

Attitude and Practice of the Use of Insecticide-Treated Nets among the Internally Displaced Persons in Fulatari Camp of Monguno Local Government Area of Borno State, Northeast Nigeria

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ABSTRACT

Internally Displaced Persons (IDPs) in Fulatari Camp, Borno State, face elevated risks of malaria due to overcrowded conditions and limited healthcare. Insecticide-Treated Nets (ITNs) are a critical preventive tool; this study assessed the attitudes and practices of ITN utilization among the camp's residents. Using a cross-sectional design, data was gathered through structured interviews and observations. Findings reveal mixed perceptions of ITN efficacy: 57.5% of respondents believed ITNs prevent malaria, while 14.75% disagreed, and 2.75% remained neutral. Although 53% expressed confidence in ITNs as protection against malaria, 47% lacked confidence. Comfort levels varied, with 64.75% feeling comfortable using ITNs, but 35.25% reported discomfort, citing issues such as rolling out during sleep, skin rashes from new nets, feelings of suffocation, and inadequate space in their tents. Most respondents (69.5%) had no concerns, while 30.5% expressed fears primarily related to first-time use or net design. Community attitudes strongly influenced individual views, with 74.75% stating positive community perceptions enhanced their willingness to use ITNs. Among users, 75.75% reported positive experiences, though some cited challenges like chemical irritation or mosquito bites when in contact with nets. ITN usage rates were moderate, with 61% currently using them. Of non-users, 24% cited unavailability, while 12.25% reported lack of awareness. Regarding usage frequency, only 25% used ITNs nightly, 36.75% most nights, and 29.25% occasionally. The study recommended awareness campaigns through Increase education on the importance of consistent ITN use. Improved distribution of ITN by Ensuring adequate and equitable ITN availability in camps. Provision of user-friendly ITNs suitable for camp conditions. Enhance community engagement leveraging in positive attitudes within the community to promote ITN adoptions.

Keywords: Insecticide-Treated Nets, Internally Displaced Persons, Malaria, Northeast Nigeria, Attitude, Practice.

INTRODUCTION

The humanitarian crises in Northeast Nigeria, driven by insurgency and mass displacement, have significantly strained public health systems, heightening the vulnerabilities of affected populations. Among the health risks facing Internally Displaced Persons (IDPs), malaria remains a critical threat. Overcrowded living conditions,

poor sanitation, and limited healthcare access foster environments conducive to malaria transmission. Insecticide-Treated Nets (ITNs) are a cornerstone of malaria prevention efforts, but their success relies on the acceptance and proper use by the IDP community (Olukosi, 2018).

Fulatari Camp in Monguno Local Government Area, Borno State, highlights the complexities of healthcare delivery in IDP settings. Hosting a diverse population displaced by conflict, the camp's transient and challenging conditions underscore the importance of addressing barriers to effective ITN use (Varkevisser, 2011). Vulnerable groups, including pregnant women and children under five, face heightened risks of severe malaria complications, making ITNs not just preventive tools but vital lifelines (National Malaria Elimination Programme Nigeria, 2014).

The successful adoption of ITNs depends on community attitudes, understanding, and consistent use. Cultural beliefs and perceptions about ITNs often shape practices, influencing their effectiveness. Tailoring interventions to align with the socio-economic realities and cultural context of IDPs is crucial (Escalante, 2019).

This study explores the knowledge, attitudes, and practices of ITN use among IDPs in Fulatari Camp. It aims to assess malaria awareness, examine perceptions of ITNs, and observe their utilization within households. The findings will inform strategies to improve ITN distribution and foster sustained malaria prevention (Singh, 2013).

Research Design

This study employs Sequential Exploratory Design, a mixed-methods approach that combines quantitative and qualitative research to provide a comprehensive understanding of ITN utilization among Internally Displaced Persons (IDPs) in Fulatari Camp, Borno State. The research unfolds in two phases: the initial quantitative phase collects and analyzes data to identify patterns, associations, and trends, offering a broad overview of the research problem. This is followed by a qualitative phase, which delves deeper into the findings, providing context and insight into the observed relationships.

By integrating quantitative breadth with qualitative depth, this design enables a thorough exploration of attitudes and practices regarding ITNs. The approach ensures that the study captures not only statistical associations but also the underlying perspectives and experiences of the IDP community, making it a robust method for addressing complex public health challenges in displacement settings.

