

Attitudes and Practices towards utilization of insecticide-treated nets in malaria prevention among residents of Mutungo Zone IV in Kampala district.

A cross-sectional study.

Jonathan Edward Lwanga*, Claire Mukomuzibu, Jane Frances Namuddu
Lubaga Hospital Training Schools

Page | 1

Abstract

Background

Insecticide-Treated Nets (ITNs) are a proven intervention for malaria prevention, yet their utilization falls short of universal coverage targets. Attitudes and practices (AP) play a great role in determining ITN use. This study aimed to determine Attitudes and Practices towards utilization of ITNs in malaria prevention among residents of Mutungo Zone IV in Kampala district.

Methodology

The study was a cross-sectional study design that involved a quantitative data collection method. 30 participants were selected using a simple random sampling method. Data was collected using semi-structured questionnaires consisting of open and closed-ended questions, and data was analyzed and presented in tables, graphs, and pie-charts where frequencies and percentages were used.

Results

21(70%) were female, 21(70%) were married. The attitude related to utilization of ITNs was negative, as the majority of the respondents (66.3%) reported that ITNs can make one suffocate when slept in them, and only 33.3% reported that ITNs cannot make one suffocate (positive attitude). 22(73.3%) accepted that ITNs are safe for ill people. 21(70%) reported that ITNs cause skin itching when they come into contact with the body. Practices were good since (80%) regularly slept under ITNs, (93%) regularly washed their ITNs, (96.7%) always checked for holes in their ITNs, and (53.3%) always displayed their ITNs when entering the bed.

Conclusion

Respondents generally had a negative attitude towards the use of ITNs. Their Practices on the utilization of insecticide-treated bed nets were commendable, as the majority of the respondents indicated correct use of ITNs.

Recommendation

Health workers should ensure that community members get the right information on the use and efficacy of ITNs to rule out rumors such as ITNs can make one suffocate.

Keywords: Attitudes and Practices, Utilization of ITNs, Mutungo Zone IV in Kampala district.

Submitted: May 20, 2026 **Accepted:** June 30, 2026 **Published:** July 13, 2026

Corresponding Author: Jonathan Edward Lwanga

Email: jonathanedwardlwanga@gmail.com

Lubaga Hospital Training Schools.

Background of the study

Insecticide-treated Bed Nets (ITNs) are a form of personal protection or protective gear that repels and prevents mosquito bites that would cause malaria (Asumah et al., 2021). These act by physically inhibiting human-mosquito contact and by chemically deterring, irritating, and killing mosquitoes (Hawley et al., 2021). ITNs are one of the widespread, impactful, and cost-effective tools for combating malaria transmission in Africa (Acosta & Wisniewski, 2020). In 2015, the World health organization through Roll Back Malaria partnership aimed at reducing Malaria cases by 75% and deaths to near zero globally through universal coverage by effective preventive interventions, WHO recommended the use of Insecticide treated bed nets (ITNs) and these are cost effective, efficient and can reduce malaria by 50% as well as mortality by 17% (Johnson, et al., 2021).

Globally, though there has been distribution of ITNs, WHO (2019) reported that there was underutilization of ITNs globally, which shows a poor attitude and practices. This was evidenced by the actual ITNs utilization being between 70%-73% of which 80% was in urban areas and 57% in rural areas, and this was relatively below the WHO's target of 100% ITNs utilization. In addition, the general ITNs' utilization was relatively low in Asia (68%), whereas in Arabia, India, Japan, China, and Korea ranged between 65%-88%. In Indonesia, Bangladesh, Kazakhstan, and Turkmenistan, ITN use was less than 50% (WHO 2020).

In sub-Saharan Africa, many households lived without any ITN (38.7%), and access to ITNs was 56% in 2014. In 2015, household access to ITNs was 67% and usage was 46% in 2014 and 55% in 2015 among children under 5 years. (WHO, 2018). In East Africa, a study by Obol et al. (2019) about attitude and practice towards ITNs

utilization revealed that there was a very low level of effective ITNs utilization. Only 30%-50% were using their ITNs.

In Uganda, Obol et al. (2019) reported that among the residents of Gulu district who received ITNs under the massive national distribution programme, only 35% utilized them. This reflects an underutilization of ITNs even after receiving them. A similar situation is reported in Mutungo Zone IV, which prompted the researcher to conduct research in that specific area, aiming at assessing the attitude and practices of residents towards utilization of ITNs. Therefore, the objective of this study was to determine Attitudes and Practices towards the utilization of ITNs in malaria prevention among residents of Mutungo Zone IV in Kampala district.

