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Assessment of Long Lasting Insecticide Treated Net among Women of Child Bearing Age in a Community in South Eastern Nigeria

Valentine Nnachetam Unegbu

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Abstract

Globally, there have been attempts towards improving the coverage of malaria preventive measures with the 2015 goal of the World Health Organization's (WHO's) Roll Back Malaria Partnership centered to reduce global malaria cases by 75

Index terms—

1 Introduction

According to a publication by center for Disease Control (2014), malaria infection is caused by a protozoan (Plasmodia). However the report posited that malaria infection occurs when favorable environmental conditions of temperature, rainfall, and humidity are created for the female Anopheles mosquitoes, carrying the Plasmodium, to bite a susceptible host (CDC, 2014). Malaria infection is endemic in Nigeria, with a prevalence of 919 per 10,000 of population; it remains one of the leading causes of morbidity and mortality (Ganihu & Jimo, 2013; Oche et al., 2011; Aribodor et al., 2017) It accounts for seven out of ten outpatient visits in Nigerian hospitals as well as being responsible for about 20% and 30% of infant and under-5 mortality rate, respectively (Oche et al., 2011).

Following the attempts towards improving the coverage of malaria preventive measures, the 2015 goal of the World Health Organization's (WHO's) Roll Back Malaria Partnership are to reduce global malaria cases by 75% and to reduce malaria deaths to near zero through universal coverage by effective prevention and treatment interventions (RBM, 2010). Among other preventive interventions, WHO recommends the use of insecticide treated nets (ITNs), particularly Long-Lasting Insecticide Nets, which have been shown to be cost-effective, to reduce malaria episodes among children under 5 years of age by approximately 50% and all-cause mortality by 17%. Universal coverage with ITNs is defined as use by > 80% of individuals in populations at risk (WHO, 2019; RBM, 2010). Aribodor et al. (2017) in a report posited that the usage of long lasting insecticide treated nets is largely affected by distribution patterns and also the knowledge of people and their perception about it. Behavioral patterns of people-utilization of the LLITNs are dependent on their socio demographic characteristics on the consequence of non-use (Aina and Ganihu & Jimo, 2013). Isah and Nwobodo (2009) reported that despite evidence that the use of LLITNs decreases malaria-related morbidity and mortality, the use of LLITNs in Africa remains relatively low. Estimates suggest that in 2005, only 3% of children under five years of age slept under LLITNs, while up to ten times as many are thought to sleep under any bed net (Baley & Deressa, 2008). This shows that the fact that ITNs are very effective in malaria prevention does not necessarily mean that people will use them after they have received those (Baley & Deressa, 2008). While the evidence based on the effectiveness of LLITNs in reducing malaria transmission has grown rapidly in recent years, utilization rates of LLITNs in most African countries have been very low (Chukwuocha et al., 2010; Ganihu & Jimo, 2013). The renewed Abuja, Nigeria, target for roll back malaria (RBM), a control program for malaria, targeted 80.0% of children <5 years of age and pregnant women to use long lasting insecticide-treated mosquito nets (LLITN) between 2006 and 2010 (FMOH, 2015; (Deneye et al., 2011).

The millennium development goal 6 has a target of halting and beginning to reverse the incidence of malaria in 2015 (Baley & Deressa, 2008). These control programs are aimed at reducing the morbidity and mortality, resulting from malaria infections in at-risk groups particularly at Households. The past decades have witnessed an increase in international funding for malaria control. This increased funding has led to an increase in accessing

8 I) RELIABILITY OF INSTRUMENT

46 LLITNs in Sub-Saharan Africa (Deneye et al., 2011). At the end of 2010, approximately 289 million LLITNs were
47 delivered to the Several Households at Sub-Saharan African region; this is enough to take care of 76% of the 765
48 million persons at risk ??Deneye et al., 2011). Insecticide Treated Nets is currently one of the most cost-effective
49 options for reducing malaria-related morbidity and mortality and has been reported to reduce malaria mortality
50 by 17% in children <5 years of age (Runsewe-Abiodun et al.,

51 2 2012).

