Original Research Article

KNOWLEDGE OF MALARIA PREVENTIVE MEASURES IN A HYPERENDEMIC RURAL AREA OF WEST AFRICA

ABSTRACT

The Abuja declaration on Roll Back Malaria in Africa on 25th April 2000 by 44 African heads of state and government adopted the use of insecticide treated bed nets (ITNs) as preventive measure against the adverse effects of malaria among pregnant women in Africa. Similar optimism is expressed for the coverage of intermittent presumptive treatment (IPT) of Malaria infection among pregnant women across the continent. We conducted a community-based survey of recently pregnant women randomly selected from eight communities of Ikwo Local Government Area of Ebonyi State, Nigeria in June 2016, to study the level of knowledge of rural dwellers on the use of insecticide-treated bed nets by pregnant women. Among 300 households surveyed, 76.5% stated their high knowledge of and use of insecticide treated bed nets during pregnancy. Greater population of women of these communities (88.5%) knew the dangers of malaria in pregnancy and to the unborn child. The coverage of nationally recommended strategy to prevent malaria during pregnancy was high across all the communities studied. More sensitization and expansion of access to this service are required to meet the fullest meaning of the name "ROLL BACK malaria to where it came from". The sealing up of malaria prevention programs through antenatal care (ANC) services should be encouraged with 78.2% of women still indulging on self-treatment of malaria during pregnancy. Issues of commodity supply and service-free costs to clients should be encouraged and sustained.

Keywords: Malaria, Measure, Hyperendemic, Pregnancy, Prevalence.

Introduction

Susceptibility to malaria infection during pregnancy and incidence of anemia in children are determined by the level of immunity prior to pregnancy, which depends on intensity and stability of malaria transmission (Ndyomugyenyi *et al*, 2003). Populations in Africa live under a wide range of exposure to *Plasmodium falciparum* but how this effects the clinical and mortality of malaria remains unclear. As transmission falls from high to lower levels, immunity to severe disease is acquired more slowly and consequently the average age of severe malaria tend to increase. Increase in the age of susceptibility to severe malaria have been associated with

increased rate, increased risk of cerebral malaria and increased fatality due to severe malaria. These observations have led to concerns that reductions from high to lower levels of transmission intensity of *P. falciparum* may not necessarily reduce the burden of the disease in the long term and could even result in paradoxical increase. A definitive answer to the question of how the burden of malaria will change following reductions in transmission may only be possible by maintaining a controlled trial of an effective intervention such as insecticide-treated nets for several years (Hugh *et al*, 2003).The value of insecticide-treated nets in preventing malaria is now established beyond doubt but their level of use is still low in malaria endemic countries. Also there is evidence from several sources that the community-wide mass effect of widespread use of treated nets is as important, than the personal protection effect to the individual user (Curtis *et al*, 2003).This is relevant to the current debate about the relative efficiency of free provision versus marketing of treated nets. In Africa, malaria control is reliant upon antimalarial chemotherapy and insecticide based vector control and in each case successful intervention is threatened by the emergence and spread of resistance to the compounds used. Insecticide-treated nets have been shown to be effective in increasing child survival through preventing malaria in various settings, at least over one or two year period (Schellenberg, 2003). There is an optimism expressed by international roll back malaria (RBM) for the coverage of insecticide-treated nets (ITNs) among pregnant women across the continent by at least 60% by 2005 (http://www.rbm.who.int). However, poor knowledge of rural-dwellers on malaria vector control and the absence of public partnerships on sustainable availability of insecticide-treated nets pose a challenge to Roll Back Malaria initiative. Therefore, there is a need to know what communities think about different approaches to malaria control measures. New preventive health interventions such as ITNs can only be considered successful if they are also socially and culturally acceptable. Planning and monitoring of effective vector-orientated approaches to malaria control requires information about the level of knowledge of the disease across the populations of an area. This work, therefore, studied the need to characterize knowledge of malaria disease control measure over a small area in order to define the important and complex relationship between persistence and prevalence of malaria.

Methodology

The study was conducted between April and June 2017, the peak of malaria transmission and high infection rate in the country. It was carried out in eight communities across Ikwo local district of Ebonyi State, Nigeria as part of research work funded by National Tetfund under the auspice of Ebonyi State University. Maps of enumeration areas (EA), created during 2005 National Population Census of the country and representing approximately 100 people or 10 homesteads. Random sampling of EAs was carried out in each mapped community up to 250 homesteads as representatives of the community.

Survey procedures

We designed a structured interview questionnaire adapted from our earlier study performed in another state of the country Anambra state, Nigeria, Onwujekwe *et al*, (2007). The interview team members were indigenes of the communities who had high education training. They were fluent in both English and the local dialect of the communities. We selected 4 women and 4 men as interviewers and they were given a week intensive training on translation and administration of questionnaire to household heads or the representatives. The questionnaire consisted of information on household demographics, education background of the caregiver or head of the household and the knowledge of the caregiver or the representative on insecticide-treated nets and other malaria preventive measures. We also trained 4 Community Health Extension Workers, who monitored the interviewers and served as quality control measures to the administration of the questionnaires. Our Cartographer used streams, roads and other natural landmarks to subdivide the EAs to make it easier for the team of interviewers to count the households into 10-50 households each.

