

A Comparative Study Of The Ownership And Utilization Of Insecticide Treated Nets In Household Of Children With Uncomplicated Malaria In Nigeria

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Abstract

The objective of the study was to determine insecticide treated net possession and usage; and factors associated with their utilisation in a cohort of house hold of children with uncomplicated malaria. A cross-sectional study was conducted at a secondary level health facility.

Subjects were children with uncomplicated malaria and their caregivers. Inclusion criteria were children presenting with fever and have a positive rapid diagnostic test for malaria. Children with severe malaria were excluded. The subjects were recruited consecutively during the period of highest malaria transmission. Information was obtained on insecticide treated net ownership and utilisation from the caregivers. One hundred and thirteen children were recruited. Seventy one of the children were aged less than five years. Insecticide treated net ownership rate was 52.2% and utilisation rate was 62.7%. Age less than five years was the only factor significantly associated with an increased likelihood of net ownership ($p=0.03$).

In conclusion, insecticide treated net ownership and utilisation among children with uncomplicated malaria in Nigeria is low and children aged less than five years are associated with a higher likelihood of household net ownership.

Keywords: Malaria; Prevention; Insecticide-treated bed-nets; Nigeria

Introduction

Globally, malaria is a very common cause of morbidity and mortality, especially in under-five children and pregnant women. The World Health Organization estimates that about 198 million cases of malaria occurred in 2013 with 584,000 deaths, most of which occurred in Sub-Saharan Africa and South East Asia.

Current efforts at malaria control revolve around three strategies namely: integrated vector management, malaria case management and chemoprophylaxis in vulnerable groups. Vector control strategies involve the use of insecticide treated nets (ITN) and indoor residual spraying. ITNs have been shown to be effective in malaria control with reduction in the frequency of severe malaria by 45%, 50% reduction in frequency of uncomplicated malaria across several population groups, reduction in malaria mortality among under-five children by 55% and an improvement of packed cell volume. Despite current evidence of the efficacy of ITNs there has been limited success with its use in Nigeria. Major reasons for the limited success are availability and usage. Data from the Nigeria Demographic and Health Survey in 2013 showed only 42% of households had at least 1 insecticide treated net. Similarly the Nigeria Malaria Indicator Survey in 2010 revealed only 31% of under-five children slept under an ITN. Campaigns with free distribution of ITNs have not necessarily resulted in improvements in ITN utilisation. Several studies in Africa have linked poor utilisation to practical and technical difficulties related to the fixing of the net above the mat, the design of the house, the feeling of suffocation and discomfort related to the relatively high temperatures even during the night, and the preferred use of local methods against mosquitoes, such as herbal repellents among others. Considering the major objective of the use of ITN is to prevent malaria episodes among children, the study examined a population of children with uncomplicated malaria in a hospital to determine their ITN usage and factors associated with their utilisation.

Materials and methods

The study was a descriptive cross-sectional study in which the subjects were children admitted with features of uncomplicated malaria and their parents. The study was carried at the Children Specialist Hospital, Ilorin which is a public-based secondary health facility located in Ilorin South Local Government Area (LGA) of Kwara State. The study was carried out during the peak of the malaria season between August and October 2013. The ethical principles outlined in the Declaration of Helsinki were followed in conducting this study. The minimum sample size required was calculated using a 95% confidence level and 10% confidence interval with an anticipated 15% non-response rate to give a sample size

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Table 2: Use of ITN in the preceding night by children of parents that own an ITN

Parameter	Used an ITN (N = 37)	Did not use an ITN(N=22)	P
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Age
< 5 years

of indoor residual spraying or a feeling that the child was too old to use an ITN. There was no statistically significant difference in maternal age, number of siblings, maternal or paternal education and social class between families of children that did or did not sleep under an ITN in the preceding night. (Table 2)

Discussion

In most developing countries there have been increasing drives to distribute ITN to households in order to reduce the burden of malaria. Net ownership in this study is higher than the current National average (2010) of 42% and much higher than the average for the North-Central zone of 32.1%. This may reflect the net distribution drives as part of the process of scaling up malaria control interventions in Nigeria. The finding that families with children less than five were more likely to have ITN supports this assertion as donated nets are especially targeted at pregnant women and children less than five years of age. The reported net ownership rate is far below the target set by the National Malaria Strategic Plan (2009-2013) of achieving at least 80% net ownership by households of two or more ITN. Furthermore, the strategic Plan seeks to achieve a target of at least 80% of children less than 5 years and pregnant women sleeping under an ITN. Thus the finding of about 63% of children in the current survey sleeping under an ITN exposes the urgent need for strengthening mass educational campaigns for ITN use.

Net possession and utilisation studies have consistently shown a significant discrepancy between both variables as in this study. Baume showed that nets distributed free were less used than nets purchased. However, families gave preference to under five children. Documented myths about ITN use include chemicals could cause harm, nets could lead to heat and false beliefs that some people are immune to malaria. Similar reasons were given in this study. There is a need for a better grasp of the issues militating against ITN utilisation in households that possess them. These findings suggest that while it is important to provide these nets to households it is equally important to ensure families are convinced to use these nets consistently by providing relevant information that will address concerns and myths about its use.

Conclusion

The study has shown that ITN ownership and utilisation in households of children with malaria is low and age less than five years is associated with an increased net ownership rate.

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Conflict of interest

The authors do not declare any conflict of interest.

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