



**ASSESSMENT FOR  
LEVEL OF KNOWLEDGE  
OF PREGNANT WOMEN  
ON THE UTILIZATION  
OF LONGLASTING INSECTICIDE  
TREATED NET AMONG PREGNANT  
WOMEN IN BAUCHI STATE.**

**\*HASHIMU UMAR; \*\*ADAMU MOHAMMED;  
\*\*\*ABDULLAHI MOHAMMED JAWA;  
\*\*\*\*MAAM KYARI,**

*\*Bill and Melinda Gate College of Health  
Technology Ningi Dept of Community Health,  
Ningi LGA P.O. Box 57. \*\*Local Government  
Education Authority Potiskum Yobe State.  
\*\*\*Ministry of Home Affairs Information and  
Culture Overseeing Ministry of Budget and  
Economic Planning Yobe State. \*\*\*\*Maam Kyari  
College of Nursing and Midwifery Maiduguri.*

**Abstract**

*This study was carried out to determine the level of knowledge of pregnant women on the utilization of long-lasting insecticide treated net among pregnant women in Bauchi state. Aiming at to determine the level of knowledge of pregnant women, their understanding on the importance of the utilization of long lasting insecticide treated net, the methodology of the study is descriptive cross sectional study of*

*pregnant women in three randomly selected wards at two selected local governments in each senatorial zone of Bauchi state , The researcher*

**KEYWORDS:** LLITN

*Long lasting  
insecticide treated  
net, ANC Antenatal  
care, Pregnant-  
women, Knowledge,  
Utilization.*

*divided the study area into three (3) strata following the division of senatorial district in the state that is North zone (Katagum).Central Zone and South zone. (Bauchi). the study conducted among pregnant women in Bauchi State only. The result shows that The study revealed that pregnant women lack Knowledge on the utilization of Long Lasting Insecticide Treated Nets in Bauchi State.*

## **INTRODUCTION**

World health organization and World Bank rank malaria as largest single component of disease burden in Africa including Nigeria, causing the annual loss of 35 million future life years from disability and pre mature mortality (Madugu Sule, 2013). Malaria is among the major public health problem in Africa where it accounts for more than a million people death with an estimated 176 million cases and 709,000 death recorded in 2009. Nigeria is account for more cases and death more than any other country in the world. Malaria is a risk for 97% of Nigerian's population. The remaining 3% of the population live in the malaria free highland. There are an estimated 100 million malaria cases and over 300,000 deaths per year in Nigeria (World Health Organisation. World Malaria Report, [www.who.int/malaria/publications/atoz/who-clarification-estimating-population-accessitn-march](http://www.who.int/malaria/publications/atoz/who-clarification-estimating-population-accessitn-march) 2014). Malaria in pregnancy causes maternal illness, anaemia and also associated with low birth weight among new born baby leading to risk factor of infant mortality (Madugu .S, 2013).

In April 2008 head of state of many African countries met in Abuja organized by Nigerian government through the federal ministry of health and have agreed to support roll back malaria campaign, which was conceive and reinforced in 2008 with the support of insecticide treated mosquito net (Gullet P. 2016) Long lasting insecticide treated net is a LLITNs design to remain effective for multiple years without treatment the world health organization (WHO) recommended that LLITNs be distributed for free to achieve universal coverage (One LLITNs for every two person) of those at risk of malaria (W.H.O. World Malaria Report, World Health Organisation.2010) However, the distribution of LLITNs covers the 36 states of Nigeria including Bauchi. Furthermore, the distribution of LLITNs reaches all 20 local governments in the state where more than 80% of pregnant women population are found, but yet malaria in pregnancy remains high and become a major health issues in Nigeria, account for about 33% cause of maternal death. Despite massive effort to make LLITNs available to pregnant women in Bauchi state the use is still low it is against this background that the researcher become motivated to study the

Assessment for level of knowledge of the utilization of Long Lasting Insecticide Treated Net among Pregnant Women in Bauchi State (Gullet P. 2016)

### **LITERATURE REVIEW**

Insecticide-treated mosquito nets were first put to practical use in the Western Pacific Region less than a decade after conducting workshops and other promotional activities, millions of people were protected by 1989. This occurred before the availability of commercially produced pretreated nets and before global funding for mass net distribution. A paper describes the sequence of steps leading to regional control success. The beginning stages in 1979 recognized that treating torn mosquito nets was a viable control option. Basic net treatment procedures were established by 1983 and workshops were held the next

2 years in China, Cambodia, Laos, Malaysia, Papua New Guinea, Philippines, Solomon Islands, Vanuatu, and Vietnam. Malaria staff became convinced of net benefits and was motivated to impart their knowledge to others. Village inhabitants soaked the nets in washbasins containing permethrin or deltamethrin solution, then dried them horizontally on mats. By the 1990s, the population protected by nets had appreciably increased, and regional malaria cases confirmed by microscopy were markedly reduced. This coincided with commercial interest to mass-produce pretreated mosquito nets for worldwide use (Gullet P.2016)).