Study Setting

The study focuses on Fulatari IDP Camp, located in Monguno Ward of Monguno Local Government Area, Borno State, in Northeast Nigeria. This camp was established in 2019 to accommodate individuals displaced by the decade-long Boko Haram insurgency. The residents of Fulatari Camp hail primarily from towns such as Baga, Keken, Mile-Forty, Mile-Ninety, Baruwati, Cross-Kauwa, and Doron-Baga, all in Kukawa Local Government Area.

The camp's population comprises predominantly Kanuri, Kanumbu, Shuwa Arab, Fulani, and Hauwa Fulani ethnic groups, with farming being their main occupation. Displacement has uprooted them from their ancestral homes, compelling them to adapt to life in the camp under challenging circumstances. Fulatari Camp represents a microcosm of the broader humanitarian and public health challenges faced by displaced communities in the region, making it a crucial focus for this study on ITN utilization and malaria prevention.

Target Population.

The estimated population for the Fulatari Camp according to United Nations Immigration Organization (IOM) data Matrix round 43 registration conducted 2023 was 8,896 people.

Sample and Sample Technique

The method adopted is probability sampling technique specifically the simple random sampling. This is where every member of the population has an equal chance of being selected as part the sample.

Instrument for Data Collection

Structured Questionnaire

A structured questionnaire is the standardized research instrument designed to collect quantitative data through a predetermined set of questions asked to each participant. This is type of questionnaire follows a formal structure with closed-ended questions typically in the form of multiple-choice questions or Likert scales.

A self-developed structured questionnaire is the instrument used for the data collection. The questionnaire is based on the research questions divided into five sections, section A deals with demographic data of the respondents, section B level of awareness among Internally Displaced Persons (IDPs) in Fulatari Camp regarding the importance of using insecticide-treated nets (ITNs) for the prevention of malaria, section C composed of the prevailing attitudes of IDPs in Fulatari Camp towards the use of Insecticide-Treated Nets (ITNs) for malaria prevention, section D comprises of the practices of internally displaced persons (IDPs) in Fulatari Camp regarding the utilization of Insecticide-Treated Nets (ITNs), whereas section E deals the main barriers that internally displaced persons (IDPs) in Fulatari Camp face in effectively utilizing Insecticide-Treated Nets (ITNs) for malaria prevention 2.

Interviews

This is described as a face-to-face interaction situation in which a person (the interviewer) asks another person (the interviewee) the questions which he/she responded to orally. This method permits the researcher to obtain directly first-hand information about a person's knowledge, his/his values, experience as well as their attitudes and beliefs. It is a method that provides immediate feedback and gives the opportunity to ask questions which arises from other questions.

Data Analysis and Procedures

A simple percentage method will be used to analyze the data collected and information gathered was presented in a tabular form. Through these methods, such question would separately be analyzed, based on the answers supplied. This would be done to foster easy and clear understanding of the work. The data collected were analyzed and presented using tables, frequency, and percentage.

Ethical Considerations

Informed consent (oral) was obtained from the respondents prior to the collection of data, and they were informed that all information obtain will be used for the purpose of research and were treated with strict privacy, respect, and all degree of confidentialities.

RESULTS

Table. 4.1. 1 Population and the Demography of the Internally displaced person under study.

S/N	OPTION	VARIABLES	FREQUENCY	PERCENTAGE
1.	AGE	18-24	53	13.25%
2.		25-34	101	25.25%

3.		35-44	155	38.75%
4.		45-54	45	11.25%
5.		55 & above	46	11.50%
6.		TOTAL	400	100%

Soures: IOM Displacement Matrix Round 40 conducted in 2023.