Methodology

Study design and rationale

The researcher intended to use a descriptive cross-sectional design because it enabled the researcher to describe the knowledge, attitude, and practices of respondents and to examine the relationship of these variables. Quantitative method of data collection was employed. Quantitative data collection involves the use of numerical values to assess information. The entire design was chosen because it enabled the researcher to obtain data at one point in time.

Study setting and rationale

The study was community-based, and it was conducted in Mutungo Zone IV village, located in Mutungo parish, Nakawa division, County in Kampala district. The area is situated 20 km away from the center of Kampala, and it has a population of over 5000 people.

This area was chosen because it is marked among the zones with a higher number of Malaria cases in Nakawa division sub-county. Furthermore, it was chosen because respondents are readily available to be involved in the study.

Study population

The study population included community members of Mutungo Zone IV who were above 10 years of age.

Sample size determination

The sample size was determined according to UNMEB guidelines 2009, which stated that the appropriate sample size should be not less than 30 respondents. Therefore, the study targeted 30 respondents.

Sampling procedure

Random sampling technique was employed. This technique was chosen for this study because it ensures that the sample is a representative of the study population, as well as reducing bias in the sample. This makes it possible for the researcher to obtain inferential statistics.

The process involved the researcher cutting 40 pieces of paper of similar size, and 30 were written on yes and the rest no. Eligible residents picked a single paper at random. Those who picked papers with the word yes took part in the study.

Inclusion criteria

The study included residents who were 10 years and above.

The study included residents who were not medical personnel.

The study included residents who had stayed in the area for at least 5 months.

The study included residents who were willing to participate.

The study included residents who were present at the time of the study.

Independent variables

Knowledge, attitude, and practices of Mutungo zone IV residents.

Dependent variable

Utilization of insecticide-treated bed nets.

Research instrument

The researcher used self-administered questionnaires with open and closed-ended questions to assess the knowledge, attitude, and practices of residents towards the utilization of ITNs in

Mutungo Zone IV.

Data collection procedure

Upon approval of the proposal by the supervisor and the principal tutor of Lubaga Hospital Training Schools, an introductory letter was obtained from Lubaga Hospital Training Schools to carry out the study in Mutungo Zone IV. The researcher presented the letter to the zone chairperson, who then drafted a letter of acceptance to enter the zone. Together with the chairperson, the researcher informed the respondents about the study; information that was expected from them, and assured them of confidentiality and anonymity. The researcher and research assistant pre-tested the questionnaire, and minor corrections were made to the questionnaire.

The researcher intended to collect data within 14 days.

Data Management

Questionnaires were first checked immediately for completion; any mistake was corrected, and editing was done on each day of data collection. Answered questionnaires were put in an envelope and kept in safe custody under lock and key, only accessible by the researcher

Data Analysis

Data collected was manually analysed and tallied. The results were processed using the Microsoft Word and

Excel programs for Windows. These processed and presented the information as frequency tables, figures, pie charts, and graphs.

Ethical consideration

Approval was obtained from the research supervisor; permission was acquired from the Principal of Lubaga Hospital Training Schools by obtaining an introductory letter. This was taken to the Mutungo Zone IV Chairperson, who granted the researcher permission. The study started with the researcher introducing and explaining the topic objectives to residents. He also informed them that participation was voluntary, with a consent form being signed. Confidentiality, enjoyment, and privacy of respondents over their information given were assured, and they used numbers instead of respondents' names.

Informed consent

Participants were provided with clear and easily comprehensible details about the study's purpose, objectives, procedures, potential benefits, and risks. They were informed of their voluntary participation, the freedom to withdraw at any point, and the assurance of confidentiality regarding their responses.

Results

Socio-demographic characteristics of respondents

In this section, the social demographic characteristics of respondents are presented and comprise gender, age, marital status, occupation, and education level.

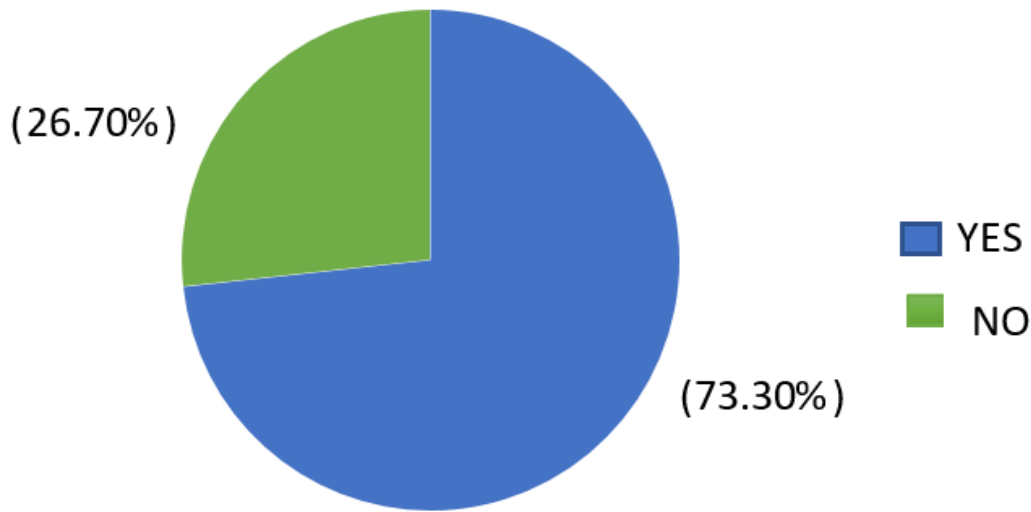
Table 1: distribution of respondents by social-demographic characteristics. n=30

