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Evaluation of Local Knowledge, Attitude and Practice in the Prevention and Control of Cutaneous Leishmaniasis Caused by Sandfly Vectors in Selected Communities in Imo State, Nigeria.

Ugwuegbulam P. O.,[1*] Osuala, F.O.U.,[1] Nwachukwu, M.O.[1] and Chiegboka, N.A.

[1]Department Of Biology, Federal University of Technology Owerri Imo State Nigeria

ABSTRACT

The study was conducted to evaluate the local knowledge, attitude and practice in the control and prevention of Leishmaniasis and sandfly vectors in selected communities in Imo State, Nigeria. The sample populations were drawn from three (3) Local Government Areas (Umucheke Okwe in Orlu, Umunam Atta in Okigwe and Umuaku Ntu in Owerri). Two hundred and seventy five (275) questionnaires were dministered to individuals from 18 years and above who has lived in the community for ten years and above and who gave their consent and enlist to participate in the research. to ascertain their knowledge, attitude and practice concerning the prevention and control of leishmaniasis and sandfly vectors. Data obtained in this study were analyzed using analysis of variance (ANOVA) subjected to SAS Package Version 20.0 software and means were separated using Duncan Multiple Range Test (DMRT) at Probability <0.05 significant level. Results obtained showed that majority of the participants were male (56.0%) while female folks were 44.0%. The results further showed that the participants within the age of 41 – 50 were higher in number (26.18%) compared to other age groups. This was followed by those within the age of 31-40 (21.82%).The least values of participants were obtained from the age group of > 20 (7.64%). Level of education was higher among those with Secondary education (45.82%), while the least level of education was recorded among those with no formal education (9.09%). Results further revealed that most of the participants are married (61.82%) while about 3.27% are separated/divorced. Farming is the main economic activity (30.91%) followed by Civil Service (24.00%), Trading (20.36%), and studying (9.46%) respectively. Out of the 275 participants in the studied areas, 90(32.73%) ascertained that stepping on charm is the major cause of Cutaneous leishmaniasis while 34(12.36%) attributed the cause of infection to lack of personal hygyiene. The participants responses indicated that witch craft ranked the highest with a value of 29(29.90%) from Umucheke Okwe and the least was from food poisoning 3(3.09%). About 30(39.48%) of the participants from Umuaku Ntu believed that cutaneous leishmaniasis can be transmitted by Stepping on charms while those from Umunam Atta are of the view that CL can be transmitted via body contact 12(11.84%). Results obtained showed that 107(38.91%) of the participants opined that CL they go to the hospital, 84(30.55 use traditional methods of treatment; about 61(22.18%) of the study participants claimed that they consult oracle in their villages; while 23(8.36%) resort to church for treatment. In Umucheke Okwe, hospital/clinic 37(38.14%) was the commonest perceived method of treatment while going to church was the least consequence with 10(210.31%). Health professionals shall provide health education about feasible disease prevention methods and behaviors in endemic areas.

Keywords: knowledge, practice, control, prevention, Leishmaniasis, sandfly communities, Imo State, Nigeria.

Introduction

Leishmaniasis is a group of diseases whose etiological agents are the protozoan parasites Leishmania (*Kinetoplastida: Trypanosomatidae*). Leishmania circulate between a wide range of natural reservoir hosts and phlebotomine sand flies (Diptera: Phlebotominae) and most commonly causes zoonotic disease in humans, although occurrence of anthroponotic cycles has also been described [1]. The signs of the human disease range from single self-healing cutaneous lesions, diffuse cutaneous and mucocutaneous forms, to the most severe visceral leishmaniasis, which can be fatal if untreated. Over 20 human infecting Leishmania species have been recognized and leishmaniasis is present in more than 80 countries worldwide, with around 1 million new cases of cutaneous leishmaniasis and 50 000 to 90 000 cases of visceral leishmaniasis occurring annually. These data are likely to underestimate the true burden of the disease since cases are most common in countries with a low level of infrastructure and healthcare development, so the majority of the cases remain unreported, in addition to the potential impact of asymptomatic or mild cases of infection [2].

