Attitudes and Local Beliefs towards Mosquito Insurgence in Imo State, Nigeria.

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Abstract: Different attitudes and beliefs towards the presence of mosquitoes in the environment in the three urban centers of Imo State were investigated. Structured questionnaire were randomly distributed and the responses recorded accordingly, among the 461 respondents that participated in the study. The attitudes of killing it / controlling it topped the lists of the responses. Other attitudes are irritating, bad/ very bitter, negative/ concern, hatred / inimical and sleeplessness/ restlessness which could reflect strong attitudes that can induce change in behavior. The various attitudes towards disease treatment rated as very effective (VE), fairly effective (FE), not effective (NE) and aggravate the sickness (AS) may reflect their perception of the seriousness of mosquito – borne diseases. The number that felt that mosquito – borne diseases was mild and not serious will definitely display attitudinal responses saddled with levity particularly towards treatment. Possibly they may not feel inclined to carefully adhere to drug dosage prescription. Differential misconceptions of mosquito and associated diseases reported by the respondents included: malaria is caused by drinking unclean water; hot sun predisposes people to malaria, prolonged malaria brings about yellow fever and mosquitoes carry AIDS virus etc. More enlightenment efforts should focus on the nature and severity of mosquito – borne diseases. [Journal of American Science 2010;6(10):430-434]. (ISSN: 1545-1003).

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1. Introduction

The importance of knowledge, attitudes and practices of people concerning mosquito control cannot be over – emphasized. The control and prevention measures for mosquito associated diseases can succeed when it starts from homes with people developing proper attitudes against mosquitoes. There is need to have an idea of the disease causal agents and its vectorial capacity which ultimately, will enforce the necessary attitudes / behaviors towards it. Rakhshani(2004) states that before people start to behave differently about their health conditions, they need to:

* know about the new behavior
* have a positive attitude about it (be willing to try it out)
* remove any barrier to the new health practices

. The importance of the mosquito – borne diseases can be seen in the various strategies mapped out to control mosquitoes in Imo State. This is evident in the launching of Roll Back (RBM) global partnership for malaria control in 1998 with the aim of reducing the burden of malaria by the year 2010. Imo State was said to be among the foremost State to launch the implementation of RBM mandates in 2001. Coupled with this is the declaration of 25th April each year as Africa malaria day. Report from Ministry of Health (MoH, 1997), Imo State, says that this day is set aside to achieve the greatest mobilization and sensitization of the people for a robust fight against the scourge of mosquitoes. Also, behavioral changes and mass mobilization are achieved through social channel like the distribution of Information, Education and Communication (IEC) materials and participation of stakeholders in radio/TV discussion program. Government on the other hand, has provided project vehicles, equipment and chemical for vector control as well as making environmental sanitation a priority activity in its clean and green initiative program coupled with free distribution of insecticide treated nets (ITNs), courtesy of UNICEF. All these efforts presupposed that people's beliefs and attitudes could be harnessed to achieve tangible result in mosquito control.

As such, perception may significantly impact on the effectiveness of any control measures. And for the success of all these community based intervention programs highlighted above, it is necessary to know as a first step, the community's perceptions about mosquito and disease transmission and how best the community can participate in the control efforts. No information is presently available on people's attitudes, perceptions and local beliefs related to mosquitoes and their associated diseases in Imo State. The work is therefore aimed at ascertaining prevailing extent of attitudes and perception of the residents concerning mosquitoes and their disease vector potentials.