52 Regrettably, malaria still constitutes a serious public health problem in Nigeria (Aina and Ayeni, 2011;Mbanugo
53 and Okorudo, 2015;Aribodor et al., 2017). Malaria is endemic in the poorest countries in the world, causing 400
54 to 900 million clinical cases and up to 2.7 million deaths each year (Guyatt & Ochola, 2014). More than 90%
55 of malaria deaths occur in Sub-Saharan Africa, resulting in an estimated 3,000 deaths each day. Almost all the
56 deaths are among high-risk groups including women of childbearing age, women during pregnancy, non immune
57 travelers, refugees and other displaced persons, and people of all ages living in Household areas of unstable malaria
58 transmission (Mbanugo & Okorudo, 2015;Iwu et al., 2010: Aina & Ayeni, 2011: Ganihu & Jimo, 2013). In highly
59 endemic countries, malaria poses a serious danger to women of child bearing age, women in pregnancy and their
60 unborn children (Mbanugo & Okorudo, 2015). Malaria in pregnancy causes maternal anaemia, miscarriage, and
61 low birth weight. In endemic countries, it is the leading cause of maternal mortality and one of the primary
62 causes of neonatal deaths (Mbanugo & Okorudo, 2015).

63 According to some reports in Nigeria, malaria is the leading cause of Maternal Mobility contributing 33% of
64 deaths among women of child bearing age and 25% infant mortality (Oche et al., 2011;Iwu et al., 2010)

65 3 e) Exclusion criteria

66 The study excluded the following; i. Women of child bearing age who refused to give in their consent for the
67 study ii. Women of child bearing age who were lunatic, sick or disabled during the time of data collection.

68 4 f) Sampling i. Sample size Calculation

69 The sample size was determined using the Yamene formula (1967) for sample size determination. $n = \frac{N}{1 + Ne}$
70 2 Where: n is the desired sample size N is the population size (12,389) = population of women of childbearing
71 age at Nwangele LGA (NPC, 2010). e is margin of error (0.05) Therefore, $n = \frac{392.30362210}{0.05}$ Furthermore, to
72 adjust for a 10% rate of non response and invalid response (i.e 90% expected response rate =0.9). $n = \frac{n}{0.9}$
73 response rate $n = \frac{392}{0.90} = 435.5$ $n = 436$

74 5 ii. Sampling Methods

75 A Probability based multi stage sampling method was adopted for the study on the coverage of Long Lasting
76 Insecticide Treated Nets among women of child bearing age in Nwangele LGA.

77 First stage-Selection of Communities: A total of Three (3) Out of the communities in Nwangele LGA was
78 selected by the researcher using simple random sampling via balloting to give every community an equal chance
79 of selection. Second stage-Selection of villages: Three (2) villages each out of the total number of villages in the
80 selected community was selected via simple random sampling using balloting giving every village in the selected
81 community an equal chance of being selected. Third stage-Selection of Streets: A total of Five (5) streets each
82 in the selected Six (6) villages were selected via simple random sampling (balloting) to give every street an equal
83 chance of being selected. Fourth stage: Selection of households: A systematic probability sampling method was
84 used to select each household in the selected streets giving each household an equal chance of selection. Fifth
85 stage: Selection of Respondents: the researcher selected women of child bearing age in each household or any
86 one present at the time of study. Selection of respondents was done via simple random sampling.

87 6 g) Instrument for data collection

88 A semi-structured questionnaire was used as the instrument of data collection for this study on the coverage of
89 Long Lasting Insecticide Treated Nets among women of child bearing age in Nwangele LGA.

90 7 h) Validity of the instrument

91 The validity of the instrument of data collection by the researcher took the following shape; the questionnaire as
92 the instrument of data collection was developed by researcher and submitted to the research supervisor for Face
93 validity and proper scrutiny as well as two experts from department of public health for consensus validity in
94 order to ensure that the questionnaire meets the objectives of study before reliability testing.

95 8 i) Reliability of Instrument

96 The Reliability of the instrument of data collection was determined using test retest method. Copies of the
97 questionnaire were given to some respondents outside the area of study by the researcher. This area shared
98 similar characteristics with Nwangele LGA that was used for this study. Chrombach alpha test was used to test

99 for the reliability of the questionnaire to determine the consistency of the results with a reliability coefficient of
100 0.8 obtained.