Insecticide-treated nets (ITNs) are an effective intervention against malaria, which is one of the most important causes of child mortality in Africa. They have been shown to reduce the number of childhood deaths by about one-fifth, therefore saving around six lives for every 1000 under-five children protected per year in countries of sub-Saharan Africa (Guyatt H.L., Noor A.M., Ochola S.A. and Snow R.W.2004

Frequent confusion arises in the distinction between insecticide treated nets (ITNs) and insecticide treated materials (ITMs). While the efficacy of

the former has been clearly established the situation is not clear with insecticide treated curtains and other materials.

The curtains and materials have been proven effective in preventing mosquito bites in Burkina Faso and Kenya, however when the efficacy of treated bed nets was compared with that of curtains it was clear that the bed net was far better. In Madagascar, treated curtains did not have a significant impact on malaria transmission. It is unclear whether insecticide treated curtains in “real life” conditions in Africa would be effective as insecticide treated bed nets (Guillermo-M., Andrea C., [Edilmar C.L.](#), and [Axel K.](#), Innovative dengue vector control interventions in latin America Journal [Pathog Glob Healthv.110\(1\); February 2016](#)).

Effect of training on the use of long-lasting insecticide-treated bed nets on the burden of malaria among vulnerable groups, south-west Ethiopia, results of a cluster randomized trial Concluded that low awareness about malaria and the utilization of the preventive methods are the serious challenges of the malaria control programmed in the country, However the level of knowledge and the use of LLITN found very low (Mebrahtom Belay and Wakgari Deressa. Use of insecticide treated nets by pregnant women and associated factors in a predominantly rural population in northern Ethiopia. Volume 13 no 10) Similar source maintained that only 2% of rural under-five children and 1% of pregnant women used LLITN. In Gilgel Gibe Field Research Centre, south-west Ethiopia, only 25% of underfive children slept under LLITN the night before the survey. It was observed that many mothers in the study area had used LLITN for scarves and bed sheets to prevent louses and fleas. Utilization of LLITN is also hampered by the low health service coverage, especially in the vast majority of the rural communities. Cognizant of the above facts, effective utilization of LLITN in the community is unlikely in the near future. Therefore, there should be alternative strategy that empowers the community for effective utilization of LLITN to control the burden of malaria in the population particularly in the vulnerable groups (under-five children and pregnant women) Ministry of Health. Insecticide Treated Nets (ITNs): National Strategic Plan for Going

to Scale with Coverage and Utilization in Ethiopia, Federal Democratic Republic of Ethiopia 2015).

The proper hanging of the net in the four angles of the bed/mattress using locally made wooden materials, status of the net (new or old), and the proper placement of the net under the mattress or bed have been checked in each visit. The trained village residents also collect information on the occurrence of malaria using questionnaire. In the control villages, the occurrence of malaria in each household has been monitored monthly by trained village residents in a baseline study on malaria in Uganda in wards of Mukono, Jinja, Mbarara and Arua, it was found out that 99 percent of respondents knew about malaria with a high level of knowledge that mosquitoes are the main cause of malaria. Nearly half of the urban respondents 48.3 percent observed that the use of nets was the most effective way to prevent malaria. While among rural respondents there was limited knowledge of the best method for prevention. However, study specifically focused on perceptions, attitudes, knowledge, and beliefs of using ITNs in households with children under five making a difference from the previous studies, and it was also maintained that both rural and urban respondents use “fever” as a dominant term for malaria. The terms “fever” and “asra” were used interchangeably referring to a number of symptoms that when taken together, roughly correspond with a clinical diagnosis of malaria. Respondents mentioned various causes of “fever” including exposure to heat from sun or fire, eating oily or starchy food, mosquitoes and unhygienic surroundings. (Alaii J.A., Vanden Borne H.W., Kachur S.P., Shelley K., Mwenesi H., Vulule J.M., Hawley Brabin B.20(1), 276-8 (1991). Previous studies have shown the effectiveness of public awareness raising campaigns and free distribution of mosquito nets to encourage people to use them. However, no long-term assessment of their utilization had hitherto been conducted. The Cochrane 2004 review discussing the impact of ITNs on under-5 mortality appears to advocate primarily for coverage of children under five and as of 2006 this seemed to be the focus of the Roll Back Malaria Partnership, the United Nations Millennium Development Goals. However, in 2007 the World Health

Organization issued a recommendation for universal coverage that appears to have been an explicit change in position (Hill J., Hoyt J., Eijk AM, terKuile F.O., Webster J and Richard W. S.2014)

In a related literature revealed that households whose heads were engaged as farmer were 70.3% less likely to use LLINs compared to those governmental and private workers. This might be due to the fact that governmental and private workers have more awareness than farmers because of their educational status or access to information. This finding was similar but higher in percent to a study done in Harargae, Ethiopia which indicates that households whose heads engaged as a farmer were 13.7% less likely to use bed net. In contrary, another study revealed that households with government employees were 13% less likely to use bed nets and in the same way a study done in Butajira area revealed that farming occupation showed statistically significant association with highly likely to use LLINs

