FACTORS INFLUENCING PREVALENCE OF MALARIA AMONG CHILDREN UNDER FIVE YEARS ATTENDING PEDIATRICWARD AT HOIMA REGIONAL REFERRAL HOSPITAL, HOIMA DISTRICT. A CROSS-SECTIONAL STUDY.

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Abstract

Introduction:

The objectives were to determine the prevalence, Socio-demographic, and environmental factors influencing the prevalence of malaria among children under five years attending the pediatric ward at Hoima Regional referral hospital, Hoima district.

Methodology:

The study was a descriptive cross-sectional study of 100 respondents, selected by simple random sampling technique and the data was selected using self-administered questionnaires and the researcher assisted in interpreting for the illiterates.

Findings:

The prevalence of malaria among children under five years was (92/100) 92%. Most 92(92%) had ever suffered from malaria, half 50(50%) of the respondents reported the death of children under five years due to malaria, majority 90(90%) reported that malaria was commonest in a rural setting, 90(90%) slept under insecticide-treated nets, all 100(100%) obtained their insecticide-treated nets freely from health centers, majority 80(80%) controlled mosquito population in their area by slashing, all 100(100%) reported that mother's education influenced malaria prevalence, all 100(100%) reported that malaria was commonest in the wet season, most 99(99%) reported more malaria prevalence in areas(warm) near the equator, most 40(40%) reported more mosquito bites in the grass thatched lastly more than half 76(76%) reported that malaria was more in low land.

Conclusion:

The study found that the prevalence of malaria is very high among children under five years attending pediatric wards in HRRH. This was influenced by being in a rural setting, low level of mother's education, being peasants, wet season, being near the equator, humidity, and sleeping in grass-thatched houses. Poor control of the mosquito population, and not sleeping in well-ventilated houses with mosquito traps were the other factors

Recommendations:

The government in conjunction with the administration and health workers of HRRH should carry out regular and comprehensive health education programs and campaigns regarding malaria. Supporting and providing easy access to health centers and prompt management of those affected.

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1. Background

According to WHO, malaria is an acute febrile illness caused by Plasmodium parasites, which are spread to people through the bites of infected female Anopheles mosquitoes (WHO, 2022). It is a life-threatening disease that is preventable and curable (Deepinder Kaur,2023). According to (MOH, 2018), 5 parasite species cause malaria in humans, and 2 of these species - P. falciparum and P. vivax – pose the greatest threat. P. falciparum is the deadliest malaria parasite and the most prevalent on the African continent (WHO, 2023). P. vivax is the dominant malaria parasite in most countries outside of sub-Saharan Africa(WHO,2023).

The first symptoms – fever, headache, and chills – usually appear 10–15 days after the infective mosquito bite and may be mild and difficult to recognize as malaria (WHO, 2023). Left untreated, P. falciparum malaria can progress to severe illness and death within 24 hours (Bills and Miranda Gates, 2018).

Some population groups are at considerably higher risk of contracting malaria and developing severe disease among which are infants and children under 5 years of age (MOH, 2018). Several other factors including irrational use of vector control methods like the use of treated insecticide nets, and the climate of the sub-Saharan region among others influence the prevalence of malaria among children (WHO, 2022).

Globally, malaria is considered to be one of the main problems with it causing an estimated 241million cases and 627000 malaria deaths worldwide in 2020 (WHO, 2020)

In Sub-Saharan Africa country, a study was done in Central Malawi about the prevalence and determinants of malaria infection among children of local farmers where malaria is endemic throughout the country and it revealed that malaria most often affects individuals who live in the rural areas, which are hotter, wetter, and more humid and tend to be low-lying, rather than those who live in the dry, urban, highland areas (Chilanga, E., 2020).

In addition, the results from this study using the generalized Additive Mixed Model (GAMM) indicated that the mother's education level, wealth index, child's age, the altitude of the place of residence, region, place of residence, toilet facility, and electricity were significantly associated with a positive malaria RDT (Chilanga, E., 2020).

In East Africa, a study about malaria hospitalization: age, phenotype, and transmission intensity showed that the majority of malaria admissions were below 5 years across all transmission settings and the mean age of all-cause malaria hospitalization was 49.5 months under low transmission compared with 34.1 months at high transmission, with similar trends for each severe malaria phenotype (Kamau, A., et al 2022).

