

# **Perception of Pregnant Women on Effectiveness of Insecticide –treated Nets Initiative In Kosofe Local Government Area of Lagos State**

**Fasoranti, Afolabi Joseph, Ajibola, Samson Gbenga**

**&**

**Sam-Odutola Olubukola Mary**

University of Lagos, Akoka Lagos.

## **Abstract**

*The purpose of this study was to investigate the effectiveness of insecticide treated nets (ITN) initiative for pregnant women at Kosofe Local Government Area of Lagos State. The sample used for this study was two hundred and ten (n-210) pregnant women registered in various health centers and hospitals in the Local Government. The descriptive survey design was used and the respondents were selected using purposive sampling technique. Insecticide Treated Nets Assessment Questionnaires (ITNAQ) was used to elicit opinion from respondents. The test retest reliability value obtained for the instrument using Pearson Product Moment Correlation Co-efficient was 0.86. Data was analysed using frequency counts and percentage for demographic data while Chi-square was employed in determining the level of significance between the hypothesized and observed values at 0.05 alpha level. The result of the findings revealed that Insecticide Treated Nets Initiative have significant influence on health status, health awareness and also reduces maternal mortality and morbidity among pregnant women. The study recommended that government and stakeholders in health promotion should provide insecticide treated nets to people and also create awareness on the importance of it to the general populace which will thereby reduce the scourge of malaria.*

**Keywords:** *Effectiveness, Mortality, Insecticide-treated Nets, Pregnant Women, Malaria.*

## **Introduction**

Nigeria as a nation is blessed with both human and natural resources yet women die everyday from the scourge of maternal mortality. Nigeria has the second highest rate of maternal death in the world one in every eight women die while giving birth (Federal Ministry of Health, 2014). Most of these deaths are avoidable as compared to the United States of America where only one in 4,800 obtains (Adekunle, 2012). World Health Organization, reported that between 655,000 and 1.2 million people died from the disease (roughly 2000–3000 per day), many of whom were pregnant women and children in Africa. Malaria is commonly associated with poverty and may also be a major hindrance to economic development (Nayyar, Breman,



Newton & Herrington, 2012). There are a number of serious complications of malaria. Among these is the development of respiratory distress, which occurs in up to 25% of adults and 40% of children with severe *P. falciparum* malaria. Disease transmission can be reduced by preventing mosquito bites by the use of mosquito nets, ITNs and insect repellents, or with mosquito-control measures such as spraying insecticides and draining stagnant water.

Mosquito nets treated with insecticides – known as Insecticide-Treated Nets (ITNs) or bed nets – were developed in the 1980s for malaria prevention. ITN is estimated to be twice as effective as untreated nets, and offer greater than 70% protection compared with no net (Bachou, Tylleskär, Kaddu-Mulindwa and Tumwine 2006). These nets are dip-treated using a synthetic pyrethroid insecticide to double the protection by killing and repelling mosquitoes. It is recommended that the nets should be re-impregnated with insecticide every six months for maximum effectiveness.

'Roll back' Malaria initiative is the initiative put in place for the mosquito control, through the use of Insecticide-Treated Nets (ITN) and Indoor residual Spraying (IRS). Malaria threatens the lives of 3.2 billion people globally and exacts a great toll on vulnerable pregnant women and children, killing an estimated 1 to 2 million yearly and causing illness in about 300 to 500 million among these two groups due to their high vulnerability. Africa is a malaria-endemic region where approximately 25 million women become pregnant annually. This factor contributes to the maternal and neonatal morbidity/mortality in Africa region. One of the major public health challenges in Nigeria is the very high prevalence of malaria. Malaria accounts for about 110 million clinical cases annually in the country. As reported by the most recent estimates, nearly half the Nigerian population annually experience one episode of malaria and the majority of outpatient visits made to the government health facilities can be attributed to malaria (FMOH, 2014). The most vulnerable groups, as have been observed are children below 5 years of age and the pregnant women. The severity of malaria is worsened by pregnancy as a result of distinct malaria parasites that binds the placenta (Tako, Zhou, Lohove, Leke, Taylor & Leke, 2004). Malaria can result to pregnancy loss, still birth, low birth weight and neonatal mortality if not properly taken care of at the early stage (Aluko & Oluwatosin, 2012). Hence, its enormous physical, emotional, social and economic impacts on the clients, families and the nation at large cannot be quantified. One established means of preventing the adverse consequences of malaria during pregnancy is for a pregnant woman to sleep under an insecticide treated net (ITN) throughout pregnancy. Despite increased access to this intervention over time, consistent ITN use during pregnancy remains relatively uncommon in sub-Saharan Africa.



