

Mosquito net utilization in the prevention of malaria among students of Kampala School of Health Sciences, Buloba Campus, Wakiso district.

A cross-sectional study

Fred Hamenya*, Patrick Alinde
Kampala School of Health Sciences

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ABSTRACT

Background:

Individuals who sleep on a bed are more likely to use a bed net compared to those who sleep on the floor. The purpose of the study was to determine the knowledge about mosquito net utilisation in the prevention of malaria among students of Kampala School of Health Sciences, Buloba Campus, Wakiso district.

Methodology:

A descriptive cross-sectional study design was employed using a simple random sampling technique on a sample size of 50 respondents. A semi-structured questionnaire with both open and closed-ended questions was used. After collecting raw data, it was analysed manually using tally sheets and presented using Microsoft Excel and MS Word in the form of frequency distribution tables, pie charts, and bar graphs.

Results:

The majority of the respondents (80%) were within the age bracket of 18-25 years, whereas the minority (2%) were within the age of 40 and above. 100% of the participants had heard about mosquito nets, (66%) considered mosquito bites as the cause of malaria, and 66% of the respondents used ITNs to prevent malaria. (34%) learnt how to use mosquito nets from hospital staff, whereas the minority (12%) had not yet learnt how to use and maintain mosquito nets. (66%) Some of the respondents knew that mosquito bites were known to cause malaria. (62%) knew fever as a common symptom of malaria, and the minority (4%) knew that convulsions as malaria symptom of malaria. (42%) reported that stagnant water can predispose an individual to malaria. Regarding the methods used to protect against malaria, showed that the majority (66%) used mosquito nets.

Conclusion:

Students were well informed about the use and benefits of insecticide-treated mosquito nets in the prevention of malaria.

Recommendations

The government should promote awareness about insecticide-treated mosquito nets through mass media such as radio, television, and others.

Keywords: Knowledge, Mosquito net utilisation, Prevention of malaria, Kampala School of Health Sciences.

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Corresponding author: Fred Hamenya

Email: hamenya2020@gmail.com

Kampala School of Health Sciences

Background

In a rural setting of Welkait district, northwest Ethiopia, communities knew about ITN, although their sources of information on ITN were varied. Most obtained information from health workers (Atnafu, 2025). Rural Dwellers in Oyo State, Nigeria awareness about malaria, with most learning about it from family or friends and school. Almost all know the cause of malaria and can correctly identify mosquitoes as the cause. The majority understand that the purpose of ITNs is for the prevention of mosquito bites (Ekeleme et al, 2023).

In Nyagatare, individuals who sleep on a bed are more likely to use bed net compared to those who slept on floor and more likely to use net if they were treated compared to respondents who do not know if ITN was treated or not while those with non-treated ITN were about 3 times to not use ITN compared to those who do not know (Philippe, et al, 2020). Students in the Second Cycle Institutions in the Tamale Metropolis of the Northern Region of Ghana have a high level of knowledge, possession, and understanding of the use of ITNs to prevent malaria. Students who had a good understanding of the purpose of ITNs were 1.39 times more likely to use ITNs, and students who did not own ITNs were

less likely to use ITNs (Atnafu, 2025). In Ethiopia, there were varied responses on knowledge of the symptoms and prevention methods of malaria (Dmasu Tassew et al, 2017). The study aims to assess the knowledge about mosquito net utilisation in the prevention of malaria among students of Kampala School of Health Sciences, Buloba Campus, Wakiso district.

Methodology

Study Design

A descriptive cross-sectional study design was used to collect data from the respondents. This is because the design helped the study to collect data in the shortest time possible.

Study area

This study was conducted at Kampala School of Health Sciences located in Muyenje village, Lukwanga Parish, Wakiso Sub- County, Busiro South, Wakiso district, Greater Kampala, Central region of Uganda.

Study populations

The study population consisted of only students training at Kampala School of Health Sciences, Buloba Campus.

Sample size determination

The sample size was calculated using Burton's formula (1905);

$S=2(QR)O$ where;

S=required sample size

Q=number of days that would be spent while collecting data

R=maximum number of people per day

O = maximum time the study will spend on each participant

= 2(5days×10 respondents ×0.5hrs)

= 50

Therefore, the sample size used was 50 respondents.

Sampling technique

The study involved a simple random probability sampling technique to select respondents, where every individual in the population had an equal chance of participating in the study.

