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Awareness, Ownership and Utilisation of Insecticide-Treated Net (ITN) in Calabar Metropolis, Cross River State, Nigeria

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Abstract

This study was carried out to determine the level of utilisation of insecticide-treated nets (ITNs) in Calabar Metropolis, Cross River State Nigeria. The objectives of the study were to determine, the level of awareness of ITN, the level of household ownership of ITN, the level of utilisation among the vulnerable groups as well as the respondents in the study area. The study was a cross-sectional descriptive study using a 34-item structured questionnaire which was interview-administered. The study population consisted of household heads, either male or female, under-fives (U5) children and pregnant women (PW). Data obtained were analysed and presented in percentages and tables. About 79% of the respondents were aware of ITN. Household ownership of any net was 57.27% and 42.73% for ITN. Utilisation of any net by U5 children was 49.1% and 33.33% for ITN. The proportion of pregnant women utilising any net was 55.26% and 30.26% for ITN. About 41% of the respondents utilised any net/ITN while about 59% did not. Recommendations that will assist in increasing household ownership and utilisation of ITN in the study area were made.

Keywords:
Awareness, Ownership, Utilisation, Under-five year children, pregnant women

Introduction

Vector-borne diseases account for approximately 17% of the estimated global burden of infectious diseases (Townson, *et al*., 2005). Malaria represents about1.4% of the global burden of diseases (Bremen *et al.*, 2004). The use of insecticide-treated net reduces the degree of human-vector contact and malaria transmission. Current global effort in malaria control emphasized the use of insecticides-treated net (ITN) as highly cost effective intervention. ITN is a form of personal protection that has been shown to reduce malaria illness, severe disease and death due to malaria in endemic regions. Consistent use of ITN can reduce malaria

transmission by up to 90% and avert as much as 44% of all-cause mortality among children under-five years (Fegan, *et al.,* 2007). Use of ITN among pregnant women is associated with lower prevalence of malaria infection, fewer premature births and significant reduction in all-cause of maternal anaemia (Gamble *et al.,* 2007).

Several studies have demonstrated the efficacy of ITN. Oresanya *et al.,* (2008) reported overall reduction in child mortality by 17%, saved 6 lives per 1000 children protected, reduced the incidence of uncomplicated malaria episode by 50% and 39% where ITNs and untreated nets were used respectively. The efficacy of ITN was first tested in Nigeria in 1992-94 by the Federal Ministry of Health in collaboration with US Centres' for Disease Control and Prevention (CDC), in rural communities outside Nsukka, Enugu State. The positive result led to calls for practical implementation of ITN programme throughout the federation.

ITN was introduced to the public in year 2000. Since then, there has been progressive increase in awareness, ownership and the proportion of children under five and pregnant women sleeping under nets and ITNs in Nigeria and other African countries. Studies have shown that the use of ITN is generally low in Nigeria among all categories of people. Oresanya *et al.,* (2008) reported overall household ownership of any net in Nigeria to be 23.9% and 10.1% for ITN. Utilisation of nets by U5 according to the same source is 11.5% for any net and 1.7% for ITN. Blackburn, Eigege, Gotau, Gerlong, Mori, Hawley, Richard (2006) reported ITN coverage and utilisation in Nigeria to be below 10%.

The general objective of the study was to determine coverage and utilization of ITN in Calabar Metropolis. The specific objectives were determination of awareness level of ITN in the study areas, percentage of household ownership of ITN, level of utilisation of ITN among U5 children, pregnant women as well as utilisation among the respondents in the study area.

Methods

Study setting

This study was conducted in Calabar Metropolis, Cross River State, Nigeria. Calabar Metropolis comprises two (2) Local Government Areas (LGAs), Calabar South LGA and Calabar Municipal Council. In all, it has 22 political wards, 12 in Calabar South LGA and ten (10) in Calabar Municipal Council. The study population comprised of household heads, under-five children and pregnant women.

Study design and sampling method

Cross-sectional descriptive survey was used. Sample size for the study was estimated using Lutz's formula (Lutz's 1982). The estimated sample size was 440. Multi-stage sampling method was used to select wards, streets and houses in the two (2) LGAs comprising Calabar Metropolis. Five (5) wards were selected in Calabar Municipal Council and six (6) wards in Calabar South LGA. Four (4) streets were randomly selected in each ward and ten (10) houses were selected per street in the 2 LGAs using simple random sampling method. A total of 440 houses were selected for the study. Respondents for the study were household heads, either male or female. Female heads were those of reproductive age who were either mothers or guardians of U5 children.

