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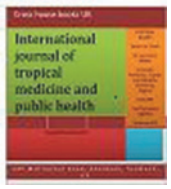

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A DESCRIPTIVE SURVEY ON KNOWLEDGE, ATTITUDE, PRACTICES AND BELIEFS ON KALA AZAR AMONG THE RESIDENTS OF MARIGAT SUB-COUNTY, BARINGO COUNTY, KENYA

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ABSTRACT

Objective: To establish the level of knowledge, attitude, practices and beliefs related to kala azar among residents of Marigat sub - County, Baringo County. **Methods:** The sub-County is divided into 37 sub-locations and of these 8 herein referred to as villages were considered for this study. A total of 670 households were randomly drawn from the 8 villages, and this formed the sample population. Data were collected using structured questionnaires and in-depth interviews of key informants. **Results:** The findings indicated that the respondents were well informed on kala azar; the cause and treatment. They also had favorable attitude toward the disease. They were aware that the disease was curable and sought treatment from health facilities as opposed to traditional alternatives. In seeking treatment, the residents were faced with challenges such as the long distance to health facilities, long period of treatment and the attendant cost of caring for a leishmaniasis patient. The respondents were aware that the disease was spread by an insect; however, they were not aware of preventive measures. Most live in destitute houses which predisposed them to the infective bite of the vector. Most of the respondents are not employed and the cost of treatment, in addition to attendant costs places a heavy economic burden on them. **Conclusion:** The results showed good awareness of leishmaniasis, positive attitude and practices among the respondents which are important attributes in community participation. These findings are quite encouraging to researchers planning control programs because such a community would be more receptive to suggested control measures.

Keywords: Kala azar, leishmaniasis, sand fly.

INTRODUCTION

Visceral leishmaniasis (VL) is classified as a neglected tropical disease and is strongly related to poverty and its consequences.[1] Over 90% of VL cases occur in six countries: Bangladesh, Brazil, Ethiopia, India, South Sudan, and Sudan.[2] It is estimated 200,000-400,000 people contract VL every year in developing countries.[3] The parasite is transmitted to humans and animals through the bite of an infected female phlebotomine sandfly.[4] VL (Kala azar) is the most common form of the disease in humans, which is caused by species of *Leishmania donovani* complex that consists of mainly *L. donovani*, *Leishmania infantum*, and *Leishmania chagasi* which is nearly always fatal if left untreated. VL calls for the development of cost-effective technologies for diagnosis and treatment. Recurrent epidemics of VL in East Africa (Ethiopia, Kenya, South Sudan, and Sudan) have caused high morbidity and mortality in affected communities.[2]

In Kenya, leishmaniases are found in Baringo, Turkana, Marsabit, Mandera, Wajir, Machakos, Kitui, Mwingi, Kajiado, West Pokot, Keiyo, and Marakwet.[5] The etiological agents are *L. donovani* for VL and *Leishmania major* for cutaneous leishmaniasis (CL) and are transmitted by *Phlebotomus martini* and *Phlebotomus duboscqi,* respectively.[6] Other areas in Kenya with CL include Laikipia and Nakuru counties where the disease is caused by *Leishmania tropica* and transmitted by *Phlebotomus guggisbergi*,[7,8] and Bungoma County where the etiological agent, *Leishmania aethiopica* is transmitted by *Phlebotomus pedifer.*[9] The disease occurring in Baringo County is often associated with sporadic incidents rather than epidemics. In 1999, 305 cases of VL were reported and according to Kimalel Hospital, Marigat, 2 cases of VL are received on weekly basis. Here, half of the reported VL patients are between 5 and 14 years of age and 66% of them are males.[6]

VL seroprevalence in Kenya is generally unknown because of the lack of a practical and accurate diagnostic test or surveillance system, but a study in two villages in Marigat sub County indicated that VL seroprevalences were 52.5% in Parkarin and 16.9% in Loboi.[10] In this study, significant associations among seropositivity and house construction, age, and proximity to domestic animal enclosures were found. A significant spatial cluster of VL was found in Loboi. The spatial distribution of cases in the two villages was different with respect to risk factors, such as the presence of domestic animals. This study suggested that disease control efforts could be focused on the elimination of sand fly habitat, placement of domestic animal enclosures, and targeted use of insecticides.[10]

As with many diseases of poverty that cause high morbidity and mortality, the true burden of leishmaniasis remains largely invisible. This is partly because those most affected live in remote areas, and partly because of the social stigma associated with the disease. Leishmaniasis-

related disabilities impose a great social burden, especially on women due to reduced economic productivity and children due to loss of school hours.[11]