Category	Variables	Frequency	Percentage (%)
Gender	Male	9	30
	Female	21	70
Age(years)	10-30	15	50
	31-40	9	30
	41-59	4	13.3
	>60	2	6.7
Marital status	Single	7	23.3
	Separated	0	0
	Married	21	70
	Divorced	0	0
	Widow/Widower	2	6.7
Occupation	House wife	0	0
	Peasant farmer	25	83.3
	Student	2	6.7
	Civil servant	3	10
Education	Primary	9	46.7
	Secondary	4	40
	Tertiary	3	10
	No formal education	14	3.3
TOTAL		30	100

From Table 1, out of 30 respondents that participated in the study, the majority, 21(70%), were female, and the minority, 9(30%), were male. majority 12(40%) were between 31-40years and the minority 4(13.3%) were between 10-30 years, most 21(70%) were married and the least 2(6.7%) were widow/widower. Majority of the respondents 25(83.3%) were self-employed and minority 2 (6.7%) were students majority of the respondents 14(46.7%), had a primary level of education, and the minority, 1(3.3%), did not have formal education.

Attitude of residents towards utilization of ITNs Are ITNs safe for ill people

Figure 1: Respondents' responses on whether ITNs are safe for ill people, n=30



Page | 4

From figure 1, the majority 22(73.30%) accepted that ITNs are safe for ill people, and the minority 8(26.70%) said that ITNs are not safe for ill people.

Can ITNs reduce mosquito bites?

Table 2: Distribution of respondents on whether ITNs can reduce mosquito bites, n=30

Variable	Category	Frequency(f)	Percentage (%)
Can ITNs reduce mosquito bites	Yes	29	96.7
	No	1	3.3
TOTAL		30	100

From Table 2 above, the majority of the respondents, 29(96.7%), agreed that ITNs can reduce mosquito bites; a minority, 1(3.3%), said that ITNs cannot reduce mosquito bites.

Can ITNs cause skin itching?

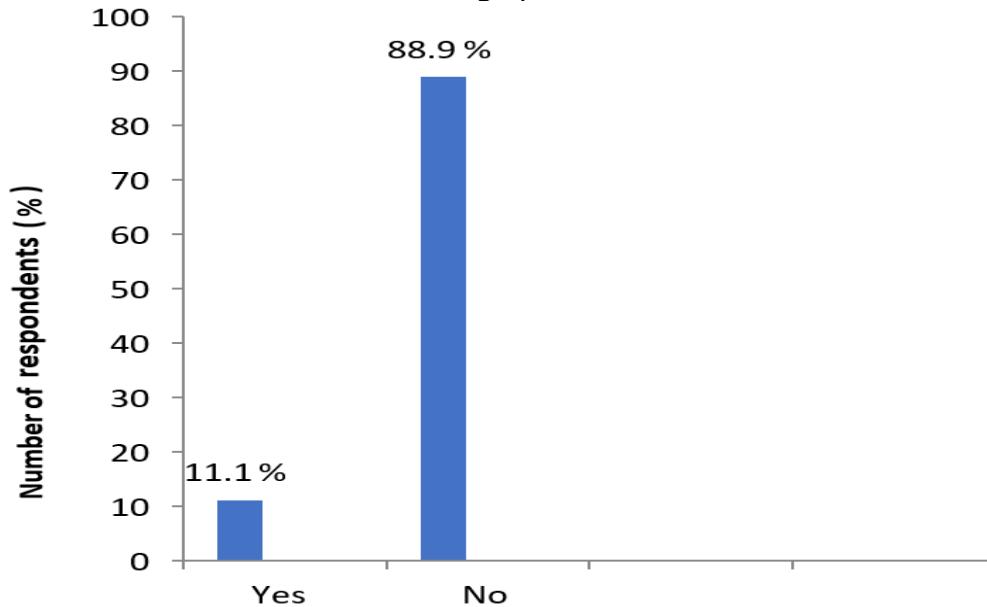
Table 3: Respondents' responses on whether ITNs cause skin itching, n=30

Variable	Category	Frequency(f)	Percentage(%)
Can ITNs cause skin itching?	Yes	21	70
	No	9	30
TOTAL		30	100

From Table 3, out of 30 participants, the majority of the respondents, 21(70%), reported that ITNs cause skin itching when they come into contact with the body, and a minority, 9(30%), reported that ITNs are safe and cannot cause skin itching.

