SJ Public Health Africa
Vol. 3 No. 2 (2026): April 2026 Issue
https://doi.org/10.51168/1akpbd74
Original Article

Knowledge, attitude and practices towards malaria prevention and control among adult patients in Apac General Hospital (OPD), Apac District. A cross-sectional study.

Innocent Epur*, Ronald Awoi, Denis Obong, Filder Monica Odella
Florence Nightingale School of Nursing and Midwifery

ABSTRACT

Background:

Malaria is a severe disease caused by parasites of the genus Plasmodium, which are transmitted to humans through the bite of an infected female Anopheles mosquito. This study aims to assess the knowledge, attitudes, and practices related to malaria prevention and control among adult patients attending the Outpatient Department of Apac General Hospital in Apac District.

Methodology:

A descriptive cross-sectional study design employing both quantitative and qualitative approaches was used. Data were gathered from 60 adult patients using simple random sampling using a structured questionnaire, and the analysis was conducted with Microsoft Excel 2013.

Results:

All 100% respondents had heard of malaria, and almost all 97% knew its mode of transmission. Meanwhile, knowledge of curability was also strong (93 % believed malaria is curable). Attitudinally, 73 % agreed on the importance of antimalarial adherence, and 100 % viewed prevention positively and 65 % regularly used insect-treated nets (ITNs) while 7 % never did; 55 % eliminated stagnant water daily (8 % never); 86 % sought medical care for fever (2 % used traditional remedies); 73 % inspected homes for breeding sites; and 68 % used repellents this indicated positive attitude. These figures generally exceed those reported in comparable regional studies, though small gaps persist among non-users.

Conclusion:

Respondents showed good knowledge of malaria signs, transmission, and prevention. Most had positive attitudes toward malaria control and community participation.
Preventive practices like ITN use and timely treatment were generally followed.

Recommendation:

The MoH should enhance public health campaigns on malaria prevention and early treatment. The DHO should provide ongoing training and supervision for health workers. Hospitals should support patients in preventive practices and encourage community engagement.

Keywords: Malaria prevention, Knowledge, Attitude and Practices, Insecticide-treated nets, Apac District.
***Submitted:** February 20, 2026 **Accepted:** March 30, 2026 **Published:** April 30, 2026*
***Corresponding author:** Innocent Epur*
Email: epurinnocent@gmail.com
Florence Nightingale School of Nursing and Midwifery

Background

Malaria is a severe disease caused by parasites of the genus Plasmodium, which are transmitted to humans through the bite of an infected female Anopheles mosquito (Talapko et al., 2019). According to recent WHO data, an estimated 2.2 billion malaria cases and 12.7 million deaths have been prevented since 2000. Despite this progress, malaria remains a serious global health challenge, especially in the African Region (WHO, 2024). The WHO's latest World Malaria Report indicates that in 2023, there were approximately 263 million malaria cases and 597,000 deaths worldwide. This represents roughly 11 million more cases than in 2022, with the number of deaths remaining nearly unchanged. About 95% of these deaths occurred in the African Region, where many people at risk still lack access to essential prevention, diagnosis, and treatment services (World Malaria Report 2024, n.d.).

Globally, malaria continues to pose a major public health threat due to transmission by female Anopheles mosquitoes (Ukponahiusi & Asogun, 2024). In Nigeria, malaria parasites were detected in the peripheral blood of 16.2% of the population, with only 9.3% of adults being anaemic (Egbewale et al., 2018). In Africa, malaria accounts for the majority of global cases and deaths, with an estimated 263 million cases and about 597,000 deaths worldwide in 2023, most of which occurred on the continent. This underscores the urgent need for effective malaria prevention, treatment,

and control measures (WHO, 2024). In many parts of sub-Saharan Africa, malaria remains a leading cause of illness and death, contributing the largest share of the global malaria burden (Singh et al., 2017). In 2023, the African region accounted for approximately 94% of global malaria cases and 95% of deaths (WHO, 2024).