Instrument for data collection

A pre-tested structured questionnaire was used for data collection. This comprised 34-items divided into seven (7) sections. Section "A" had questions on socio-demographic variables of the respondents, section "B" had questions on the level of ITN awareness, section "C" sought questions on the household ownership of ITN, section "D" and "E" sought questions on utilisation of ITNs byU5 children and pregnant women (PW) respectively; section "F" sought questions on factors affecting utilisation of ITNs by respondents and section "G" had

questions on knowledge of ITN in malaria prevention in the study area. The questionnaire was interviewer-administered. Data generated were analysed and presented in percentages and tables.

Results

Table 1 shows the level of ITN awareness by ward in Calabar Metropolis. About 79% of the respondents were aware of ITN while about 21% were not. Table 2 shows household ownership of nets (treated/untreated). Overall ownership of any net was 57.27% and 42.73% for ITN. Utilisation of nets (treated / untreated) by under five children is shown in Table 3. About 49% of the U5 children utilised any net and about 33% utilised ITN**.** Utilisation of nets by pregnant women (PW) is shown in Table 4. Utilisation was 55.26% for any net and 30.26% for ITN. About 41% of the respondents utilised any form of net while about 59% did not (Table 5).

Table 1: Level of Awareness of ITN by Ward in Calabar Metropolis. (n = 440)

Ward	No of HH Aware of ITN	%	No of HH Not aware of ITN	%
2	28	6.36	12	2.73
3	26	5.91	14	3.18
8	30	6.82	10	2.27
9	31	7.05	9	2.04
10	29	6.59	11	2.5
1	34	7.73	6	1.36
4	25	5.68	15	3.41
7	39	8.86	1	0.23
10	32	7.27	8	1.82
11	35	7.95	5	1.14
12	37	8.41	3	0.68
Total	346	78.64	94	21.36

HH= Household.

Table 2: Household Ownership of Net/ ITN by Wardin Calabar Metropolis (n = 252)

Ward	2	3	8	9	10	1	4	7	10	11	12	Total	%
Type of Net Owned													
Untreated Bed net	3	16	4	2	14	6	5	3	-	5	6	64	14.54
Individual Treated bed net (Ever treated net)	9	5	2	20	6	3	2	4	-	11	10	72	16.37
LLINs	9	13	12	7	12	21	5	16	4	8	9	116	26.36
Total	21	34	18	29	32	30	12	23	4	24	25	252	57.27

LLINs = Long lasting Insecticide – Treated Nets.

Table 3: Proportion of U5 Children Utilising ITN by Ward in Calabar Metropolis (n = 140)

Ward	No of HH having U5	No of HH Utilising any net	%	No of HH Utilising ITN	%
2	30	17	5.96	14	4.91
3	24	13	4.56	7	2.46
8	22	6	2.11	2	0.7
9	36	24	8.42	22	7.72
10	26	14	4.91	6	2.10
1	26	14	4.91	8	2.81
4	31	4	1.4	2	0.7
7	29	16	5.61	13	4.56
10	19	3	1.05	3	1.05
11	20	15	5.26	10	3.51
12	22	14	4.91	8	2.81
Total	**285**	**140**	**49.1**	**95**	**33.33**

Table 4: Proportion of Pregnant Women (PW) Utilising ITN

Ward	No of HH with PW	PW Utilising any net	%	PW Utilising ITN	%
2	15	10	6.57	4	2.63
3	6	1	0.66	1	0.66
8	7	2	1.32	2	1.32
9	33	29	19.08	7	4.60
10	20	9	5.92	3	1.97
1	14	8	5.26	8	5.26
4	0	0	0	0	0.00
7	28	14	9.21	10	6.58
10	10	1	0.66	1	0.66
11	11	8	5.26	8	5.26
12	8	2	1.32	2	1.32
Total	**152**	**84**	**55.26**	**46**	**30.26**

Table 5: Proportion of Respondents utilising Net/ITN in Calabar metropolis (n = 440)

