

ITN UTILIZATION AMONG PREGNANT WOMEN ATTENDING ANC IN ETSAKO WEST LGA, EDO STATE, NIGERIA

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ABSTRACT

Objective: To determine the factors affecting utilization of ITN by pregnant women in Etsako West LGA, Edo State.

Methodology: A descriptive cross-sectional study design was employed. Using a systematic sampling method, a total of 385 respondents were selected from all ANC facilities in the LGA following a verbally obtained consent. Tool for data collection was a semi-structured, researcher administered questionnaire.

Result: The respondents' knowledge of cause of malaria was good, as 269 (69%) had good knowledge but only 9 (2.3%) knew its effects on the foetus. Meanwhile, ownership of ITN and its use were very low, 36 (9.3%) and 31 (8.0) respectively. The main factor affecting the use of the commodity in the LGA was unavailability of ITNs. Other factors included belief of the women on the effectiveness of the commodity, level of education, marital status and family sizes of respondents.

Conclusion: Use of Insecticide treated bed net has been hampered by unavailability of the commodity. It is therefore recommended that efforts should be made to make the commodity available to reduce morbidity and mortality among this vulnerable group.

KeyWords: Pregnant women, ITN, Utilization.

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INTRODUCTION

Malaria continues to be a public health problem globally, especially in tropical Africa with high morbidity and mortality¹. The most vulnerable group to malaria are under five children and pregnant women.² Each year 24 million pregnancies occur in malaria endemic areas of Africa, yet less than 5% of the pregnant women have access to effective intervention. Sleeping under ITNs has been reported to reduce the prevalence of malaria.^{3,4} Dead mosquitoes, cockroaches and bed bugs have been observed around the nets. The use of ITN during pregnancy in stable malaria transmission zone has been shown to reduce the risk of morbidity and mortality among pregnant women and their infants.^{5,6} The impact of insecticide treated bed net on mortality has been established by several intervention studies^{7,8} and all reported a decrease on all causes of childhood mortality, ranging from 15 to 63%.

Although the successful implementation of ITN programme has been reported to reduce maternal and infant morbidity and mortality, there is a persistently low usage of ITNs in Nigeria⁹. Several factors, which include awareness, ITN unavailability,

poor distribution channels and high cost among others, could be said to be responsible. Lack of awareness is a major constraint affecting ITN uptake. Awareness about ordinary bed nets does not automatically translate into better utilization of ITNs. In Malawi for instance awareness of ordinary bed net was as high as 70%, while ITN use was as low as 3%.¹⁰ To improve on ITN usage an intensive IEC campaign was embarked upon. The campaign started among hospital and primary health care staff. At the same time ITNs were placed on all beds in the children's ward in hospitals and health centres. This way community members who stayed with their children in hospital became familiar with the use of ITNs while health staff used the opportunity to teach on how to use and care for ITNs. Two years after, more than 6,000 nets were voluntarily purchased by community members and household usage of ITNs improved. The situation is worse where most people do not know or use ordinary nets and so when ITNs are introduced it is not received with enthusiasm⁴ because they cannot appreciate the extra protection afforded by ITN. Such intensive campaigns as seen in Malawi are rarely available in Nigeria but are necessary to sensitize people to use the commodity.

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Availability is a strong determinant in the sustainability of ITN use. Even when awareness has been created, the absence of the commodity becomes a hindrance to sustainable use. It has been shown that net size in relation to bed size is a limiting factor to net usage.⁴ A wide range of net sizes should therefore be produced. Family size also influences the use of ITNs³ as small rather than large family size encourages the use of bed nets.