101 **9 j) Method of Data Collection**

102 Data was obtained using an interviewer based semi structured questionnaire. This will be done with the aid of
103 Two (2) field assistants who will be Hired and trained to aid the researcher in the data collection process.

104 **10 k) Method of Data Analysis**

105 The Statistical Package for the Social Sciences (SPSS) was used in the analysis of the data gotten from the study.
106 Results will be expressed in percentages, frequencies, tables and charts (Descriptive Statistics). Chi square was
107 used to test the hypothesis statement of the study ($p=0.05$).

108 **11 l) Ethical Consideration**

109 A letter of introduction and ethical clearance was obtained from the School of Postgraduate studies Ethical
110 clearance committee in Federal University of Technology Owerri (FUTO) before the research was conducted.
111 The purpose of the research was explained to each respondent and verbal informed consent obtained from them
112 before inclusion into the study. Also, anonymity of the respondents was assured and ensured. The confidentiality
113 of the information they gave was also maintained.

114 **12 III.**

115 **13 Results**

116 A total of four hundred and thirty six (436) copies of questionnaires were distributed for the study. They were
117 properly filled and crosschecked for correctness, and 404 questionnaires were retrieved and were used for the
118 purpose of the analysis.

119 **14 a) Socio Demographic Factors of the Respondents**

120 From the table 1 below, 41.5% (169) of the respondents were aged between 26-30 years, 20.5% (83) between ages
121 15-20, 9.9% (40) were people in their early 20's (21-25), 14.3% (58) were between 31-40 years of age and 13.3%
122 (54) were adults within 41-45 year age bracket. On ethnicity, 38.1% (154) opted for ethnic groups not listed
123 but label 'others', 93.7% (379) were of the Igbo ethnic group, 1.9% (8) Yoruba, and 0.4% (2) of the respondents
124 were Hausa/Fulani. On educational backgrounds, 30.9% (125) of the respondents had Informal education, 12.8%
125 (52) had attained the Tertiary level of Education, and 22.2% (90) had primary education and 37.1% (150) of the
126 respondents with secondary level of education. 50.7% (205) of the respondents did occupations not listed but
127 label 'others', 17.3% (70) were civil servants, 18.8% (76) of the respondents housewives while just 13.1% (53) were
128 self employed. On the marital status of the respondents, 26.2% (106) were widowed, 24.7% (100) were single,
129 24.5% (99) married while 12.6% (51) of the respondents were separated. 11.8% (48) opted to choose 'others'.
130 27.2% (110) of the respondents had an income level between 1-10,000, 21.7% (88) had an income level between
131 31,000-50,000, 20.2% (82) earned above 100,000, 17.0% (69) had an income level between 11,000-30,000, and the
132 least percentage 13.6% (55) earned an income between 51,000-100,000.

133 **15 b) Level of Knowledge of Long Lasting Insecticide-Treated 134 Nets**

135 Table 2 considering the level of knowledge of long lasting insecticide treated nets, a majority of the respondents
136 with 96.5% (390) said "Yes" when they were asked if they had heard about malaria at any time prior to the
137 questionnaires, while a small 3.4% (14) denied. When asked if they had suffered from malaria, a majority if the
138 respondents also with 95.2% (385) replied "Yes" while just 4.7% (19) said "No". 61.6% (249) of the respondents
139 believe mosquito bites causes malaria, 26.2% (106) said malaria is caused by dirt/stagnant water, 9.6% (39) chose
140 plasmodium organisms and 4.7% (19) said "germs". Upon question on how malaria is transmitted, 44.0% (178)
141 opted to choose 'Bites of any Mosquito', 19.0% (77) said "Bites of insect which has bitten a malaria Patient",
142 and 36.8% (149) opted for 'Stagnant water and unclean environment'. 74.0% (299) of the participants replied
143 "Yes" when asked if they had heard about LLITNs, while 25.9% (105) said "No". 24

144 **16 c) Distribution and Ownership of Long Lasting Insecticide- 145 Treated Nets among Respondents**