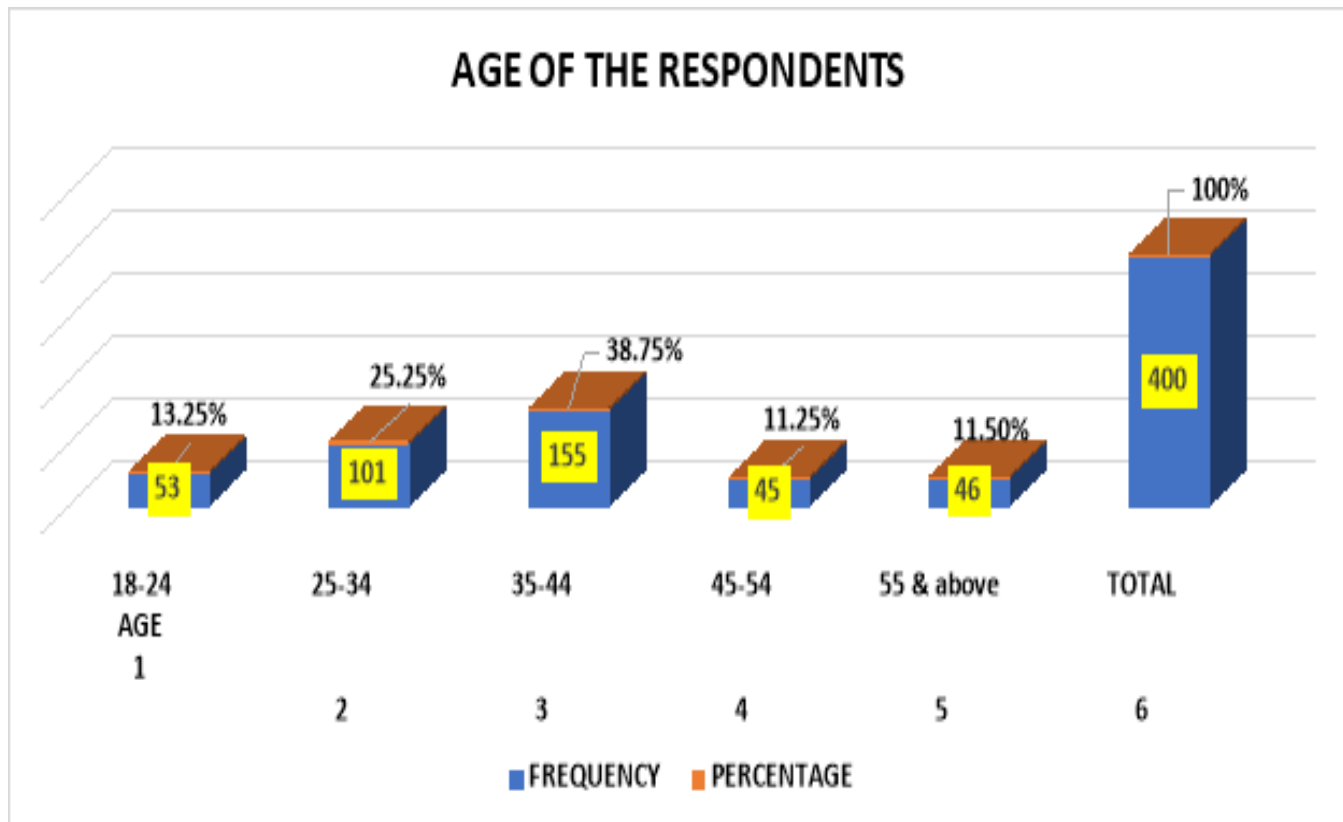


Chart 1.1 Shows the Age of the respondents:

Interpretation: from the above table and chart, (Chart and Table 4.1), most of the respondents (38.75%) were between 35-44 age brackets. While the lowest percentage of the respondents (11.25%) fallen between 45-54 ages categories. 13.25% of the respondents were in the age range 18-24, whereas 11.5% of the respondents were between the age of 55 and above respectively.

Table 4.1.2 Gender of the Population Under study.

1.	GENDER	VARIABLES	FREQUENCY	PERCENTAGE
2.		MALE	196	49.00%
		FEMALE	200	50.00%
3.		NOT SPECIF	4	1.00%
		TOTAL	400	100%

Source: Filed Work Data Findings. 2023.

