

*Full Length Research Paper*

## Level of awareness and use of insecticide treated bed nets among pregnant women attending antenatal clinics in Anambra State, South Eastern Nigeria

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This was a cross sectional study designed to assess the level of awareness, ownership and use of insecticide treated bed nets (ITNs) by pregnant women attending antenatal clinics in Anambra state, South Eastern Nigeria. A structured questionnaire was self administered to 700 volunteer pregnant women aged 17 to 45 years recruited during routine antenatal care in selected hospitals in the study area to capture information on use of ITNs. The information obtained was analyzed using simple ratios, percentages and charts. The result showed that 651 (93%) of the women were fully aware of the use of ITNs during pregnancy, 420 (60%) owned ITNs in their homes while only 308 (46%) used the nets partially or wholly, and 392 (56%) never used the nets. The level of awareness of pregnant women concerning the use of ITNs was high while actual ownership and use was low. Public health education needs to be intensified to create more awareness and increase ownership and use.

**Key words:** Insecticide treated nets, pregnant women, Anambra State, South Eastern Nigeria.

### INTRODUCTION

Insecticide treated bed nets (ITNs) were introduced in Nigeria as an effective means of preventing mosquito bites and malaria transmission following the meeting of African Heads of States in Abuja, Nigeria in the year 2000 (RBM, 2010). Pregnant women and children aged 0 to 5 years were the main target populations being the

people most affected by the malaria scourge (Richard et al., 2001; Okwa, 2004). Following this giant stride in preventive medicine, studies (Gamble et al., 2006; Adeyemi et al., 2007) have shown that ITN use in pregnancy reduced the incidence of malaria in pregnancy and hence the incidence of pregnancy related complications

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such as premature deliveries, low birth weight babies, maternal anaemia and intra uterine foetal deaths.

Despite the concerted efforts made by the various health authorities to promote the use of ITNs by pregnant women, studies (Ganihu and Jimo, 2003; Isah and Nwobodo, 2009; Salaudeen and Jimoh, 2009; Musa et al., 2009; Iwu et al., 2010; Oche et al., 2011; Aina and Ayeni, 2011; Okoye and Isara, 2011; Aluko and Oluwatosin, 2012; Runsewe-Abiodu et al., 2012) have shown that the level of awareness, ownership, and actual use of ITNs by pregnant women has varied from one locality or zone to the other. Although the awareness level has improved over time, studies (Osero et al., 2005; Adeneye et al., 2007) have shown that a lot of factors still militate against actual ownership and correct use of ITNs. Insecticide treated nets (ITNs) provide effective barrier or shield between the user and mosquitoes or other biting insects thereby protecting against mosquito bites and malaria transmission. The increased prevalence of malaria in pregnancy as reported by some studies (Mbanugo and Okorudo, 2005; Aribodor et al., 2007) suggest that all is not well with the awareness or use of ITNs in Anambra state. The present study was therefore designed to assess the level of awareness, ownership and use of ITNs by pregnant women attending antenatal clinics in hospitals in Anambra State, South East of Nigeria.

## MATERIALS AND METHODS

### Study area

Five different hospitals located in three major cities in Anambra state namely Awka, Onitsha, and Nnewi were chosen for the study. These hospitals include:

1. General Hospital/Anambra State University Teaching Hospital, Awka: This is the biggest state owned tertiary health institution located in the heart of the state capital Awka, with an estimated population of about 300,000 people (NPC, 2006).
2. Divine Hospital and Maternity, Awka: This is one of the busiest privately owned health institutions in the state patronized by a lot of pregnant women in the state capital and its environs.
3. Christ the King Hospital and Maternity, Awka: Like the above named hospital, this is a specialized health institution that caters for a large population of pregnant women in the state capital and its environs.
4. General Hospital Onitsha: Is the second largest state owned secondary care health institution catering for an estimated population of more than 300,000 people.
5. Life Specialist Hospital Nnewi: Is a specialist centre located in the centre of Nnewi, the third largest commercial city of the state. It is owned and managed by a Professor of reproductive health.