Inclusion criteria

The study included resident students training at Kampala school, Health Sciences Buloba campus, Wakiso district, who voluntarily accepted to participate in the study.

Exclusion criteria

The study excluded all nonresident students, tutors, and those not willing to participate in the study.

Sampling procedure

The study obtained permission from the research committee of Kampala School of Health Sciences to aid in the collection of data from the study area. When permission was

granted, the study trained two research assistants on how the questionnaires were to be administered, and later, they introduced themselves to the respondents. The respondents were assembled in one of the classrooms, and the data collection process began with first consenting students involved, and then the respondents were issued the questionnaires to give possible answers.

Data collection method

Data was determined by a qualitative method. This was achieved by the use of questionnaires.

Data collection tool

A well-organised semi-structured questionnaire with both open and closed-ended questions written in English by the study was used to collect data from the respondents after giving them clear instructions with the help of research assistants.

Data collection procedure

The information collected by the questionnaire was analysed. This was then followed by deciding the type of questionnaire to be used, the content and necessity of each question, determining whether respondents can answer it, methods of administering the questionnaire and recording response, physical layout of the questionnaire, size of the questionnaire or number of questions, type of question (open ended and closed ended), order of questions, language used and reviewing final drafts.

Study variable

Independent variables

Attitude and practice among students.

Dependent variables

The dependent variables were mosquito nets in the prevention of malaria among students.

Quality control

Pre-testing the questionnaire

The questionnaires were pretested among 5 students at the KSHS Buloba Campus, in order to assess their appropriateness. The necessary adjustments were made accordingly in order to evaluate the effectiveness of the study following the standard criteria.

Pilot study

In order to ensure the quality and reliability of the results, the following was done. A questionnaire was designed and pretested by doing a pilot study among students training at KSHS to assess its strength and relevance. Adjustments were made where necessary to improve its strength, relevance, reliability, and validity.

Data analysis and presentation

After collecting raw data, it was analysed manually using tally sheets and presented using Microsoft Excel and MS Word in the form of frequency distribution tables, pie charts, and bar graphs.

introduction was issued by the school principal. This letter was used to introduce the study to the other concerned administrators of KSHS Buloba campus, who granted the study permission for the study. Those meeting the study criteria were informed of the purpose of the study verbally, and confidentiality of the response was assured. The study requested that the respondents who were willing to participate in the study first consent. Informed consent was obtained from the respondents before participating in the study. This was done to ensure that the research ethics were observed throughout the study.

Ethical consideration

After the approval of the proposal by the supervisor and the Principal of Kampala School of Health Sciences, a letter of

RESULTS

Demographic data

Table 1: Shows the distribution of respondents by Demographic Data (N=50)

Bio-Data		Frequency	Percentage (%)
Sex	Male	31	62
	Female	19	38
	Total	50	100
Age	18-25	40	80
	26-30	5	10
	31-39	4	8
	40 and above	1	2
	Total	50	100
Religion	Catholic	17	34
	Anglican	15	30
	Muslim	8	16
	Others	10	20
	Total	50	100
Marital status	Married	9	18
	Single	41	82
	Widow(er)	00	00
	Divorced	00	00
	Total	50	100
Tribe	Baganda	18	36
	Banyankore/ Bakiga	13	26
	Bafumbira	3	6
	Others	16	32
	Total	50	100
Level of education	O Level	23	46
	A level	20	40
	Tertiary	7	14
	Total	50	100

The majority of the respondents (80%) were within the age bracket of 18-25 years, whereas the minority (2%) were within the age of 40 and above. Correspondingly, the study results revealed that most of the respondents (34%) were Catholics by religion, whereas the least (16%) belonged to Muslims. Most of the respondents (82%) were still single, a few of them (18%), and none of the respondents was a widow or divorced. The study results regarding tribe showed that more of the respondents (36%) were Baganda by tribe, whereas the least (06%) were Bafumbira. Regarding the

level of education, the majority of the respondents (46%) had attained O-level, whereas the minority (14%) had a tertiary level of education.

Knowledge towards mosquito net utilisation in the prevention of malaria among students

Regarding whether the respondents had ever heard about mosquito nets, all 50 respondents (100%) reported having heard about mosquito nets.