The great danger posed by malaria in pregnancy and global prioritization of malaria control, moved the Nigerian government after the Abuja malaria summit 2000, to set a mid-term target to have 65% of the population at risk, pregnant women and children under five years sleep under ITN by the end of 2005. The Federal Government in 2002 set up the ITN massive promotion and awareness campaign (IMPAC) to promote awareness and improve availability and utilization of ITNs. Tariffs and taxes on importation of ITNs and insecticides were reduced or abolished by government. International and local non-governmental organizations like UNICEF, USAID, NETMARK and community based organizations (CBO) have been involved in the promotion of ITN availability and utilization in the country. Since 2003, the Federal Government through IMPAC has supplied ITNs to various local governments' primary health care (PHC) departments through the state ministries of health. These nets were distributed to pregnant women who attend ante-natal clinics (ANC) and mothers of children under five years old who have completed their routine immunization free of charge. There is need to address availability and sustainability of ITN distribution to vulnerable groups through monitoring and phasing of implementation to ensure sustainability of this beneficial programme. Since the target to achieve 65% coverage of ITN use for vulnerable groups was set for 2005, it is apt to assess the programme now.

The objective of the study was to determine the factors, which influence ITN utilization by pregnant women in the LGA. The benefit of ITN use as prevention against malaria has been proven by various authors.³⁻⁶ The outcome of this study would reveal findings that would help improve the current ITN situation in the LGA for the benefit of the vulnerable groups.

MATERIALS AND METHODS

The descriptive cross-sectional study was undertaken in Etsako West LGA, Edo State, Nigeria. The land mass of the area is traversed by many rivers and streams which also promote the breeding of mosquito vectors. Most of the LGA is Guinea savannah while the southern part is rainforest.

The main occupation of the inhabitants is subsistence farming which exposes them to mosquito bites especially those who live in farm camps. Also night life is a common practice especially during the dry season when people sleep outside till very late at night to enjoy the cool weather at the expense of mosquito bite.

Sample size was determined using the formulae for a single population proportion estimate and 50% prevalence giving a sample size of 384. Making provision for a 5% non-response rate, the sample size was adjusted to 405. All the 17 health facilities which provided ANC services were used for the study. The average monthly attendance for each facility were, A, 120; B, 40; C, 24; D, 8; E, 40; F, 20; G, 20; H, 8; I, 12; J, 20; K, 24; L, 32; M, 20; N, 24; O, 20; P, 12; Q, 200, giving a total monthly attendance of 644 for all facilities. The sample size of 405 was proportionately selected within the 17 health facilities using a sample fraction of 0.63. The sampling fraction was obtained by dividing the calculated sample size by the total monthly attendance. Using a systematic sampling method and clinic attendance list as sampling frame, the following numbers of pregnant women were selected from each facility viz; A, 75; B, 25; C, 15; D, 5; E, 25; F, 13; G, 13; H, 5; I, 7; J, 13; K, 15; L, 20; M, 13; N, 15; O, 13; P, 7; Q, 126; totaling 405, but only 385 accepted to participate after verbal informed consent was obtained, giving a response rate of 95.1%.

The tool for data collection from the respondents was a pre-tested, semi structured, researcher administered questionnaire. Trained personnel recruited from the LGA administered the questionnaire. They were trained on good attitude towards the respondents, understanding of the questionnaire, and its precise application and checking after administration for correctness.

Data collected were analysed using PEPI¹¹ the computer programme for epidemiological studies and associations were established using Fisher's exact test for statistical significance at 95% confidence limit.

RESULTS

The survey to determine the factors affecting the use of ITNs in Etsako West LGA, was undertaken among 385/405 pregnant women attending ANC in seventeen health facilities selected for the study, giving a response rate of 95.1%.

Table 1 shows the knowledge of the respondents about the cause of malaria. Their knowledge was generally good. Most of them, 269 (69.9%) knew that mosquito bite causes malaria while 116 (30.1%) erroneously attributed the cause of malaria to hard work under the sun, drinking contaminated water, and bad food among others.

Although, the knowledge of cause of malaria was good, knowledge of the effect of malaria on foetus was poor. Only, 9 (2.3%) of the respondents knew that malaria could result in stillbirth, pre- mature birth, foetal growth retardation and spontaneous abortion among others. The majority, 376 (97.7%) could not associate malaria with any of the foetal problems as indicated in Table 1.