In East Africa, data from surveys conducted in Kenya, Tanzania, and Uganda since 2017 identified 14,170 new time-space survey data points, representing 74.8% of the total datasets, providing valuable information on malaria prevalence and transmission patterns (Alegana et al., 2021). In Uganda, a study involving 6,503 children found that 1,516 tested positive for malaria, indicating a prevalence of 23.3% and highlighting the ongoing burden among children (Kooko et al., 2023). Another study in Apac District Hospital, analysing 5,631 admission records, found that 3,649 (64.8%) admissions were due to malaria, demonstrating the high local burden of the disease (Ocen et al., 2023). Despite these figures, there is limited information on adults' knowledge, attitudes, and practices regarding malaria prevention and control in Apac District. This study aims to assess the knowledge, attitudes, and practices regarding malaria prevention and control in Apac District.

METHODOLOGY

Study Design

This was a cross-sectional descriptive study employing quantitative methods of data collection. The study design was selected because it helped the researcher to convert the responses obtained (data) into percentages, and the data was to be collected at a single point in time.

Study Setting

The study was conducted at Apac General Hospital, which is located in Apac Municipal Apac district. Apac is a district located in northern Uganda with Coordinates: 01°59′N 32°32′E / 1.983°N 32.533°E / 1.983; 32.533. The district lies north of Lake Kyoga and borders several other districts, including Oyam, Kole, Kwania, Dokolo, Amolatar, Nakasongola, and Kiryandongo.

Its headquarters are in Apac Municipality, approximately 250 km north of Kampala, the capital city of Uganda. Apac general hospital offers some services, including Obstetrics and Gynaecology, Surgeries, Pediatrics and Child Health; and Internal Medicine, OPD services, and many others, and operates from Monday to Sunday, 24 hours.

Study population

The adult patients in the Outpatient Care Department (OPD) in the hospital

Sample size determination

The sample size was determined using the Yamane (1967) formula, as below;

$$n = \frac{N}{(1+Ne^{2})}$$

Where n = sample size.

N=population size approximately N= 70

e = desire level of precision. e=0.05

$$n = \frac{70}{(1+ (70*0.05^{2)})}$$

n = 59.5745

Using the above formula, the sample size was 60 respondents.

The researcher used this formula because it gave enough number for a reasonable conclusion, depending on the study population. It also reduces error and bias.

Sampling procedure

The study used a simple random sampling technique. The clients learned about the sample technique. The researcher cut little pieces of paper, wrote "Yes" or "No," and placed them in a box. After that, each client was allowed to select a paper at random. All clients who selected a paper that says "Yes" were asked to sign a permission form and participate in the study; clients who selected a paper that says "No" were not. The sample technique lessens sampling bias and gives each person an equal opportunity. Data was collected from twelve respondents each day for five days.

Inclusion criteria and exclusion criteria

Inclusion criteria

The study included adult patients at Apac General Hospital; both males and females (18 – 64years), who consented to voluntarily participate in the study after an explanation of the purpose of the study was given to them.

Exclusion criteria:

Patients were not allowed to participate in the trial if they had not given their consent. Additionally, mentally unstable study participants were not allowed to participate.

Study variables

Dependent variable

The dependent variable of the study was the prevention and control of malaria in adult patients.

Independent variable

The independent variables were knowledge, attitudes, and practices.

SJ Public Health Africa
Vol. 3 No. 2 (2026): April 2026 Issue
https://doi.org/10.51168/1akpbd74
Original Article

Research instruments

Data was collected using an interviewer-administered questionnaire written in simple and clear language. This was since questionnaires are easy for researchers to utilise and reasonably priced.

Data collection procedure

Data was gathered from Apac General Hospital, Apac district, the study location. Before evaluating the study site, administrative clearance from the hospital medical superintendent was sought following assessment and approval by the internal research committee. The pre-established selection criteria were used to choose the participants. The chosen participants were contacted, given an explanation of the study, and asked for their consent. Participants were provided with the data collection instrument to complete as soon as they granted their consent. Additionally, it was to take the participants ten to fifteen minutes to complete the data gathering instrument. Twelve patients were interviewed each day for five days of the study.