Table 2: Shows the distribution of respondents according to whether they had mosquito nets (N=50)

Response	Frequency(f)	Percentage (%)
No	16	32
Yes	34	68
Total	50	100

Table 2 showed that most of the respondents (68%) reported having mosquito nets, whereas 32% of the respondents did not have mosquito nets.

Figure 1: Shows the distribution of respondents according to whether they utilise mosquito nets.

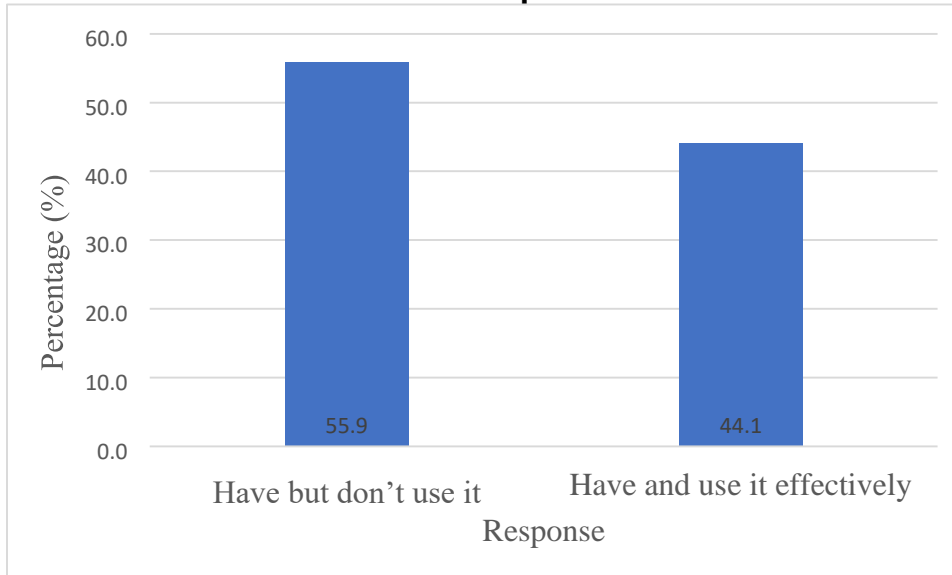


Figure 1 regarding whether the respondents who had mosquito nets utilised them, most of them, 55.9% of the respondents, had ITNs but did not use them, whereas the least proportion 44.1% had and used their ITNs effectively.

Table 3 shows the distribution of the respondents according to where they learned how to use and maintain their mosquito nets. (N=50)

Response	Frequency (f)	Percentage (%)
Not learned yet	6	12
Mass media	11	22
Agents of a mass distribution campaign	13	26
Hospital staffs	17	34
Total	50	100

From Table 3, the majority of the respondents (34%) learned how to use mosquito nets from hospital staff, whereas the minority (12%) had not yet learned how to use and maintain mosquito nets.

Figure 2: Shows the distribution of respondents' views according to what causes malaria

