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Assessing the Impacts of Insecticide Treated Net (INT) Distribution for Malaria Prevention in Katsina Local Government, Katsina State, Nigeria

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ABSTRACT

Malaria remains a persistent public health burden in many regions, including Nigeria. Insecticide-treated nets (ITNs) have been widely implemented as a primary vector control strategy to combat this disease. This study aimed to assess the impact of ITN distribution and usage on malaria prevalence in selected areas of Katsina Local Government Area (LGA). A cross-sectional survey was conducted involving a representative sample of households. Data were collected on demographic characteristics, socioeconomic status, ITN ownership and usage, and malaria incidence, as determined by rapid diagnostic tests (RDTs). Frequency tables and chi-square tests were employed to analyze the association between ITN use and malaria prevalence. The results revealed a high level of ITN ownership among the study population. However, consistent usage varied across households, influenced by factors such as knowledge of malaria transmission, perceived efficacy of ITNs, and cultural practices. A significant reduction in malaria incidence was observed among households that consistently used ITNs compared to those who did not or used them inconsistently. These findings underscore the effectiveness of ITNs in malaria prevention and control. To further enhance the impact of ITN programs, it is crucial to address barriers to consistent usage, such as inadequate knowledge, misconceptions about ITNs, and limited access to replacement nets. Additionally, complementary interventions, such as indoor residual spraying and larviciding, should be integrated into comprehensive vector control strategies to maximize their effectiveness.

Keywords: Malaria, insecticide-treated nets, katsina LGA, public health, vector control

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INTRODUCTION

Malaria, a mosquito-borne disease caused by Plasmodium parasites, continues to be a major public health concern globally, particularly in sub-Saharan Africa (WHO, 2021). Nigeria, as one of the most malaria-endemic countries, bears a significant burden of the disease (National Malaria Elimination Programmer, 2023). Insecticide-treated nets (ITNs) have been widely recognized as a cost-effective and sustainable intervention for malaria prevention (WHO, 2012). By killing mosquitoes that rest on the nets, ITNs reduce malaria transmission and protect individuals, especially vulnerable groups such as children and pregnant women. Malaria is a vector borne infection caused by protozoa parasite. It is widespread in tropical and sub-tropical regions including part of America, Asia and Africa. Each year there are approximately 350-500 million people the majority whom are young children in sub-Saharan Africa ninety percent of malaria related death occurs in sub-Saharan Africa. Malaria is commonly associated with poverty but is also a cause of poverty and major hindrance to economic development. Malaria is a parasitic disease which is spread by the female anopheles mosquitoes. There are about 2 million deaths from malaria

each year making one of the world deadly diseases. Forty percent of the world population is at risk of contracting malaria most of the fatal cases of malaria are in sub-Saharan Africa and must of the children under the age of 5 years and pregnant women. There are some areas where up to 40% of the children die of malaria when conditions are at worst. The effective prevention of malaria in children as shown in, 1966 world health organization study is protecting them from mosquito bite by having them sleep under bed nets dipped in permitting the WHO pilots study in Gambia the death rate among children between birth and 4years was reduced by 63% by this method. With a population of approximately 160 million, Nigeria bears a significant burden of malaria compared to any other country in the world. Over 300,000 people in Nigeria succumb to the disease each year. Nigeria health workers are sometime forced to work overtime, and doctor and nurses can be on duty for over 12 hours before receiving medical consultation. This is a lot of activity ad momentum to combat malaria in Nigeria but deadly gaps still exist more need 4 be done to prevent the children from being infected ensured access to quality malaria treatment says (UNICEP) presentation in Nigeria suomisakai 2004.

Empowering families and communities through participation while the knowledge about how to prevent and treat malaria is an important part of UNICEP malaria prevention work. Community workers try to sense the local, population about the prevention of malaria through the use of insecticide treated net (ITN) or treating it which our mission based combination therapy (ACT). In 1998 the world bank came together in roll back malaria partnership with the global of having the global burden of malaria partners support this effort by supplying safe, effective and affordable out malaria intervention. The organization is for example, the world largest purchaser of mosquito net UNICEF also support provision of intermitted preventive treatment (ITN) for pregnant women through alternated clinic (IN) which can prevent a child from contracting malaria before birth involves providing pregnant women with at least of an antimalarial drug at each schedule antenatal visit after the first trimester such preventive treatment has been shown to substantially reduce the risk of malaria in the mother and low birth weight in new born.