2. Materials and Methods

2.1 Description of the study area

Imo State is located in the rainforest zone of West Africa, with climatic conditions favoring the proliferation of arthropods including mosquitoes. Imo State occupies a landmass of 5,100 sq kilometers with a population of 2.4million persons and an annual growth of 2.8%, distributed in the 27 local government areas situated in the 3 geopolitical zones (MIC, 2000).The study areas comprised of Owerri (where the state capital is situated), Orlu and Okigwe constituting the major urban centers in the State. The rate of growth of these urban centers is becoming alarming with a concomitant increase in infectious diseases including vector – borne diseases in these areas. In Imo State, with particular reference to these three urban centers, there has actually been a gross population increase; this can be attributed to rural-urban migration due to the presence of several industries, higher institutions and infrastructural facilities. The State once was tagged as the cleanest State in the country due to the fact that there used to be a strict observance of monthly environmental clean – up exercise by the entire citizenry, this has suddenly fizzled out with the result that there is now indiscriminate dumping of wastes and grasses are left overgrown. Consequent upon all these, most mosquito species will always find favorable breeding ground all year round.

2.2 Sample Collection

Structural questionnaire was used to elicit information on the attitudes, perceptions and local beliefs of people concerning mosquitoes and their disease vector potentials. The questionnaire was administered by the three recruited research groups made up of residents of the 3 towns, between the months of January and July 2008. Administration of the questionnaire was to all categories of people among which were the civil servants, students, farmers, artisans, traders etc. Those who could not read and write were assisted by the research team. Several assumptions and ideas about mosquitoes and their disease potentials and how they react to various treatment methods were recorded. Data obtained were analyzed using descriptive statistical analysis.

3. Result

A total of 461 respondents comprising of 240(52.1%) females and 221(47.9%) males aged-between 14 and 44 year old participated in this study. Participants consisted of 145(31.5%) from Owerri, 160(34.7%) from Orlu and 156(33.8%) from Okigwe. Of the 461 participants 414(89.8%) claimed knowledge of mosquito as a vector while 47(10.2%) had no knowledge. Greater number of Orlu residents 31(19.4%) than 16(10.3%) in Okigwe denied knowledge of mosquito as a vector while all the participants (100%) from Owerri had knowledge of mosquito as a vector (Table 1)

Table 1: Knowledge of mosquito as a vector
Number of Respondents (%)

Knowledge	Owerri (n=145)	Orlu (n=160)	Okigwe (n=156)	Total (n=461)
Idea	145 (100.0)	129 (80.6)	140 (89.7)	414 (89.8)
No Idea	0 (0.0)	31 (19.4)	16 (10.3)	47 (10.2)

Various attitudes expressed by the respondents, out of which the attitude of Killing it /Controlling it 189(41.0%) ranked highest in the three study areas followed by Irritating 56(12.1%), details shown in the Table 2. Some claimed no attitudes until sick 4(0.9%) and finally Frustrating and Unwelcome attitudes 2(0.4%) were the least mentioned attitudes. Out of 461 participants, 105(22.8%) reported no attitude at all. Orlu 54(33.8%) had more respondents with no attitudes than Okigwe 32(20.5%) and Owerri 19(13.1%).

Table 2: Attitude(s) of respondents towards the presence of mosquitoes in the environment in the three urban centers of Imo State.
Number of respondents (%)

Attitudes	0werri (n= 145)	0rlu (n=160)	Okigwe (n=156)	Total (n=461)
Irritating	33(22.8)	14(8.8)	9(5.8)	56(12.2)
Hatred/Inimical	5(3.5)	2(1.3)	1(0.6)	8(1.7)
Killing it/controlling it	40(27.6)	69(43.1)	80(51.3)	189(41.0)
Appalling	5(3.5)	7(4.4)	2(1.3)	14(3.0)
Sleepless/Uncomfortable	24(16.6)	10(6.3)	17(10.9)	51(11.1)
Aggressive/Resentment	4(2.8)	0(0.0)	0(0.0)	4(0.7)
Concerned	4(2.8)	1(0.6)	5(3.2)	10(2.2)
Frustrating	1(0.7)	1(0.6)	0(0.0)	2(0.4)
Bad/ Very bitter	7(4.8)	2(1.3)	7(4.5)	16(3.5)
Unwelcome	1(0.7)	0(0.0)	1(0.6)	2(0.4)
No attitude until sick	2(1.4)	0(0.0)	2(1.3)	4(0.9)
No attitudes at all	19(13.1)	54(33.8)	32(20.5)	105(22.8)

Table 3 shows the results of the reports by respondents of the mosquito – borne diseases suffered. Malaria 430(93.3%) was major disease followed by yellow fever 60(13.0%) and filariasis 7(1.5%). All the study population in Owerri145 (100.0%) claimed to have suffered malaria while 153(95.6%) of the respondents in Orlu mentioned malaria and 132(84.6%) of the study population in Okigwe also claimed to have suffered malaria.