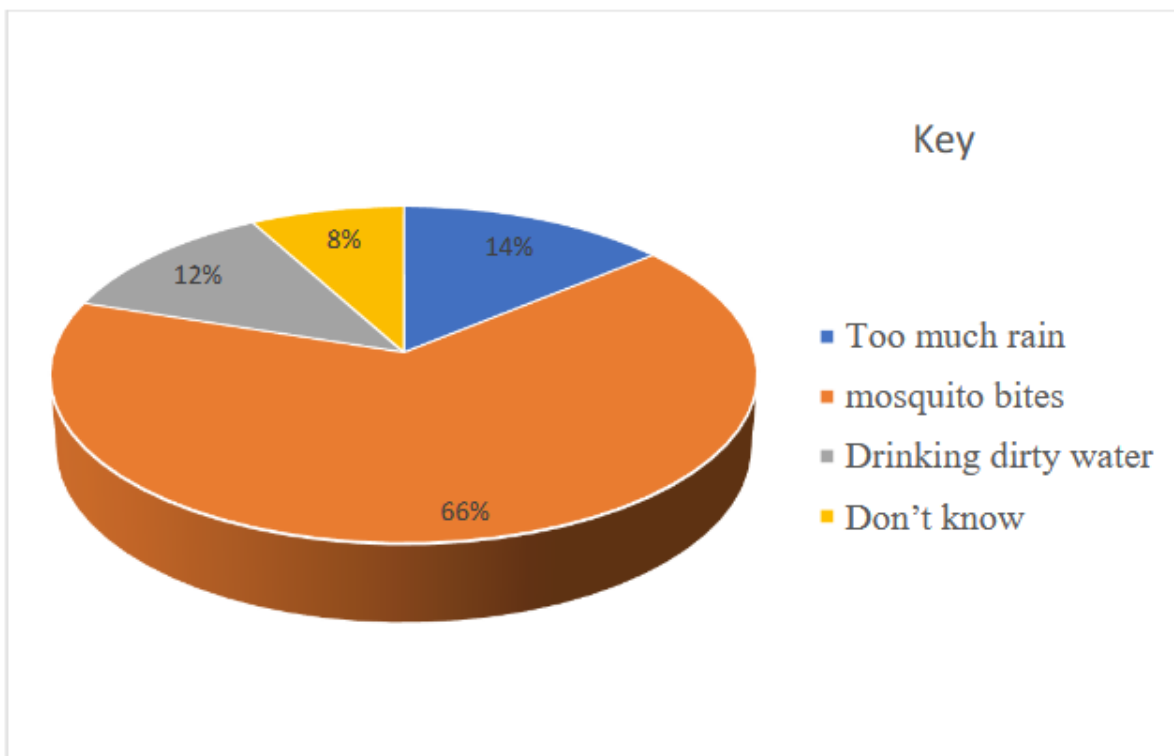
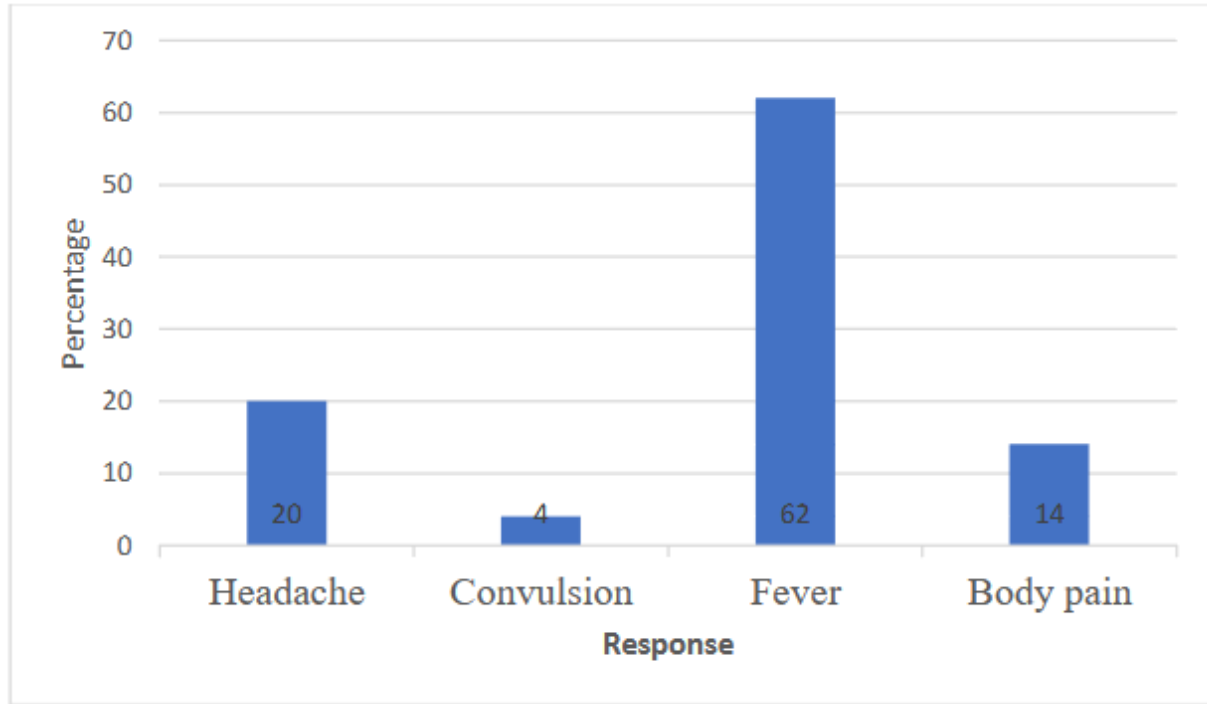


Figure 2 illustrates respondents' views about the cause of malaria, whereby more than half (66%) of the respondents knew that mosquito bites were known to cause malaria. The least number (8%) of the respondents did not know what causes malaria.