Anambra State is located in the South Eastern part of Nigeria with a population of 4.9 million (NPC, 2006). The state is bounded to the east by Enugu state, to the West by Delta state, to the North by Kogi state and to the South by Imo state.

### Study population

700 volunteer pregnant women aged 17 to 45 years were recruited for the study between January, 2012 and March, 2013. The age range represents the reproductive age. To arrive at the sample size, the annual 3% growth rate for the female population in Nigeria was determined as at 2004. The population of women of reproductive age which is 49% of all female population was determined. Pregnant women constitute 5% of women of reproductive age and this was also determined. The figures obtained were substituted in the formula for calculation of sample size. Informed consent was obtained from them and due permission was sought for and obtained from the Heads of the different hospitals used for the study.

### Questionnaire administration

A structured questionnaire was self administered to the women to obtain information on biodata, awareness ownership and use of ITNs during pregnancy among other information. The questionnaire was composed of five sections A to E, with section C dwelling on use of ITNs.

### Statistical analysis

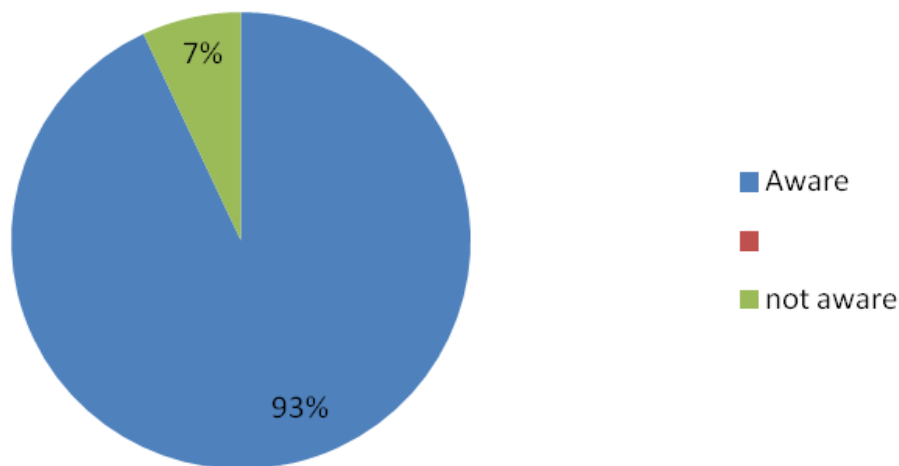
The version 16 of statistical package for social sciences (SPSS) was used for statistical analysis. Analysis of variance (ANOVA) was used, and simple graphs and charts were used for data representation.

## RESULTS

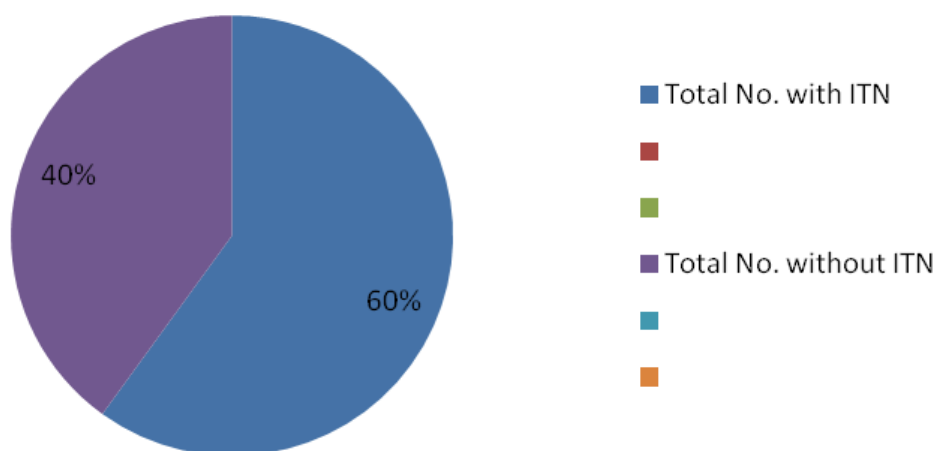
A total of 700 respondents aged between 17 and 45 years participated in the study. Their educational background varied from no formal education 60 (8.6%), primary education 180 (25.7%), secondary education 350 (50%), and tertiary education 90 (12.9%). Six hundred and fifty one representing 93% Figure 1, were fully aware of the use of ITNs during pregnancy. 420 representing 60% Figure 2, owned ITNs in their homes while a total of 308 (44%) Figure 3, used the nets partly or wholly during pregnancy. A total of 392 pregnant women (56%) Figure 3, never used the nets.

