Awareness and use of insecticide-treated bed nets among children attending outpatient clinic at UNTH, Enugu – the need for an effective mobilization process

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Abstract

Background: The promotion of insecticide-treated net (ITN) can be a key approach towards the reduction of morbidity and mortality from malaria.

Objective: To determine the proportion of mothers using insecticide treated nets for their children and reasons for nonuse.

Study design: Prospective hospital-based study.

Method: Consecutive mothers attending the children's out patient clinic of UNTH, Ituku-Ozalla, Enugu, whose children presented with fever without localizing focus were interviewed with the aid of an open-ended structured questionnaire.

Results: Awareness of ITN was found in 184 (80%) of the 230 mothers interviewed, while only 48 (26.1%) use it for their children. There was statistically significant difference in terms of ITN awareness between the highly educated mothers and those with lower educational qualification (p=0.000) but, in terms of ITN usage, there was no significant difference between the two groups (p=0.40). Socio economic class did not influence the use of ITN (p=0.153). A greater number; 56 (41.2%) have no reason for non-use. Reasons for nonuse include use of windows and door nets 22 (16.2%) and not convenient to spread 18 (13.2%).

Conclusion: There was a high awareness of ITN, which did not influence usage.

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Introduction

Malaria is one of the leading causes of deaths among children in Africa. There are at least 300 million acute cases of malaria each year globally, resulting in more than a million deaths, of which about 90% occur in Africa, mostly in children[1]. Malaria constitutes 10% of the continent's overall disease burden, accounting for 40% of public health expenditure, 30-50% of in-patient hospital admissions and up to 50% of outpatient visits in areas with high transmission[2].

The insecticide treated bed nets (ITN) have been shown to reduce the number of malaria episodes by as much as 50% and childhood mortality by 20%[1,3]. Therefore promoting the use of ITN can be a key approach towards the reduction of morbidity and mortality.In April 2000, African heads of states met in Abuja, where they set among other targets in the Roll Back Malaria Program (RBM), a 60% use of ITN among the high risk groups(pregnant women and under five children) by the year 2005[4]. Recently too, the World Health Organization issued a new global guideline on the use of ITN, extending it to all members of the community[5].

In South Western Nigeria, a study among 246 health workers showed that 93.5% were aware of ITN, but only 20.9% had correct knowledge and only 22.5% were using it in their homes[6].

Recent studies in Kenya have actually shown that expanding the use of the nets to all people in targeted areas enhances coverage and enhances the protection of the vulnerable group while protecting everyone. Also in Kenya, preliminary data from 2004 – 2006 showed a near ten fold increase in the number of children sleeping under ITN in targeted districts, with a resulting 44% fewer deaths than among the unprotected groups of children[5].

More than 7 years after the RBM summit in Abuja, how far have we gone with the use of ITN? What proportion of children are sleeping under the net? Why are those not using ITN not doing so? These are some of the questions we set out to answer in this study.

Methods

This is a hospital-based study, conducted between the periods of August 2007 and March 2008 at the permanent site of the University of Nigeria Teaching

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Hospital, Enugu. The hospital is located at Ituku-Ozalla, 20km along the Enugu-Port Harcourt express way. This tertiary institution provides basic and tertiary health care to Enugu urban area and towns around it, as well as some neighboring towns in Imo, Abia, Anambra and Ebonyi states.

Consecutive mothers attending children's out patient clinic whose children presented with fever without localizing focus were interviewed with the aid of an open-ended structured questionnaire administered by a doctor, after obtaining consent. Each mother was interviewed in the language (Igbo/English) she was most comfortable with. The questionnaire contained questions on the awareness and use of ITN. The mothers were divided into 2 groups based on the highest educational level attained: those with tertiary education in one group, while those with secondary education and below were in another group. The respondents were also stratified into socioeconomic classes using the method proposed by Oyedeji[7]. Those in social classes I, II and III were grouped as Upper class, while those in social classes IV and V were grouped as Lower class[7]. The data were analyzed using SPSS 15. The influence of mothers' highest educational qualification (HEQ) and the social classes of the children was tested using the Pearson chi-square.

Results

A total of 230 mothers/care givers were interviewed during the period of study. The children's ages ranged from 2 months to 132 months with a mean age of 32.48 ± 25.8 months. 87.4% were under 5 years. There were 138 males and 92 females giving a male: female ratio of 1.5:1. Their mothers' ages ranged from 20 to 50 years. 130 (57%) had at least a university degree, Higher National Diploma (HND), National Certificate of Education (NCE) or Ordinary National Diploma (OND), while 98(43%) had Senior Secondary Certificate of Education (SSCE), Teachers Certificate grade II (TCII) or its equivalent, First School Leaving Certificate (FSLC) or no formal education. The HEQ of two of the mothers were not known. The social classification of the respondents using the method proposed by Oyedeji[7] shows that 42 (18.9%), 78 (35.1%), 58 (26.1%), 39 (17.6%) and 5 (2.3%) fell into social classes I, II, III, IV and V respectively. 8 (3.5%) had incomplete data for classification.