Does it take much time to tuck the net each night?

Figure 2: Respondents' response on whether it takes much time to tuck the net each time at Night, n=30



From figure 2 above, the majority 24(88.9%) of the respondents said that it does not take much time to tuck the net each night, and a minority 3(11.1%) said it does not take much time to tuck the net each night.

Can ITNs lead to suffocation?

Table 4: Distribution of respondents on whether ITNs can lead to suffocation, n=30

Variable	Category	Frequency(f)	Percentage(%)
Can ITNs lead to suffocation?	Yes	19	63.3
	No	11	36.7
TOTAL		30	100

From table 4, out of 30 participants, 19(63.3%) of the respondents accepted that ITNs can lead to suffocation, and a minority of 11(36.7%) said that ITNs can lead to suffocation.

Do ITNs have a bad odour?

Table 5: Respondents' responses on whether ITNs have a bad odour, n=30.

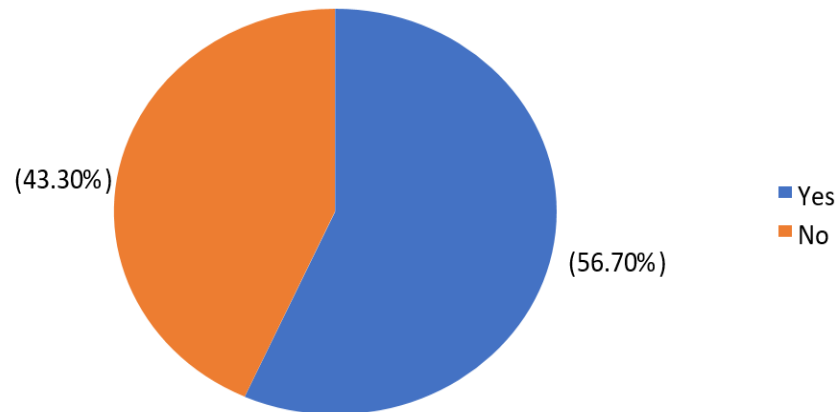
Variable	Category	Frequency(f)	Percentage (%)
Do ITNs have a bad odour?	Yes	12	40
	No	22	60
	TOTAL	30	100

From Table 5, the majority, 22(60%) of the respondents said that ITNs do not have a bad odour, and the minority, 12(40%) said that ITNs have a bad odour.

Are drugs used to treat ITNs unsafe?

Figure 3: Distribution of respondents' responses on whether drugs are used to treat ITNs are unsafe, n=30

Page | 6



From figure 3, out of 30 participants, 17(56.70%) of the respondents said that drugs used to treat the nets are unsafe, and the least 13(43.30%) said that drugs are safe.

Practices of residents towards utilization of ITNs Do you sleep correctly under ITNs?

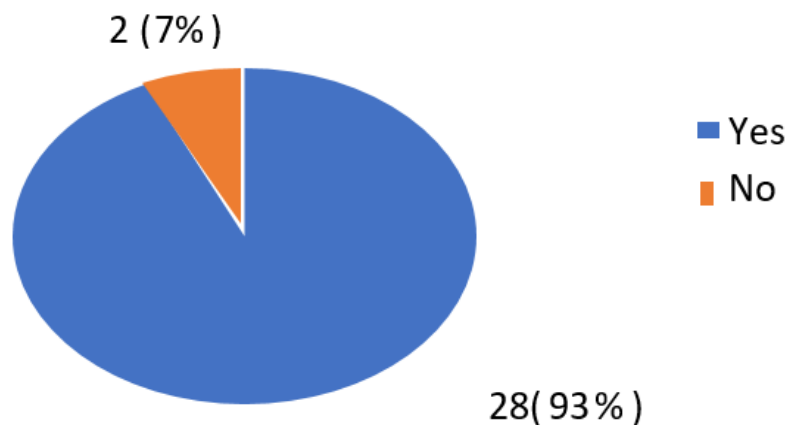
Table 6: Respondents' responses on whether do sleep correctly under ITNs, n=30

Variable	Category	Frequency (f)	Percentage (%)
Do you sleep correctly under ITNs?	Yes	24	80
	No	6	20
TOTAL		30	100

From table 6, out of 30 participants, 24(80%) agreed that they correctly sleep under ITN, and the minority 6(20%) reported that they incorrectly sleep under ITNs.