146 The table 3 below revealed the choices of respondents relative to Distribution and Ownership of Long Lasting
147 Insecticide-Treated Nets. When asked if Insecticide Treated Nets had been distributed in their environs, 48.0%
148 (194) replied "Yes" while 51.9% (210) said "No". When the respondents were asked if they had any Insecticide
149 Treated Net, 71.2% (288) affirmed, while 28.7% (116) said "No". The respondents were asked if they owned a

150 Long Lasting Insecticide Treated Nets, 45.0% of the respondents (182) said Yes, while 54.9% (222) denied. On
 151 the question 'How did you get it?', 38.3% (155) chose Health Centers, 33.1% (134) said "Market", 7.1% (29) said
 152 "Friends", 15.0% (61) of the respondents replied "School" while some respondents 6.1% (25) chose options not
 153 listed but label 'Others'. When asked How Many ITNs their household Owned, 41.3% (167) of the respondents
 154 said "None", 17.8% (72) replied "1", 29.9% (121) said between 2-4, 10.8% (44) of the respondents said "Above
 155 4".

156 **17 (74.0%) 105 (26.0%)**

157 **18 Good knowledge**

158 Poor knowledge

159 **19 d) Level of Utilization of Long Lasting Insecticide-Treated
 160 Nets**

161 Table 4 shows the Level of Utilization of Long Lasting Insecticide-Treated Nets among respondents. When asked
 162 if they had ever slept under an LLITN, 44.3% (179) said "Yes", while 55.6% (225) replied "No". The respondents
 163 were asked if they slept under an LLITN the previous night, 66.0% (267) confirmed, while 33.9% (137) denied.
 164 Respondents that denied were in turn asked when last they slept under an LLITN, 42.3% (58) told less than
 165 7days ago, 33.5% (46) said between 8-29days, 24.0% (33) more than 30 days. When asked if their children/family
 166 members sleep under LLITN, 66.0% (267) confirmed "Yes", while 33.9% (137) said "No". The respondents who
 167 replied "No" were then asked if their children/family members slept under an LLITN the previous night, 62.8%
 168 (254) confirmed, while 37.1% (150) denied. Respondents that denied were in turn asked when last they slept
 169 under an LLITN, 32.0% (48) told less than 7days ago, 21.3% (32) said between 8-29days, 46.6% (70) more than
 170 30 days.

171 **20 f) Relationship between Socio-demographic characteristics
 172 and level of utilization of long lasting Insecticide Treated
 173 Nets**

174 Based on the Relationship between sociodemographic characteristics and level of utilization of long lasting
 175 insecticide treated nets, the table below shows that age not significantly associated with level of utilization
 176 insecticide treated nets ($P = 0.5301$). Furthermore, the table 4.6 shows that religion is not significantly associated
 177 with utilization of LLITNs ($P = 0.115$). Also, ethnicity doesn't show significant association with utilization of
 178 LLITNs ($P = 0.074$). Marital status is significantly associated with utilization of LLITNs ($P = 0.0001$). Moving
 179 further, the table reveals that parity is significantly associated with the level of utilization of LLITNs ($P =$
 180 0.0001). Also, level of education shows significant association with level of utilization of LLITNs ($P = 0.0001$).
 181 Occupation is not significantly associated with level of utilization of LLITNs ($P = 0.942$). The level of income of
 182 the respondents shows significant association with level of utilization of LLITNs ($P = 0.006$) (Table 6

183 **21 below).**

184 **22 Discussion**

185 Based on the finding of this study on Long Lasting Insecticide Treated Nets among women of child bearing age in
 186 Nwangele LGA, considering the socio demographic characteristics, it was revealed that majority 41.5% (169) of
 187 the women were aged between 26-30 years. This finding goes in consistent with a study by Odoko et al., (2012),
 188 that women of child bearing age have a mean age of 32.4yrs. The study revealed that majority 93.8% (379)
 189 of the respondents were Igbo region. This could be due to the fact that the study was conducted in Nwangele
 190 LGA which is the southeastern part of Nigeria dominated by people of Igbo origin. The findings of the study
 191 revealed that 27.2% (110) of the respondents had an income level between 1-10,000 naira. A study by Kenneth
 192 and Amefume (2013) posited a significant improvement in income level among women in rural areas. However
 193 this goes in contrast with the study with women of child bearing age mostly involved in petty trading.