In Kenya, a study about the effects of climatic variability on malaria trends was done in Baringo County. According to Kipruto, it was discovered that periods of unusually high rainfall, altered humidity, or warmer temperatures can result in modified distribution and duration of malaria, as well as increased transmission even in areas where control is strong (Kipruto, E.K., et al 2017)

In Uganda, a study about the prevalence of malaria among children under five identified that the regions of Karamoja, West Nile, and Busoga were found to be significantly more endemic for malaria for several reasons, including children whose mothers had no formal education, children living in households with natural roofing, natural and rudimentary walls, the terrain in the highlands and the socio-cultural context (Benjamin, 2022))

According to data from the statistics office in Uganda, the Ministry of Health reported that malaria is the leading cause of death among inpatients aged below five years. The ministry said "prolonged intermittent rains in various parts of the country" caused by climate change had partly helped fuel the malaria spread. It also cited an influx of refugees from Congo and Sudan over the last few years, population growth, and a general

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decline in the use of mosquito nets as contributing to the increased prevalence (MOH, 2019)

However, no data could be obtained in the district of study, and hence need to conduct a study about the factors influencing the prevalence of malaria among children attending the pediatric ward in Hoima Regional Referral Hospital, Hoima district.

1.1. Main objective.

To determine the factors influencing the prevalence of malaria among children under five years of age attending the pediatric ward at Hoima Regional Referral Hospital, Hoima district.

1.2. The specific objectives of the study.

- To determine the prevalence of malaria among children under five years of age attending the pediatric ward at Hoima Regional Referral Hospital, Hoima district.

- To assess socio-demographic factors influencing the prevalence of malaria among children under five years of age attending the pediatric ward at Hoima Regional Referral Hospital, Hoima district.

- To identify the environmental factors influencing the prevalence of malaria among children under five years of age attending the pediatric ward at Hoima Regional Referral Hospital, Hoima district.

2. METHODOLOGY

2.1. Study design.

The study design was a descriptive quantitative cross-sectional study that was conducted in Hoima Regional Referral Hospital pediatric ward. This study design was used since it's faster and easier to use.

2.2. Study area.

The study was conducted in Hoima Regional Referral Hospital, Hoima district. The hospital is approximately 198km by road, northwest of Mulago national referral hospital, Uganda's largest

referral hospital. The coordinates of Hoima Regional Referral Hospital are 0"N, 31˚21'16.0" E (Latitude: 1.428051; Longitude: 31.354451).

2.3. Study population.

The study population considered children under five years of age attending the pediatric ward at Hoima Regional Referral Hospital, Hoima district.

2.4. Sample size determination

The sample size was calculated based on the prevalence of malaria among the under five in Hoima Regional Referral Hospital pediatric admissions.

The sample size was calculated from the Kish and Lesile formula:

$$n = \frac{Z2P(1-P)}{E2}$$

Where:

n- Total number of subjects required in the sample

Z= a standardized normal deviate value that corresponds to a level of statistical significance equal to 1.96

p= estimate of prevalence of malaria in children < 5 years taken to be 70% based on information about any pilot study done in the area.

E= margin of error which correspond to the level of precision of results desired

Assuming p=70%

E= 9%

N=1.9622x0.7(1-0.7)/0.092

N= 100

Therefore, 100 children under five were used in the study.

2.5. Sampling technique

The researcher used a simple random sampling technique to select the representative members to participate in the study; this technique offers equal chances to all members of the population to participate in the study and as well reduces bias.

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2.6. Sampling procedure

The study participants were selected using a simple random sampling technique using the lottery method. It involved the use of folded small pieces of paper where some were written with a "YES" and others were blank which were then placed in a box. Those written on and those that were blank, were both equal in number to eliminate sampling bias. The respondents were those who picked papers bearing a "YES" on them. The respondents were then well-oriented about the procedures of collecting data from them so that the consent forms were signed.

2.7. Data collection technique

The data was collected using a questionnaire because it was better for record keeping and also provided adequate privacy for the respondents as well as time-saving since the research was carried out for a short period.

2.8. Data collection tools

The study involved the use of self-administered questionnaires for the literate and the illiterate; it involved the aid of a research assistant who helped the participants. The questionnaire involved both open-ended and closed questions.

2.9. Study variables

The study involved both dependent and independent variables.

2.9.1. Dependent variable

The dependent variable was malaria in children under 5years.

2.9.2. Independent variable

The independent variables were socio-demographic factors; age, gender, place of residence, and level of education of the mother and environmental factors; climatic changes, season, and home structure.

2.10. Data collection procedure

During data collection a self-administered questionnaire was used for the literate and all the respondents who were not able to read and write interpretation was used and all the closed and open-ended questions in the questionnaire were exhaustively explained to them such that the data collected was accurate.