Table 3: Records of mosquito borne – diseases suffered based on Questionnaire responses (n = 461)

Number of responses (%)

Diseases	Owerri (n=145)	Orlu (n=160)	Okigwe (n=156)	Total (n=461)
Malaria	145(100.0)	153(95.6)	132(84.6)	430(93.3)
Filariasis	2(1.4)	0(0.0)	5(3.2)	7(1.5)
Dengue	0(0.0)	1(0.6)	0(0.0)	1(0.2)
Yellow-fever	5(3.5)	24(15.0)	31(19.9)	60(13.0)

Table 4 represents the reports by respondents on the attitude towards mosquito – borne diseases. 188(40.8%) of all respondents believed mosquito – borne diseases as very serious diseases. 100(21.7%) regarded them as serious diseases, 80(17.4%) claimed them to be mild diseases, 23(5.0%) considered them not a serious diseases while 70(15.2%) acknowledged no knowledge. There were variations in the responses in the three study areas. 92(63.5%) and 70(44.9%) of participants from Owerri and Okigwe respectively claimed mosquito – borne diseases a very serious one. Greater percentage of Orlu people 62(63.5 %%) believed mosquito borne disease as mild disease. 33(21.2%), 30(18.8%) both in Okigwe and Orlu lacked knowledge of the seriousness of mosquito borne diseases while only 7(4.8%) in Owerri reported "Don't know".

Table 4: Attitude to and rating of mosquito – borne diseases by respondents (n= 461).

Number of Respondents (%)

Mosquito-borne diseases, how serious?	Owerri (n=145)	Orlu (n=160)	Okigwe (n=156)	Total (n=461)
Very serious disease	92(63.5)	26(16.3)	70(44.9)	188(40.8)
Serious disease	27(18.6)	32(20.0)	41(26.3)	100(21.7)
Mild disease	13(9.0)	62(38.8)	5(3.2)	80(17.4)
Not a serious disease	6(4.1)	10(6.3)	7(4.5)	23(5.0)
Don't know	7(4.8)	30(18.8)	33(21.2)	70(15.2)

Results of the attitudes of the respondents towards treatments are highlighted in Table 5 which shows that 318(69.0%) persons claimed that the anti - malarial drugs they used were very effective, 107(23.2%) stated fairly effective while 8(1.7%) and 5(1.1%) reported use of drug as not effective and aggravate the sickness respectively. Also 19(4.1%) of herb users believed it to be very effective, 9(2.0%) and 8(1.7%) confirmed not effective and aggravate the sickness respectively while 1(0.2%) regarded herb to be fairly effective. On the other hand, 1(0.2%) claimed prayers as a very effective means of treatment, 7(1.5%) stated fairly effective. Among those that claimed drug usage as very effective, greater percentage were Okigwe (79.5%) followed by Owerri (64.1%) and Orlu (63.1%).

Among those that believed their treatments with herbs were effective, 14(8.8%) of them were respondents from Orlu, 4(2.6%) from Okigwe and only 1(0.7%) from Owerri. However , those who resorted prayers as means of treatment, only 1 person from Okigwe confirmed prayers to be very effective, 5(3.2%) and 2(1.3%) in Orlu Okigwe believed prayers were fairly effective.