In spite of the health impacts of VL, there is a dearth of information on how the individuals and communities in the rural areas of Marigat sub-County of Baringo County perceive kala azar; its transmission, treatment, prevention, and management. Cooperation of the affected population is essential in the implementation and use of VL program activities. Program implementers need to understand the disease-related knowledge, attitude, and practices (KAP) of the community because these are the important determinants of community participation.[12] This study was therefore undertaken to document the levels of awareness of the people about Kala azar. The second objective was to document information on the KAP and beliefs (KAPBs) among the population in Marigat in regard to causes, transmission, treatment and prevention of kala azar. The region being highly endemic for kala azar, the study also sought to understand and document the levels of education, poverty and housing quality. A descriptive survey on knowledge, attitudes, practices and beliefs regarding the disease provides this all-important baseline for future control programs.

MATERIALS AND METHODS

Study site

The study was done in Marigat sub County, Baringo County, Kenya. Marigat sub County was hived from the then Baringo district in the year 2008. It covers an area of 1,514.9 km^2 and located between latitude 0°49'60N of equator latitude 36°28'60E. The sub-County has a population of 80,274 as per the 2009 national census with annual population growth rate of 1.93% (Census, 2009). The majority of the residents in Marigat are from the Tugen and Njemps communities; there are also individuals from the Turkana and other Kenya communities especially within Marigat town. Trade in livestock, honey and farm produce from the Perkerra and other irrigation schemes have resulted in a lot of movement in to and out of Marigat, factor that can contribute to re-introduction of disease once thought to be under control. Eight villages, namely, Endao, Perkerra, Rabai. Parkarin, Maoi, Kaplelwo, Kapkuikui, and Loboi were purposively sampled. This was based on health records from Marigat District hospital and Kimalel Hospital which showed the eight villages to be highly endemic for VL. The eight villages had a total of 700 households.

A descriptive design was used to collect data on the KAPBs in relation to the prevention and control of VL and its sand fly vector among residents of the eight villages. Structured questionnaires were administered to 700 household heads. The head of each household was interviewed to assess his KABP related to kala azar. The head of the household was chosen as the study subject because he/she plays the main role in any decision-making process at the household level in this part of the country.[12] If the head of the household could not be contacted after repeated visits, another adult member of the household was interviewed. The data were collected on a pre-tested, semi-structured schedule by trained field staff. Of the 700 questionnaires distributed, 670 were completed giving a response rate of 95.7%. Written informed consent of the respondent was taken after explaining the aims, objectives and methodology of the study in detail. The questionnaires were translated into both Kiswahili and the local Tugen languages. The study was approved by the Scientific Ethical Review Unit (SERU) of the Kenya Medical Research Institute (KMRI). The questionnaires focused on the prevalence and incidence of the disease, treatment options, preventive measures applied against the spread of the disease, the socio-economic status of the residents, the impact of the disease on the residents and the vector.

Scoring

For knowledge, each correct response was given a score of 1, while a wrong or unsure response was scored 0. Total knowledge scores ranged between 0 and 33. Knowledge scores from 0 to 15 were considered as poor knowledge, whereas knowledge scores of more than 15 were considered as good knowledge regarding VL. Attitude toward VL was assessed using a 12-item questionnaire: Attitude scores between 0 and 5 were considered as negative, whereas scores above 5 were considered as positive. Beliefs were assessed using a 9-item questionnaire, and a report of more than 4 was considered as good practice for VL control.

Data management and analysis

Data were coded and analyzed using STATA® 12.0 statistical package.

Ethical consideration

This community-based study was carried out after Ethical Clearance from SERU of the KEMRI. Written informed consent was also sought from the respondents after discussing the purpose and method of the study.

RESULTS

Socio-demographic characteristics of study subjects

The survey was conducted in February and March of 2013 among 670 respondents. The gender distribution was 51.3% male and 48.7 female. The average age of the respondents was 40 years, with a wide variation of 15 years (youngest) and 104 (oldest). The respondents were drawn from eight villages in Marigat whose distribution is summarized in Figure 1.

In the distribution of gender across villages, all the villages have more males than females except Parkarin which had more females than males and Kapkuikui which had an equal number of both males and females (Figure 2).