Figure 3: Shows the distribution of respondents according to the symptoms of malaria.



From Figure 3, the majority of the respondents (62%) knew fever as a common symptom of malaria, and the minority (4%) knew that convulsions as malaria symptom of malaria.

Table 4: Shows the distribution of respondents according to what can predispose an individual to malaria (N=50)

Response	Frequency (f)	Percentage (%)
Bushes	15	30
stagnant water	21	42
Farms/ Gardens	4	8
None of the above	10	20
Total	50	100

From the table shown 4, most of the respondents (42%) reported that stagnant water can predispose an individual to malaria, while the least number (8%) of the respondents knew that farms/ gardens can predispose a person to malaria.

Table 5 shows the distribution of respondents according to the methods used to protect against malaria (N=50)

Response	Frequency(f)	Percentage (%)
Keeping the compound clean	2	4
Use of prophylactic drugs	12	24
Use of Mosquito bed nets	33	66
Vaccination	0	0
None of the above	3	6
Total	50	100

Table 5: In regards to the methods used to protect against malaria, it showed that majority (66%) of the respondents used mosquito nets, whereas a minority (6%) of the participants used none of the mentioned methods. None of the respondents used the vaccination method to protect against malaria.

Discussion

All study participants 100% had ever heard about insecticide-treated nets. This could be due to the effort invested by the Ministry of Health during sensitisation on television and radios and other campaigns about mosquito nets. These findings were in agreement with the study conducted by Tsegay Gebremaryam et al (2020), which revealed that the majority of the respondents (75.7%) had heard about ITN. Although their sources of information on ITN were varied, most (73.9%) of respondents obtained information from health workers.

The study findings showed that nearly half of the respondents (34%) learned how to use and maintain mosquito nets from hospital staff. This could be because almost all of the students at KSHS spent some of their time in hospitals, where they are taken every semester, and interacted with health workers about how to use mosquito nets. These findings were in opposition to the study conducted by Ekeleme et al (2023), where the majority, 32.53% of the respondents, learned how to use their ITNs from family and friends.

The study also revealed that more than half of the respondents 66% knew that mosquito bites caused malaria. This could be due to the knowledge they obtained from health education during their hospital attachments or taught by their respective tutors. These results were similar to the study conducted by Kanyangarara et al (2018), where 85.0% of respondents linked malaria to a mosquito bite.

Additionally, this study also revealed that most of the respondents (62%) knew fever and chills to be among the

common symptoms of malaria. This implied that more than half of the respondents had ever suffered from malaria and evidenced these symptoms, and or observed such symptoms from fellow students who had malaria. This supported a similar study conducted by (Dmasu Tassew et al, 2017), where over 80% of respondents identified fever as a symptom of malaria, whereas less than 2/3 associated malaria with shivering and chill.

Furthermore, the study revealed that most of the respondents (66%) used mosquito nets to protect against malaria. This could be due to the presence of cheap and free ITNs, thus increasing their accessibility. These results are consistent with the study conducted by Veyufambom et al (2016), where the majority (79.3 %) of the respondents thought that LLINs can help to prevent malaria, and with regard to the acceptability of LLINs, 91.3 % of the respondents liked using mosquito nets against malaria.

Conclusion

Students were well informed about the use and benefits of insecticide-treated mosquito nets in the prevention of malaria.

Recommendations

The government should promote awareness about insecticide-treated mosquito nets through mass media such as radio, television, and others.

The issuing companies of mosquito nets should be considerate about the kind of materials issued; they should be lighter to avoid the problems of too much heat and suffocation, and also regulate the dose of insecticides put in these nets.

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List of abbreviations and acronyms

ITNs: Insecticide Treated Nets

LLINs: Long Lasting Insecticide Nets

Source of funding

The study was not funded.

Conflict of interest

The author did not declare any conflict of interest.

Data availability

Data is available upon request.

Author contribution

Fred Hamenya collected data and drafted the manuscript of the study

Patrick Alinde supervised the study

Author biography

Fred Hamenya is a student at Kampala School of Health Sciences.

Patrick Alinde is a supervisor at Kampala School of Health Sciences.

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Contact: +256 763 123 847

Email: afroglobalpress@gmail.com

Website: <https://afroglobalpress.com>

Address: Scholar's Summit, Nakigalala, East Africa