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Attitudes and Practices toward Insecticide-Treated Nets among Residents of Jauro Yinu Ward in Ardo Kola Local Government Area of Taraba State, Nigeria

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ABSTRACT

This study investigates community attitudes and practices regarding the use of insecticide-treated nets (ITNs) for malaria prevention in Jauro Yinu Ward. Using a structured questionnaire, data were collected from 349 respondents, all of whom completed the survey. The findings revealed that the majority of respondents were young adults (57.3% aged 18–24) and predominantly female (76%). Notably, 73.3% had attained tertiary education, indicating a relatively educated sample. Results demonstrated a generally positive attitude toward ITNs, with 86.5% believing they are essential for malaria prevention and 78.2% agreeing on the necessity of nightly use. However, actual practices showed some inconsistencies, as only 53.3% reported regular use. Maintenance practices such as proper storage (82.5%) and inspection for damage (41.3%) were encouraging, though repairs were less common (37.0%). Statistical tests revealed a significant relationship between education and attitude towards ITNs ($p = 0.0035$), but no significant relationships based on gender. These findings suggest that while awareness and attitudes are favorable, there is a need for more targeted behavioral interventions to improve consistent usage and maintenance of ITNs in malaria-prone areas (WHO, 2023; CDC, 2022).

Keywords: insecticide-treated nets, awareness, predominantly and malaria prevention

INTRODUCTION

Malaria remains a major public health concern in Nigeria, accounting for a significant burden of morbidity and mortality, particularly among vulnerable populations such as children and pregnant women [1]. Despite concerted efforts to curb its spread, the disease persists due to a combination of environmental, behavioral, and socio-demographic factors. One of the most effective preventive strategies recommended by global health bodies is the use of insecticide-treated nets (ITNs), which serve as a physical and chemical barrier against mosquito bites during sleep [2]. Insecticide-treated nets have been extensively distributed across malaria-endemic regions through national campaigns and routine health facility-based programs. However, evidence suggests that the mere availability of ITNs does not guarantee their regular and effective use. Factors such as perceived comfort, maintenance knowledge, social beliefs, and demographic characteristics may influence ITN utilization [3], [4]. This study focuses on Jauro Yinu Ward, an area within a malaria-endemic zone, to evaluate residents' knowledge, attitudes, and practices (KAP) concerning ITNs. Specifically, it examines demographic variables, including gender and educational level, to assess their influence on ITN use and devaluation behaviors [5]. The findings are intended to inform targeted public health interventions and educational programs to enhance ITN usage and ultimately reduce malaria transmission within the community.

Table 1: Demographic Characteristics of Respondents

Factors	Frequency	Percentage
Gender		
Male	85	24%
Female	264	76%
Total	349	100%
Age		
18–24 years	200	57.3%
25–34 years	92	26.3%
35–44 years	32	9.2%
45 years and above	25	7.2%
Total	349	100%
Highest Level of Education		
No formal education	26	7.4%
Primary education	17	4.9%
Secondary education	50	14.3%
Tertiary education	256	73.3%
Total	349	100%

Source: Field Survey, 2024

This demographic overview not only informs the representativeness of the study sample but also provides valuable insights into the community’s composition, which is essential for tailoring effective malaria prevention programs [6]. The subsequent sections will analyze data related to the study's specific objectives and hypotheses, providing a deeper understanding of ITN-related knowledge, attitude and practices among the respondents [7].

Table 2: Attitude regarding the use of ITNs

S/N	Statement	Response	N	Frequency (%)	Mean	SD	Remark
1	Do you believe ITNs are essential for preventing malaria?	Yes	302	86.5%	4.51	0.82	Agree
		No	31	8.9%			
		Undecided	16	4.6%			
		Total	349	100%			
2	How important is using an ITN to you?	Yes	266	76.2%	4.32	0.91	Agree
		No	64	18.3%			
		Undecided	19	5.4%			
		Total	349	100%			
3	Do you feel that ITNs are comfortable to use?	Yes	268	76.8%	4.44	0.87	Agree
		No	60	17.2%			
		Undecided	21	6.0%			
		Total	349	100%			
4	Do you believe that sleeping under ITNs every night is necessary?	Yes	273	78.2%	4.56	0.78	Agree
		No	53	15.2%			
		Undecided	23	6.6%			
		Total	349	100%			
5	Have you ever experienced any side effects from using ITNs?	Yes	169	48.4%	3.82	1.12	Agree
		No	167	47.9%			
		Undecided	13	3.7%			
		Total	349	100%			
	Grand Mean				4.33	0.90	Agree