**(Pettifor A., Taylor E., Nku D. et al, 2008)**

Desta G. A., Lemma H. R. and Gebresilassie A. T . Utilization of Long Lasting Insecticidal Nets among Household in Malarious Areas of Raya Alamata District, Tigray, Ethiopia;

**3(2): 216 Published online March 2, 2015**

(<http://www.sciencepublishinggroup.com/ij/sjph>) Stated that Effective Information Education and Communication, IEC should be promoted to improve and sustain LLINs program through demonstration in health facilities, schools, farmer training centre and other relevant places, adaptation of pictures to culturally acceptable aspect. The government should sustain and strengthen women health development army which promote maternal and child health care with regard to malaria and other disease prevention and control mechanism. (Ayalew A. Amsalu. 2009). The presence of health extension workers and women development army plays a great role in prevention of malaria in these vulnerable groups (Ayalew A. Amsalu. (2009) When interpreted with reference to the Abuja targets in

which 60% of under-fives and pregnant women are expected to sleep under ITNs by the year 2005 (RBM 2008) and the national stands on achieving the figures set on the Abuja Declaration by 2007 (M.O.H Ethiopia, 2004) The of South Sudan Aimed at to mobilize all sectors of society to promote malaria control and increase adoption of positive behaviour, based on a comprehensive malaria communications strategy that includes all available media and communication channels. The services are: (i) Awareness creation on malaria and its effects, (ii) promotion of acquisition and on sleeping under LLITNs, ANC and IPT, use of simple algorithms for home management of malaria for children under the age of five year by household health promoters (iii) compliance counseling for proper use of LLITNs. (W.H.O, 2010).

In Nigeria It has been observed that poor knowledge of preventive measures against malaria among others may be contributory to the poor uptake and use of ITNs (Abdisalan M. Noor, Abdinasir A. Amin, Willis S. Akhwale and Robert W. Snow August 2007)

The Abuja survey of 2007 reported that education and wealth index were positive predictors of net ownership and utilization. In this study, almost 85% of those who were aware even when they know the benefit still did not use ITNs mainly due to the prevailing environment. Awareness was however significantly related to use (Runsewe A., Iyabo T. and Runsewe O. O. August, 2013. Available online at [www.internationalscholarsjournals.org](http://www.internationalscholarsjournals.org).)

Ossai P.O. (2014) awareness, accessibility and use of malaria control interventions among at-risk groups in lagos metropolis, Nigeria. This is a cross-sectional study on awareness and use of malaria control interventions based on data collected from a household survey from two of the 20 local government areas (LGAs) of Lagos State, Nigeria – Alimosho and Kosofe where a malaria control program of Roll Back Malaria (RBM) is being implemented. The sample included pregnant women (n = 250) and mothers of children under five years old (n = 233) that were interviewed using interviewer-administered, semistructured questionnaires in a household survey. Questionnaires developed by the research staff of the Nigerian Institute for Medical Research probed respondents' demographic

characteristics; knowledge and compliance of policy guidelines on the awareness and use of malaria intervention strategies. The study was implemented over a 6-month period from February to August 2014.

(Ogbeide A.O., Aruoture I. and Wagbatsoma V.A. 2014) utilization of insecticide treated net among Pregnant Women attending antenatal care in Etsako east local government area of Edo state. The Aims of the study is to assess the knowledge on malaria, ownership and utilization of ITN among pregnant women attending antenatal clinic in Etsako East LGA, Edo State. Methodology: A descriptive cross-sectional study was carried out using a structured interviewers' administered pre-tested questionnaire among 305 consenting pregnant women attending antenatal clinic in Etsako West LGA of Edo State. Data collected were analyzed using SPSS version 16.0. Results: A total of 305 pregnant women with a mean age of  $28.7 \pm 6.5$  years participated in the study. Majority 265 (86.9%) of the respondents had good knowledge on how malaria is transmitted, although a substantial proportion 200 (65.6%) had a poor knowledge on its effect on pregnancy. ITN ownership was low, as only 80 (26.2%) owned an ITN and among those that had one utilization was equally low 17 (21.3%) . Conclusion: The study revealed a relatively good knowledge on transmission of malaria among respondents'. However ownership and utilization was low majorly due to unavailability of ITNs.

Gobena T., Berhane Y. And Worku .A (2012) Low long-lasting insecticide nets (LLINs)

Use among household members for protection against mosquito bite in kersa, Eastern Ethiopia. This study aimed to assess barriers related with LLIN use at the household level.