## DISCUSSION

The awareness level of 93% observed in the present study shows that most of the pregnant women attending antenatal clinics in Anambra state were adequately informed about the use of ITNs during pregnancy. This suggests that a lot of health education has actually taken place. Reports from previous studies in Nigeria and other African countries put the awareness level at between 36 and 91% (Ganihu and Jimo, 2003; Gamble et al., 2006; Aluko and Oluwatosin, 2012; Adeyemi et al., 2007;



**Figure 1.** Level of awareness of ITN use among pregnant women in Anambra State, Nigeria.

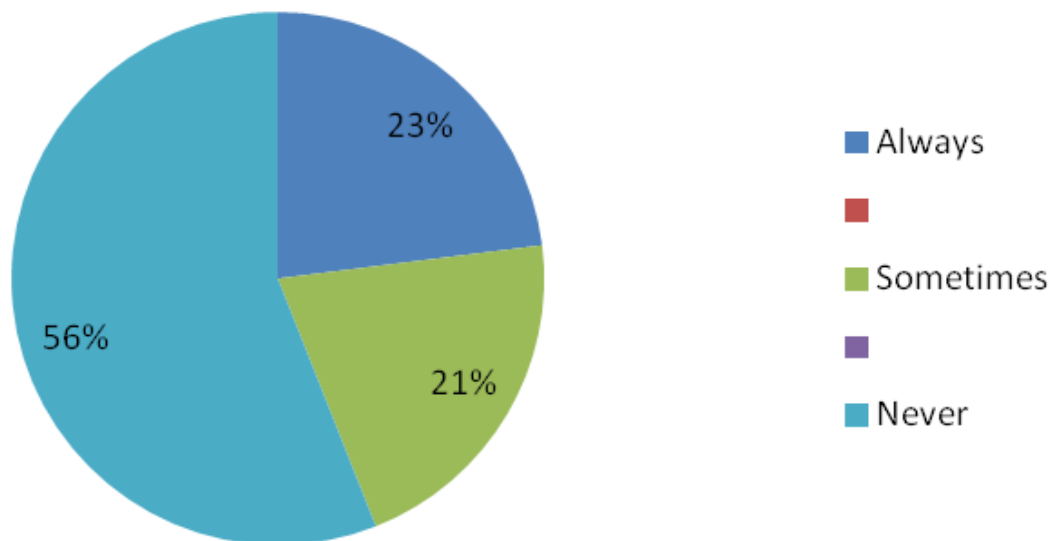


**Figure 2.** Possession of ITN among pregnant women in Anambra State, Nigeria.

Okoye and Isara, 2011; Salaudeen and Jimoh, 2009; Sangare et al., 2012). The present study thus shows an improvement in awareness level over the previous reports. In the South West zone of Nigeria, the awareness level was reported at between 41.1% in Oshogbo, Osun State (Adeyemi et al, 2007) and 91% in Lagos State (Aina and Ayeni, 2011). In the South-South zone of Nigeria, an awareness level of 88.6% was reported (Okoye and Isara, 2011) whereas the awareness level in the Northern zone of the country was reported at between 36% (Salaudeen et al., 2009) and 91% (Oche et al., 2011).