2.11. Pilot study

Five (5) children under five years of age were selected from Hoima Regional Referral Hospital to participate in the pilot study using a simple random sampling technique. This helped to remove the substandard questions and improve the validity and reliability.

2.12. Quality Control

To ensure the reliability and validity of the study questionnaire, the questionnaires were pretested before the actual data collection to ensure that the data collected was of quality. There were clear inclusion and exclusion criteria that were followed and ample time for the study was availed. The research assistants were trained to minimize errors. A pilot study was done to help to remove the substandard questions and improve the validity and reliability. Questionnaires were given to the study units only during the time for collecting data to avoid bias that can arise after the study units have discussed question-naires among themselves. The questionnaires were translated into local languages for easy understanding and data were edited immediately at the end of the exercise each day which helped to remove the possibility of errors.

2.13. Selection Criteria

2.13.1. Inclusion Criteria

All patients under five years of age who were admitted to the pediatric ward of HRRH during the study and whose parents consented to participate in the study.

2.13.2. Exclusion Criteria

All patients under five years of age who were admitted to the pediatric ward of HRRH with a diagnosis of malaria and whose parents did not consent to participate in the study.

2.14. Data analysis and presentation

Data was hand sorted, cleaned, and analyzed. The quantitative data in this study were managed and analyzed using descriptive statistics using Statistical Package for Social Sciences (SPSS) and Microsoft Excel. Descriptive statistics included means, standard deviations, and frequency. It was presented in narratives, figures, and charts.

2.15. Ethical consideration

The study commenced after permission was granted by the head of the research committee of HRRH after the introductory letter for approval of the research study was obtained from the supervisor and the research committee of Medicare Health Professional College and then presented to the hospital director.

Written and verbal consent was obtained after explaining the purpose and nature of the research study. Participation in the study was on a voluntary basis and participants were informed of their rights to quit or refuse their participation at any stage of the study if they did not want to continue. The information obtained was treated with maximum confidentiality by using an anonymous questionnaire that was supplied to the participants.

3. RESULTS

3.1. Demographic data

Table 1 indicates that the majority of respondents 45(45%) belonged to the 25-34 age bracket,35(35%) belonged to the 45 years and above age bracket, 15(15%) belonged to the 35-44 age bracket and 5(5%) belonged to 15-24 age bracket, which implies that most of the respondents are in the age group of 25-34 and 45 years and above age bracket. It shows that the children under 5 years of mothers aged 25-34 and above 45 years are the most affected with malaria.

Most, 70(70%) of the respondents had attained primary level of education, 20(20%), secondary education, 5(5%) tertiary education and 5(5%) of the respondents had no formal education. Therefore, most of our respondents had primary level of education and a few from secondary.

Most, 30(30%) of the respondents were Banyoro, followed by Baganda with 10(10%), Bakiga with 25(25%) while others accounted for 35(35)% .

Majority of respondents 50(50%) were Anglicans, 25(25%) Catholics, 15(15%) Born again, while 5(5%) belonged to both Muslim and Adventists

Most of the respondents 90(90%) were married and 10(10%) were single.

Most of the respondents were peasants with 70(70%), followed by students with 20(20%), and then business persons 10(10%). It is clear that most of the respondents came from a low socio-economic status which would further influence malaria prevalence.

3.2. Prevalence of malaria among children under five years.

Table 2 shows that 92(92%) of the respondents had children who suffered from malaria and only 8(8%) had never suffered from malaria. Of the 92 participants, 42(42%) suffered many times, 30(30%) thrice, 15(15%) once, then 5(5%) twice.

This shows that the prevalence of malaria is high accounting for the biggest percentage of 90% among children under five years old attending pediatric ward at Hoima Regional Referral Hospital, Hoima district

Table 3 indicates that the majority 90(90%) of the respondents reported that malaria was commonest in western region followed by eastern region with 10(10%) while none was reported in the regions of west Nile and north.

Figure 1 shows that the majority 50(50%) of the respondents had heard of children who died of malaria while 50(50%) hadn't heard of any children that had died of malaria. It was also estimated that approximately 45 children had died

Table 1: **Distribution of respondents by demographic characteristics (n=100)**

CAHARACTERISTICS	CATEGORIES	FREQUENCY	PERCENTAGE (%)
	15-24	05	5
	25-34	45	45
AGE	35-44	15	15
	≥45	35	35
	Total	100	100
	Primary	70	70
	Secondary	20	20
LEVEL OF EDUCATION	Tertiary	5	5
	No formal education	5	5
	Total	100	100
	Banyoro	30	30
	Bakiga	25	25
Tribe	Baganda	10	10
	Others	35	35
	Total	100	100
	Anglican	50	50
	Catholic	25	25
	Born again	15	15
Religion	Muslim	3	3
	Adventist	2	2
	Total	100	100
	Married	90	90
Marital status	Single	10	10
	Total	100	100
	Peasants	70	70
Occupation	Students	20	20
	Business	10	10
	Total	100	100