Results of the misconceptions about mosquitoes among the three areas of study are presented below. Owerri residents believed that mosquitoes are caused by witchcrafts; that it is ngalayala anwu (chief mosquito) that causes akom (malaria) and mosquitoes are as old as man and too hard to eradicate. Orlu respondents however, believed that malaria is caused by drinking unclean water; hot sun predisposes people to malaria and fried things like groundnuts and oil cause malaria. On other hand, residents in Okigwe reported that too much mosquito bite makes a woman barren; prolonged malaria brings about yellow fever; mosquitoes are curse from the gods; mosquitoes carry AIDS virus and bites are cured by applying herbs.

Table 5: Attitude towards treatment based on Questionnaire analysis (n = 461)

Number of Respondents (%)

Treatment method, how effective?	Owerri (n=145)	Orlu (n= 160)	Okigwe (n= 156)	Total (n= 461)
DRUGS				
VE	93(63.1)	101(63.1)	124(79.5)	318(69.0)
FE	47(32.4)	35(21.9)	25(16.0)	107(23.2)
NE	1(0.7)	6(3.8)	1(0.6)	8(1.7)
AS	3(2.1	2(1.3)	0(0.0)	5(1.1)
HERBS				
VE	1(0.7)	14(8.8)	4(2.6)	19(4.1)
FE	0(0.0)	1(0.6)	0(0.0)	1(0.2)
NE	0(0.0)	0(0.0)	9(5.8)	9(1.9)
AS	0(0.0)	0(0.0)	2(1.3)	8(1.7)
PRAYER				
VE	0(0.0)	0(0.0)	1(0.6)	1(0.2)
FE	0(0.0)	5(3.2)	2(1.3)	7(1.5)
NE	0(0.0)	0(0.0)	0(0.0)	0(0.0)
AS	0(0.0)	0(0.0)	0(0.0)	0(0.0)

KEY: VE = very effective
FE = fairly effective
NE = not effective
AS = aggravate the sickness

Observations on local beliefs regarding mosquitoes and mosquito – borne diseases among the study population.

Owerri

- Mosquitoes are caused by witchcrafts
- It is the 'Ngalayala anwu' (chief mosquito) that caused 'akom' (malaria)
- Mosquitoes suck blood
- Mosquitoes are as old as man and hard to eradicate

Orlu

- Malaria is caused by drinking unclean water
- Hot sun predisposes people to malaria
- Prolonged malaria causes little madness
- Fried things like groundnut causes malaria
- Much pepper clears malaria
- Eating too much oil causes malaria

Okigwes

- Too much mosquito bites makes a woman barren
- Prolonged malaria brings about yellow fever
- Mosquito is a curse from the gods
- Mosquitoes carry AIDS virus
- Mosquito bites are cured by applying herbs

4. Discussion

Differential attitudes towards the presence of mosquitoes in the environment were expressed by the respondents in the 3 areas in which the attitude of killing it/controlling it topped lists. This can however have a positive impact on the practice of prevention and control of mosquito incursion. Other attitudes such as irritating, bad/very bitter, negative/concern, hatred/inimical and sleeplessness/restlessness, all which reflect strong attitudes, Sears, et al (1991) stated that stronger attitudes will likely affect behavior. Attitude basically is influenced by beliefs and existing bodies of knowledge. However, anything that contributes to stronger attitude may likely increase attitude – behavior consistency. 0.87% of respondents from Owerri and Okigwe declared no attitudes until sick and 22.8% of the study population that made up of 13.1%Owerri, 33.8%Orlu and 20.5% Okigwe that expressed practically no attitude can affect mosquito control and prevention due to the fact that they lacked the basic attitudes that could give rise to behavioral change. 0.9% that reported no attitude at all is an indication of nonchalant attitude which of course will impact on control.

The result on attitude towards mosquito – borne diseases revealed that 80(17.4%) believed mosquito - borne diseases were mild diseases, 23(5.0%) considered them not a serious diseases together with 70(15.2%) that reported no knowledge on the seriousness of mosquito – borne diseases, inadvertently may impose a serious impact on control (Winch et al, 1991). This is because any measure for prevention/control will be ignored merely for the fact that they lacked strong attitude required for a change in behavior. There is a need for awareness and enlightenment program on severity of the diseases transmitted by mosquitoes that will bring about change in perception. This becomes essentially important considering respondents from Owerri that showed 100% knowledge of mosquito as a vector but 6(4.1%) failed to understand the seriousness of the diseases. Indeed, many had referred to mosquito – borne diseases as ordinary and inconsequential neglecting their devastating effects.