Methods a cross sectional survey was conducted in Kersa Demographic Surveillance and Health Research Centre (KDS-HRC) from October to November 2010. A total of 2867 households were selected from a surveillance database using a simple random sampling technique. The data were collected by interviewing women, direct observation of LLINs conditions and use, and in-depth interviewing of key informants. Multivariate analysis was used to determine independent predictors of LLIN

non-use. Result of the total surveyed households, 65.5% (1879) had at least one LLIN, but 33.5% (630) LLINs owned households had used at least one LLIN the night before the survey. Low educational level of women, low awareness on malaria prevention, unavailability of separate sleeping room, LLIN colour preference, and unavailability of enough LLINs to the household members were the main barriers to LLIN use. A supplementary qualitative interview with key informants also identified that poor condition of LLINs; undermining the extent of malaria; and using the LLIN for other purposes as the main reasons for non-use. The study Concluded that only about one third of LLIN owned households are actually using at least one LLIN for protection against mosquito bite. Thus, majority of the residents are at higher risk of mosquito bite and acquiring of malaria infection. Households living in fringe zone are not benefiting from the LLIN protection. Further progress in malaria prevention can be achieved by specifically targeting populations in fringe zones and conducting focused public education to increase LLIN use.

Zuradam S.F. (2012) factors associated with use and non-use of mosquito nets for Children less than 5 years of age in the Mfantseman municipality, Ghana. A household survey was conducted in 12 communities in the Mfantseman municipality in the Central Region, Ghana. The sample was stratified by 7 submunicipals, by availability of ITNs, source of ITNs and by their usage. Descriptive statistics as well as univariate statistical tests were used to describe household net ownership and to identify factors associated with use or non-use of nets available in the household. Of 240 surveyed households, 88 % owned at least one ITN, but only 43 % of ITNs owned had been used the prior night. The univariate analysis found that the factors significantly associated with an ITN being used were community in which the live and their level of education. The most common reasons for ITN non-use as reported by the households were absence or low number of mosquitoes, harmlessness of malaria as a health problem, reduced protection of ITN, hot sleeping environment under ITN, and poor condition of ITN. Observations showed that many ITNs were placed incorrectly, and

some were used for purposes other than as a bed net. It was revealed in this study that there was very high ITN ownership in the study areas.

## **METHOD AND MATERIALS**

### **STUDY DESIGN**

This is a descriptive cross sectional study of pregnant women in three randomly selected wards at one selected local governments in each senatorial zone of Bauchi state.

### **STUDY POPULATIONS**

The study will be conducted among pregnant women in Bauchi State only

### **INCLUSION CRITERIA**

Pregnant women in Dan Amar A, Dan Amar B, Dandago, Ward of Bauchi L.G.A. Alkaleri

East, Alkaleri West, Gwaram, of Alkaleri L.G.A (at South zone) Dambam A, Dagauda, Zaura of Dambam L .G.A. Zadawa, Kafinsule, Gundari of Misau L.G.A( at Central zone)

Lodiyo, Tashena, Gadai of Zaki L.G.A. Alaagarno, Jadori, Zindiwa.of Gamawa L.G.A. (at North zone) of Bauchi State.

### **EXCLUSION CRITERIA**

Pregnant Women in the area other than the above ward in Bauchi State,  
Non Pregnant  
Women in the above mentioned area.

### **SAMPLE SIZE DETERMINATIONS**

The sample size was determined using fisher's formula.

$$n = \frac{z^2 pq}{d^2}$$

z = is at 95% Confidence Interval = 1.96

d= precision = 5

$p = 27.6\%$  probability of success (National Demographic Survey 2003)  $q = 1-p$

$$n = \frac{1.96^2 \times 0.276 \times (1-p)}{d^2}$$

$$n = \frac{1.96^2 \times 0.276 \times 0.724}{(0.05)^2}$$

$$n = \frac{3.84 \times 0.276 \times 0.724}{0.0025}$$

$$n = \frac{0.7673}{0.0025}$$

$$n = 307 + 31 = 338$$

$$n = 307 + 31 = 338$$

### **SAMPLING TECHNIQUES**

The study used multistage sampling techniques;

Stage one (1)

The researcher divided the study area into three (3) strata following the division of senatorial district in the state that is North zone (Katagum) Central Zone and South zone. (Bauchi)

And select two local Governments from each senatorial district as follows;

South zone - Bauchi and Alkaleri

Central zone - Dambam and Misau

North zone - Zaki and Gamawa

Bauchi Zone; population to be sample is  $46945/125622 \times 338 = 126$ . Bauchi L.G.A;  $23891/46945 \times 126 = 64$ . Alkaleri L.G.A,  $23054/46945 \times 126 = 61$ .

Central Zone; population to be sample is  $35347/125622 \times 338 = 95$ . Dambam L.G.A;  $15647/35347 \times 95 = 42$ . Misau L.G.A,  $17900/35347 \times 95 = 49$ .

Katagum Zone population to be sample is  $44230/125622 \times 338 = 119$ . Zaki ;  $29526/44230$

$\times 119 = 79$ . Gamawa ;  $14704/44230 \times 119 = 39$ .

Stage two (2)

Researcher select two wards from each selected Local Government in the study area using simple random sampling technique.

Bauchi L.G.A: Dan Amar A,  $15919/23891 \times 64 = 42$ , Dan Amar B;  $2558/23891 \times 64 = 7$ , Dandago ;  $5414/23891 \times 64 = 14$ ,

Alkaleri L.G.A: Alkaleri East,  $8934/23054 \times 51 = 19$ , Alkaleri West,  $8402/23054 \times 51 = 18$ , Gwaram ;  $5718/23054 \times 51 = 12$ .

