

MOSQUITO CONTROL STRATEGIES IN ISHIAGU RURAL COMMUNITIES: IMPLICATIONS TO PUBLIC HEALTH

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ABSTRACT

Mosquito control strategies adopted by the residents of two Ishiagu Communities (Okue and Ihie) were investigated. 53 households in Okue and 54 in Ihie were sampled. Simple structured questionnaires were prepared and administered. Percentages and chi square (X^2) test of significance was employed in analysing the data. The result revealed that 42.9 % of the residents of the two communities used insecticides, 25.2% used mosquito coils, 6.5% used smoke of local herbs and 5.6% were insensitive to mosquito nuisance and careless about mosquito control. Choice of control measures by residents of the two communities were not statistically significant ($P > 0.05$). Occupational related preferences revealed that farmers ranked highest in the use of insecticides and coils (21.5%) each. 13.1% of teachers use insecticides and 3.7% use nettings. Statistical analysis of the occupational related choice patterns was significant ($P < 0.05$).

Key Words: Mosquito, Rural Communities, Control, Implications, Public Health.

INTRODUCTION

Mosquitoes have through human history constituted a problem to man and animals. About 60 different species of mosquitoes are found World wide (Crans and Farida, 2004). Of these species, members of the *Anopheles*, *Culex*, *Aedes*, *Hemagogus* and *Mansonia* complexes are important pests in Nigeria (Igbinosa, 1990).

Mosquitoes develop in pools of water formed by rainy season storms and permanent swamps of the wetlands. Nwoke *et al* (1993) observed that septic tanks also formed breeding sites for mosquitoes such as *Aedes aegypti*, *Anopheles vitatus*, *Culex horridus*, *Culex cinereus*, *Culex pipiens quinquefasciatus* and *Culex tigripes*. Other breeding sites for mosquitoes are water pots, discarded cans, plastic containers, discarded automobile tyres and notches in forest trees (Tonye, 1978).

Mosquitoes not only inflict biting pains on man but also suck human blood and transmit disease pathogens. Sutherland and Crans (2004) observed that the female mosquito bites humans and animals because they need blood proteins for the development of eggs. The males are short-lived, do not suck blood but nectars and plant juices, and die soon after mating. The haematophagous habit of the female mosquitoes is of public health importance. Various parasitic and viral diseases have been successfully transmitted through the biting mosquitoes. *Wuchereria bancrofti* and *Brugia malayi* which cause lymphatic filariasis in humans (WHO, 1991) are transmitted by members of the *Aedes*, *Culex* and *Mansonia* complexes. Yellow fever and dengue viruses are equally transmitted by these mosquitoes (Rappole *et al*, 2004; WHO, 1994).

The need to control mosquitoes becomes paramount when its threats to public health are

considered. In the developed parts of the World, Organised Mosquito control strategies are carried out by various agencies supported by the Government. Their efforts are channelled towards water management, biological control agents and the use of insecticides in controlling the larvae and adults. Apart from organised approaches, Sutherland and Crans (2004) posited that residents can help significantly by controlling mosquitoes around their homes. The method adopted by each family may differ depending on their economic standing as well as awareness. This work therefore seeks to identify the various mosquito control strategies adopted by residents of Ishiagu communities, and to discover any occupational related preferences among the control strategies identified.

MATERIALS AND METHODS

Study Area: Ishiagu is found in Ivo Local Government Area of Ebonyi State. It is located on a low-lying marshy Riceland of South Eastern Nigeria and usually inundated by flood during the rainy seasons. Raised surfaces that are free from inundation form settlement points with the result that homes are surrounded by marshy flood lands which may account for the explosion of mosquito populations during the rains.

Ishiagu is made up of three autonomous communities (Ihie, Okue and Ishiagu). Two autonomous communities Ihie and Okue were selected for the study. Standard questionnaires indicating various methods of controlling mosquitoes at home were prepared and administered to 54 households in Ihie and 53 in Okue communities. Simple percentages and chi square test of significance were employed in the result analysis.