Do you wash your ITNs?

Figure 4: Distribution of respondents on whether they wash their ITNs, n=30



From Figure 4, the majority of the respondents, 27(93%), said that they thoroughly wash their ITNs, and a minority of 2(7%) said that they irregularly wash their ITNs.

How often do you wash your ITNs?

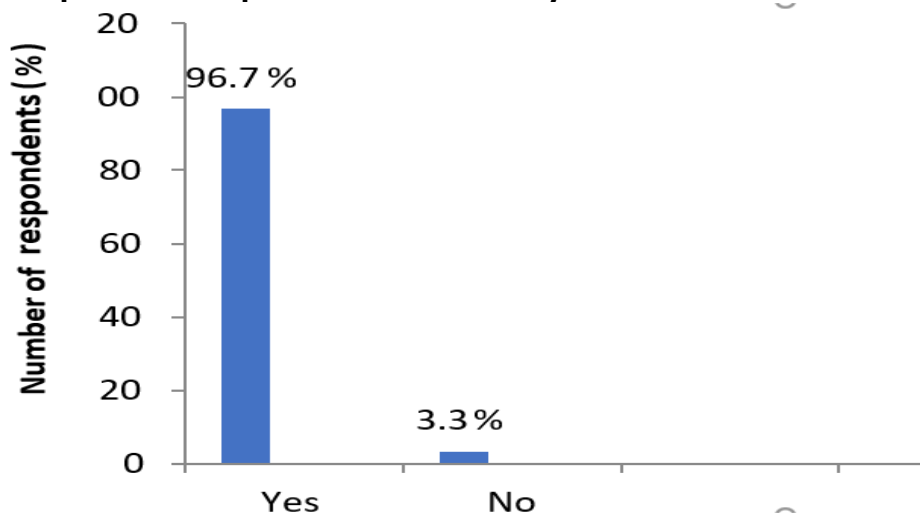
Table 7: Distribution of respondents on how often they wash their ITNs, n=30

Variable	Category	Frequency(f)	Percentage (%)
How often do you wash your ITNs?	After a month	17	56,7
	After a week	11	36,7
	After three months	2	6,6
	After six months	0	0
TOTAL		30	100

From table 7, the majority, 17(56.7%) of the respondents said that they wash their bed nets every month, and the minority, 2(6.6%) said after three months.

Do you always check for holes in you?

Figure 5: Respondents' responses on whether they check for holes in their ITNs, n=30



From figure 5, the majority, 29(96.7%) of the respondents accepted that they always check for holes in their ITNs, and the minority, 1(3.3%) said they do not usually check for holes in their ITNs.

At what time do you display your ITN?

Table 8: Distribution of respondents by what time they display their ITN, n=30

Variable	Category	Frequency(f)	Percentage (%)
At what time do you display your ITN?	When entering the bed	16	53.3
	Immediately when it gets dark	11	36.7
	When mosquitoes are too many	3	10
	Any time of convenience	0	0
	Others	0	0
TOTAL		30	100

From table 8, out of 30 participants, 16(53.3%) of the respondents said that they display their ITNs when entering the bed, and at least 3(10%) said when mosquitoes are many mosquitoes.

Discussion

Attitude of respondents towards utilization of ITNs

According to the findings, the majority of the respondents (73.3%) reported that Insecticide

Treated bed nets are safe for ill people, and the minority (26.7%) of the respondents said that ITNs are not safe for ill people. This implied that the majority of the respondents had a positive attitude towards the utilization of insecticide-treated bed nets. The results of the study are in disagreement with the study of Obol et al (2019), which revealed a negative attitude towards the utilization of ITNs. In his study, most of the respondents said that ITNs are not safe for critically ill patients because the chemicals in ITNs would worsen their condition.

The majority (96.3%) of respondents reported that ITNs reduce mosquito bites, and a minority (3.3%) of the respondents disagreed with the ITNs' ability to reduce mosquito bites. This is in agreement with studies by Runsewo et al. (2021) and Kulkarni et al. (2019), who revealed that 86.7% and 70% of their respondents, respectively, said that sleeping inside an ITN at night can effectively reduce mosquito bites.