Dambam L .G.A: Dambam A;  $4885/15647 \times 42 = 13$ , Dagauda ;  $5250/15647 \times 42 = 14$ , Zaura ;  $5512/15647 \times 42 = 14$  .

Misau L.G.A: Zadawa;  $6709/19700 \times 49 = 16$ , Kafinsule ;  $6200/19700 \times 49 = 15$ , Gundari;  $6710/19700 \times 49 = 16$

Zaki L.G.A: Lodiyo ;  $10661/29526 \times 79 = 28$ , Tashena ;  $9802/29526 \times 79 = 26$ , Gadai ;  $9063 / 29526 \times 79 = 24$ .

Gamawa L.G.A: Alaagarno =  $8140/14704 \times 39 = 22$ , Jadori=  $5442/ 14704 \times 39 = 14$ , Zindiwa =  $1122/14704 \times 39 = 3$ .

Stage three (3)

The researcher selects the eligible respondent from each ward to be study using simple random sampling to arrive at the estimated sample population as calculated above.

### **STUDY INSTRUMENT**

To achieve the objectives of this study, primary data was obtained directly from the research subjects. The instruments used to collect data for this research were researcher designed questionnaires. The reason for selecting questionnaire in this study is that, in a questionnaire large amount of information can be collected from a large number of people in a short period of time and the result of the questionnaire can easily be quantified by either a researcher or through the use of a software package. Another reason for selecting questionnaire is that it can be used to measure what information an individual possesses, like and dislike, interest, attitude and beliefs of an individual or group of individuals by asking them what they think about some issues (Sambo A.A, 2013) The instruments were meant to elicit information from the respondents about the Knowledge, Economic, SocioCultural and the Health System policy affecting the Utilization of Long Lasting Insecticide Treated Net among Pregnant Women in Bauchi State. Respondents were asked to choose a response among the five and two

options. The questionnaire adopted Yes or No and 1,2,3,4,5 scale under the following keys: First option = 1, : Second option = 2, : third option = 3, : Fourth option= 4, : Fifth option= 5.

The questionnaire has an acronym of (QALLITNAPW) which stands for: Questionnaire for Assessment of the Determinant of the Utilization of Long Lasting Insecticide Treated Net among Pregnant Women in Bauchi State. This is the questionnaire that was used to Assess the knowledge, Economic, Socio-Cultural and the Health System Factors Affecting the Utilization of Long Lasting Insecticide Treated net Among Pregnant Women in Bauchi State. Five (5) sections A, B, C, D and E. After a brief introduction. Section A: contain demographic data of the respondents. Section B: contain twelve (12) items designed to elicit information from the respondents Knowledge of the utilization of long lasting insecticide treated net among pregnant Women. Section C: contain twelve (12) items designed to elicit information from the respondents about the Economic factors affecting of the utilization of long lasting insecticide treated net among pregnant Women. Section D: contain Nine (9) items designed to elicit information from the respondent's information from the respondent's Socio-Cultural factors affecting the utilization of long lasting insecticide treated net among pregnant Women. Section E: contain Seven (7) items designed to elicit information from the respondents Health System Factors affecting the utilization of long lasting insecticide treated net among pregnant Women.

#### **DATA COLLECTION METHODS**

Research assistance was trained, to assist in administering and retrieving of questionnaire. The training conducted at M.P.H.C. Potiskum LGA Yobe state. The administered questionnaires were collected from the respondent immediately after it has been answered.

#### **DATA MANAGEMENT**

Demographic Data are presented in frequency and percentage distribution table while the data on the research Question are presented in mean and standard deviation

### STATISTICAL ANALYSES

The collected data were analyzed using SPSS software version 16. The findings will be explained by means of different statistical analyses like descriptive statistics (frequencies and percentage) To find out the level of usage of long lasting insecticide treated bed nets among pregnant women.

### ETHICAL CONSIDERATIONS

The ethical approval for the study was obtained from the State Ministry of Health Bauchi State and the consent of the respondent.

### DATA PRESENTATION AND RESULT

This chapter presented the data analysis under the following sub headings: Analysis of Demography, Analysis of Research Questions and Summary of the Finding and Discussion of the finding.

### ANALYSIS OF DEMOGRAPHY

**Table 1.1 Age of the respondents based on their frequency and percentage of pregnant women in Bauchi State**

Frequency	Percent	Age
120	35.5	15-24Yrs
155	45.9	25-34Yrs
60	17.8	35-44Yrs
3	0.9	45 and Above
338	100.0	Total

Table 1.1 shows that pregnant women in Bauchi State between the Age of 25-34Yrs are 45.9 percent, followed by 15-24 years are 35.5 percent, 35-44Yrs are 17.8 percent, 45 and Above are 9 percent respectively.