Table 2: **Showing distribution of children who had suffered from malaria (n=100)**

Respondents		Frequency	Percentage (%)
	once	15	15
Had suffered from malaria	Twice	5	5
	Thrice	30	30
	Many	42	42
	Total	92	92
Never suffered from malaria		8	8
	Total	100	100

Table 3: **Showing distribution of region of the country where malaria is commonest (n=100)**

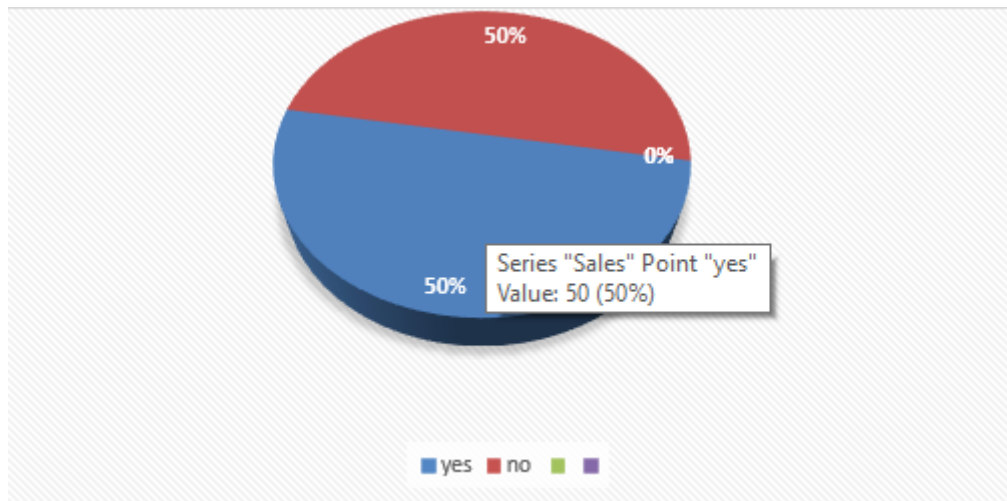| Region	Frequency	Percentage (%)
Western	90	90
Eastern	10	10
Northern	0	0
West Nile	0	0
Total	100	100

Figure 1: **Distribution of children who died of malaria within the respondents' areas in the previous 2 years.**

of malaria in the previous 2 years based on the results in Figure 1.

Table 4 indicates that24(72.7%) of the 33 children that had died of malaria in the previous 2 years were in the range of 7-9 followed by 9(27.3%) in the range of 0-3 while none was reported in the ranges of 4-6 and above 9 as reported by the respondents.

3.3. *Socio demographic characteristics of the study population.*

Figure 2 shows that the majority 90(90%) of the respondents reported that malaria was more common in rural setting while only 10(10%) of the respondents reported that malaria was common in urban setting.

Figure 3 indicates that the majority 90(90%) of the respondents reported that the children slept under insecticide treated nets and then 10(10%) did not sleep under insecticide treated nets.

In Figure 4 all 100(100%) respondents obtained the insecticide treated net freely from health centers while none from friends or locally purchasing the nets from shops.

Figure 5 indicates that the majority 80(80%) of respondents controlled the mosquito population in their area by slashing, 16(16%) by draining stagnant water while only 4(4%) of the respondents reported use of residual spraying.

Figure 6 shows that the majority 60(60%) of respondents did not sleep in houses which were well ventilated with mosquito traps while only 40(40%) slept in houses which were well ventilated with mosquito traps.

In Figure 7 ,all 100(100%) respondents reported that mothers education influenced the prevalence of malaria among children under five years and none of them did not report that level of education didn't influence the prevalence of malaria.