Katsina State is doing well in the ongoing fight against malaria in the country. Former Minister of Health Professor Baba Tunde Osotimehin as the flagging off of the second wave of the long-lasting insecticide nets (ITN) campaign which held at the premises of general hospital in Katsina. Professor Osotimehin represented by a deputy director in the ministry of health stated that the earlier success recorded the launch of the first leg of the program in the state where more than 2 million treated nets were distributed across 21 local government areas informed the decision of the ministry to take the campaign to Anambra state. This study aimed to evaluate the impact of ITN distribution and usage on malaria prevalence in selected areas of Katsina LGA, Nigeria. By assessing the association between ITN use and malaria incidence, this research contributes to the understanding of ITN effectiveness in reducing malaria burden.

METHODOLOGY

The study is being conducted in order to gather important details about the methodology used in the research. The key areas that will be addressed include the research design, method of data collection, population and sample, research instrument, and techniques of data analysis.

Research design

This was a cross - sectional population survey that was conducted in household sampled in Kofar Marusa Katsina local government, Katsina state using the insecticide treated net sample methodology.

Method of data collection

The method of data collection is through questionnaire designed by the researchers which items as an instrument to this research work.

Population and sample size

This research covers conducted within the people of Katsina local government Katsina state which consists the population of about 107.564 in which 100 sample was down using sample random techniques.

Research Instrument

In regard the method used to collect data for this research work is self-designed questionnaire which contains different relevant items which regarded this research work. A questionnaire is selected because it was the simple way to obtain information from either male or female in the area of study, which was distributed at random.

Techniques of data analysis

In this regards, collection from community will be stated. The researcher selected the description method of data analysis base on square and in tabular from for easy understanding contingency table which is shown table.

RESULTS AND DISCUSSION

The data obtained through the questionnaires were presented and analyzed in this chapter, using different statistical techniques specified in the method of data analysis. The method is frequency table for data analysis

Table 1: What is the gender of the respondents?

Gender	Frequency	Percentage (%)
Male	25	25.00
Female	75	75.00
Total	100	100.00

Source: Field work, 2024.

Table 2: Age of the respondents.

Age (years)	Frequency	Percentage (%)
15 -19 years	20	20.00
20 -24 years	40	40.00
25 – 29 years	40	40.00
Total	100	100.00

Source: Field work, 2024.

(Table 1). Table 1 shows that 25 respondents were male with the percentage of 25.00% while the remaining 75 respondents were female with the percentage of 75.00%. This shows that the majority of the respondents are female. Table 2 shows that 20 respondents were within the age of 15 - 19 years representing 20.00%, while 40 respondents representing 40.00% are between 20 - 24 years, 40 respondents presenting 40.00% are between the age of 25 - 29 and above years. Table 3 shows that 60 respondents are married with the percentage of 60.00%, while 10 respondents are single with the percentage of 10.00% while 15 respondents are widow with the percentage of 15.00%, while 5 respondents are separated with the percentage of 5.00%, on other hand 10 respondents with the percentage of 10.00%. This shows that majority of the respondents is married.

Table 3: Marital status of the respondents.

Marital status	Frequency	Percentage (%)
Married	60	60.00
Single	10	10.00
Widow	15	15.00
Separated	5	5.00
Divorced	10	10.00
Total	100	100.00

Source: Field work, 2024

Table .4: Occupation of the respondents.

Occupation	Frequency	Percentage (%)
Farmer	20	20.00
Business	30	30.00
Health	20	20.00
Trader	30	30.00
Total	100	100.00

Source: Field work, 2024

Table 4 shows that 20 respondents are farmer with the percentage of 20.00%, while 30 respondents are business with the percentage of 30.00%, while 20 respondents are health worker with the percentage of 20.00%, on other hand 30 respondents are trader with the percentage of 30.00%. This show that majority of the respondents is business and trader. Table 5 shows that 30 respondents are none with the percentage of 30.00%, while 26 are one only with the percentage of 26%, while, 19 are two and five with the percentage of 19.00%, and the 25 are five and above with the percentage of 25.00%. This shows that majority of the respondents is none.

Table 5: Number of your children.

Children	Frequency	Percentage
None	30	30.00
One only	26	26.00
Two and five	19	19.00
Five and above	25	25.00
Total	100	100.00

Source: Field work, 2024

Table 6: Number of treated net

Net	Frequency	Percentage (%)
One only	30	30.00
Two and five	40	40.00
Five and above	30	30.00
Total	100	100.00

Source: Field work, 2024

Table 6 shows that 30 respondents are one only with the percentage is 30.00%, while 40 are two and five with the percentage of 40.00%, and the other 30 are five and above with the percentage of 30.00%. This indicates the majority of the respondents are two and five. Table 7 shows that 60 respondent represent 60.00% is said yes, while 40 of the respondent with the percentage of 40.00% said no. This indicates that majority of the respondents are sleep inside the net. Table 8 shows that among 100 respondents, 30% are categorized as "one," 40% as "two," and another 30% as "other." The largest group, making up 40% of the total, is the "two" category. Table 9 shows that 25 respondents represent 25.00% are said yes, while 75 of the respondent with the percentage of 75.00% said. This indicates the majority of the

Table 7: Do you sleep inside the net?