**Table 1.2: The table contains gender of the respondents based on their frequency and percentage of the pregnant Women in Bauchi State.**

	Sex	Frequency	Percent
	Female	338	100.0

Table 1.2 shows that 338 or 100.0 percent of the respondents are female.

**Table 1.3: Marital status of the respondents based on their frequency and Percentage of Pregnant Women in Bauchi State.**

Marital Status	Frequency	Percent
Married	323	95.6
Widow	9	2.7
Divorced	6	1.8
Total	338	100.0

Table 1.3 shows that 323 which are 95.6 per cent are married, 9 or 2.7 percent are widow and 6 or 1.8 per cent are divorce.

**Table 1.4: The Number of Children of the respondents based on their frequency and percentage of Pregnant Women in Bauchi State**

Number of Children	Frequency	Percent
Mother with One Child	201	59.5
Mother with Two Children	101	29.9
Mother with Three Children	16	4.7
Mother with No Child	20	5.9
Total	338	100.0

Table 1.4 shows that 201 or 59.5 percent are Pregnant Mothers with One Child, 101 or 29.9 percent are Mothers with two Children , 20 or 5.9 percent

are Mothers with no Children and 16 or 4.7 percent are Mothers with Three Children.

**Table 2.1: The Level of Education of the respondents based on their frequency and percentage of Pregnant Women in Bauchi State**

Level of Education	Frequency	Percent
Primary	137	40.5
Secondary	63	18.6
Post-Secondary	22	6.5
Informal Education	116	34.3
Total	338	100.0

Table 2.1 shows that 137 or 40.5 are of primary school level of Education ,116 or 34.3 are of informal Education, 63 or 18.6 are of secondary Education and 22 or 6.5 percent are of post-secondary school level of Education.

**Table 2.2: The occupation of the respondents based on their frequency and Percentage of pregnant women in Bauchi State.**

Occupation	Frequency	Percent
Famer	51	15.1
Public Worker	15	4.4
Business women	123	36.4
House Wife	149	44.1
Total	338	100.0

Table 2.2 shows that 149 which are 44.1 percent are House Wife,123 or 36.4 are Business women, 51 or 15.1 are Farmers and 15 or 4.4 are public Workers.

**Table 2.3: The Religion of the respondents based on their frequency and percentage of the Pregnant Women in Bauchi State**

Religion	Frequency	Percent
Christian	21	6.2
Islam	317	93.8
Total	338	100.0

Table 2.3: shows that 317 or 93.8 percent are Islam and 21 or 6.2 percent are Christian

**Table 2.4: The type of Community of the respondents based on their frequency and percentage of Pregnant Women in Bauchi State**

Community	Frequency	Percent
Rural	287	84.9
Urban	51	15.1
Total	338	100.0

Table 2.4: shows that 287 or 84.9 are rural and 51 or 15.1 percent are urban.

### Analysis of Research Questions

Research Question: Knowledge on the utilization of Long Lasting Insecticide Treated Nets Among pregnant women in Bauchi State.

### Responses of Respondents on Knowledge on the Utilization of Long Lasting Insecticide Treated Nets Among Pregnant Women in Bauchi State.

#### Section B

S/N	Rating Item	Mean	SD	Decision
1	Do you know the Importance of Long Lasting Insecticide Treated Nets LLITNs?	1.45	0.50	Disagree
2	Do you know that Long Lasting Insecticide Treated Nets (LLITNs) is the best prevention against malaria?	1.37	0.48	Disagree
3	If Yes, Do you agree that mosquito is the only agent that transmits malaria?	1.72	0.45	Agree

4	Do you believe that educational status of pregnant mothers increase the chance for Long Lasting Insecticide Treated Nets (LLITNs) utilization?	1.09	0.28	Disagree
5	Does Long Lasting Insecticide Treated Nets (LLITNs) utilization safe during pregnancy?	1.18	0.38	Disagree
<i>Cumulative Mean = 1.36</i>				

Table 1.2, above shows the response of respondents on Knowledge on the utilization of Long Lasting Insecticide Treated Nets Among pregnant women in Bauchi State it was observe that majority of the respondents are in disagreement with the Knowledge on the utilization of Long Lasting Insecticide Treated Nets Among pregnant women in Bauchi State this is because the cumulative mean 1.36 is less than the decision mean 1.50

**Response of the Respondents on Knowledge on the Utilization of Long Lasting Insecticide Treated Nets Among Pregnant Women in Bauchi State**

<i>S/N</i>	<b>Rating Item</b>	<b>Mean</b>	<b>SD</b>	<b>Decision</b>
1	Do you know the Importance of Long Lasting Insecticide Treated Nets LLITNs?	1.45	0.50	Disagree
2	If yes, what it is use for	1.32	0.47	Disagree
3	Do you know that Long Lasting Insecticide Treated Nets (LLITNs) is the best prevention against malaria?	1.37	0.48	Disagree

Cumulative mean=1.38  
DECISION MEAN 1.50

Table above shows the response of respondents on Knowledge of the importance of utilization of Long Lasting Insecticide Treated Nets among pregnant women in Bauchi State it was observe that majority of the respondents are in disagreement with the Knowledge on the importance of utilization of Long Lasting Insecticide Treated Nets among pregnant women

in Bauchi State this is because the cumulative mean 1.38 is less than the decision mean 1.50

### **Summary of Findings**

The following are the summary of the major findings of the study:

The pregnant women lack Knowledge on the utilization of Long Lasting Insecticide

### **Treated Nets in Bauchi State.**

The pregnant women lack Knowledge on the importance of the utilization of Long

Lasting Insecticide Treated Nets in Bauchi State.