RESULTS AND DISCUSSION

The result in Table 1 revealed that spraying of insecticides was the preferred choice (43.0%) followed by the use of mosquito coils (25.2%) and the use of nettings (19.6%). The least preferred control method was the use of smoke from local herbs (5.6%). It was also observed that about 6.5% of the people in the two communities do not care about mosquito nuisance hence they do nothing to control them. The spraying of insecticides was the most preferred mosquito control approach in Ihie (24.3%) and Okue (18.7%) communities. The use of mosquito coils was predominant in Okue (15.0%). More people in Ihie used netting (11.2%) than in Okue (8.4%). More residents of Okue were insensitive to mosquito control activities (3.7%) than Ihie (2.8%). The observed mosquito control strategies in both communities were not statistically significant ($P>0.05$), indicating a high level of knowledge and practise of mosquito control in both communities.

Table 1: Distribution of respondents according to the control methods adopted in the two communities

Control method	Ihie	Okue	Total
Use of Netting	12 (11.2)	9 (8.4)	21 (19.6)
Mosquito Coils	11 (10.3)	16 (15.0)	27 (25.2)
Insecticide			
Spraying	26 (24.3)	20 (18.7)	46 (42.9)
Smoke of herbs	3 (2.8)	4 (3.7)	7 (6.5)
Use nothing	2 (1.9)	4 (3.7)	6 (5.6)
Total	54	53	107
	(50.5)	(49.5)	(100)

Number in parenthesis = %

The percentage of those indifferent to the use of any form of insect control in both communities was low. This group poses a potential danger to others, Based on the transfer of malaria parasites from them to those using insect control measures. The high preference to the use of Insecticide (43.0%) in both communities is recommendable. Pesticides are potent in the reduction of mosquito populations, the problem of emergence of resistant mosquitoes (Okon *et al.*, 1992) should be seriously considered.

Table 2 revealed that of the 107 respondents, 15(14.0%) were Traders (TD), 10(9.4%) civil servants (CS), 20(18.7%) were Teachers (TC) and 62(57.9%) were farmers (FM). Choice preference among the farmers tilted towards the use of insecticides and mosquito coils, 23(21.5%) respectively for both. The Use of netting 6 (5.6%) and smoke from local herbs 5 (4.7%) were unpopular among farmers. Although the percentage of farmers using mosquitoes strategies were high, few farmers, 5(4.7%) were insensitive about mosquito nuisance and control. Traders showed equal preference for the use of netting and insecticides with 6(5.6%) for both cases. Teachers preferred mostly the use of insecticides 14(13.1%) followed by netting 4(3.7%). The civil servants preferred mostly netting 5(4.7%) followed by insecticides 3(2.8%). The use of smoke

of local herbs was unpopular among teachers and civil servants with zero preferences. Analysis of the preference pattern among the various occupational groups was significantly different ($p<0.05$).

Table 2: Occupational related choice preference among the respondents

Control methods	TD	FM	TC	CS	TOTAL
Use of Netting	6 (5.6)	6 (5.6)	4 (3.7)	5 (4.7)	21 (19.6)
Mosquito Coils	2 (1.9)	23 (21.5)	1 (0.9)	1 (0.9)	27 (25.2)
Insecticide spraying	6 (5.6)	23 (21.5)	14 (13.1)	3 (2.8)	46 (43.0)
Smoke of herbs	1 (0.9)	5 (4.7)	0 (0.0)	1 (0.9)	7 (6.5)
Use Nothing	0 (0.0)	5 (4.7)	1 (0.9)	0 (0.0)	6 (5.6)
Total	15	62	20	10	107
	(14.0)	(57.9)	(18.7)	(9.4)	(100)

Number in parenthesis = %, TD = Traders, FM = Farmers, TC = Teachers, CS = Civil Servants

The preference of farmers to the use of insecticide is related to their knowledge and practise of using insecticides to control pest in their farms. This positive attitude influences their choice of mosquito control strategy. The availability of varieties of pesticides in the local market coupled with large number of clients may have helped to reduce the service cost charged by the local pest control agents. With the pesticides becoming competitively cheap, many people became interested in its use in homes for mosquito control.

Recommendations: Workshops should be organized for the rural population on the proper use of insecticides and coils, and their associated risks. Research into the characterization of the active ingredient in the identified local herbs is needed. The use of netting which ranked third should be popularised among Ishiagu residents, as it is cheap and last longer. Organised mosquito control programmes should be encouraged. Both the Ministry of Health and Environmental Protection Agency (Ebonyi State) should be courageous enough to fashion out feasible programmes in the area. Private participation in organised mosquito control activities should be encouraged and supported.

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