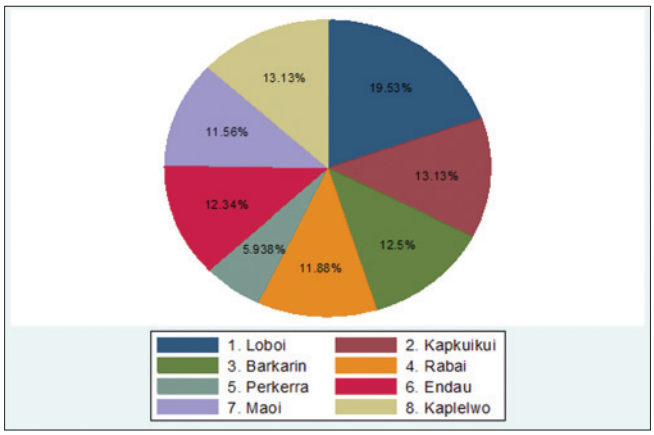

Figure 1: Distribution of respondents from the 8 villages

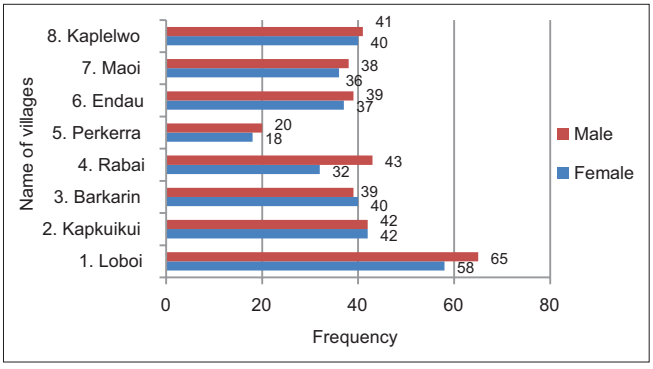

Figure 2: Distribution of gender across villages

Regarding educational levels, the majority (31.4%) have completed primary education with an illiteracy rate of 17.58% (those who have had no education at all). Distribution across gender indicated that females are less educated than males, and this is typical of pastoralist communities (Figure 3).

Leishmaniasis morbidity

Asked whether one had ever contracted leishmaniasis, 20% indicated that they had contracted the disease. As the Figure 4 shows, the leading village in terms of morbidity rate is Endau at 22.48% and the least affected is Perkerra at 3.1%

Employment status

The majority (55.85%) of the respondents are unemployed with only 9.08% employed, the rest of the respondents are self-employed. The hardest hit group in terms of employment is the female which may be explained by their low education attainment. While 13.78% of the men are employed, only 4.48% of the women are employed.

In terms of occupation, 86% of the respondents are farmers, a typical occupation of a rural community in Kenya. The rest of the respondents are teachers, health workers or administrators.

Type of housing

The majority of the respondents 60% reside in houses that are conducive to sand fly habitation. This type of houses was mainly made of either mud walls with grass roofs, stick walls with grass roof or timber walls thatched with grass. Very few respondents 40% reside in houses that are not favorable to sand fly habitation.

Knowledge on VL among the respondents

The majority of the respondents (95.48%) were aware of kala azar while (4.52%) had not heard about it.

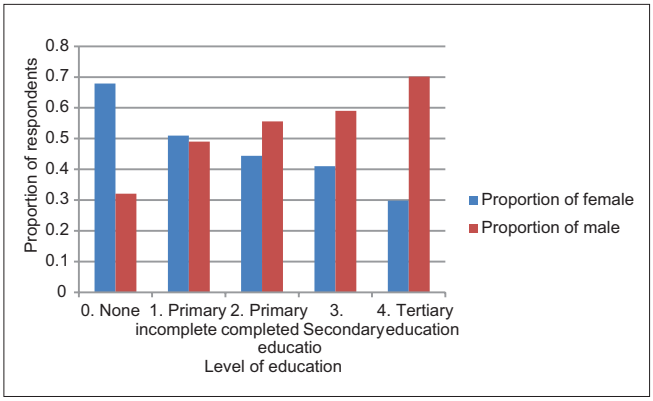

Figure 3: Distribution of gender across education level

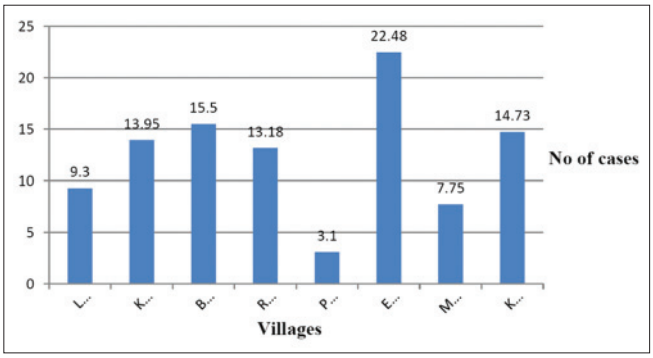

Figure 4: Leishmaniasis morbidity rate by village

Most of the respondents (89%) indicated to have seen a leishmaniasis patient. This percentage is an indication of the prevalence of the disease in Marigat district.