According to the findings, the majority of the respondents (70%) reported that ITNs cause skin itching when they come into contact with the body, and the minority (30%) of the respondents agreed that ITNs do not cause skin itching. Skin itching may be due to hypersensitivity of the skin to insecticides within ITNs, and also to using the bed nets when they are still wet. However, pyrethroid, which is used to treat ITNs, is harmless to human life. The findings are in agreement with the study of Zangyipo and Poilsen (2020) carried out in Nigeria, which revealed that most people failed to make use of ITNs for complaints of itching, skin reaction, and visual interruption, which they thought was a result of the chemical composition in ITNs, which serves as a foreign body.

The majority of the respondents (88.9%) revealed that it does not take much time to tuck the net in each night. This implies that the majority of the respondents have a positive attitude towards the utilization of insecticide-treated bed nets. The results of the study are consistent with those of Kulkarni et al (2019), which found that the majority of the respondents (70%) reported that it did not take much time to tuck in the net to prevent mosquitoes from entering the net.

The majority of the respondents (63.3%) reported that Insecticide Treated bed nets can lead to suffocation, and only 36.7% revealed that Insecticide Treated bed nets cannot lead to suffocation. This implies that (63.3%) of the respondents had a negative attitude towards the utilization of ITNs and therefore were not expected to be using them fully and consistently.

This is similar to the study done by Ukibe et al (2022), who reported that most of the respondents (52.3%) refused to use Insecticide Treated bed nets because of poor ventilation, which is a serious barrier against utilization of ITNs even when these nets are distributed free of charge.

The findings revealed that most of the respondents (60%) reported that insecticide-treated bed nets do not have a bad odor, and the minority (40%) revealed that ITNs have a bad odor. This implied that the majority of the respondents have a positive attitude towards the utilization of ITNs,

whereas the minority (40%) have a negative attitude towards their utilization. The results of the study are consistent with those of Wanzira et al (2018), where the majority of the respondents said that insecticide-treated bed nets were manufactured with a good scent that could attract people to use them.

The majority of the respondents (56.7%) reported that drugs used in the retreatment of insecticide-treated bed nets are unsafe. This could be because of their belief that when one is covered with treated bed nets, all the insecticide passes through the nose and causes lung diseases, and this can be compared to one of the respondents who said; If bed bugs die when they touch the treated mosquito net, it could also harm our children if they touch it. However, a minority of the respondents (43.3%) said that the drugs are safe. The results of the study are in line with those of Belay and Deressa (2018), Obol et al (2019), which revealed that (66.8%) of the respondents had a negative attitude towards utilization of ITNs and linked to their thoughts that ITNs have chemicals that are likely to harm them and their growing fetuses

Practices of residents towards utilization of ITNs

Results revealed that the majority of the respondents (80%) reported that they correctly slept under Insecticide Treated bed nets, (20%) said that they did not correctly sleep under ITNs because of excessive heat being caused by the nets. This means that the majority had a good practice towards the utilization of ITNs in the prevention of malaria. The results of the study are similar to those of Emmanuel, et al., (2018), Ayipah, et al., (2021), Varden, et al., (2019) which revealed that majority, 82%, a third and 71% respectively correctly used ITNs by displaying them every night when entering the bed and immediately folded them after sleep to avoid mosquitoes entering the nets during the day.

The study further showed that the majority of the respondents (93%) washed their Insecticide.

Treated bed nets regularly. This could be because respondents knew that regular washing of ITNs is one way of maximizing the effectiveness of ITNs, in that it preserves insecticide within the nets for a long period, and it minimizes the quick wearing and tearing of ITNs. This indicates a good practice towards the utilization of ITNs. This is in line with results from Stevens et al. (2020), who conducted a study on the evaluation of long-lasting ITNs in Togo, which revealed that the majority of the respondents regularly washed their Insecticide Treated bed nets.

Regarding the frequency of washing ITNs, most of the respondents (56.7%) said that they wash their ITNs every month. This implies a good practice regarding utilization of ITNs, and this could be because most of the respondents knew that repeated washing of nets removes insecticide, rendering the nets ineffective within a short period (36.7%) said after every week, and the minority (6.6%) said after three months. However, there is still

limited information on the effect of repeated washing of ITNs. This implies a good practice regarding the utilization of ITNs. The results of the study are contrary to the study done by Ateji et al (2018), which found that the majority washed their ITNs more than 20 times in six months, which led to more wearing out of the nets compared to those that were not frequently washed.

The majority of the respondents (96.7%) always checked for holes in their ITNs, and the minority (3.3%) did not always check for holes in their ITNs. This is a good practice towards ITNs' utilization. The results of the study are in line with those of Bashinyora (2020), who conducted a study in Muhoro Sub-county, Kibaale District, and it was found that the majority of the respondents had a good practice towards ITNs use in that (90%) of the households that were using ITNs always checked for holes in their ITNs and could take time to mend the ITNs when they developed holes.