### **DISCUSSION OF THE FINDINGS**

The study revealed that pregnant women lack Knowledge on the utilization and importance of Long-Lasting Insecticide Treated Nets in Bauchi State. This finding is in agreement with the findings of Ezire et al., (2015) who stated that knowledge on the use of a net ITN/LLIN can protect a pregnant woman from malaria to be significant at 5% level, that's very low.

### **DISCUSSION**

This study was on the Assessment of level of knowledge of pregnant women on the utilization of LLITNs,

The grand total populations for the study are one hundred and twenty-six thousand five hundred and twenty-two (126,522) of the pregnant women in Bauchi State. Sample sizes of 338 respondents were drawn. Questionnaire was the instruments used to collect data. A five point 1, 2,3,4,5 scale and Yes or No format was used a total of (126522) respondents were the sample size for the study while 338 respondents were however used for the analysis. The respondents were pregnant women only. The Statistical package IBM version 16 was used for the analysis. The first section analysis is presentation of the bio data variables using frequencies and percentages distribution of the categories of respondents. The second section presents the research

questions using their response on each item of the set of items that answer the research questions. The major findings were highlighted. The research objectives were tested using decision mean 1.50 for five (5) scale.

### **CONCLUSION AND RECOMMENDATION**

In view of the findings of this study, it is concluded that pregnant women lack knowledge and importance of the utilization of Long Lasting Insecticide Treated Nets in Bauchi State. This might be solved through active focused group discussion or community dialogue, compound meeting with pregnant women and health education hence create awareness and help improve the level of knowledge on the utilization of Long Lasting Insecticide Treated Nets and its importance more especially among pregnant women in Bauchi State.

In the light of the finding of this research, the following recommendations are made The government should increase funding for the entire health sector with emphasis on awareness; this will help improve the level of knowledge on the utilization of Long Lasting Insecticide Treated Nets and importance of its utilization more especially among pregnant women in Bauchi State.

### **REFERENCE**

- Abdisalan M. Noor, Abdinasir A. Amin, Willis S. Akhwale and Robert W. Snow. Increasing Coverage and Decreasing Inequity in Insecticide-Treated Bed Net Use among Rural Kenyan Children. PLoS Medicine | www.plosmedicine.org August 2007 | Volume 4 | Issue 8 | e255.
- A dugna W, Wakgari D, Ahmed A, Bernt L., Ownership and use of long-lasting insecticidal nets for malaria prevention in Butajira area, south-central Ethiopia: complex samples data analysis. (2014). BMC Public Health, 14:99 doi: 10.1186/1471-2458-14-99.
- Agyapong and Manderson. Introducing insecticide-impregnated bed nets in an area of low bed net usage: An exploratory study in North- East Ghana, Tropical Medicine and International Health, Accra, (2008), pp 328-333.
- Agyapong and Manderson. Introducing insecticide-impregnated bed nets in an area of low bed net usage: An exploratory study in North- East Ghana, Tropical Medicine and International Health, Accra, (2008), pp 328-333.
- Alaii J.A., Vanden Borne H.W., Kachur S.P., Shelley K., Mwenesi H., Vulule J.M., Hawley Brabin B., an assessment of low birth weight risk primiparae as an indicator of malaria control in pregnancy. International Journal of Epidemiology, 20(1), 276-83. (1991)