The various types of preventive devices used by the pregnant women against malaria are presented in Table 2. The most commonly used prevention was insecticide aerosols with 132 (34.2%), followed by gauze on windows/doors, 107 (27.8%) and mosquito coil, 67 (17.4%). Eighty-eight (22.8%) of them used untreated and insecticide treated bed nets as prevention against malaria as indicated in Table 2.

The only sources of ITN available to the pregnant women was the LGA primary health care centres, where ITNs were distributed free of charge to the pregnant women in attendance at the antenatal clinics. The prevalence of ownership of bed nets was low, 88 (22.8%). Of these 52 (13.5%) claimed they owned untreated bed nets while only 36 (9.3%) owned ITNs. Most of the respondents, 297 (77.1%) owned no bed nets as shown in table 3.

Thirty-six (9.3%) of the women said they owned ITNs and of these 31 (86.1%) claimed that they slept under the nets while 31 (8.0%) of the entire study population claimed to sleep under the nets. Meanwhile, 5 (1.3%) slept under their nets occasionally.

Table 3 shows that 24 (66.6%) of those who slept under ITNs claimed that ITNs were effective prevention against malaria from experience while others, 6 (16.7%) each claimed that ITNs were either not effective or were indifferent about ITN effectiveness.

Table 1: Knowledge of Cause of Malaria and Its Effect on the Unborn Child.

Causes of Malaria Proffered.	Frequency (%)
Mosquito bite	269 (69.9).
Hard work, under the sun.	42 (11.0).
Drinking contaminated water	26 (6.8).
Bad food	23 (6.0).
No idea	17 (4.4)
Evil spirit	8 (2.1).
Effect of Malaria on the Unborn Child.	Frequency (%)
Correct knowledge	9 (2.3)
Wrong knowledge	376 (97.7)
Total	385 (100)

The level of education seem to influence the use of ITN although the association was not found to be statistically significant ($P= 0.1039$) as indicated in Table 4. More of the married women, 30 (88.2%) used ITN daily than the unmarried but the difference was not statistically significant ($P= 0.2619$). Meanwhile, the smaller the family size the higher the frequency of use of ITN and the association was found to be statistically significant ($P= 0.005$) as indicated in Table 4.

Table 2: Preventions Used Against Malaria by the Study Population.

Type of Prevention Used	Frequency (% of Prevention Used)
Insecticide aerosols.	132 (34.2)
Net gauze on windows/doors	107 (27.8)
Mosquito coil	67 (17.4)
Untreated bed net	52 (13.5)
Burning herbs	51 (13.2)
Insecticide treated bed net.	36 (9.1)
Physical killing	30 (7.8)
Clearing of bushes	30 (7.8)

Multiple Responses. N= 385.

Table 3: Belief in the Effectiveness of ITN Following the Experience of Usage.

Belief on Effectiveness of ITN	No & % Frequency
Yes	24 (66.6)
No	6 (16.7)
No idea	6 (16.7)
Total	36 (100)

Table 4: Influence of Level of Education, Marital Status and Family Size on ITN Usage.

Level of Education of Respondents:	Frequency % Usage. N=36		
	Daily use	Occasional use	Total
None	1 (33.3)	2 (66.7)	3 (8.3)
Primary	22 (91.7)	2 (8.3)	24 (66.7)
Secondary	7 (87.9)	1 (13.1)	8 (22.2)
Tertiary	1 (100)	-	1 (2.7)
Total	31 (86.1)	5 (13.9)	36 (100)
Fisher's exact test $P= 0.1039$			
Marital status:			
Married & living with spouse.	30 (88.2)	4 (11.8)	34 (94.4)
Others (single, separated & Divorced)	1 (50.0)	1 (50.0)	2 (5.6)
Total	31 (86.1)	5 (13.9)	36 (100)
Fisher's exact test $P= 0.2619$.			
Family size:			
=4	17 (85.0)	3 (15.0)	20 (55.6)
>4	6 (37.5)	10 (62.5)	16 (44.4)
Total	23 (63.9)	13 (36.1)	36 (100)
Fisher's exact test $P= 0.005$.			