Awareness of ITN was found in 184 (80%) of the mothers. Only 46 (20%) did not know about ITN. Of the mothers that know about ITN, 48 (26.1%) had their children sleep under the net. There was statistically significant difference in terms of awareness of ITN between the mothers with tertiary education and those with secondary education and below. p = 0.000. In terms of use of ITN among those that have the awareness, however, there was no significant difference between the two groups of mothers. p = 0.404.

Table 1: Awareness and use of ITN compared against HEQ of mother

Mother's HEQ	n	Awareness of ITN	Use of ITN
More or equal to 3°Education n = 130	130	120/130 (92.3%)	34/120 (28.3%)
Less or equal to 2° Education n = 98	98	62/98 (63.3%)	14/62 (22.6%)
p - value		0.000	0.404

Of the one hundred and eighty four children, whose mothers knew about ITN, 178 had their social classification computed and 152 belonged to the upper social class, while 26 belonged to the lower social class. There was no significant difference in the use of ITN between the upper and lower social classes (p= 0.153).

Reasons given by the mothers/care givers for non-use are shown in table 2. A greater number, 56 (41.2%) have no reason for non-use.

Table 2: Reasons given by the one hundred and thirty six (136) mothers for non use of ITN

Reason	Frequency	Percentage
No specific reason	56	41.2
Using doors and windows nets	22	16.2
Not convenient to spread	18	13.2
Child dislikes it	10	7.4
Causes heat	10	7.4
Expensive	10	7.4
Use of insecticide	6	4.4
Fear of chemical poisoning	4	2.9
Total	136	100

Discussion

Results from this study show that most mothers know about the insecticide treated bed net, but the problem is using the net. It is obvious then that most of them do not appreciate the usefulness of the net. This is evidenced by the fact that more than 40% of those not using ITN have no reason for non-use.

Education has an influence on the awareness of ITN, but not on the use. One would have expected that the more educated mothers would also appreciate the importance of ITN better than the less educated ones, but this was not the case. Even socioeconomic status does not have any influence on the use of ITN. This is further supported by the fact that only 7.4% of those that knew about ITN attributed cost as reason for non-use. None of the respondents indicated difficulty with sourcing as a reason for non-use. This is rather a surprise, knowing that the nets are not readily available. It may further suggest the nonchalant attitude of the mothers towards the use of ITN.

Data from other parts of the country show equally similar results[8-10]. In 2005, in Achi, a rural community in Enugu state of Nigeria, only 11.4% had ever heard of ITN[8]. A study conducted in 2005 in the 6 geopolitical zones of Nigeria showed household ownership of ITN to be 10.1%, but only 1.7% of children under the age of 5 slept under it[9].

In another series of standardized studies involving four countries; Nigeria, Senegal, Zambia and Uganda, ITN knowledge was universal in all countries except Nigeria, where awareness rose from 7% in 2000 to 60% in 2004[11]. A 2005 evaluation in Nigeria showed that only about 6.8% of the population had ITN[12].

The figure from this study shows that about 8 years after the Abuja launch, the story is still not encouraging. Although, this is a hospital-based study with a greater proportion of the mothers literate, one would have expected a much higher percentage of usage. Even the 80% awareness is not good enough considering the efforts both the government and the private sector have put in to ensure the success of the ITN.

A total of 87,840 nets were distributed to various tertiary hospitals, federal medical centers and organizations during the second quarter of 2005[12]. Surprisingly, a visit to most of these hospitals in this part of the country, showed that children on admission do not sleep under the net. Even availability for purchase is a major problem.

During the 2007 Malaria Day Celebration, the Nigerian Health Minister disclosed that a total of 10 million ITNs were distributed in 5 years[13]. In a country of about 140 million with a high population of under 5 children and pregnant women, that is obviously disappointing news. The fact that the expected result is not yet attained may indicate under distribution.

Conclusion

Having compared the results of the findings with that from some other studies and reports from control bodies, it is obvious that the current method of mobilization is not achieving the desired result. Therefore, other methods to reach the target population may be explored. These nets should be made readily available in all health facilities and distributed free of charge as this is likely to encourage the large population without any reason for non-usage. The ITN should be displayed in every clinic to attract the attention of every patient and so the attending physician can then use the opportunity to educate them. Also, more studies, especially community- based should be carried out to evaluate the use in various parts of the country. Finally, other methods of malaria control like environmental sanitation and insecticide spray on mosquito breeding grounds should be promoted to support ITN use in the control of malaria.

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