The majority (82%) of the respondents know the insect that spreads leishmaniasis. 9.3% thought it is spread by mosquitoes; 6.5% thought it was spread by termites, 1% by lice while a minority 1.2% did not know.

Attitude

About 60% of the respondents scored above 4 out of 8 questions asked on attitude. This means that the respondents have a positive attitude toward kala azar.

Beliefs

The majority of the respondents 74.1% believed that the disease is caused by an insect, 13.42% believed it was due to whitchcraft, 8.58% believed it is caused by drinking dirty water, 1.56% believed it is poverty related, while 1.25% believed it was due to a curse Figure 5.

Cost of treating leishmaniasis

Out of the 670 respondents, 40.63% indicated that they did not know the complete cost of treating leishmaniasis, 34.63% indicated that the treatment is free. The rest of the respondents indicated that the average cost of treating leishmaniasis was Ksh 16,889 with a big variance of over Ksh 20,000.

In addition to the cost of treatment, the respondents indicated that on average it cost one Ksh 2,961 in terms of fare to visit a relative who is admitted for leishmaniasis treatment. The average amount used in treating the disease is estimated at Ksh 10,961. In addition, the respondents' indicated that they on average used Ksh 3,715 to buy special food for a patient recovering from leishmaniasis.

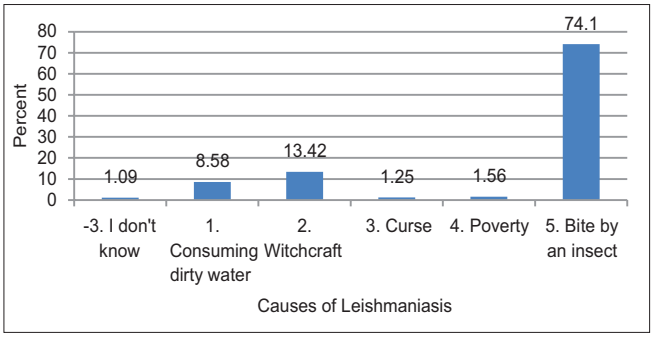

Figure 5: Common beliefs about the causes of leishmaniasis

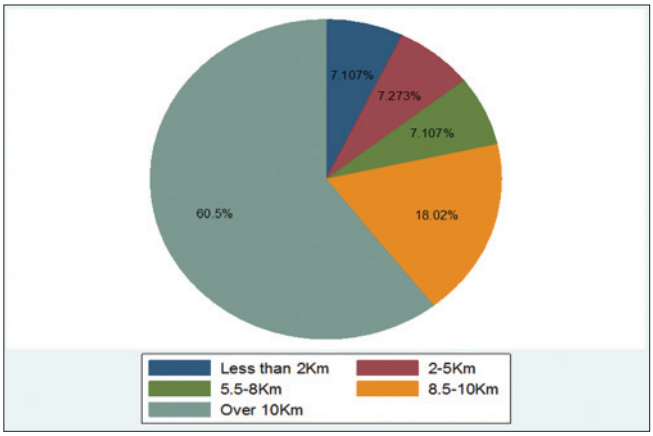

Figure 6: Distance from the health center

On treatment the majority indicated that the best form of treatment for leishmaniasis is seeking help from the hospital, a small proportion indicated that they would consult traditional medicine men.

As Figure 6 shows over 60% of the respondents live over 10 km from the nearest health center.

DISCUSSION

Lately, there has been a lot of emphasis on community participation in successful disease control programs.[13] This emphasis is geared toward enhancing success through community ownership and sustainability of control programs. Surveys on the KABPs thus provide baseline for community participation and the subsequent planning of control programs. Leishmaniasis is a major public health problem in Marigat and its prevention and control are priorities. Previously, there has been no study conducted to assess the KAPBs of communities about leishmaniasis in Marigat. This study was, therefore, undertaken with the aim of using the results to plan and implement a sustainable control program that fully involves the community. The objective of the study was to determine the levels of knowledge, attitudes, practices and beliefs on VL among the people of Marigat sub - County, Baringo County.