DISCUSSION

The study revealed that majority, 269 (69.9%) of the pregnant women had good knowledge of the cause of malaria as also observed among a similar population in Tanzania¹². They knew that mosquito bites cause malaria.¹³ This is expected as a consequence of regular health education on malaria transmission which they receive at the ante-natal clinics.¹⁴ However, despite the good knowledge of the cause of malaria, their knowledge of the effect of the disease on the unborn child was very poor as only, 9 (2.3%) of the respondents knew the effect of malaria on the foetus^{12,15}. Malaria is endemic in Nigeria and it is commonly overlooked as a mild disease whereas its devastating effects are enormous¹⁶.

The study revealed that the pregnant women used various preventions against malaria, which included insecticide aerosols, window/door gauze, mosquito coil, and least of all, ITNs among others. The high level of prevention practices against malaria may be due to their good knowledge of cause of malaria^{16,17}. Unfortunately, majority of the preventions used are expensive and their use may not be sustainable. For example the use of insecticide aerosols may not be sustained due to cost and vector resistance, window/door gauze must be complimented with other tools like insecticide aerosols while mosquito coil produce choking smoke. The use of bed nets was low, 88 (22.6%) as also reported in eastern Nigeria¹⁶. It is likely that the unavailability of ITN could be responsible for the increased use of these other options. The only sources of ITN known and available to the pregnant women in the LGA are the government owned health centres where only, 36 (9.3%) of them received the ITNs. As at September 2005, the prevalence of ITN ownership was 36 (9.3%) among pregnant women attending ante-natal clinics in the LGA. The prevalence is a far cry from the policy target and goal set by the Federal Government of Nigeria to have 65% of pregnant women and under five year old children sleep under ITNs by 2005. Previous reports confirm similar low coverage in other African countries including Nigeria^{9,10}. Inadequate supply by the government may have led to unavailability of the commodity in the LGA.

The use of the health centre as the only distribution point could lead to low coverage even when the commodity is available⁹. The channels of distribution should be expanded to include TBAs, village health workers and community based organizations (CBO) amongst others. Multiple and acceptable distribution strategies in the community by government and other organizations lead to appreciable scaling up of supply and use of ITN, which is in conformity with WHO strategic framework for scaling up ITNs in rural areas.^{9,15,17}

The study revealed that willingness to use ITNs was high among those who owned them. Level of education greatly influenced daily use of bed nets. Education generally improves awareness and compliance to therapy¹². Their willingness to use bed nets could have been influenced by 2 main factors; to abate malaria and the nuisance of mosquito bite which deprived them of sleep at night.³ Those who failed to use their nets, 5 (1.3%) claimed that the net size did not fit their beds as also reported in Kenya.³ Although, the proportion of those who believed in the effectiveness of ITNs against malaria was high, belief could be undermined by such technical problems as inadequate net size.

More married than unmarried women slept under ITNs daily. It does appear that married couples were able to influence themselves to use ITNs to promote family health.

Interestingly, 20 (55.6%) of the study population had four children and less, the recommended family size for Nigerians since 1990 which could be attributable to the harsh economic realities and increasing cost of child upbringing. A small family size, improves the household economy and facilitates good health seeking behavior as well as improve regularity of sleeping pattern, causing fewer disruption which promote net compliance⁴.

In conclusion, the study population had good knowledge of cause of malaria and was willing to protect themselves against the vector but unfortunately, this viable and sustainable tool for prevention was not available to them. It is therefore recommended that efforts should be made to make the commodity available to this vulnerable group to reduce morbidity and mortality due to malaria.

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