Findings also revealed that most of the respondents (53.3%) always displayed their ITNs when entering the bed, 36.7% always displayed their ITNs immediately when it gets dark, and the minority (36.7%) said that they display their Insecticide Treated bed nets when mosquitoes are too many. The results of the study are in line with those of Emmanuel et al (2018) who conducted a study on Knowledge, Attitude and Practices regarding malaria and mosquito net use among women seeking antenatal care in South-Western Tanzania which found out that most of the respondents displayed their Insecticide Treated bed nets when entering the bed and immediately folded them after sleeping to prevent mosquitoes from entering the bed during the day.

Conclusion

Generally, respondents had a negative attitude towards the utilization of Insecticide Treated bed nets since the majority of the respondents believed that: ITNs can cause skin itching when they get into contact with the body, Insecticide-treated bed nets can lead to suffocation, and drugs used to treat ITNs are unsafe. This indicates a need to continue health educating community members about the use of ITNs. Practices on utilization of Insecticide Treated bed nets were commendable as the majority of the respondents indicated correct use of ITNs, regularly washed their ITNs, always checked for holes in their ITNs, and also displayed their ITNs when entering the bed.

This study was limited by the following.

Resistance from the respondents, as many had fear or felt less concerned, the target respondents, in most cases, were in a hurry to go back home and do some housework, as well as financial difficulties and time limitation, were the greatest challenges.

Recommendation

Health workers should ensure that community members get the right information on the use and efficacy of ITNs to rule out rumors such as ITNs can cause suffocation.

Health workers should mobilize more ITNs from the Ministry of Health so that they can distribute them to the community members.

Health workers provide the Government with periodic medical reports on malaria prevalence so that proper arrangements can be made.

Acknowledgement

I wish to extend my sincere gratitude to everyone who contributed to the successful completion of this research project. I thank the almighty God for his grace, which is sufficient for me and has ensured the completion of this work.

Also, great thanks to my supervisor, Ms. Mukomuzibu Claire, for her continuous efforts, immense guidance, assistance, and commitment towards the completion of this research. Great thanks to the Mutungo zone IV community for the assistance given to me during the data collection phase. Special gratitude goes to the administration of Lubaga Hospital Training Schools for the knowledge and skills they have imparted to me.

Last but not least, thanks to all my classmates and friends for their thoughtful encouragement and objective criticism throughout the entire process.

List of Abbreviations

ITNs:	Insecticide-treated bed nets
APs:	Attitude and Practices
WHO:	World Health Organization
GMIS:	Government Management
Information Sciences	
HMIS:	Health Management
Information System	

Source of funding

This study was not funded.

Conflict of interest

No conflict of interest declared

Author contributions

JEL designed the study, conducted the data collection, cleaned and analyzed data, and drafted the manuscript. CM supervised the study from the conceptualization of the topic to manuscript writing and submission. JFN supported the study's conceptualization and general supervision as well as mentorship.

Data availability

Data is available upon request.

Author Biography

Jonathan Edward Lwanga is a student at Lubaga Hospital Training Schools.

Claire Mukomuzibu is a tutor at Lubaga Hospital Training Schools.

Jane Frances Namuddu is the principal tutor at Lubaga Hospital Training Schools.