The genus Leishmania is currently divided into four subgenera: Leishmania, Viannia, Sauroleishmania and Mundinia [3]. Subgenera Leishmania and Viannia include species most frequently detected in humans such as L. infantum, L. donovani, L. braziliensis, L. major and are transmitted by sand flies of genera Phlebotomus and Lutzomyia (Diptera: Psychodidae). The subgenus Sauroleishmania includes species infecting reptiles as the primary host, which are transmitted by sand flies of the genus Sergentomyia (Diptera: Psychodidae). Finally, the most recently described subgenus Mundinia includes five species previously known as the L. enriettii complex. While L. enriettii and L. macropodum have only been detected in wildlife kept in captivity, three others, namely L. orientalis, L. martiniquensis and an isolate from Ghana that is still formally undescribed, have been detected in humans and have the potential to cause disease [4].

Materials and Method

The study was conducted in Imo State southeast Nigeria. Imo State has a total of twenty seven (27) Local Government Areas (L.G.A). The people of Imo State are basically of Igbo extraction having similar cultural activities like other Igbo communication and they speak Ibo language. The state is influenced by urban sprawl whereby smaller communities merge together.Imo State is divided into three political zones; the three zones are: Owerri zone, Okigwe zone and Orlu zone. Based on the foregoing, study sampling wasdone to reflect the zones.

Selection of sampling sites

The study was carried out to cover the three zones of Imo State. Each zone was further subdivided into three sub-zones making a total of nine (9) sub-zones for sample collection. Prior to the commencement of the study, a reconnaissance visit were made within the three zones (Owerri, Orlu, and Okigwe) from each of which three (3) sampling sites were randomly selected.

Ethical consideration

Ethical approval for the study was gotten from the Post Graduate Board of the Department of Biology, Federal University of Technology Owerri ethical committee. Written/oral Consent were sought and obtained from the health officers andlocal government health authorities as well as the subjects.

Study Population

The sample populations were drawn from three (3) Local Government Areas (Umucheke Okwe in Orlu, Umunam Atta in Okigwe and Umuaku Ntu in Owerri) to cover the Three (3) Geopolitical Zones of the Study Area with sample size of 600 subjects. This method was drawn from Araoye (2004). The choices of these Local Government Areas were to ensure good geographical spread and subjects were selected on the basis of obtaining an informed consent. The study populations were cut across inhabitants who had lived for 10 years and above in the communities.

Study Design

The three study sites: Orlu, Okigwe and Owerri were randomly sampled for sandfly species and **Familiarization and identification of endemic communities**

Familiarization and identification of communities' endemic for cutanoeus leishmaniasis prevalence and incidence in the three zones of Imo state to ascertain the level of morbility and mortality and obtaining other relevant demographic data, from Health and Environmental Protection Department will be undertaken. subjects having leishmaniasis.

Mobilization of Selected Communities and Subjects

Preliminary survey and mapping out of the study into sites, interaction/discussion with community Heads of the designated study sites on the benefits of the research work. Mobilization and training of community volunteers as research assistants on the distribution of questionnaires and interviews, the census of the communities was taken and the number of households noted. Administered to individuals from 18 years and above who has lived in the community for ten years and above and who gave their consent and enlist to participate in the research. This was to determine their knowledge about the presence of sandfly and cutaneous leishmaniasis. One hundred and fifty questionnaires were distributed to each of the communities giving a total number of four hundred and fifty questionnaires to ascertain their knowledge, attitude and practice concerning the prevention and control of leishmaniasis and sandfly vectors.

Data Analysis

Data obtained in this study were analyzed using analysis of variance (ANOVA) subjected to SAS Package Version 20.0 software and means were separated using Duncan Multiple Range Test (DMRT) at Probability <0.05 significant level. Prevalence was calculated as simple percentages and standard deviation.

RESULTS AND DISCUSSION

Demographic characteristics of the study participants

The socio-demographic characteristic of the study participants is shown in Table 1. Results obtained showed that majority of the participants were male (56.0%) while female folks were 44.0%. The results further showed that the participants within the age of 41 – 50 were higher in number (26.18%) compared to other age groups. This was followed by those within the age of 31-40 (21.82%).The least values of participants were obtained from the age group of > 20 (7.64%).

Level of education was higher among those with Secondary education (45.82%), while the least level of education was recorded among those with no formal education (9.09%). Results further revealed that most of the participants are married (61.82%) while about 3.27% are separated/divorced. Farming is the main economic activity (30.91%) followed by Civil Service (24.00%), Trading (20.36%), and studying (9.46%) respectively. Majority of the participants (53.09%) earned less than ₦30,000 while 14.55% earn above ₦41,000 (Table 2).