ITNs are distributed free of charge to various household in Lagos and it is also available within the states at a subsidized price. While mass, free ITN distribution campaigns and subsidized voucher programmes for ITNs targeting pregnant women and children less than 5 years of age have been successful at increasing the proportion of households that own and use ITN.

Several global and regional attempts have been made at controlling malaria thereby reducing maternal mortality in the past with little success as a result of ineffective strategies used and insufficient resources. However, the most recent launching of the roll back malaria initiative has generated a lot of resources for the control of the diseases with simple and cost-effective interventions, with a specific focus on the most at risk. At the historic malaria summit hosted by Nigeria in 2000, Africa Heads of states made a declaration to halve the burden of malaria by year 2010, one of the targets set for first five years was to ensure that the vulnerable groups, children under five years of age and pregnant women, have access and sleep under ITNs. The four key intervention strategies of Roll back malaria, which is recommended by WHO are: case management of malaria in pregnancy, using sulfadoxine + pyrimethamine (sp) as a drug of choice for intermittent preventive treatment (IPT), widespread use of insecticide treated nets (ITNs), antennal care and vaccines.

The researchers observed over the years the high prevalence of malaria in Nigeria. Despite effort of the Federal Government through the Ministry of Health to curb mortality as a result of pandemic occurrence of malaria, there still remains the high incidence of malaria. The insecticide treated nets initiative is one of the strategies adopted to prevent the spread of malaria parasite in Nigeria. . Kosofe Local Government Area of Lagos state is characterized with inadequate access to safe water; inadequate access to sanitation and other infrastructure; poor structural quality of housing; overcrowding; and insecure residential status which has led to the presence of a combination of many factors such as high human population density, high mosquito population density and high rates of transmission from humans to mosquitoes and from mosquitoes to humans. If any of these is lowered sufficiently, the parasite will eventually disappear from the area. Another predisposing factor to malaria infection is that in these areas where malaria disease is endemic, people usually retire to bed late due to hot weather condition.

They prefer spending the early hours of the night outside their rooms, thereby exposing themselves to mosquito attack. It is in this light that people should retire early to bed and instead sleep under insecticide treated mosquito nets or use Indoor Residual Spraying (IRS) to control the vector. Methods used to prevent malaria include medication, mosquito elimination and the prevention of mosquito from biting humans.

Therefore, the purpose of this study was to examine and investigate the effectiveness of insecticide – treated nets among pregnant women in Kosofe Local Government Area of Lagos state.



The following research questions were raised: Will Insecticide Treated Nets Initiative have influence on the health status of the pregnant women?

Will Insecticide Treated Nets Initiative have influence on health awareness among pregnant women? Will Insecticide Treated Nets Initiative have influence in reducing maternal mortality among pregnant women?, While the following research hypotheses were tested: Insecticide Treated Nets Initiative will not have influence on the health status of the pregnant women?

Insecticide Treated Nets Initiative will not have influence on health awareness among pregnant women? Insecticide Treated Nets Initiative will not have influence in reducing maternal mortality among pregnant women

This study would be significant on the following ways: The study will facilitate the effective use of Insecticide Treated Nets among pregnant women, thereby reducing the scourge of malaria and its impact on maternal health. It will also help various health organizations to implement and create awareness on the effective use ITNs among pregnant women most especially at the grass root level.

This study investigated the effectiveness of insecticide-treated nets initiative among pregnant women in Kosofe local government area of Lagos State. The sample size involves two hundred and ten pregnant women who were purposively selected from the total population of pregnant women across various ante-natal centers in Kosofe Local Government Area of Lagos state.

Insecticide – Treated Nets Assessment Questionnaire (ITNAQ) was used to elicit opinion from the respondents. ITNAQ consisted of three variables to which the participants were asked to tick the option of their choices in four point Likert rating scale of Strongly Agree, Agree, Disagree and Strongly Disagree respectively.

The information elicited includes participants' socio demographic variable, utilization pattern of ITNs, awareness and use of ITNs in reducing maternal mortality among pregnant women. The face and content validity of the instrument were ensured by comparing its items with previous studies and by matching them with the stated objectives and formulated research hypotheses. In addition, copies of the research proposal and the instrument went through series of expert review in the Department of Human Kinetics and Health Education, University of Lagos. Permission to conduct the study was obtained and informed consent was verbally obtained from the respondents before the copies of the questionnaire were administered.

Test-retest method was used for reliability of the instrument; a correlation co-efficient value of 0.86 was obtained 210 copies of the questionnaire were administered by the researcher with the help of two trained research assistants.

Completed copies of the questionnaire were collated and subsequently analysed. Descriptive statistics of percentages and frequency counts were used to analyse the socio-demographic variable while inferential statistics of chi-square was used to test all the stated hypotheses at 0.05 alpha level.