The study was conducted in February and March of 2013 among 670 respondents. The gender distribution was 51.3% male and 48.7 female. The average age of the respondents was 40 years, with a wide variation of 15 years (youngest) and 104 (oldest). The study comprised of 8 villages of the larger Marigat sub - County. The sample population was 670 households drawn from the 8 villages. Regarding educational levels, the majority (31.4%) have completed primary education with an illiteracy rate of 17.58% (those who have had no education at all). Distribution across gender indicated that females are less educated than males and this is typical of pastoralist communities.

The results of the study show that majority of the respondents (95.48%) were aware of kala azar while (4.52%) had not heard about it. Most of the respondents (89%) indicated to have seen a leishmaniasis patient. This percentage is an indication of the prevalence of the disease in Marigat district. Many of the respondents (82%) knew that it is caused by an insect though they could not identify nor describe it this is in keeping with another study conducted in Iran.[14] This finding is important, since, if respondents know the cause, it means that if they receive proper health education, they will be able to protect themselves appropriately. The disease is quite prevalent with 20% of the respondents having been infected. Endao village was the most endemic. This proves that leishmaniasis is a big public health problem in Marigat, and there is need for control.

In regard to attitude, 60% of the respondents scored above four out of eight questions asked on attitude. This means that the respondents have a positive attitude toward Kala azar. This finding is quite encouraging because a positive attitude means that the respondents would be receptive to programs geared toward prevention and control of VL.

Concerning beliefs, majority of the respondents 74.1% believed that the disease is caused by an insect, while 25.9 believed in other cuases. Notable in this group is 13.42% who believed it was due to whitchcraft and 1.25% who believed it was due to a curse. This finding points to the need for continous health education to disabuse the community on this belief.

Further, the majority of the respondents believed that leishmaniasis can be cured and it is encouraging to note that most sought treatment from health centers as opposed to traditional methods that involve taking of herbal concoctions.

Notable in this study was that most of the respondents live in destitute houses with nearly a half of houses (48.9%) constructed of sticks woven together while others were made of sticks and plastered with mud. The roofs of such houses were thatched with grass. Studies have shown that the resting sites of vectors of leishmaniasis include crevices on the cracked mud walls, grass thatched roofs among others.[15] Such houses thus offer good resting sites for sand flies hence predisposing the residents to the infective bite. This finding shows that improved housing would go a long way in the control of leishmaniasis in this area.[16]

On treatment, the majority indicated that the best form of treatment for leishmaniasis is seeking help from the hospital. However, they complained of being faced with many challenges in accessing health care such as distance to the health center with 65% of the respondents being over 10 km away from the nearest health center. This complicates compliance to treatment and shoots the attendant costs higher. Though the respondents (40.68%) did not seem to know the exact cost of treating leishmaniasis, the majority agreed that it was very expensive,[17] since only 34.63% knew that treatment is offered free of charge by DNDi at Kimalel health center. In addition to the cost of treatment, the respondents indicated that on average it cost one Ksh 2,961 in terms of fare to visit a relative who is admitted for leishmaniasis treatment and an average of Ksh 3,715 to buy special food for a patient recovering from leishmaniasis. Given that most of the respondents (55.85%) are unemployed, the burden of leishmaniasis weighs heavily on them, and there is, therefore, need for sustainable control. Further, studies have shown that it takes 35 days to treat kala azar and this long duration affects compliance and shoots the attendant cost high. On average the respondents indicated that one needed about 25 days out of the normal activities to take care of a leishmaniasis patient and that a pupil suffering from leishmaniasis would miss 17 days of school.

This report shows that most people are aware of kala azar and as such, stands a better chance of controlling the disease unlike another study done in Bihar State, India by Asheesh[18] where the majority of the community (84%) had not heard about kala azar. Community involvement in leishmaniasis control programs is of paramount importance. Assessing the level of knowledge about a community on a disease is a sure way of successful control measures of that disease.

CONCLUSION

Our findings showed that people are knowledgeable about the disease, but knowledge on the vector is still not very high. The people's attitude toward complete cure of the disease, treatability of the disease and control of the disease were favorable. The respondents seek treatment for kala azar from hospital though they are faced with many challenges. The majority of the respondents live in destitute houses which predispose them to the infective bite of the sand fly. Therefore, though the people are knowledgeable there exists a gap between knowledge and practice and there is need for continuous health education on VL.

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