Table 1: Socio- demographic characteristics of respondents in the study area

Variable	Umucheke Okwe n = 97 Yes (%)	Umunam Atta n = 76 Yes (%)	Umuaku Ntu n = 102 Yes (%)	Total (%) n = 275 Yes (%)
Age (Years)				
≤ 20	7(7.22)	5(6.58)	9(8.82)	21(7.64)
21 – 30	13(13.40)	11(14.47)	15(14.71)	39(14.18)
31 – 40	20(20.62)	17(22.37)	23(22.25)	60(21.82)
41 – 50	24(24.74)	21(27.63)	27(26.47)	72(26.18)
51 – 60	19(19.59)	16(21.05)	21(20.59)	56(20.36)
≥ 61	14(14.43)	6(7.90)	7(6.86)	27(9.82)
Sex				
Male	55(56.70)	40(52.63)	59(57.84)	154(56.0)
Female	42(43.30)	36(47.37)	43(42.16)	121(44.0)
Educational level				
Primary	22(22.68)	18(23.69)	20(19.61)	60(21.82)
Secondary	43(44.33)	37(48.68)	46(45.09)	126(45.82)
Tertiary	26(26.80)	17(22.37)	21(20.59)	64(23.27)
None	13(6.19)	4(5.26)	15(14.71)	25(9.09)
Marital status				
Single	26(26.80)	20(26.32)	31(30.39)	77(28.0)
Married	56(57.74)	52(68.42)	62(60.78)	170(61.82)
Widow	10(10.31)	3(3.95)	6(5.88)	19(6.91)
Separated/Divorce	5(5.22)	1(1.31)	3(2.95)	9(3.27)
Religion				
Christian	91(93.81)	73(96.05)	94(93.16)	258(93.82)
Islam	0(0.00)	0(0.00)	0(0.00)	0(0.00)
Traditional	6(6.19)	3(3.95)	8(7.84)	17(6.18)
Occupation				
Trader	19(7.22)	16(21.05)	21(20.59)	56(20.36)
Farmer	38(13.40)	7(9.21)	40(39.22)	85(30.91)
Carpenter	9(20.62)	6(7.90)	8(7.84)	23(8.36)
Welder	4(24.74)	9(11.84)	6(5.88)	19(6.91)
Civil servant	16(19.95)	31(40.79)	19(18.63)	66(24.0)
Student	11(11.31)	7(9.21)	8(7.84)	26(9.46)

Table 2: Respondents' monthly income

Variable	Umucheke Okwe n = 97 Yes (%)	Umunam Atta n = 76 Yes (%)	Umuaku Ntu n = 102 Yes (%)	Total (%) n = 275 Yes (%)
Monthly income				
Less than 30,000	56(57.73)	31(40.79)	59(57.85)	146(53.09)
31,000 – 40,000	31(31.96)	23(30.26)	35(34.31)	89(32.36)
Above 41,000	10(10.31)	22(28.95)	8(7.84)	40(14.55)

Participant's knowledge on causes of Cutaneous leishmaniasis

Table 3 shows the number of subjects that responded positively to the best of their knowledge on the causes of Cutaneous leishmaniasis. Out of the 275 participants in the studied areas, 90(32.73%) ascertained that stepping on charm is the major cause of Cutaneous leishmaniasis while 34(12.36%) attributed the cause of infection to lack of personal hygyiene. 32(11.64) believes Cutaneous leishmaniasis is caused through sexual intercourse, 52(18.91) believe it is caused by contaminated food, 26(9.46) attributed it to fever, 17(6.18) claimed it is caused by working in the sun while 24(8.72) believed it is caused by blackfly bites.

Table 3: Respondents' knowledge on causes of Cutaneous leishmaniasis

Causes	Study area			
	Umucheke Okwe n = 97 Yes (%)	Umunam Atta n = 76 Yes (%)	Umuaku Ntu n = 102 Yes (%)	Total (%) n = 275 Yes (%)
Working in the sun	6(6.19)	4(5.26)	7(6.86)	17(6.18)
Sexual intercourse	12(12.37)	6(7.90)	14(13.73)	32(11.64)
Stepping on charm	30(30.93)	21(27.63)	39(38.24)	90(32.73)
Lack of personal hygiene	13(13.40)	9(11.84)	12(11.77)	34(12.36)
Fever	9(9.28)	7(9.21)	10(9.80)	26(9.46)
Contaminated food	17(17.53)	24(31.58)	11(10.78)	52(18.91)
Sand fly bites	10(10.30)	5(6.58)	9(8.82)	24(8.72)