We defined a household as all persons who share earned income and farm produce and eat from the same cooking pot. Most often household members shared the same house, although at times teenage boys would have their own house while remaining a member of the economic family unit.

We interviewed all women who had completed a pregnancy within the last 2 years or who are still giving birth, in each household where there were children within 5 years of age. The team members revisited each selected household the same day or the following day if one or the representative of the person from who information was needed was not at home at time of the

first visit. Households where no one was at home and households where the occupants refused to participate were not replaced.

Results

Our teams visited 350 households. Five percent (5%) of the study participants (women) were absent but the primary heads of the households answered on their behalf. Eighty-nine percent (88.5%) knew the dangers of malaria in pregnancy and to the unborn child. They agreed that malaria prevention strategies during pregnancy are laudable policies and should be sustained. (Table I): Seventy-eight percent (78.2%) depended on self-medication for the treatment of malaria during pregnancy while eighty-nine percent (88.7%) knew the repercussions of self-medication. (Table II): Seventy-seven percent (76.5%) stated that they used insecticide-treated nets during pregnancy. (Table III): Most of the nets were obtained from government health facilities. Eighty-two percent (82.3%) had knowledge of malaria prevention strategies and that the policies are government recommendations. (Table IV): The use of insecticide treated nets was similar in all the communities.

Table I: Opinions on malaria prevention and treatment

	Frequency (%)
Malaria prevention options are adequate	
Yes	284 (88.5)
No	37 (11.5)
People over self-prescribe/self-medicate	
Yes	251 (78.2)
No	70 (21.8)
Repercussion to the practice of self-medicating	
Yes	282(88.7)
No	36(11.3)

Table II: Malaria prevention services to pregnant women

	Frequency (%)
Drugs	
Yes	162 (85.7)
No	27 (14.3)

Insecticide treated nets	
Yes	179 (76.5)
No	55 (23.5)
Other	
Yes	12 (15.0)
No	68 (85.0)
Are the services based on govt. recommendations	
Yes	242(82.3)
No	52 (17.7)

Table III: Information of Government Policies on ITN

	Frequency (%)
Knowledge of government policies on ITN use	
Yes	246 (82.3)
No	53 (17.7)
Does policy provide guidelines for prevention of malaria in pregnancy	
Yes	96 (35.7)
No	173 (4.3)

Table IV: Information about ITN and first source of information

	Frequency (%)
Heard about ITN	
Yes	242 (90.0)
No	27 (10.0)
First Source of information	
Internet	61 (20.3)
Educational journal	2 (0.7)
Friends	50 (16.6)
Co-workers	31 (10.3)
Radio	63 (20.9)
Television	81 (26.9)

Others	13 (4.3)

Discussion and conclusion

This study, across eight communities of similar malaria endemicity in Ebonyi State, Nigeria, indicates that the knowledge and use of insecticide –treated nets by pregnant women met the recommended malaria preventive measures (knowledge and use of ITNs, 82% and 77% >60% of the targets set by RBM for 2005). Greater number of the study population slept under an insecticide –treated bed nets. Moreso, 82% of the women studied stated their knowledge of insecticide-treated bed nets as a malaria preventive measure during pregnancy. The source of the nets to the communities is mostly from government facilities. Surprisingly, none of the women stated that the net was obtained from commercial sector. This underscores the importance of government involvement in distribution of ITNs especially in rural settings. This raises concerns regarding the recent RBM strategic document for expanding bed net coverage that recommends the commercial sector as the main distributor of nets for the general population (WHO, 2002). The data from this study suggest that this may act only to exaggerate the disparities between those accessing health care in government health facilities and those patronizing traditional birth attendants with the later increasing in number. It will also disrupt their orientation that ITNs is a government policy and could only be accessed in government own facilities. However, the WHO document does allude to the use of ANC clinics for targeting pregnant women, it is less specific in modalities and position of this delivery system than it is for other social marketing or private sector approaches. It is also contrary to the objective of making all pregnant women access their health needs in government health facility as a means of reducing maternal-child morbidity and mortality rate. This study corroborates the relevance of relative efficiency of free provision versus marketing of treated nets. The level of knowledge and use of ITNs (82% and 77%) shows the irrelevance of social marketing which is an appealing tool for getting insecticide-treated nets to poor rural-dwellers of African communities and often involves targeted or general price subsidies. A study in Malawi showed that bed net ownership following a social marketing campaign was higher in urban than rural areas (Guyatt *et al*, 2004), and major reason given by most households throughout Africa for not owning a net is financial (Guyatt *et al*, 2002b, Holtz *et al*, 2002). The UNICEF free net distribution is a good motivating factor to achieving RBM

initiative. Although, in Nigeria, there is USAID funded project (Net Mark) whose main purpose of study is to monitor changes in the markets, such as variations in sales volumes; prices at both retail and wholesale levels, in both urban and rural areas; supply systems brand diversity and competitive structure. The high knowledge of dangers of malaria in pregnancy with the unborn child along with high use of insecticide-treated nets during pregnancy highlights the need for improved supply, distribution and sustainability.

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