasite	0	0.0	1	1.8	0	0.0
Dirty environment	0	0.0	2	3.6	0	0.0
Do you thinks this disease can be transmitted by mosquitoes						
No	57	83.8	50	75.8	54	75.0
Yes	11	16.2	16	24.2	18	25.0
Total	68	100.0	66	100.0	72	100.0

Respondents' response on knowledge of disease vector is not significantly related to knowledge of disease

TABLE 8: Respondents responses on clinical signs of disease (Elephantiasis)

Clinical signs of disease (Elephantiasis) Variable	Owode Yewa South		Lusada		Iaro	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Any swelling in your body						
No	70	93.3	69	93.2	76	92.7
Yes	5	6.7	5	6.8	6	7.3
Total	75	100.0	74	100.0	82	100.0
Do you know what causes Elephantiasis						
No	61	82.4	57	77.0	69	85.2
Yes	13	17.6	17	23.0	12	14.8
Total	74	100.0	74	100.0	81	100.0
Have you seen local inhabitants with elephantiasis of the leg						
No	36	49.3	30	40.5	51	62.2
Yes	37	50.7	44	59.5	31	37.8
Total	73	100.0	74	100.0	82	100.0
If yes, how many people have Elephantiasis						
None	5	14.3	30	40.5	52	63.4
1	5	14.3	13	17.6	9	11.0
2	7	20.0	14	18.9	8	9.8
3	8	22.9	8	10.8	10	12.2
4	4	11.4	3	4.1	2	2.4
5 and above	6	17.1	6	8.1	1	1.2
Total	35	100.0	74	100.0	82	100.0
Do you consider Elephantiasis as a health problem in this locality						
No	43	71.7	48	69.6	67	90.5
Yes	17	28.3	21	30.4	7	9.5
Total	60	100.0	69	100.0	74	100.0

Respondents' responses to the clinical signs of disease (Elephantiasis) is not significantly related to knowledge of disease.

TABLE 9: Respondents' responses to clinical signs of disease (Hydrocele)

Clinical signs of disease (Hydrocele) Do you know what is Hydrocele	Owode Yewa South		Lusada		Iaro	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
No	26	40.0	15	20.8	43	53.8
Yes	39	60.0	57	79.2	37	46.3
Total	65	100.0	72	100.0	80	100.0
Do you know what causes Hydrocele						
No	50	78.1	53	75.7	68	86.1
Yes	14	21.9	17	24.3	11	13.9
Total	64	100.0	70	100.0	79	100.0
Do you know people in this locality with hydrocele						
No	44	68.8	32	45.7	57	74.0
Yes	20	31.3	38	54.3	20	26.0
Total	64	100.0	70	100.0	77	100.0
If yes, how many people do you know that have hydrocele in this locality						
None	25	59.5	22	37.3	52	74.3

-2people	6	14.3	21	35.6	7	10.0
3-5 people	10	23.8	15	25.4	8	11.4
5 and above	1	2.4	1	1.7	3	4.3
Total	42	100.0	59	100.0	70	100.0
Do you consider hydrocele to be an health problem in this locality						
No	48	81.4	49	74.2	64	92.8
Yes	11	18.6	17	25.8	5	7.2
Total	59	100.0	66	100.0	69	100.0

Respondents responses to whether the disease is transmissible, treatable preventable and controllable

TABLE 10: Respondents responses to whether the disease is preventable, transmissible and controllable

Is this disease preventable	Owode Yewa South		Lusada		Ilaro	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Yes	24	32.9	13	24.1	20	26.3
No	49	67.1	41	75.9	56	73.7
Total	73	100.0	54	100.0	76	100.0
Sexual protection	1	1.9	1	2.5	1	1.7
Nets and insecticide	2	3.7	6	15.0	0.00	0.00
Drugs	2	3.7	3	7.5	2	3.3
Cleanliness	0	0.0	5	12.5	0	0.0
Is it transmissible from one person to the other?						
No	58	82.9	42	71.2	56	68.3
Yes	12	17.1	17	28.8	26	31.7
Total	70	100.0	59	100.0	82	100.0

Respondents' responses to whether the disease is treatable.

TABLE 11: Respondents responses to whether the disease is treatable

Can this disease be treated?	Owode Yewa South		Lusada		Ilaro	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
No	34	41.5	16	21.6	33	40.2
Yes	48	58.5	58	78.4	49	59.8
Total	82	100.0	74	100.0	82	100.0
No if yes how?						
No idea	31	55.4	16	30.2	32	57.1
Herbs	2	3.6	9	17.0	7	12.5
Do you know the name of the herbal treatment that was given						
No	63	100.0	70	94.6	82	100.0
Yes	0	0.0	4	5.4	0	0.0
Total	63	100.0	74	100.0	82	100.0
If yes, what are their names						
No	48	98.0	38	100.0	61	100.0
Agbo	1	2.0	0	0.0	0	0.0
Total	49	100.0	38	100.0	61	100.0
Total	79	100.0	74	100.0	76	100.0

TABLE 12: Respondents' responses to the use of Albendazole, Ivermectine and diethylcarbamazine

How many times have you gone to the hospital Variable	Owode Yewa South		Lusada		Ilaro	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Nil	55	100.0	48	100.0	63	98.4
4 times	0	0.0	0	0.0	1	1.6
Total	55	100.0	48	100.0	64	100.0
Can you remember the name of the drugs that you were given						
No	54	100.0	48	100.0	64	98.5
Yes	0	0.0	0	100.0	1	1.5
Total	54	100.0	48	100.0	65	100.0
Have you heard about these of(Albendazole,ivermectin , Diethylcarbamazine)						
No	78	97.5	56	100.0	79	96.3
Yes	2	2.5	0	0.0	3	3.7
Total	80	100.0	56	100.0	82	100.0
Have you taken any of it/ /them at one time or the other						
No	62	98.4	56	100.0	80	97.6
Yes	1	1.6	0	0.0	2	2.4
Total	63	100.0	56	100.0	82	100.0
What dosage? (How many tablets)						
Nil	81	100.0	47	100.0	63	98.4
2 tablets	0	0.0	0	0.0	1	1.6
Total	81	100.0	47	100.0	64	100.0
For how long did you take the tablet						
Nil	81	98.8	74	100.0	64	97.0
One week	1	1.2	0	0.0	2	3.0
Total	82	100.0	74	100.0	66	100.0

CONCLUSIONS

In the present study, respondents were aware of the clinical signs of lymphatic filariasis, both elephantiasis of the limbs and hydrocele in the three communities (Table). Despite this knowledge of the disease by respondents, they were unaware of

the role of mosquitoes in the transmission of the parasites that causes the disease (Table. 9 and Table 10). Indication of such occurrences has also been reported in previous research study (Hotez, 2012). Also responses in the present research study revealed a very low knowledge about the cause, transmission pattern, treatment, prevention and control of lymphatic filariasis by the participants in the study area. Assessing the responses of respondents, there was significant difference between knowledge of lymphatic filariasis, age and level of education of the respondents. This observation of respondents is in line with the findings of previous respondents in Malaysia (Al-Abd *et al.*,2014Jambulingam *et al.*, 2016), where significant association was found between knowledge of lymphatic filariasis, age, gender and educational status of the respondents. Just like any other neglected tropical diseases, the residents of these three communities did not see the disease as constituting a health challenge in the community. The attitude about the disease reflects a very poor sensitization of people in the community on the mode of transmission of lymphatic filariasis, control and prevention methods. Thus, intensive advocacy at community to community level through health workers is advocated.

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