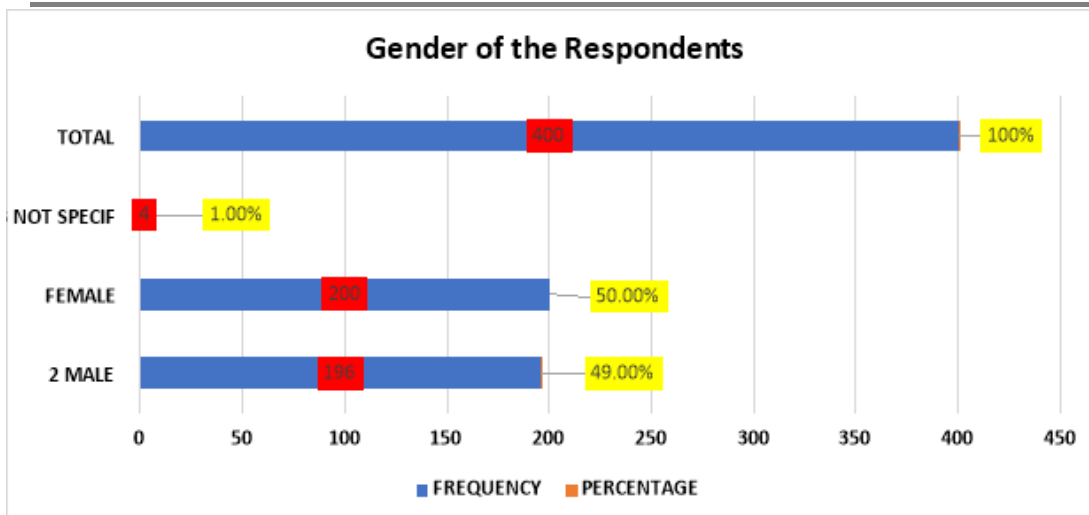


Chart 1. 2 Shows the Gender of the Respondents.

Interpretation: based on the findings as emanated from the table and chart above (Table 4.2 and chart 4.2). Most of the respondents (200/400) taking a total percentage of 50.00% were female by gender. 49.00% of the respondents (196/400) were males. The lowest percentage of the respondents indicated not specify having a total of 1.00% which corresponded to the total of (4/400) of the respondents.

Table 4.1.3 Educational Level of the Population Under Study.

1	EDUCATION	VARIABLES	FREQUENCY	PERCENTAGE
2.		ARABIC EDUCATION	355	88.75%
3.		PRIMARY EDUCATION	34	8.5%
4.		SECONDARY EDUCATION	11	2.75%
5.		TERTIARY EDUCATION	0	00.00%
6.		TOTAL	400	100%

Source: Filed Work Data Findings 2023.

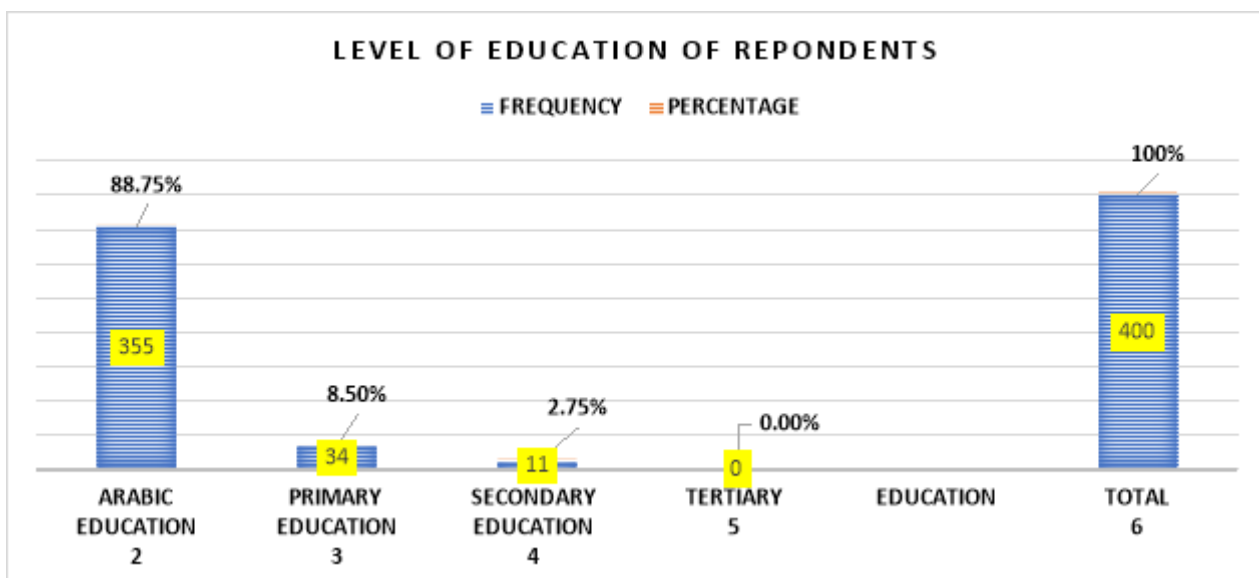


Chart 1.3 Shows Level of Education of the respondents.