Participants knowledge on mode of transmission of CL

Results of CL mode of transmission is shown in Table 4. The participants responses indicated that witch craft ranked the highest with a value of 29(29.90%) from Umucheke Okwe and the least was from food poisoning 3(3.09%). About 30(39.48%) of the participants from Umuaku Ntu believed that cutaneous leishmaniasis can be transmitted by Stepping on charms while those from Umunam Atta are of the view that CL can be transmitted via body contact 12(11.84%). Almost all the participants (100%) believes that CL can be treated. Overall knowledge on mode of transmission of CL revealed that most of the participants are of the view that witch craft is the major cause of CL 70(25.45%) followed by stepping on charms 69(25.09), while Sexual intercourse ranked the least with a value of 20(7.27%).

Table 4: Respondents' knowledge on mode of transmission of Cutaneous leishmaniasis

Mode of transmission	Study area			
	Umucheke Okwe n = 97 Yes (%)	Umunam Atta n = 76 Yes (%)	Umuaku Ntu n = 102 Yes (%)	Total (%) n = 275 Yes (%)
Sexual intercourse with infected person	8(8.25)	9(24.49)	3(2.94)	20(7.27)
Body contact	14(14.43)	12(11.84)	7(6.86)	33(12.00)
Witch craft	29(29.90)	11(14.47)	30(29.41)	70(25.45)
Stepping on charms	24(24.74)	8(10.53)	37(36.28)	69(25.09)
Sand fly bites	19(19.59)	30(39.48)	16(15.69)	65(23.64)
Food poisoning	3(3.09)	6(7.89)	9(8.82)	18(6.55)

Respondents knowledge on treatment of Cutaneous leishmaniasis

Knowledge on treatment of Cutaneous leishmaniasis among study participants is shown in Table 5. Results obtained showed that 107(38.91%) of the participants opined that CL they go to the hospital, 84(30.55 use traditional methods of treatment; about 61(22.18%) of the study participants claimed that they consult oracle in their villages; while 23(8.36%) resort to church for treatment. In Umucheke Okwe, hospital/clinic 37(38.14%) was the commonest perceived method of treatment while going to church was the least consequence with 10(210.31%). At Umunam Atta, most of the participants opined that CL can be treated in the hospital/clinic (38.16%) while 8(10.53%) to the church to treatment. Similarly, majority of the participants from Umuaku Ntu go hospital/clinic for treatment of CL 41(40.20%) while 5(4.90%) seek treatment from the church.

Table 5: Respondents knowledge on treatment of Cutaneous leishmaniasis

Prevention	Study area			
	Umucheke Okwe n = 97 Yes (%)	Umunam Atta n = 76 Yes (%)	Umuaku Ntu n = 102 Yes (%)	Total (%) n = 275 Yes (%)
Hospital/clinic	37(38.14)	29(38.16)	41(40.20)	107(38.91)
Traditional healing	29(29.90)	23(30.26)	32(31.37)	84(30.55)
Consult oracle	21(21.65)	16(21.05)	24(23.53)	61(22.18)
Religion/church	10(210.31)	8(10.53)	5(4.90)	23(8.36)

Occupational distribution of subjects in the study areas

With respect to the occupational distribution of the participants, results obtained showed that Farmers (40.8%) were the most participated subjects in this research study while health workers (5%) were the least followed by Artisans / traders, Civil servants and students / pupils had rates of (26.3%), (8.3%) and (19.6%) respectively (Figure 4.28. Generally, occupation had a significant influence on the number of participants in this study.