Data management and analysis

The raw data collected were edited, coded, and reviewed daily to ensure accuracy, consistency, and completeness, with these checks conducted immediately after each respondent completed the questionnaire. The completed questionnaires were securely stored under lock and key, accessible only to the researcher, and were scheduled for destruction three years after report submission. Data saved on flash drives and computers was protected using personal passwords to prevent unauthorised access.

During the study, data cleaning involved addressing missing information by consulting respondents, compiling the responses, and assigning appropriate codes for analysis. The cleaned and coded data were then analysed using the Statistical Package for the Social Sciences (SPSS) and presented using graphs, charts, and tables.

Quality Assurance

The content validity of the study instruments will be ensured by including relevant questions from previous research studies, which will be reviewed by experts, including my supervisor.

Reliability will be assessed by piloting the study instrument with six participants over one day at Apac General Hospital, allowing for necessary modifications. Any errors identified during the pilot were corrected in collaboration with my supervisor.

Ethical considerations

A letter of introduction was obtained from Florence Nightingale School of Nursing and Midwifery to formally introduce the researcher to the District Health Officer (DHO) of Apac District and request permission to conduct the study. Upon approval, the DHO facilitated the researcher's introduction to the administrator of Apac General Hospital, who then introduced the researcher to the participants. Respondents were assured of strict confidentiality, and only identification numbers, rather than names, were used. The study commenced only after the objectives had been clearly explained to the participants and they had provided informed consent to participate.

RESULTS

Socio-demographic characteristics

Table 1: showing Socio-demographic characteristics (n=60)

Variables	Categories	Frequency	Percentage %
Gender	Female	33	55
	Male	27	45
Age	20-25	12	20
	26-30	16	27
	31-35	22	37
	36 and above	10	16
Religion	Moslem	8	13
	Christians	52	87
level of education	Primary	16	26
	Secondary	18	30
	Tertiary institution	18	30
	University	8	14
	Married	13	22

SJ Public Health Africa
Vol. 3 No. 2 (2026): April 2026 Issue
https://doi.org/10.51168/1akpbd74
Original Article

Marital status	Single	24	40
	Separated	18	30
	Widow	5	8

Table 1: The majority of respondents were female, 33(55%), while the minority were male, 27(45%). The highest number of respondents were aged 31–35 years, 22(37%), whereas the lowest were aged 36 years and above, 10(16%). Most respondents were Christians 52(87%), while a minority were Moslems 8(13%). The majority of respondents had attained either secondary or tertiary education, both at 18(30%), followed by primary 16(26%), and the least had university education, 8(14%). Most respondents were single 24(40%), followed by separated 18(30%), married 13(22%), and the least were widows 5(8%).

Knowledge towards malaria prevention and control among adult patients

Table 2: showing knowledge towards malaria prevention and control among the adult patients (n=60)

Variables	Categories	Frequency(n=60)	Percentage %
Signs of malaria	Agree	60	100
	Disagree	0	0
About mosquitos(spread)	True	58	97
	Don't know	2	3
Curability	Yes	56	93
	No	0	0
	May be	4	7
Prevention	Yes	59	98
	Likely	1	2

From table 2, all respondents agreed that they recognised the signs of malaria 60(100%). The majority of respondents knew that mosquitoes spread malaria, 58(97%), while a few were unsure, 2(3%). Most respondents believed malaria is curable, 56(93%), with a small proportion unsure, 4(7%), and none disagreed. Almost all respondents agreed that malaria can be prevented, 59(98%), while a very few were uncertain, 1(2%).

Figure 1: showing whether respondents knew malaria can be treated (n=60)