Interpretation: from the table and chart above (Table 4.3 and chart 4.3). many of the respondents (355/400) having the value 88.75% attended Arabic education. 8.50% of the respondents have attended and obtained elementary level of education, that is (34/400). 2.7% of the respondents attended secondary level of education while none of the respondents attended tertiary level of education.

Table 4.1.4 Internally Displaced Persons Durations of Stay in Fulatari Camp.

1.	DURATION OF IDPS STAY IN FULATARI CAMP	VARIABLES	FREQUENCY	PERCENTAGE
2.		<i>LESS THAN 10 MONTHS</i>	20	5.00%
3.		<i>12 MONTHS TO 2 YEARS</i>	77	19.25%
4.		<i>1-3 YEARS</i>	68	17%
5.		<i>MORE THAN 4 YEARS</i>	235	58.75%
6.		TOTAL	400	100%

Source: Filed Work Data Findings.2023

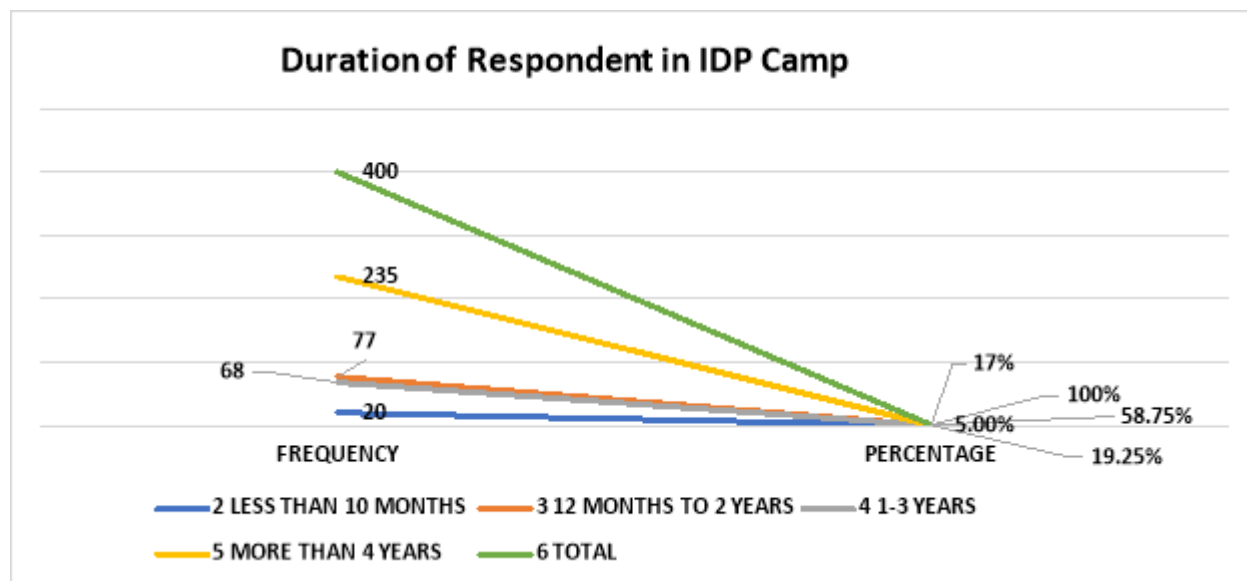


Chart 1.4 Shows the Line graph of Duration of the respondent in IDP Camp.

Interpretation: the above data from the table and chart labelled table 4.1.4 and chart 4.1.4 indicated that the high number and percentage of respondents lived for more than 4 years long in Fulatari camp of Monguno Local government Area of Borno state (58.75%). While 19.25% lived for 12 months and up to 2 years duration in the Fulatari Camp. 17% lived for 1 to 3 years within the camp, and 5% of the respondents lived for less than 10 months in the camp accordingly.

Table 4.1.5 Occupation of the population under Study.