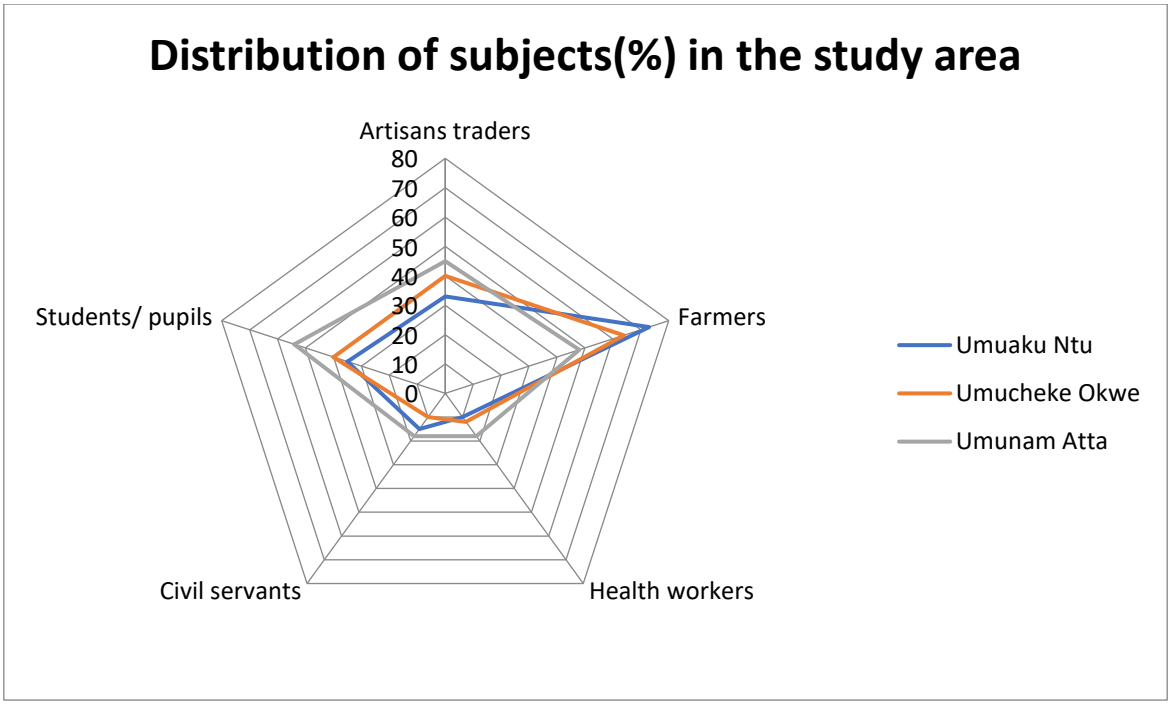

Figure 1: Occupational distribution of subjects in the study areas

Discussion

The demographic characteristics of the respondents are representative of the population of the study area. The results further showed that the participants within the age of 41 – 50 were higher in number (26.18%) compared to other age groups. This was followed by those within the age of 31-40 (21.82%).The least values of participants were obtained from the age group of > 20 (7.64%). This could be due to the higher participation of females in the survey due to their availability at their residences while the majority of males may have departed for their workplaces. [6] also reported similar age bracket in their study on prevalence of CL and associated clinical manifestations in selected hypoendemic communities in Ghana.

Leishmaniasis is considered a neglected tropical disease, where the poorest of the population is affected. This has been demonstrated in the present study, as the odds of infection with leishmaniasis increased with poverty.

Those who had a monthly income of < Less than ₦30,000 were potentially at risk of infection compared to those who had a monthly income of above ₦41,000. According to Okwori et al., (2010), CL affect poor populations due to poor sanitation, poor housing conditions, and lack of access to essential nutrition. In this case, housing condition was not a significant factor in the both case and control groups. Therefore, in these study areas, income can be included as a major risk factor for the disease. However, with this knowledge, further studies would provide a better insight into other associated socio-economical risk factors.

Moreover, educational status has a strong relationship with CL, with the high educational status of the respondent decreasing the likelihood of being affected by CL [7]. This is because education is the great power that makes individuals become informed and aware of the different aspects of CL so that they can easily comply with its preventive measures. Indeed, people with better education may have a better socioeconomic status, better housing, and therefore reduced exposure to sandflies and better access to healthcare services. A study conducted in the rural Marigat subcounty of Kenya is in parallel with this finding [8].

In line with this, the current study has also revealed that individuals with poor knowledge about CL were more times at risk of developing CL more than their counterparts were [9];[10]. This is because individuals who have good knowledge about CL will strictly adhere to the preventive and control strategies of the disease, including minimizing the number of uncovered areas of the skin, proper use of bed nets, spraying living and sleeping areas, and staying in well-screened areas. It is known that good awareness and perception of people towards leishmaniasis have a great impact on averting disease transmission in endemic areas.

Recommendations

1. Usage of impregnated bed net should be encouraged.
2. Continuous surveillance of the disease is very essential.
3. Early diagnosis and treatment of infected individual was very essential.

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