194 Considering the level of knowledge of long lasting insecticide treated nets, the study showed that a majority of
 195 the respondents with 96.5% (390) are aware and have had heard about malaria prior to the study in consistence
 196 with a similar study conducted among groups of women of childbearing age (WOCBA) in Malawi by Owen et
 197 al (2018) on the awareness of Malaria among pregnant women. Information on Malaria is now widely open with
 198 several source of information existing. The study posited that 74.0% (299) of the participants had knowledge
 199 of long lasting insecticide treated nets. Studies by Kyi et al. (2020) and Adebayo et al (2014) showed that
 200 respondents in an area had 69.6%, 81.5% respectively knowledge of long lasting insecticide treated nets which
 201 corroborates with the finding of this study. Women of child bearing age at Nwangele are more likely to get
 202 information on the utilization and adequate knowledge following community meetings, hospital visits and at
 203 educational institutions. The study further revealed that majority 24.2% (98) had heard about LLITNs from

204 Health centers. This goes against a finding by Atenchong et al (2014) that revealed that majority of women had
205 good knowledge of LLITNs and ITNs from a community follow up program. However from this study it implies
206 that health workers proffer information to women on antenatal and other related periodic health visit by women
207 of child bearing age in the community.

208 From the study it was revealed that the women when asked if Insecticide Treated Nets had been distributed in
209 their environs, 48.0% (194) agreed. However this shows a poor reach of LLITNs in the community. The findings
210 of this study on distribution of LLITNs reveal that women of child bearing age might experience shortfall of these
211 LLITNs. A study by Kenneth and Amefume (2013) However in this study, participants posited that Considering
212 the Distance to Facility, 62.8% (254) of the respondents said it was a factor towards their utilization. This
213 implies that the health center is situated far away from them. When asked about Cultural Acceptance, 55.6%
214 (225) denied it could influence their utilization and the coverage of LLITNS in the area. This goes against a
215 study conducted at rural Dars es Salaam that showed majority of respondents agreeing cultural acceptance as
216 a modifier to Malaria preventive behavior. The study revealed also that information during Distribution being
217 a factor influencing use of LLITNs was met with 44.0% (178) confirming among the women of child bearing
218 age (Charles et al., 2019). A publication by Kyi et al. (2020) revealed that source of information on malaria
219 preventive approaches was imperative in determining its uptake. The finding of this study shows that for women
220 of child bearing age, information on utilization is essential for them to utilize LLITNs.

221 Based on the Relationship between sociodemographic characteristics and level of utilization of long lasting
222 insecticide treated nets, the study revealed that marital status is significantly associated with utilization of
223 LLITNs ($P = 0.0001$). This implies that husbands acceptance of the utilization of LLITNs is a motivating factor.
224 This goes in line with a study by Atenchong et al (2014) which found marital status to be associated with uptake
225 of bed nets among pregnant women ($P=0.004$). Moving further, the study also demonstrated that parity is
226 significantly associated with the level of utilization of LLITNs ($P = 0.0001$). This could be due to the fact that
227 increasing number of children can lead to uptake as well as less number of children. This goes in contrast with
228 a report published by Nankinga et al (2012) on Parity and Usage of Nets. Also, from the study among women
229 of child bearing age in Nwangele, it was posited that level of education shows significant association with level
230 of utilization of LLITNs ($P = 0.0001$). Women of child of bearing age with educational level and information on
231 ITNs would likely utilize LLITNs. The study revealed that the level of income of the women shows significant
232 association with level of utilization of LLITNs ($P = 0.006$). A study by Owen et al (2018) opined that women
233 with higher income status could afford malaria preventive. This implies that from the findings of this study
234 among women of child bearing age at Nwangele it is more likely for them to purchase LLITNs if they have the
235 money.

236 V.

237 **23 Conclusion**

238 However, from the study, the coverage and distribution of long lasting insecticide treated nets in Nwangele LGA
239 forms part of the component of the 2011 RBM integration which is effective in rapidly increasing household
240 possession and use of bed nets, achieving national bed net coverage goals set by National Health Development
241 Plan (NHDP) 2012-2015. Low Ownership of LLITNs was reported in the study and malaria is a very serious
242 public health problem; prompt treatment alone cannot guarantee the achievement of the goal. All strategies must
243 be strengthened and employed in fight against malaria, if the desired goal is to be achieved. Findings from this
244 study showed that majority of the residents had a considerable good knowledge of the use of insecticide treated
245 nets but low ownership.