Response	Frequency	Percentage (%)
Yes	60	60.00
No	40	40.00
Total	100	100.00

Source: Field work, 2024

Table 8: How many children can sleep in each net?

Response	Frequency	Percentage (%)
One	30	30.00
Two and five	40	40.00
Five and above	30	30.00
Total	100	100.00

Source: Field work, 2024

Table 9: Do you have stagnant water around the house?

Response	Frequency	Percentage (%)
Yes	25	25.00
No	75	75.00
Total	100	100.00

Source: Field work, 2024

Table 10: Do you stay long at night?

Response	Frequency	Percentage (%)
Yes	60	60.00
No	40	40.00
Total	100	100.00

Source: Field work, 2024

Table 11: Do you have malaria.

Response	Frequency	Percentage (%)
Yes	60	60.00
No	40	40.00
Total	100	100.00

Source: Field work, 2024

Table 12: Does your children have malaria

Response	Frequency	Percentage (%)
Every week	20	20.00
Every month	30	30.00
Every year	50	50.00
Total	100	100.00

Source: Field work, 2021

respondent does not stagnant water around the house. Table 10 shows that 60 responses represent 60.00% are said yes, while 40 of the respondent with the percentage of 40.00% said no. This indicates that majority of the respondents stay long at night. Table 11 shows that 60 respondent represent 60.00% is said yes, while 40 of the respondent with the percentage of 40.00% said no. This indicates that majority of the respondents have malaria. Table 12 shows that 20 respondents are every week with the percentage of 20.00%, while 30 respondents are every month with the percentage of 30.00%, and the other one 50 respondents with the percentage of 50.00%. This shows that the majority of the respondents are every year. Table 13 shows that 10 respondents are none with the percentage of 10.00%, while 40 respondents are one only with the percentage of 40.00%, while 30 respondents are two and five with the percentage of 30.00%, and other one 20 respondents with percentage of 20.00%.

Table 13: How many children have malaria every year?

Response	Frequency	Percentage (%)
None	10	10.00
One only	40	40.00
Two and five	30	30.00
Five and above	20	20.00
Total	100	10.00

Source: field work, 2021

Table 14: Do you collect net during immunization?

Response	Frequency	Percentage (%)
Yes	70	70.00
No	30	30.00
Total	100	100.00

Source: Field work, 2024

Table 15: Do you visit hospital when you are sick?

Response	Frequency	Percentage (%)
Yes	90	90.00
No	10	10.00
Total	100	100.00

Source: Field work, 2024

This shows the majority of the respondents are one only. Table 14 shows that 70 respondent represent 70.00% are said yes, while 30 of the respondent with the percentage of 30.00% said no. This indicates that majority of the respondent collect net during immunization. Table 15 shows that 70 respondents are long clothes with the percentage 70.00%, and the other one 30 respondents with the percentage of 30.00%. This shows the majority of the respondents are used long clothes in the night. Table 15 shows that 90 respondent represent 90.00% are said yes, while 10 of the respondent with the percentage of 10.00% said no. This indicates that majority of the respondent are visit hospital they are sick

Conclusion

From the findings of the research, it was discovered that there is creative of adverseness anything the community member on the uses of insecticide treated mosquito net, it was also discovered their people adept, the habit of sleeping inside mosquito treated net to promote their solves against malarias. Finally it was conclude that the cases of malaria in the community has of the community has drop drastically duct the higher acceptance live of the community toward the use if IN therefore the use of insecticide treated net is the best and new approaches in the and control of malaria.

Recommendations

Based on the date collection during the research work and observation in the area of study I discovered that prevention of malaria is not an easy therefore with regard to this is need for individual community government and non-government organization to be finally participated for effective and proper control of malaria problems. And this will be done through the following:

(i) Community sanitation and proper construction of during should be fully carried out to order to make the environment very suitable.
(ii) Community should bear in mind that malaria can be controlled and prevented by the use insecticide treated mosquito bet net.
(iii) Insecticide treated mosquito net should distributed free of charge to the member of community in order to reduce malaria problems.
(iv) Non-government organization should also have a role to play in order to give their contribution in malaria prevention and control.
(iv) More attention should also be paid on health education people should be mobilized on how to use the mosquito bet net appropriately.

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