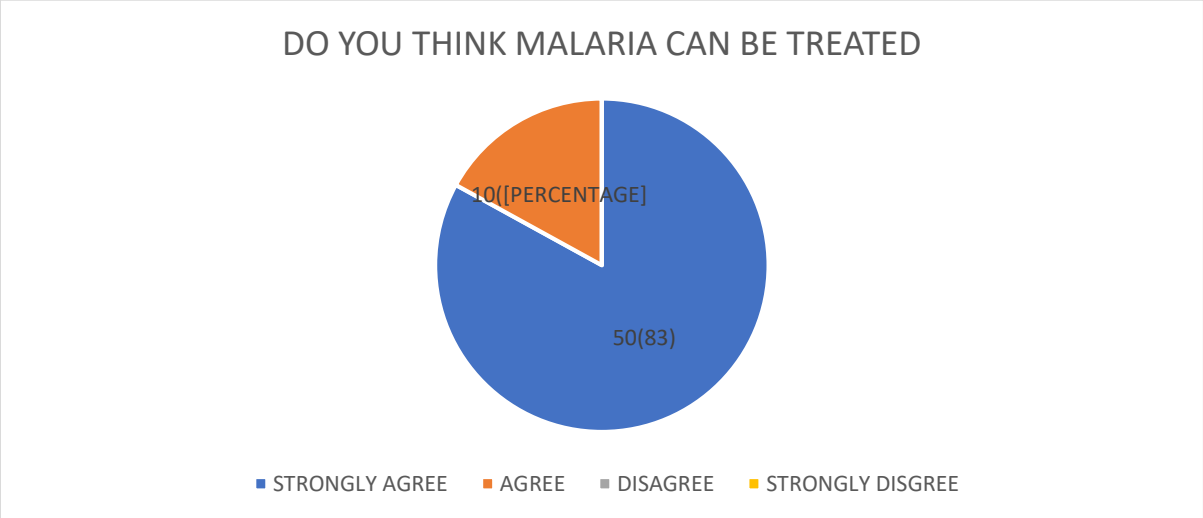


Figure 1 shows that the majority of respondents, 50 (83%), strongly agreed that malaria can be treated, while 10 (17%) agreed.

SJ Public Health Africa
Vol. 3 No. 2 (2026): April 2026 Issue
https://doi.org/10.51168/1akpbd74
Original Article

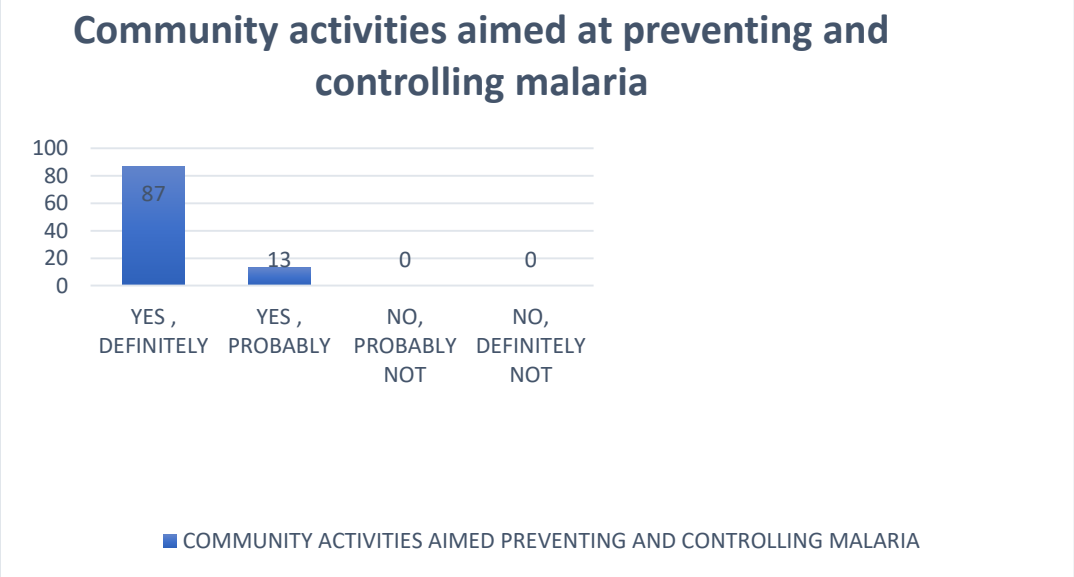
Attitude towards malaria prevention and control among adult patients

Table 3: Attitude towards malaria prevention and control among the adult patients (n=60)