246 **24 VI.**

247 **25 Recommendations**

248 The recommendations for this study include the following;

- 249 1. Health education on the effective use of long lasting insecticide treated nets among residents and practices
to improve ownership and function. ¹

Figure 1:

250

1

Characteristics	Frequency (n=404)	Percentage (%)
Age		
15-20	83	20.5%
21-25	40	9.9%
26-30	169	41.5%
31-40	58	14.3%
41-45	54	13.3%
Total	404	100
Ethnicity		
Igbo	379	93.8%
Hausa/ Fulani	2	0.4%
Yoruba	8	1.9%
Others	15	3.7%
Total	404	100
Educational level		
Informal education	52	12.8%
Primary	90	22.2%
Secondary	150	37.1%
Tertiary	112	27.7%
Total	404	100
Occupation		
Self employed	53	13.1%
House wife	76	18.8%
Civil servant	70	17.3%

Figure 2: Table 1 :

2

.2%

Figure 3: Table 2 :

3

Variables	Frequency (n=404)	Percentage (%)
Insecticide Treated Nets distribution in your Area		
Yes	194	48.0%
No	210	51.9%
Total	404	100
Have any Insecticide Treated Net		
Yes	288	71.2%
No	116	28.7%
Total	404	100
Own Long Lasting Insecticide Treated Net		
Yes	182	45.0%
No	222	54.9%
Total	404	100
How did you get it		
Health Center	155	38.3%
Market	134	33.1%
Friend	29	7.1%
School	61	15.0%
Others	25	6.1%
Total	404	100
How Many ITNs do your household Own		
None	167	41.3%
1	72	17.8%
2-4	121	29.9%
Above 4	44	10.8%
Total	404	100

Figure 4: Table 3 :

4

Variable	Frequency	Percentage
Have you Ever Slept under an LLITN?		
Yes	179	44.3%
No	225	55.6%
Total	404	100
Did you sleep under an LLITN Last Night?		
Yes	267	66.0%
No	137	33.9%
Total	404	100
If No, when was the last time you slept under an LLITN?		
<7days ago	58	42.3%
8-29days	46	33.5%
> 30 days	33	24.0%
Total	137	100
Do your children/family Members sleep under LLITN		
Yes	267	66.0%

Figure 5: Table 4 :

5

Variable	Frequency	Percentage (%)
Year 2023		
50		
Volume XXIII		
Issue I		
Version I		
D D D D)		
(
Medical Research Global Journal of		
Nets Inflicts Rashes Yes No	299	74.0%
Total Distance to Facility	404	100
Yes	254	62.8%
No Total Cultural Acceptance Yes	150	37.1%
No Total Family Factors	225	55.6%
Yes No Total Religious Accep-	288	71.2%
tance/Factors Yes No Total Reli-	116	28.7%
gious Acceptance	404	100
Yes	19	4.7%
No	385	95.2%
Total	404	100
Difficulty to Hang		
Yes	165	40.8%
No	239	59.1%
Total	404	100
Have Door Nets		
Yes	260	64.3%
No	120	35.6%
Total	404	100

Figure 6: Table 5 :

6

Characteristics	X ²	Treated Nets D.F	P value	Decision
Age	106.411	36	0.5301	NS
Religion	33.340	318	0.115	NS
Ethnicity	53.008	36	0.074	NS
Marital status	106.124	127	0.0001	S
Parity	81.645	36	0.0001	S
Education level	153.283	36	0.0001	S
Occupation	31.133	45	0.942	N.S
Level of income IV.	71.977	45	0.006	S

Figure 7: Table 6 :

Figure 8:

Figure 9:

251 enact them to help protect the wider community at large.

252 [????????????] , ????????????? .