## Results

**Table 1: Participants' Socio-demographic Characteristics**

A.	Age group (years)	Frequency	Percentages
	Less than 20years	14	6.67%
	20 - 29	138	65.71%
	30 - 39	36	17.14
	40 - 49	22	10.48
	Total	210	100
B.	Levels of Education	N	Percentages
	No formal Education	24	11.43
	Primary School Education	46	21.90
	Secondary School Education	128	60.95
	Tertiary Education	12	5.71
	Total	210	100
C.	Employment Status	N	Percentages
	Student	30	14.29
	Housewife	38	18.10
	Selfemployed	82	39.04
	Civil servant	36	17.14
	Private worker	24	11.43
	Total	210	100
D.	Marital Status	N	Percentages
	Single (unmarried)	12	5.71
	Married (living separately)	42	20.00
	Married (living together)	156	74.29
	Total	210	100

From table 1 above, the data revealed that by age group, 14(6.67%) were less than 20years of age, 138 (65.71%) were between 20 – 29 years, 36 (17.14%) 30-39 years and 22(10.48%) fell within 40-49years of age; based on level of education, it was shown that 24(11.43%) had no formal education, 46(21.90%) had primary education, 128 (60.95%) had primary education, 128 (60.95%) had secondary education while 12(5.71%) had tertiary education.



In employment status, 30 (14.29%) were students, 38 (18.10%) were house wives, 82(39.04%) were self employed, 36(17.14%) were civil servants while 24 (11.45%) were private workers. Based on marital status 12(5.71%) were single (unmarried) married (living separately) were 42(20.00%) while 156 (74.29%) were married living together.

**Table 2: Chi-square Result of Insecticide Treated Nets' Influence on the Health Status of Pregnant Women**

Variables	N	Df	L.S	Calc X2	Crit. X2	Remark
Health status of pregnant women	210	9	0.05	113.51	18.92	*S*

X2 cal value = 113.51 > crit. X2 = 18.92, df=9, P>0.05.

Table 2 above showed that calculated value of 113.51 is greater than critical value of 18.92, with degree of freedom 9 at 0.05 level of significance. This implies that insecticide treated nets had significant influence on the health status of the pregnant women.

**Table 3: Chi-square Analysis on ITNs and its Significant Influence on Health Awareness Among Pregnant Women**

Variables	N	df	L.S	Calc X2	Crit. X2	Remark
Health awareness of pregnant women	210	9	0.05	40.86	18.92	*S*

X2 cal value = 40.86 > crit. X2 = 18.92, df=9, P>0.05.

Table 3 revealed that calculated value of 40.86 is greater than critical value of 18.92, with degree of freedom 9 at 0.05 level of significance. This connotes that ITN initiatives had significant influence on the health awareness among the pregnant women.

**Table 4: Chi-square Analysis on ITN Influence in Reducing Maternal Mortality Among Pregnant Women**

Variables	N	df	L.S	Calc X2	Crit. X2	Remark
Reducing Maternal Mortality	210	9	0.05	122.71	18.92	*S*

X2 cal value = 122.71 > crit. X2 = 18.92, df=9, P>0.05.



Table 4 showed that calculated value of 122.71 was greater than critical value of 18.92, with degree of freedom 9 at 0.05 level of significance. This implies that ITN had significant influence in reducing maternal mortality among pregnant women.

### **Discussion of Findings**

The first finding which implies that insecticide treated nets will have significant influence on the health status of pregnant women also agree with Steketee, Nahlen, praise and Menendez (2001) which stated that insecticide treated Nets will help to prevent malaria infection among pregnant women which will thus enhance the health status of the pregnant women. The use of ITNs is very effective in the control of malaria in pregnancy (Nwagha, Ugwu, Nwagha, Anyachie, 2009) and it is estimated to be twice as effective as the untreated nets. Yusuf, Dada-Adegbola, Ajayi, and Falade (2008) noted that women who used ITNs had significantly fewer preterm deliveries, good quality of health, physical fitness, good mental health and babies with higher mean birth weight than women who did not use ITNs.

The second finding that insecticide treated nets will have significant influence on the health awareness of the pregnant women agrees with Okwa (2013) that acquisition of health awareness and knowledge on certain health behavior will influence their decision towards practicing good and healthy lifestyles . The practice of disseminating health information is the norm in all formal health facilities. Reasons for non use or cessation in ITN use in this study varied among the respondents and included: scarcity of ITN to buy, lack of awareness and problem of re-treatment of expired nets. This is consistent with reasons and explanations reported in other studies where non-availability of ITN, lack of awareness and knowledge of where it can be purchased and problem of affordability were major factors that affect stoppage and or non-use of ITN (Uwaha, 2011). A number of initiatives to promote ITN through appropriate social marketing techniques are required to address low ITN usage and ownership.