Variables	Categories	Frequency(n=60)	Percentage %
Use of insecticide-treated net	I always use ITNs	48	73
	I sometimes use ITNs	4	6
	I rarely use ITNs	1	1
	I never use ITNs	6	10
Attitude towards IRS	I strongly support the IRS	43	71
	I somehow support the IRS	4	6
	Am neutral about the IRS	9	15
	I don't support the IRS	5	8
Attitude toward taking antimalarial drugs	Strongly agree	44	73
	Agree	12	20
	Disagree	1	2
	Strongly disagree	3	5
Attitude towards malaria prevention	Very important	60	100
Community participating	Yes, definitely	52	87
	Yes, probably	8	13

Table 3, the majority of respondents always use ITNs 48(73%), while a few sometimes use 4(6%), rarely use 1(1%), or never use 6(10%). Most respondents strongly support IRS 43(71%), some are neutral 9(15%), a few somehow support 4(6%), and the minority do not support it 5(8%). The majority strongly agree with taking antimalarial drugs 44(73%), followed by agree 12(20%), strongly disagree 3(5%), and disagree 1(2%). All respondents (100%) considered malaria prevention very important. Most respondents indicated definite participation 52(87%), while few indicated probable participation 8(13%).

Figure 2: showing whether community activities aimed at malaria prevention and control (n=60)



The assessment of respondents' attitudes toward malaria prevention indicated that the majority, 87%, demonstrated a positive attitude, while only 13% were less positive.

SJ Public Health Africa
Vol. 3 No. 2 (2026): April 2026 Issue
https://doi.org/10.51168/1akpbd74
Original Article

Practices towards malaria prevention and control among adult patients

Table 4: showing Practices towards malaria prevention and control (n=60)

Variables	categories	Frequency	Percentage %
The use of insecticide-treated nets	Always	39	65
	Sometime	15	25
	Rarely	2	3
	Never	4	7
Elimination of standing water	Daily	33	55
	Weekly	9	15
	Occasionally	14	23
	Never	9	8
Action against malaria	Seek medical attention	52	86
	Wait and observe symptoms	4	7
	Use traditional medicine	1	2
	Ignore the symptoms	3	5
Measures taken to prevent mosquito bites	Yes, used mosquito repellent	41	68
	Sometimes I used mosquito repellants	6	10
	Rarely do I take measures	11	18
	No, I don't take any measures	2	4

Table 4, the majority of respondents always use ITNs 39(65%), while the fewest never use them 4(7%). Most respondents reported eliminating standing water daily, 33(55%), whereas the least never did so, 9(8%). The majority seek medical attention immediately, 52(86%), while the fewest use traditional medicine, 1(2%). Most respondents use mosquito repellent and protective clothing 41(68%), compared to the fewest who do not take any measures 2(4%).

Discussion

Knowledge towards malaria prevention and control among adult patients

The findings showed that all 60 respondents (100%) had heard of malaria, indicating universal awareness among the study population. This may be because malaria is highly endemic in the region, and repeated exposure to health campaigns, media, and community health education programs increases general awareness. This relates to similar findings in Nyabondo, Kenya, where 91% of respondents were aware of malaria, with awareness positively associated with education level (Ng'ang'a et al., 2019). The implication is that high awareness provides a strong foundation for implementing malaria prevention and control strategies, but knowledge must be complemented with correct attitudes and practices to reduce transmission effectively.

The findings showed that 58 respondents (97%) knew how malaria is transmitted, while only 2 (3%) were unsure. This high level of knowledge may result from continuous exposure to health education campaigns, community sensitisation, and prior personal or household experiences with malaria, which reinforce understanding of transmission. This relates to contrasting findings in Burkina Faso, where only 56.1% of women had accurate malaria knowledge (Yaya et al., 2017) and similar trends in Yaoundé, Cameroon, where over half of urban residents had good knowledge but fewer applied correct preventive practices (Talipouo et al., 2019). The implication is that while knowledge about malaria transmission is high in this study population, interventions should ensure that this knowledge translates into consistent preventive practices, such as using insecticide-treated nets and eliminating mosquito breeding sites.