References

1. Asumah MN, Akugri FA, Akanlu P, Taapena A, Boateng F. Utilization of insecticide-treated mosquito bed nets among pregnant women in Kassena-Nankana East municipality in the Upper East region of Ghana. *Public Health Toxic.* 2021 Dec 22;1(2):1-1. <https://doi.org/10.18332/pht/144533>
2. Atieli, FK. Munga, SO., Ofulla, AV., and Vulule, JM. (2018) The effect of repeated washing of long-lasting insecticide-treated nets (LLINs) on the feeding success and survival rates of *Anopheles gambiae*. *Malar J.*; 9:304. Doi: 10.1886/1475-2875-9-304. <https://doi.org/10.1886/1475-2875-9-304>
3. Bashinyora, JB. (2020) Utilization of insecticide-treated nets in Households with children under 5 years in Muhoro Sub-County, Kibaale District, Uganda; Research Dissertation submitted to the postgraduate school in partial fulfillment of the requirement for the award of the degree of Arts Sociology at Makerere University, Kampala.
4. Belay M and Daressa W. (2018). Use of insecticide-treated nets by pregnant women and associated factors in a predominantly rural population in Northern Ethiopia. *Trop Med Int Health*, 13(10):1303-13. <https://doi.org/10.1111/J.1365-3156.2018.0215.https://doi.org/10.1111/j.1365-3156.2008.02159.x>
5. Emmanuel, EA. Humphrey, DM. Jorge, H, Gabone, O., and Damos, L.M. (2018). Knowledge, attitude, and practices regarding Malaria and ITN use among women seeking antenatal care in Iringa, southwestern Tanzania. *Tanzania Journal of Health Research* 13(3).
6. Hawley WA, Phillip-Howard PA, ter Kuile FO, Terlouw DJ, Ulule JM, Ombok M, et al.(community-wide effects of permethrin-treated bed nets on child mortality and Malaria morbidity in Western Kenya. *AM J Trop med Hyg* 2021; 68:121-7. <https://doi.org/10.4269/ajtmh.2003.68.121>
7. Kulkarni, MA., VandenEng, J., Desrochers, RE., Cotte, AH., Goodson, JL., Johnston, A., Wolkon, A., Erskine, M., Berti, P., Rakotoarisoa, A., Ranaivo, L. and Peat, J. (2019) Contribution of integrated campaign distribution of long-lasting insecticidal nets to coverage of target groups and total populations in malaria-endemic areas in Madagascar. *Am J Trop Med Hyg*82:420-425. Doi: 10.4269/ajtmh 2019.09-0597.
8. Ayipah, Manu. G. Boamah-Kaali, E.A.; Febir, L.G. E. Owusu-Agyel, S, and Asantu, K (2021). Low utilization of insecticide-treated bed nets among pregnant women in the middle
9. Johnson, A.C., Inyang, U.I., Etuknwa, U.D. Ekanem, U.O. Udo and I. Ubom, " Awareness, ownership and utilization of insecticide-treated nets among house-holds in the rural community of southern Nigeria, "Scholars Journal of Applied Medical Science, vol. 3, no.2A, pp. 608-613,2021.
10. Obol, JH., Atim, P., and Moi, KL. (2019) Possession, Attitudes and Perceptions of Insecticide-treated Bed Nets among Pregnant Women in a Post-Conflict District in Northern Uganda, *International Journal of Tropical Disease & Health*, Sciencedomain international, available on <http://www.sciencedomain.org>.
11. Rusewo- Abiodun, Lyabo, T, and Rusewo-Olugbenga, O (2013) Altitude and practices of ITNs in south-west Nigeria Accepted 25 June, 2013, *Aft.J. Pregnancy childbirth*, 1(1), 001009.
12. Stevens, E.R., Aldridge, A., Degbey, Pignard, A., Dorkenoo, M.A., and Hugelen-Padin, J. (2020). Evaluation of the 2011 long-lasting, insecticide-treated nets distribution for universal coverage in Togo, *Malar J*;12:162. <https://doi.org/10.1186/1475-2875-12-162>
13. Ukiba, S.N, Ikeako, L.C; Mbanugo,J. I. Obi-Okaro, A.C. and Ukibe, N.R. (2022). Knowledge, Attitude and practices of pregnant women concerning the use of insecticide-treated bed nets (ITNs) in Anambra state, South-east Nigeria "Journal of Applied Medical Science, 3(1), 15-22.
14. Varden, A. E. (2019). Relapsing Fever: Report of a case. *California and Western Medicine*, 36(5), 344.
15. Wanzira, H., Yeka, A., Kigozi, R., Rubahika, D., Nasr, S., and Sserwanga, A. (2018). Long-lasting insecticide-treated bed net ownership and use among children under 5 years of age following a targeted distribution in central Uganda. *Malar J*; 13:185. <https://doi.org/10.1186/1475-2875-13-185>
16. WHO Global technical strategy for Malaria 2016-2030. Geneva World Health Organization, 2018. <http://www.Who.int/Malaria/areas/global/technical strategy/en/>.
17. Wisniewski, J, Acosta, A., Kolaczinski, J, Koenker, H, and Yukich, J. Systematic review and meta-analysis of the cost and cost-effectiveness of distributing ITNs for the prevention of Malaria. *Acta Tropical* 202, 105229 (2020). <https://doi.org/10.1016/j.actatropica.2019.105229>
18. World Health Organization, Malaria vector control and personal protection. A report of a

- WHO study Group, WHO, Geneva, Switzerland, 2020.
19. Zangypo, K, Zangypo, N, and poislen, K. (2020). A study on Knowledge, Attitude, and

Practices about Malaria awareness and bed net use. JB Hutan Studies, 11,135-145.

PUBLISHER DETAILS:

SJC PUBLISHERS COMPANY LIMITED



Catergory: Non Government & Non profit Organisation

Contact: +256 775 434 261 (WhatsApp)

Email: info@sjpublisher.org or studentsjournal2020@gmail.com

Website: <https://sjpublisher.org>

Location: Scholar's Summit Nakigalala, P. O. Box 701432, Entebbe Uganda, East Africa