The third finding which connotes that insecticide treated nets will have significant influence in reducing maternal mortality rate among pregnant women agrees with Hansen, (2002) which stated that malaria is one of the leading cause of maternal mortality in sub-Saharan African and this scourge can only be prevented through roll back malaria initiative of which insecticide treated nets initiative is inclusive. Insecticide treated nets helps to prevent malaria which can lead to death among the pregnant women. WHO (2014) reported that Malaria infestation during pregnancy has been associated with persistent high maternal and childhood morbidity and mortality among pregnant women especially in Nigeria where malaria is highly endemic. Malaria accounts for 11% of maternal death, 70% of morbidity in pregnant women



and is responsible for 63% of all clinic attendances in Nigeria. It causes 25% of infant mortality and 30% of all childhood deaths. Malaria during pregnancy accounts for up to 15% of maternal anemia and 5-14% of low birth weight (Federal Ministry of Health, 2013). Therefore, Prevention of malaria during pregnancy via the use of ITNs is no doubt one of the major interventions aimed at reducing maternal and infant morbidity and mortality rates, and thus achieving the fourth, fifth and sixth Millennium Development Goals (MGDs)

### Conclusion

It was observed that insecticide treated nets initiative increase level of health literacy. The initiatives programme describe malaria as a preventable and treatable diseases transmitted by mosquitoes that kills more than one million people annually, most of the countries in Sub-Saharan Africa. Therefore, insecticides treated nets initiative is effective and helps to promote and sustain the life of pregnant women.

### Recommendations

Based on the findings, the following recommendations were made:

- Health education and promotion programmes emphasizing on prevention of malaria should be carried out.
- Free ITNs distribution programme of the Federal Government of Nigeria should be examined and reviewed for effectiveness.
- Health awareness on the usage of ITNs should be encouraged.

### References

- Adefioye O.A., Adeyeba O.A., Hassan W.O., & Oyeniran O.A., (2007). Prevalence of malaria parasite infection among pregnant women in Osogbo, southwest, Nigeria. *American-Eurasian Journal of Science Research*, 2:43-45.
- Adekunle, A.O. (2012). Malaria Scourge and Maternal mortality: Government effort. *Daily Independence Newspaper* on 12<sup>th</sup> August, 2012.
- Aluko JO, & Oluwatosin AO (2012). Utilization of Insecticide treated nets during pregnancy among postpartum women in Ibadan Nigeria: a cross sectional study. *BMC Pregnancy and Child birth* 12:21
- Bouyou-Akotet M.K, Ionete-Collard D.E, Mabika-Manfoumbi M, Kendjo E, Matsiegui P.B, Mavoungou E, & Kombila M. (2003). Prevalence of Plasmodium falciparum in pregnant women in Gabon. *Malaria Journal*; 2:18



- Federal Ministry of Health. (2013) National Guidelines & Strategies for Malaria Prevention & Control during pregnancy. (A publication of the Federal Ministry of Health, Nigeria); Nigeria Maternal Health - malaria in pregnancy
- Federal Ministry of Health (2014). Malaria situation analysis document. Nigeria: Federal Ministry of Health; P. 14.
- Guyatt H.L, & Snow R.W. (2004). Impact of malaria during pregnancy on low birth weight in sub-Saharan Africa. *Clin Microbiol Rev.* 17:760 - 769
- Musa O.I, Salaudeen GA, & Jimo RO (2009). Awareness and use of Insecticide treated nets among women attending antenatal clinic in a Northern state of Nigeria. *J.Pak.Med.Assoc.* 59(6):354-358.
- Neston, F. T & Malankiri, L. (1991). Malaria in pregnancy in an area of unstable endemicity. *Trans Royal Soc. Trop. Med. Hyg.*, 48: 154-160.
- Nwagha, U.I., Ugwu, V.O., Nwagha, T.U., & Anyaehie, B.U. (2009). Asymptomatic plasmodium parasitaemia in pregnant Nigerian women: Almost a decade after Roll back malaria. *Trans R Social Tropical Medical Hygiene*, 103:16-20.
- Okwa O.O. (2013). The status of malaria among pregnant women: a study in Lagos, Nigeria. *Afr J Reprod Health.*; 7:77—83.
- Rogerson SJ, & Boeuf P. (2007). New approaches to malaria in pregnancy. *Parasitology*; 134:1883—1893. 2006 National Census. National Bureau of Statistics. <http://www.nigerianstat.gov.ng/Connections/Pop2006.pdf>.
- Tako, E., Zhou, M., Lohove, F., Leke, O.O., Taylor, K., & Leke, A. (2004). Malaria prevention and control in the tropics. *International Journal of Tropical Medicine*, 3 (2):234-241