Source: Field Survey, 2024

Table 2 highlights the responses on attitudes toward ITNs among residents in Jauro Yinu Ward. The data shows that a large majority (86.5%) believe ITNs are essential for preventing malaria, confirming the awareness of their benefits. Similarly, 76.2% regard ITNs as very important, and 78.2% agree that sleeping under ITNs nightly is necessary, showcasing positive attitudes toward their use. Comfort levels with ITNs are also high, with 76.8% finding them comfortable, though side effects were reported by 48.4% of respondents, nearly equal to the 47.9% who did not experience them. This suggests a nearly even split in user experiences concerning adverse effects, which may require further investigation or intervention to enhance usability and acceptance. Overall, the high mean scores across the items (grand mean = 4.33) indicate a favorable attitude toward ITNs, underscoring their perceived importance in malaria prevention. Further education addressing misconceptions or concerns about ITNs could improve adoption rates and consistent use.

Table 3: Mean, Standard Deviation, and Frequency of Responses on Residents' Practices Regarding ITNs

S/N	Statement	Response	N	Frequency (%)	Mean	SD	Remark
6	Do you use ITNs regularly?	Yes	186	53.3%	3.96	0.91	Agree
		No	148	42.4%			
		Undecided	15	4.3%			
		Total	349	100%			
7	If you use ITNs, do you maintain them (e.g., washing, repairing)?	Yes	249	71.3%	4.14	0.85	Agree
		No	56	16.0%			
		Undecided	44	12.6%			
		Total	349	100%			
8	How often do you check your ITN for holes or damage?	Regularly	144	41.3%	3.62	1.12	Agree
		Occasionally	96	27.5%			
		Rarely	74	21.2%			
		Never	35	10.0%			
		Total	349	100%			
9	Do you keep your ITN properly when not in use to avoid damage?	Yes	288	82.5%	4.51	0.79	Agree
		No	36	10.3%			
		Undecided	25	7.2%			
		Total	349	100%			
10	Have you ever repaired an ITN that was damaged?	Yes	129	37.0%	3.44	1.09	Agree
		No	199	57.0%			
		Undecided	21	6.0%			
		Total	349	100%			
	Grand Mean				3.93	0.95	Agree

Source: Field Survey, 2024

Table 3 summarizes the responses regarding residents' practices with ITNs. The data reveals mixed but predominantly positive practices. A slight majority (53.3%) use ITNs regularly, though a significant portion (42.4%) do not, indicating room for improvement in regular usage. Maintenance of ITNs, such as washing or repairing, was reported by 71.3%, reflecting commendable habits among most users. Regarding inspection for damage, 41.3% check their ITNs regularly, while others do so occasionally (27.5%) or rarely (21.2%). Encouraging more regular checks can enhance the lifespan and effectiveness of ITNs. Proper storage of ITNs is widely practiced, with 82.5% taking measures to avoid damage when not in use. However, repairing damaged ITNs appears less common, with only 37.0% having done so, suggesting limited knowledge or resources for repair activities. The grand mean score of 3.93 reflects overall positive practices concerning ITNs, though targeted efforts to address gaps, particularly in regular use and repair practices, could further enhance the effectiveness of ITNs in malaria prevention.

Test of Hypothesis

Hypothesis One

There is no significant relationship between the attitude of individuals in Jauro Yinu Ward on ITN devaluation based on educational level.

Level of Significance: The hypothesis was tested at the 5% level of significance. Test of Statistics: The test statistics revealed that the P-value is 0.0035 and the df = 4.

Decision: The test statistics have fallen into the rejection area since the P-value is less than 0.05. Therefore, the null hypothesis is rejected. It can then be concluded that there is a significant relationship between the attitude of individuals in Jauro Yinu Ward on ITN devaluation based on educational level.

Table 4: Hypothesis One - Relationship between Attitude on ITN Devaluation and Educational Level

Statement	N = 349	Test Statistic	P-value	df	Conclusion
Relationship between attitude on ITN devaluation and educational level	349	Pearson Correlation	0.0035	4	Rejected ($P < 0.05$)

Note: The P-value of 0.0035 is less than 0.05, indicating a significant relationship between the attitude of individuals in Jauro Yinu Ward on ITN devaluation based on educational level.

Hypothesis Two

There is no significant relationship between the attitude of individuals in Jauro Yinu Ward on ITN devaluation based on gender.

Level of Significance: The hypothesis was tested at the 5% level of significance.
 Test of Statistics: The test statistics revealed that the P-value is 0.487 and the $df = 2$.
 Decision: The test statistics have fallen into the acceptance area since the P-value is greater than 0.05. Therefore, the null hypothesis is accepted. It can then be concluded that there is no significant relationship between the attitude of individuals in Jauro Yinu Ward on ITN devaluation based on gender.