S/N	OCCUPATION	VARIABLES	FREQUENCY	PERCENTAGE
1.	OCCUPATION	PETTY TRADER	66	16.5%
2.		FISHERMEN/WOMEN	244	61.00%

3.		FARMERS	70	17.5%
4.		PUBLIC SERVANT	1	0.25%
5.		AID WORKER/VOLUNTEER	19	4.75%
6.		TOTAL	400	100%

Source: Filed Work Data Findings.2023.

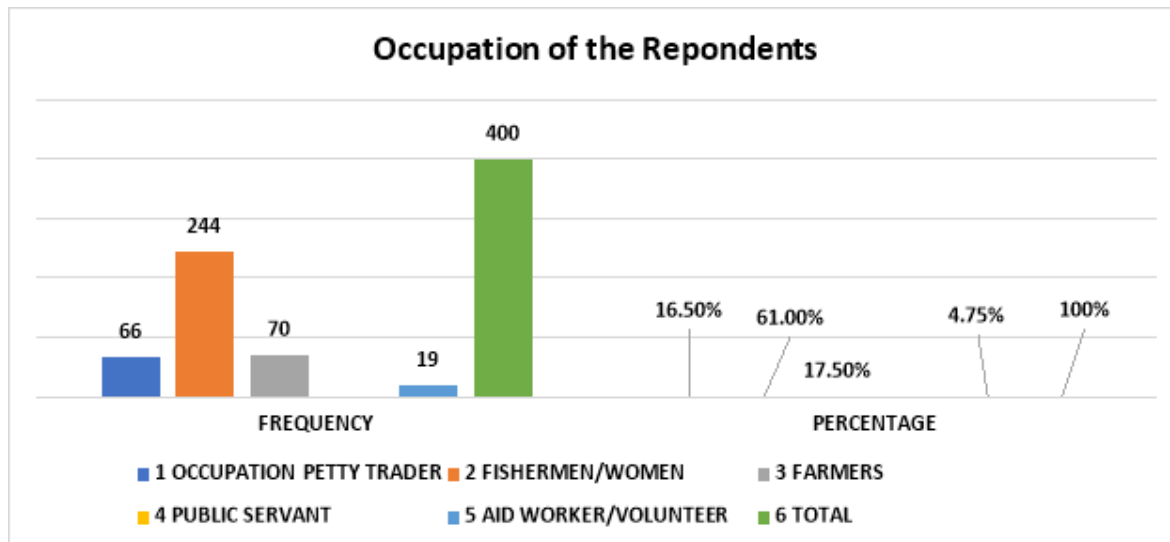


Chart 1. 5 shows the occupation of the respondents.

Interpretation: the data from the table and chart (Table 4.1.5 and Chart 4.1.5) represent the occupation and engagement of the population under study. Most of the respondents (61.00%) were fishermen/women having a total of 244/400. 17% of the respondents were farmers (70/400). 16.50% were petty traders (66/400). 4.75% (19/400) of the respondents indicated were aid workers and or volunteers in the camp. The lowest percentage (0.25%) i. e 1/400 was a public servant respectively.

Table 4.3 prevailing attitudes of IDPs in Fulatari Camp towards the use of Insecticide-Treated Nets (ITNs) for malaria prevention.

S/N	OPTIONS	VARIABLES	FREQUENCY	PERCENTAGE
1.	<i>On a scale from 1 to 5, how strongly do you agree with the statement: "Using Insecticide-Treated Nets (ITNs) is important for preventing malaria"?</i>	<i>(a) Strongly Disagree</i> <i>(b) Disagree</i> <i>(c) Neutral</i> <i>(d) Agree</i> <i>(e) Strongly Agree</i>	111 59 11 154 76 Total: 400	27.75% 14.75% 2.75% 38.50% 19.00% 100%
2.	How confident are you that using insecticide-treated nets can effectively protect you and your family from mosquito-borne diseases?	(a) very confident (b) Not Confident (c) (c) other	212 188 0 Total: 400	53.00% 47.00% 0 100%