In response to attitude towards treatment, the respondents believed in the use of drugs, herbs and prayers with differential attitudes to treatment methods. The various attitudes rated as very effective (VE), fairly effective (FE), not effective (NE) and aggravate the sickness (AG) may reflect their perception of mosquito –borne diseases. The number that felt that mosquito – borne diseases were mild and not serious will definitely display attitudinal responses saddled with levity particularly towards treatment. Possibly, they may not feel inclined to carefully adhere to drug – dosage prescription. It could be noted from the result that greater proportion of the respondents opted for drugs of which 69.0% reported their drug use very effective. Most stated that their reason for choosing drugs was because they knew drugs to be the only available method of treatment while others claimed that anti-malarial drugs were superior to any other. Also, 3.0%(Orlu) and 8.8%(Okigwe) of respondents that used herbs reported their treatment with herbal mixtures very effective (VE). This observation calls for in-depth basic and strategic research on this method of treatment that could support the use of herbs in disease control. The development of Quinghasu into various brands of artesemini is a significant evolution from the Chinese local healers (WHO, 1991). It was observed that some individuals that reported FE, NE and AS as attitudes were largely determined by the fact that herbal medicines were free, readily accessible and, in fact self administered. However, prayers was adopted as a means of treatment but their disposition towards it could show a picture of ineffectiveness of this method yet some insisted their application in event of sickness. However, the use of prayers has not been previously reported by researchers in their studies.

A wide range of local beliefs were observed in the 3 study areas. Though, the studied populations were socio – culturally homogenous but there still existed differential beliefs. However, this could be

attributed to the fact that these urban centers consisted of residents that migrated from the hinter lands of the state and beyond. The misconceptions that surrounded the local beliefs included that mosquitoes are caused by the witchcraft (Owerri), drinking unclean water causes malaria and hot sun predisposes people to malaria (Orlu) and prolonged malaria bring about yellow fever and that malaria is caused by eating oily foods (Okigwe). Studies have shown that local knowledge of disease causation in endemic communities has generally shown a variety of alternative causal explanations (Evans *et al*, 1993). For example, filariasis has been attributed to contact with cold water (Schultz, 1988), consumption of contaminated food or drinks (Carme *et al*, 1979, Haliza, 1986) and aggravation of physical injury (Carme *et al*, 1979). A study of an endemic area in Haiti showed that only 13% of residents who recognized filariasis attributed disease to mosquito transmission while 48% attributed the disease to contaminated soil or water (Eberhand *et al*, 1996).

Also, it has been widely assumed that local ideas about disease etiology may explain the underlying motivation in the context of disease prevention and control. Generally, the local beliefs observed in the course of this research may as a consequence impact considerably on the practice of control as their efforts may fail to be directed to proper application of anti - vector and anti - parasitic measures. Evans et al (1993) corroborated this by stating that high prevalence of alternative explanation for disease causation has significant implication for the potential efficacy of intervention program.

Conclusion

The result showed that some individuals among the studied population had a strong belief that mosquito – borne diseases were not severe and this compounded by lots of misconceptions and local beliefs concerning mosquitoes reported in this study may likely hamper control efforts. Also, it was observed that some individuals that reported FE, NE and AS as attitudes were largely determined by the fact that herbal medicines were free, readily accessible and, in fact self administered and not really on their effectiveness.

Recommendation

More efforts be intensified on enlightenment that will focus more on the nature and severity of mosquito – borne diseases. Ultimately this will drive home the real picture of these diseases in people's minds and at the same time enhance the development of necessary attitudes against mosquitoes

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