Ward	No of Respondents Utilising net/ ITN	%	No of Respondents not Utilising Net/ITN	%
2	21	4.77	19	4.32
3	12	2.73	28	6.36
8	10	2.27	30	6.82
9	29	6.59	11	2.5
10	20	4.55	20	4.54
1	20	4.55	20	4.54
4	2	0.45	38	8.64
7	21	4.77	19	4.32
10	4	0.90	36	8.18
11	21	4.77	19	4.32
12	19	4.32	21	4.77
Total	**179**	**40.67**	**261**	**59.33**

Discussion

Socio-demographic characteristics of the study population showed that female respondents were more than male respondents; 60.5% and 39.5% respectively. Since the introduction of ITN in Nigeria in 2000, there has been progressive increase in awareness level of ITN in Nigeria. In 2000, only 7% of Nigerians had ever-heard of treated nets. Between 2000 and 2006, awareness level jumped from 7-60% (Baume et al, 2008). In this study, 78.64% of the respondents were aware of ITN.Like awareness, household ownership of nets (treated/untreated) has increased in Nigeria generally. Overall ownership of any net in the study was 57.27%. About 43% of the nets owned were treated nets (ITNs). This figure shows an increase over household ownership of nets/ITNs in Nigeria as reported by Oresanya et al (2008) i.e 23.9% for any net and 10.1% for ITN. The high ITN ownership recorded in the study could reflect the mass distribution of free ITNs embarked upon by the National Malaria Control Programme (NMCP) and other stakeholders in the last five years.

In the study, only 49.1% of under five children utilised any net and 33.33% utilised ITN. These figures again, are higher than those previously reported for examples; Oresanya, et al (2008) reported U5 utilisation of ITN as 1.7% and Baume et al (2008) documented utilisation of any net by U5 to be 10.3% and 3.3% for ITN. The proportion of U5 utilising ITN was fairly low considering the 60% set by Abuja target.
Pregnant women using any net were 55.26% and 30.26% for ITN. The result of this study is comparable to what were obtained in other sub-Sahara African (SSA) countries where ITN distribution was free to PW. Burkina Faso recorded an increase from 33% to 44% in the use of ITN by PW due to free distribution of ITNs (Muller, et al, 2008).

About 41% of the respondents utilised any net/ITN and about 59% did not. The low level of utilisation recorded in the study collaborated with the finding of Blackburn et al (2006) in Nigeria; which showed that despite high rate of household ownership of ITNs (74%), only 43% had their nets hanging above their sleeping space and 15% of the surveyed person slept under ITNs the previous night. The increased proportion of U5 children and PW using ITNs in the study reflected mass free distribution of ITNs by Cross River State Government to U5 and PW. Another reason for high utilisation of ITNs by the vulnerable

groups may be due to the period of the study. The study took place during rainy season where malaria transmission peaks and consequently, net utilisation usually very high. The crucial goal of malaria control programme is to achieve consistent use of ITNs by the vulnerable groups. The use of treated nets reduces the degree of human-vector contact and malaria transmission. The nets are very effective but the problem is that most people who collect nets do not use them and hence cannot protect themselves from malaria. Another challenge confronting malaria control programme is scaling-up ITN distribution. The finding of this study supports the idea that giving out ITN free through governmental health care services could be a key component to scaling-up and sustaining ITN distribution system in the study area in particular and Nigeria in general. The continued increase of free ITN distribution will drastically increase coverage, ownership and utilisation of ITNs, thereby decreasing the number of years required to reach global coverage goals and ultimately decrease malaria morbidity and mortality sooner.

Conclusion

Although the rates of awareness, household ownership and utilisation of ITN recorded in this study show progressive increase over previously reported rates, more is needed to be done in order to achieve the Abuja and Global targets of 60% and 80% respectively and near zero death by 2015 among the vulnerable groups.

It is recommended that health promotion / education campaigns on the ITN programme should re-inforce the massage that women and under five children are at risk of severe malaria and death if they do not utilise ITN. Massive health promotion/education campaigns should be carried out to convert or replace untreated nets with ITNs. The National Malaria Control Programme and other stakeholders should as a matter of urgency increase the supply of ITN to the vulnerable groups and the entire population by at least 35%.

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