3.	Do you find sleeping under an insecticide-treated net comfortable?	(a) Yes (b) No	259 141 Total: 400	64.75% 35.25% 100%
4.	Are there any concerns or fears you associate with using insecticide-treated nets?	(a) Yes (b) No	122 278 Total: 400	30.50% 69.50% 100%
5.	if yes, what are the worries?	“am not comfortable inside the net because of the nature of how I sleep, ‘I roll out of the net in some occasions” “ I one’s used ITNs it, and rashes appeared on my skin, because it is new”. “ I felt like suffocating sometimes when am inside the net”. “ the size of my tent in the camp does not allow for the complete net to be tight up.” “ the size of the net mesh is bigger and can allow flies to move inside the net”. NO	44 34 10 12 22 278	4.75% 8.50% 2.50% 3.00% 5.50% 69.50%
6.	How much do you think the Camp community's attitude toward insecticide-treated nets affects your own views on using them?	(a)Positively Affect strongly. (b)Negatively affect strongly. (c) Others.	299 101 0 Total: 400	74.75% 25.25% 0 100%
7.	Have you or anyone you know had positive or negative experiences with insecticide-treated nets?	(a)Yes, positive (b) yes Negative	303 97	75.75% 24.25%
8.	if Negative experience, how has this influenced your attitude?	“the chemical in the net can cause rashes to some people sometimes they said”. “Mosquitoes sometimes stick on the net and when in contact with net bites”. NO.	45 52 303	11.25% 13.00% 75.75%
9.	How likely are you to continue using insecticide-	(a) Highly Likely (b) Not Likely	196 117	49.00% 29.25%

	treated nets in the future?	(c) Possible	87	21.75%
		(d) partially	0	0
		(e) others.....	0	0
		Total; 400	100%	

Source: Field Work Data Findings.2023.

Interpretation: The findings reveal varied attitudes among IDPs in Fulatari Camp regarding the use of Insecticide-Treated Nets (ITNs) for malaria prevention. While 38.5% agreed and 19% strongly agreed that ITNs prevent malaria, 27.75% strongly disagreed, 14.75% disagreed, and 2.75% remained neutral, indicating mixed perceptions about ITN effectiveness.

Confidence in ITNs protecting families from malaria was reported by 53% of respondents, while 47% lacked confidence. Comfort levels were higher, with 64.75% feeling comfortable sleeping under ITNs, although 35.25% did not. Notably, 30.5% expressed concerns about ITN use, citing issues such as discomfort due to sleeping positions (4.75%), skin reactions to new nets (8.5%), feelings of suffocation (2.5%), improper tent sizes (3%), and oversized mesh allowing insects inside (5.5%). Despite these concerns, 69.5% reported no significant fears or discomfort with ITN use.

The camp community's attitude positively influenced 74.75% of respondents' views on ITNs, while 25.25% felt negatively impacted. Additionally, 75.75% of respondents had positive experiences with ITNs, with 24.25% reporting negatives, such as chemical-related reactions (11.25%) or mosquito bites through the net (13%).

Looking ahead, 49% indicated a high likelihood of continued ITN use, 29.25% were unlikely to continue, and 21.75% were unsure. These findings highlight the need for targeted interventions to address misconceptions, improve ITN accessibility, and provide education on proper usage, ensuring malaria prevention efforts are both effective and sustainable.

Table 4.4 The common practices of internally displaced persons (IDPs) in Fulatari Camp regarding the utilization of Insecticide-Treated Nets (ITNs).

S/N	OPTIONS	VARIABLES	FREQUENCY	PERCENTAGE
1.	<i>Do you currently use an Insecticide-Treated Net (ITN) for sleeping?</i>	(a) Yes	244	61.00%
		(b) No	156	39.00%
2.	<i>If no, what are the reasons for not using ITNs?</i>	(a)Lack of awareness	49	12.25%
		(b)Uncomfortable to use.	11	2.75%
		(c) Not readily available	96	24.00%
		(d)Don't perceive malaria as a significant threat.	0	0
			0	0
		(e) Others	244	61.00%
		YES	Total: 400	400
3.	<i>How often do you sleep under an ITN?</i>	(a) Every night	100	25.00%
		(b) Most nights	147	36.75%

	<i>(c) Occasionally</i>	117	29.25%
	<i>(d) Rarely</i>	36	9.75%
	<i>(e) Never</i>	0	
		Total: 400	100%

Source: Field Work Data Findings.2023.

Interpretation: The data highlights the ITN usage practices among IDPs in Fulatari Camp. A significant 61% of respondents reported using ITNs while sleeping, while 39% did not. Among non-users, 24% cited the unavailability of ITNs as the primary reason, 12.25% pointed to a lack of awareness, and 2.75% mentioned discomfort.