Table 5: Hypothesis Two - Relationship between Attitude on ITN Devaluation and Gender

Statement	N = 349	Test Statistic	P-value	df	Conclusion
Relationship between attitude on ITN devaluation and gender	349	Pearson Correlation	0.487	2	Accepted ($P > 0.05$)

Note: The P-value of 0.487 is greater than 0.05, indicating no significant relationship between the attitude of individuals in Jauro Yinu Ward on ITN devaluation based on gender.

Hypothesis Three

There is no significant relationship between the practice of ITN devaluation among residents of Jauro Yinu Ward based on gender.

Level of Significance: The hypothesis was tested at the 5% level of significance.
 Test of Statistics: The test statistics revealed that the P-value is 0.622 and the $df = 2$.
 Decision: The test statistics have fallen into the acceptance area since the P-value is greater than 0.05. Therefore, the null hypothesis is accepted. It can then be concluded that there is no significant relationship between the practice of ITN devaluation among residents of Jauro Yinu Ward based on gender.

Table 6: Hypothesis Three - Relationship between Practice of ITN Devaluation and Gender

Statement	N = 349	Test Statistic	P-value	df	Conclusion
Relationship between practice of ITN devaluation and gender	349	Pearson Correlation	0.622	2	Accepted ($P > 0.05$)

Note: The P-value of 0.622 is greater than 0.05, indicating no significant relationship between the practice of ITN devaluation among residents of Jauro Yinu Ward based on gender.

The study sought to assess the attitudes and practices of residents in Jauro Yinu Ward regarding the use of insecticide-treated nets (ITNs) for malaria prevention. The findings reveal several important insights into how demographic variables influence ITN use and how perceptions translate into actual preventive behaviors. The demographic profile of the respondents showed a predominantly female (76%) and youthful (57.3% aged 18–24 years) population, with a high level of tertiary education (73.3%). This is consistent with studies that indicate younger, educated populations are more receptive to public health messaging [1], [3]. Attitudinally, the study found a strong consensus on the effectiveness and necessity of ITNs in preventing malaria. A significant proportion (86.5%) agreed that ITNs are essential for malaria prevention, and 78.2% believed that sleeping under them every night is necessary. These positive attitudes reflect high awareness levels, possibly resulting from intensified health campaigns and community-based interventions in the region [2]. However, practices lag behind attitudes. Although 53.3% reported using ITNs regularly, a substantial 42.4% did not, revealing a gap between knowledge and action. Maintenance behaviors such as proper storage (82.5%) and occasional inspection (41.3%) were more common, but only 37% had repaired damaged ITNs, suggesting limitations in resources or awareness about ITN upkeep. This aligns with previous research showing that behavioral change is more challenging than attitudinal change and requires ongoing reinforcement [4]. Statistical tests further revealed a significant relationship between educational level and attitude towards ITN devaluation ($p = 0.0035$), highlighting the role of education in shaping health-related behavior. On the other hand, no significant relationships were found between gender and attitude ($p = 0.487$) or gender and practice ($p = 0.622$), suggesting that interventions should prioritize education and awareness over gender-targeted messaging in this community. Strengthen Behavior Change

Communication (BCC): Public health campaigns should move beyond awareness to focus on behavior reinforcement strategies that promote consistent ITN use and maintenance. Enhance Community Education Programs, since education significantly influences attitudes, integrating malaria education into school curricula and adult literacy programs could foster more consistent ITN use [8]. Provide Training on ITN Maintenance, Workshops or community health sessions should be organized to teach residents how to inspect, store, and repair ITNs, especially among those with limited technical knowledge. Monitor and Evaluate ITN Distribution Programs, Regular monitoring should assess not just ITN ownership but also usage and condition, ensuring that distributed nets are both used and maintained properly. Address Perceived Side Effects, with nearly half (48.4%) reporting side effects from ITN use, targeted education should address myths and offer practical solutions to improve user comfort and acceptance [9]. This study demonstrates that while attitudes toward insecticide-treated nets among residents of Jauro Yinu Ward are largely positive, there is a disconnect between beliefs and consistent preventive practices. Education level significantly affects attitudes, underscoring the need for targeted awareness and training efforts [10]. Although gender was not a significant factor in ITN use or attitudes, the role of education and practical knowledge is critical in influencing long-term behavior [11]. Bridging the gap between knowledge and practice through sustained education, community engagement, and supportive policies is essential for reducing malaria transmission and improving public health outcomes in the region.

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