253 [Ethnicity] , *Ethnicity* (d) Fulani [] (e) Others (please specify)

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289 [Bites of insect which has bitten a malaria Patient [] c) Stagnant water and unclean environment [] 13. Have

290 you heard about Long Lasting Insecticide treated Nets (LLITNs)? (a) Yes 12. How is malaria Transmitted?

291 (a) Bites of any Mosquito]b66 ‘Bites of insect which has bitten a malaria Patient [] (c) Stagnant water and

292 unclean environment [] 13. Have you heard about Long Lasting Insecticide treated Nets (LLITNs)? (a) Yes’.

293 12. How is malaria Transmitted? (a) Bites of any Mosquito, (b) No [] 14. How did you hear about it? (a)

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337 [] SECTION E: FACTORS INFLUENCING THE COVERAGE OF LONG LASTING INSECTICIDE-
338 TREATED NETS Please tick (?) the correct options that influence Utility and coverage of Long lasting]b70
339 *If No, when was the last time they slept under an LLITN? (a) <7days ago [] (b) 8-29days [] (c) > 30*
340 *days [] SECTION E: FACTORS INFLUENCING THE COVERAGE OF LONG LASTING INSECTICIDE-*
341 *TREATED NETS Please tick (?) the correct options that influence Utility and coverage of Long lasting, (Ins*
342 *ecticide treated Nets in the)*
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354 b) No [] SECTION C: DISTRIBUTION AND OWNERSHIP OF LONG LASTING INSECTICIDE-
355 TREATED NETS AMONG RESPONDENTS 17. Has Insecticide Treated Nets been distributed in your
356 Area? (a) Yes]b68 *Long Lasting Insecticide treated Nets (LLITNs) is effective in the Prevention of Malaria*
357 *when it is air dried frequently (a) Yes [] (b) No [] SECTION C: DISTRIBUTION AND OWNERSHIP OF*
358 *LONG LASTING INSECTICIDE-TREATED NETS AMONG RESPONDENTS 17. Has Insecticide Treated*
359 *Nets been distributed in your Area? (a) Yes, (18. Do you have any Insecticide Treated Net? (a) Yes [] (b)*
360 *No [] 19. Do you Own any Long Lasting Insecticide treated net(a) Yes [] (b) No [] 20. How did you get it?*
361 *a) Health center [] (b) Market [] (c) A Friend [] (d) others???????*
- 362 [Long Lasting Insecticide treated Nets (LLITNs) is Key in Prevention of Malaria due to its Durability (a) Yes]
363 *Long Lasting Insecticide treated Nets (LLITNs) is Key in Prevention of Malaria due to its Durability (a)*
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398 *Questionnaire on the Evaluation of the Coverage of Long Lasting Insecticide Treated Nets Among Women*
399 *of Child Bearing Age in Nwangele Lga, Imo State, South Eastern Nigeria SECTION A: SOCIO*
400 *DEMOGRAPHIC CHARACTERISTICS INSTRUCTION: Please tick (?) the correct options besides each*
401 *question and also fill in the spaces, (provided where appropriate with the correct options)*
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406 *SECTION B: KNOWLEDGE OF LONG LASTING INSECTICIDE-TREATED NETS Please tick (?) the*
407 *correct options besides each quest ion and also fill in the spaces, 000 [] (d.) 51,000- 100,000. 31 p. 0. (What*
408 *is your Level of Income. provided where appropriate with the correct options)*
- 409 [SECTION D: LEVEL OF UTILIZATION OF LONG LASTING INSECTICIDE-TREATED NETS Please tick (?) the correct op
410 *SECTION D: LEVEL OF UTILIZATION OF LONG LASTING INSECTICIDE-TREATED NETS Please*
411 *tick (?) the correct options besides each question and also fi ll in the spaces, (How Many ITNs do your*
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25 RECOMMENDATIONS

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- 446 [Your occupation: (a) Artisan e.g Carpenter, Hairdresser, Tailor, Driver [] b) Civil servant e.g Teacher]b64
447 *Your occupation: (a) Artisan e.g Carpenter, Hairdresser, Tailor, Driver [] (b) Civil servant e.g Teacher, (d)*
448 *Unemployed [] (e) Professionals e.g. Doctor, Nurse, Lawyer, Accountant [] (f) Others (please specify)*