Regarding frequency of use, 25% of respondents used ITNs every night, 36.75% used them most nights, 29.25% occasionally, and 9.75% rarely. These findings indicate that while ITN use is relatively common, with 36.75% consistently using them, challenges such as accessibility, awareness, and comfort need to be addressed to ensure broader and more consistent usage, enhancing malaria prevention efforts.

DISCUSSIONS OF FINDINGS:

The data provides insight into the prevailing attitudes and practices of internally displaced persons (IDPs) in Fulatari Camp concerning the use of insecticide-treated nets (ITNs) for malaria prevention. Notably, 38.5% of respondents agreed that ITNs are effective in preventing malaria, with an additional 19% strongly agreeing. Conversely, 42.5% either disagreed or strongly disagreed, while 2.75% remained neutral. These mixed perceptions indicate the need for intensified awareness campaigns about the effectiveness of ITNs, corroborating findings from previous studies (Olukosi, 2018; Escalante, 2019) that emphasize knowledge gaps as a barrier to ITN acceptance.

Confidence in ITN efficacy was another key factor, with 53% expressing confidence in ITNs as protective measures, while 47% lacked such confidence. Comfort levels with ITN use were encouraging, as 64.75% felt comfortable sleeping inside nets. However, concerns persisted among 30.5% of respondents, citing issues like discomfort due to movement during sleep, skin irritation from new nets, and insufficient space to secure the nets properly. This aligns with earlier research by Singh (2013), which highlights practical challenges in ITN adoption.

Community attitudes toward ITNs appeared to significantly influence individual perceptions. Approximately 74.75% of respondents believed the positive attitudes within their camp encouraged ITN use, while 25.25% felt negatively impacted. This underscores the importance of fostering communal advocacy and peer influence to strengthen ITN uptake.

Practically, 61% of respondents reported using ITNs while sleeping, while 39% did not. Among non-users, 24% cited unavailability, 12.25% mentioned a lack of awareness, and 2.75% reported discomfort. Usage frequency varied, with 36.75% using ITNs most nights, 25% every night, 29.25% occasionally, and 9.75% rarely. These findings echo Varkevisser (2011), who stressed the role of accessibility and regular use in ITN efficacy.

RECOMMENDATIONS

To improve the utilization of Insecticide-Treated Nets (ITNs) among internally displaced persons (IDPs) in Fulatari Camp, targeted interventions are essential. First and foremost, awareness campaigns should be prioritized. These campaigns must go beyond simply distributing ITNs, focusing instead on educating IDPs about their health benefits in culturally relevant ways. By addressing prevailing misconceptions and building confidence in the effectiveness of ITNs as a malaria prevention tool, these programs can foster greater acceptance and regular usage within the community.

Equally important is ensuring a steady and equitable supply of ITNs in the camp. The lack of availability reported by 24% of respondents highlights the need for an improved distribution system that ensures all households have access. This effort should also include regular monitoring to identify and fill gaps promptly, guaranteeing that no one is left unprotected.

Community advocacy can play a transformative role in normalizing ITN use. Engaging respected community leaders and peer influencers can amplify positive attitudes and encourage adoption across diverse groups within the camp. These local champions can act as role models and trusted sources of information, reinforcing the importance of ITNs and dispelling fears or doubts.

Lastly, the design of ITNs should consider the unique challenges faced by IDPs. For instance, space constraints in overcrowded shelters and individual comfort issues can hinder regular use. Providing user-friendly, adaptable ITNs that accommodate these specific needs will enhance both comfort and practicality, increasing the likelihood of consistent utilization.

Together, these strategies can address the multifaceted barriers to ITN use, ultimately safeguarding the health of IDPs and reducing the prevalence of malaria in the camp.

CONCLUSION

In conclusion, the effective utilization of Insecticide-Treated Nets (ITNs) among internally displaced persons in Fulatari Camp hinges on addressing key barriers such as awareness, accessibility, and usability. While many respondents recognize the importance of ITNs in malaria prevention, challenges related to misconceptions, supply gaps, and comfort persist. By implementing culturally tailored education campaigns, ensuring equitable distribution, engaging community advocates, and introducing adaptable ITN designs, these obstacles can be mitigated. Such comprehensive and context-sensitive interventions will not only enhance ITN usage but also contribute significantly to reducing the burden of malaria, ultimately improving the health and resilience of this vulnerable population.

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