- Ayalew A. Amsalu F Utilization Of Insecticide Treated Nets In Arbaminch Town And The Malarious Villages Of Arbaminch Zuria District, Southern Ethiopia (2009).. Ethiop.J.Health Dev: 23(3).
- Desta G. A., Lemma H. R. and Gebresilassie A. T . Utilization of Long Lasting Insecticidal Nets among Household in Malarious Areas of Raya Alamata District, Tigray, Ethiopia. Science Journal of Public Health 2015; 3(2): 216-221 Published online March 2, 2015 (<http://www.sciencepublishinggroup.com/j/sjph>) doi: 10.11648/j.sjph.20150302.19 ISSN: 2328-7942 (Print); ISSN: 2328-7950 (Online)
- Desta G. A., Lemma H. R. and Gebresilassie A. T . Utilization of Long Lasting Insecticidal Nets among Household in Malarious Areas of Raya Alamata District, Tigray, Ethiopia. Science Journal of Public Health 2015; 3(2): 216-221 Published online March 2, 2015 (<http://www.sciencepublishinggroup.com/j/sjph>) doi: 10.11648/j.sjph.20150302.19 ISSN: 2328-7942 (Print); ISSN: 2328-7950 (Online)
- Ezire O., Adebayo S.B., Idogho O., Bamgboye E.A. and Nwokolo E. Determinants of use of insecticide-treated nets among pregnant women in Nigeria. International Journal of Women's Health 2015;7 655–661
- Gobena T., Berhane Y. And Worku A. Low long-lasting insecticide nets (LLINs) Use among household members for protection against mosquito bite in kersa, Eastern Ethiopia. Gobena et al. BMC Public Health 2012,12:914 <http://www.biomedcentral.com/1471-2458/12/914>
- Guillermo-M., Andrea C., Edilmar C.L., and Axel K., Innovative dengue vector control interventions in latin America Journal *Pathog Glob Health*v.110(1); February 2016 [10.1080/20477724.2016.1142057](https://doi.org/10.1080/20477724.2016.1142057) PMC4870030
- Gullet P. African Health: Insecticide Treated Nets in Africa. Where do we stand? Parasitic Disease and vector control, Cambridge, UK, Vol. 23, No.6.2008.
- Gullet P. African Health: Insecticide Treated Nets in Africa. Where do we stand? Parasitic Disease and vector control, Cambridge, UK, Vol. 23, No.6.2008.
- Gullet P. African Health: Insecticide Treated Nets in Africa. Where do we stand? Parasitic Disease and PMID:26880771( Control of malaria western pacific 2016
- Guyatt H.L., Noor A.M., Ochola S.A. and Snow R.W. Use of intermittent prevention treatment and insecticide treated bednets by pregnant women in four Kenyan wards. Tropical Medicine and International Health vol. 9 (2) pp 255-261.
- History of Malaria Control'. Retrieved 10-27 -2004.
- Hill J., Hoyt J., Eijk AM, terKuile F.O., Webster J and Richard W. S. Prioritizing Pregnant Women for Long-Lasting Insecticide Treated Nets through Antenatal Care Clinics. PLoS Med 11(9): e1001717. doi:10.1371/journal.pmed.1001717-2014.
- Madugu S. Malaria Diagnosis and Treatment among P.M.V. In Bauchi Metropolitan Bauchi L.G.A, Thesis submitted to the Department of Epidemiology and Community Health University of Ilorin for the award of MSC Community Health 2013.

- Madugu S. Malaria Diagnosis and Treatment among P.M.V. In Bauchi Metropolitan Bauchi L.G.A, Thesis submitted to the Department of Epidemiology and Community Health University of Ilorin for the award of MSC Community Health 2013.
- Mebrahtom Belay and Wakgari Deressa. Use of insecticide treated nets by pregnant women and associated factors in a pre-dominantly rural population in northern Ethiopia. Volume 13 no 10 pp 1303–1313 Tropical Medicine and International Health doi:10.1111/j.1365-3156.2008.02159.x
- Ministry of Health. Insecticide Treated Nets (ITNs): National Strategic Plan for Going to Scale with Coverage and Utilization in Ethiopia, Federal Democratic Republic of Ethiopia 2015
- Ogbeide A.O., Aruoture I. and Wagbatsoma V.A. utilization of insecticide treated net among Pregnant Women attending antenatal care in Etsako east local government area of Edo state. *jnbr: a peer-review journal of biomedical sciences*, vol. 13 no.2 pp 106-116 -2014.
- Ossai P.O. Awareness, accessibility and use of malaria control interventions among at-risk groups in lagos metropolis, Nigeria. a dissertation submitted to Kent State University in partial fulfillment of the requirements for the degree of Doctor of Philosophy. 2014.
- Pettifor A., Taylor E., Nku D. et al. Bed net ownership, use and perceptions among women seeking antenatal care in Kinshasa, Democratic Republic of Congo (DRC): Opportunities for improved maternal and child health, *BMC Public Health*, 8:331; 2008.
- Runsewe A., Iyabo T. and Runsewe O. O. Attitude and practice of pregnant women to use of insecticide treated nets in South-West Nigeria. *African Journal of Pregnancy and Childbirth* Vol. 1 (1), pp. 001009, August, 2013. Available online at [www.internationalscholarsjournals.org](http://www.internationalscholarsjournals.org).
- Sambo A.A. Research methodology in education Ibadan Stirling Horden publisher Nigeria limited ISBN 978-032-540-9; 2013.
- World Health Organisation Annual report on malaria. Ghana Health Service 2013.
- World Health Organisation. World Malaria Report. Estimating population access to ITNs versus quantifying for procurement for mass campaigns. 2009 [www.who.int/malaria/publications/atoz/whoclarification-estimating-population-access-itn-mar2014.pdf](http://www.who.int/malaria/publications/atoz/whoclarification-estimating-population-access-itn-mar2014.pdf)
- Zuradam S.F. Factors associated with use and non-use of mosquito nets for Children less than 5 years of age in the Mfantseman municipality, ghana. master's thesis public health school of Medicine Faculty of Health Sciences University of Eastern Finland. 2012.