Attitude towards malaria prevention and control among adult patients

The findings showed that 48 respondents (73%) use insecticide-treated nets (ITNs) regularly, while only 1 (1%) rarely uses them. This high level of use may be due to increased awareness of malaria prevention benefits and accessibility of ITNs. This relates to findings by Munisi et al. (2019), where 94.95% recognized net use as protective, although actual usage was not reported, suggesting that knowledge does not always translate to consistent practice. The implication is that the combination of good ITN use and positive attitudes toward medication enhances the effectiveness of malaria prevention strategies,

but continuous reinforcement is needed to sustain these behaviours.

The findings showed that all 60 respondents (100%) viewed malaria prevention as important, indicating universally positive attitudes toward preventive measures. This contrasts with Umwangange et al. (2018), who reported lower positive attitudes toward malaria prevention. Regarding community participation, 52 respondents (87%) said they would definitely engage in malaria-prevention activities, while 8 (13%) were less certain. The implication is that strong positive attitudes and willingness to participate provide a supportive environment for implementing community-based malaria prevention programs, enhancing overall control efforts.

Practices towards malaria prevention and control among adult patients

The findings showed that more than half of respondents regularly use insecticide-treated nets (ITNs), while less than one in ten never use them. This may be because repeated exposure to malaria awareness campaigns and personal or household experiences with malaria reinforces consistent use of protective measures. This aligns with Munisi et al. (2019), where 94.95% of participants recognised ITNs as protective against malaria. The implication is that regular ITN use among the majority enhances individual and community-level malaria prevention, though efforts should continue to reach the small proportion who do not use nets.

The findings showed that 52 respondents (86%) seek medical care for malaria, while only 1 (2%) relies on traditional remedies. This may be due to increased awareness of the effectiveness of biomedical treatment and improved access to health facilities. This contrasts with Talipouo et al. (2019), where fewer than 50% of participants used appropriate malaria treatment. The implication is that high health-seeking behaviour in this population supports timely diagnosis and effective management of malaria, reducing complications and transmission risk.

Limitation

The study can't be used to conclude because it picks a small percentage of people in comparison with the general population, for instance, 60 people to respond among 5000 people, according to the study.

Since it was a cross-sectional study, it did not involve following up with the respondents for more assessment, meaning we couldn't conclude the evaluation.

Conclusion

Respondents demonstrated good knowledge of malaria signs, transmission, curability, and preventive measures, providing a strong foundation for effective malaria control.

Most respondents exhibited positive attitudes, valuing malaria prevention and showing willingness to participate in community malaria-control activities, which supports adherence to preventive strategies.

Respondents generally applied recommended preventive measures, including the use of ITNs, elimination of mosquito breeding sites, and timely health-seeking behaviours, indicating that knowledge and attitudes are largely reflected in practice.

Recommendation

The Ministry of Health (MoH) should strengthen public health campaigns to educate communities on malaria prevention, control measures, and the importance of early treatment.

The District Health Office (DHO) should provide continuous training and supervision for health workers to improve guidance on malaria prevention, vector control, and community engagement.

Hospitals should support patients by promoting consistent use of preventive measures, ensuring timely diagnosis and treatment, and encouraging participation in community malaria-control activities.

Acknowledgement

I thank my God for the life, knowledge, good health, and grace bestowed upon me through which I have been able to develop this dissertation.

I acknowledge the Uganda Health Professional Assessment Board for their sincere effort and guidance, and also my sincere recognition of the Florence Nightingale School of Nursing and Midwifery for offering a suitable study environment.

My gratitude to the staff, including the IRC of the Institution, for all the support rendered to me during my studies at Florence Nightingale School of Nursing and Midwifery.

My sincere gratitude to my supervisor for his endurance, guidance, encouragement, and support throughout the creation of this research report.

And lastly, my sincere gratitude goes to my fellow classmate for their socio-academic support rendered to me during the course.

List of abbreviations

OPD:	Outpatient department
DHO:	District health officer
WHO:	World Health Organisation
MOH:	Ministry of Health
IRS:	Individual residual spray

ITNs: Insecticide-treated nets

Informed Consent
Written informed consent was obtained from all participants before their inclusion in the study. Participants were informed about the purpose of the study, procedures involved, potential risks and benefits, and their right to withdraw at any time without penalty.