In other African countries, studies have reported an improvement in the awareness and use of ITNs over the years (Baume et al., 2008; Sangare et al., 2012). However, despite the high awareness level in Anambra state,

the fact that only 60% of the women owned ITNs while an abysmal 44% used the nets either partly or completely is a cause for concern for health workers in the state in particular and public health practitioners in general. Previous studies revealed low level of ownership and use of ITNs varying from 20 to 72% (Salaudeen and Jimo, 2009; Oche et al., 2011; Runsewe-Abiodun et al., 2012). The low level of ownership could be attributed to failure to collect free samples from government agencies (Guyatt and Ochola, 2003; Pettifor et al., 2009), inability to purchase from the open market due to high cost, or ignorance of the importance of sleeping under ITNs during pregnancy, bearing in mind that a percentage of the women had no formal education. Oftentimes, free nets distribution by government agencies is concentrated at the primary health centres at the local governments



**Figure 3.** Rate of use of ITN among pregnant women in Anambra State, Nigeria.

where some local women who may not value the nets collect them only to dump them at home for one reason or another.

Huge populations of pregnant women patronizing hospitals situated in major urban areas are often left out. The low level of actual use of ITNs by women who had it could be attributed to socioeconomic and cultural factors such as poor or inconvenient accommodation to hang the net, poor knowledge, attitude and practices (KAP) concerning the use of ITNs (Chukwuocha et al., 2010) and low level of education as has been reported by some studies (Wagbasoma and Aigbe, 2010; Baley and Deressa, 2008).

### Conclusion

The present study concludes that though the level of awareness concerning the use of ITNs by pregnant women in Anambra was high, the actual ownership and use was poor justifying the high prevalence of malaria which has been reported in the state (Mbanugo and Okorudo, 2005; Aribodor et al., 2007). The public health implication is that more work needs to be done by both the government and health workers in the state to further raise the level of awareness through health education, increase the accessibility and affordability of ITNs through mass importation so as to motivate more pregnant women to use them and finally to raise the level of formal education through compulsory and free education to secondary level. Here lies the key to winning the war against malaria in pregnancy.

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**QUESTIONNAIRE**

Section A: Personal Data

- 1. Name-----Optional
- 2. Age-----
- 3. Educational Qualification: a) Primary b) Secondary c) Tertiary/university d) none
- 4. Occupation: a) Trader b) Civil servant c) Professional (Lawyer, doctor, engineer, accountant etc) d) Student e) Unemployed housewife f) artisan/handcraft
- 5. Nature of residential accommodation:  
a) one-room apartment b) 2-room apartment c) two-bed room flat d) 3-bed room flat e) Duplex /family house

Section B: Obstetrics history:

- 6. Date of last menstrual cycle (LMP) -----
- 7. No of previous pregnancies: a) None (primip) b) one c) two d) three e) four or above
- 8. Duration of present pregnancy:  
9. a) 0-3 months (1<sup>st</sup> trimester) b) 4-6 months (2<sup>nd</sup> trimester) c) 7-9 months (3<sup>rd</sup> trimester) d) >9 months
- 10. Time of registration for ANC:  
a) 0-3 months b) 4-6 months c) 7-9 months

Section C: Use of Insecticide Treated bed Nets (ITNs):

- 11. Do you know that ITN should be used during pregnancy?
- 12. a) Yes b) No
- 13. Do you have ITN?
- 14. a) Yes b) No
- 15. If yes have you been sleeping regularly inside ITN during the present pregnancy?  
a) Yes sometimes b) yes always c) Never
- 16 If No, why have you not been using the nets regularly?  
a) It causes excessive heat  
b) Accommodation not convenient to hang it  
c) I can't afford it  
d) I don't like it  
e) Other reasons (state)

Section D: Malaria history

- 16 Have you had any of the following problems since you became pregnant?  
a) Fever b) headache c) Chills/cold d) joint pains e) Tiredness f) loss of appetite g) others (state)
- 17 Has your doctor treated you of malaria since you became pregnant?  
a) Yes b) No
- 18 Are you on malaria preventive tablets?  
a) Yes b) No

Section E: Pregnancy outcome (to be filled by researcher)

- a) Normal delivery b) Preterm delivery c) Intra-uterine foetal death (IUD)
- d) Baby's birth weight-----e) Mothers Hb level-----