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
Innocent Epur collected data and drafted the manuscript of the study
Ronald Awoi supervised the study

Author biography
Innocent Epur is a student at Florence Nightingale School of Nursing and Midwifery.
Ronald Awoi is a research supervisor at Florence Nightingale School of Nursing and Midwifery.

References
1. Alegana, V. A., Macharia, P. M., Muchiri, S., Mumo, E., Oyugi, E., Kamau, A., Chacky, F., Thawer, S., Molteni, F., Rutazanna, D., Maiteki-Sebuguzi, C., Gonahasa, S., Noor, A. M., & Snow, R. W. (2021). Plasmodium falciparum parasite prevalence in East Africa: Updating data for malaria stratification. *PLOS Global Public Health*, *1*(12), e0000014. https://doi.org/10.1371/journal.pgph.0000014
2. Egbewale, B. E., Akindele, A. A., Adedokun, S. A., & Oyekale, O. A. (2018). Prevalence of asymptomatic malaria and anaemia among the elderly population in Osun state, Southwestern Nigeria. *International Journal Of Community Medicine And Public Health*, *5*(7), 2650. https://doi.org/10.18203/2394-6040.ijcmph20182449
3. Kooko, R., Wafula, S. T., & Orishaba, P. (2023). Socioeconomic determinants of malaria prevalence among children under five in Uganda: Evidence from 2018-19 Uganda Malaria Indicator Survey. *Journal of Vector Borne Diseases*, *60*(1), 38. https://doi.org/10.4103/0972-9062.353251
4. Ng'ang'a, P. N., Mutunga, J., Oliech, G., & Mutero, C. M. (2019). Community knowledge and perceptions on malaria prevention and house screening in Nyabondo, Western Kenya. *BMC Public Health*, *19*(1), 423. https://doi.org/10.1186/s12889-019-6723-3
5. Ocen, E., Opito, R., Tegu, C., Oula, A., & Olupot-Olupot, P. (2023). Severe malaria burden, clinical spectrum, and outcomes at Apac district hospital, Uganda: A retrospective study of routine health facility-based data. *Malaria Journal*, *22*(1), 325. https://doi.org/10.1186/s12936-023-04761-6
6. Singh, R., Musa, J., Singh, S., & Ebere, U. V. (2017). Knowledge, Attitude, and Practices on Malaria Among the Rural Communities in Aliero, Northern Nigeria. *Journal of Family Medicine and Primary Care*, *3*(1), 39. https://doi.org/10.4103/2249-4863.130271
7. Talapko, J., Škrlec, I., Alebić, T., Jukić, M., & Včev, A. (2019). Malaria: The Past and the Present. *Microorganisms*, *7*(6), Article 6. https://doi.org/10.3390/microorganisms7060179
8. Talipouo, A., Ngadjeu, C. S., Doumbe-Belisse, P., Djamouko-Djonkam, L., Sonhafouo-Chiana, N., Kopya, E., Bamou, R., Awono-Ambene, P., Woromogo, S., Kekeunou, S., Wondji, C. S., & Antonio-Nkondjio, C. (2019). Malaria prevention in the city of Yaoundé: Knowledge and practices of urban dwellers. *Malaria Journal*, *18*(1), 167. https://doi.org/10.1186/s12936-019-2799-6
9. Ukponahiusi, O., & Asogun, B. (2024). PREVALENCE OF MALARIA AND ASSOCIATED RISK FACTORS AMONG THE ELDERLY IN NIGERIA: IMPLICATION FOR POLICY INTERVENTION. *African Journal of Social and Behavioural Sciences*, *14*(7).
10. *World malaria report 2024*. (n.d.). Retrieved August 22, 2025, from https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2024
11. Yaya, S., Bishwajit, G., Ekholuenetale, M., Shah, V., Kadio, B., & Udenigwe, O. (2017). Knowledge of prevention, cause, symptoms, and practices of malaria among women in Burkina Faso. *PLOS ONE*, *12*(7), e0180508. https://doi.org/10.1371/journal.pone.0180508

SJ Public Health Africa
Vol. 3 No. 2 (2026): April 2026 Issue
https://doi.org/10.51168/1akpbd74
Original Article

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