Table 4: showing distribution of children that had died of malaria in the previous 2 years

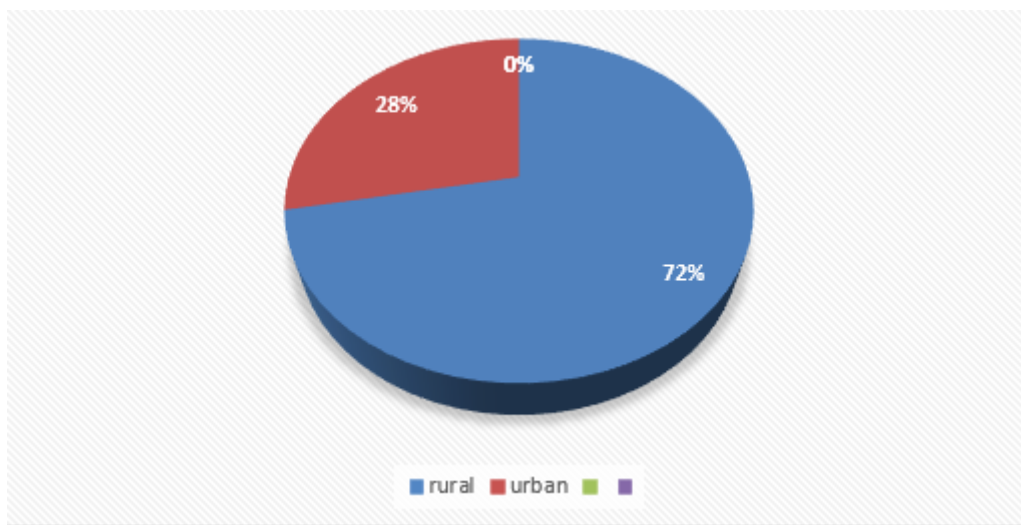| Respondents	Range (no. of children)	frequency	Percentage (%)
Have ever heard of child who died of malaria.	0-3	9	27.3
	4-6	0	
	7-9	24	72.7
	Above 9	0	
Total		33	100

Figure 2: **Distribution of respondents regarding the area setting where malaria is common.**
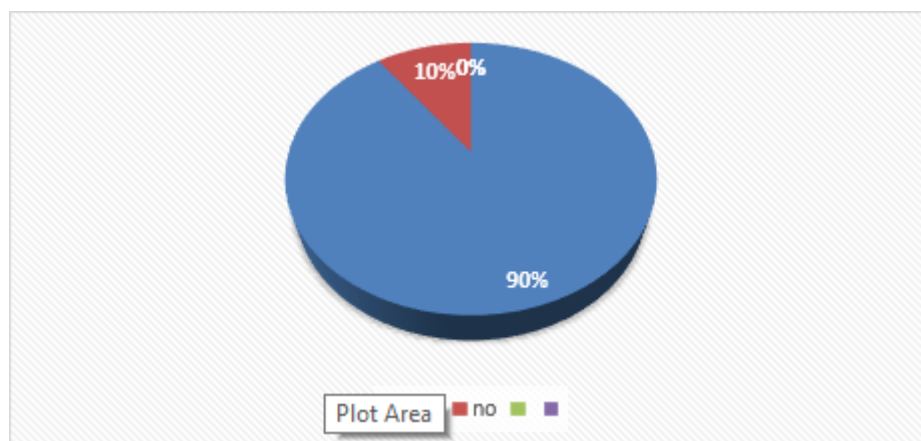
Figure 3: **Showing distribution of respondents by children who slept under insecticide treated mosquito nets.**
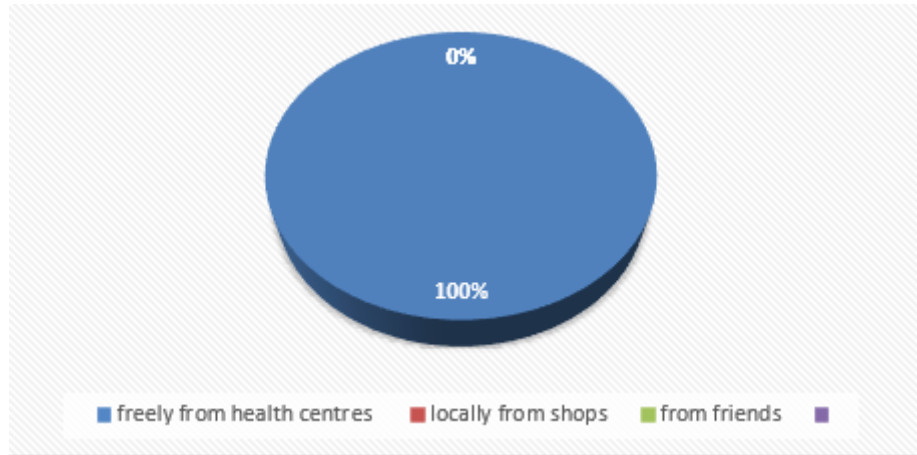
Figure 4: **Showing the distribution of respondents regarding where they got insecticide treated mosquito nets.**
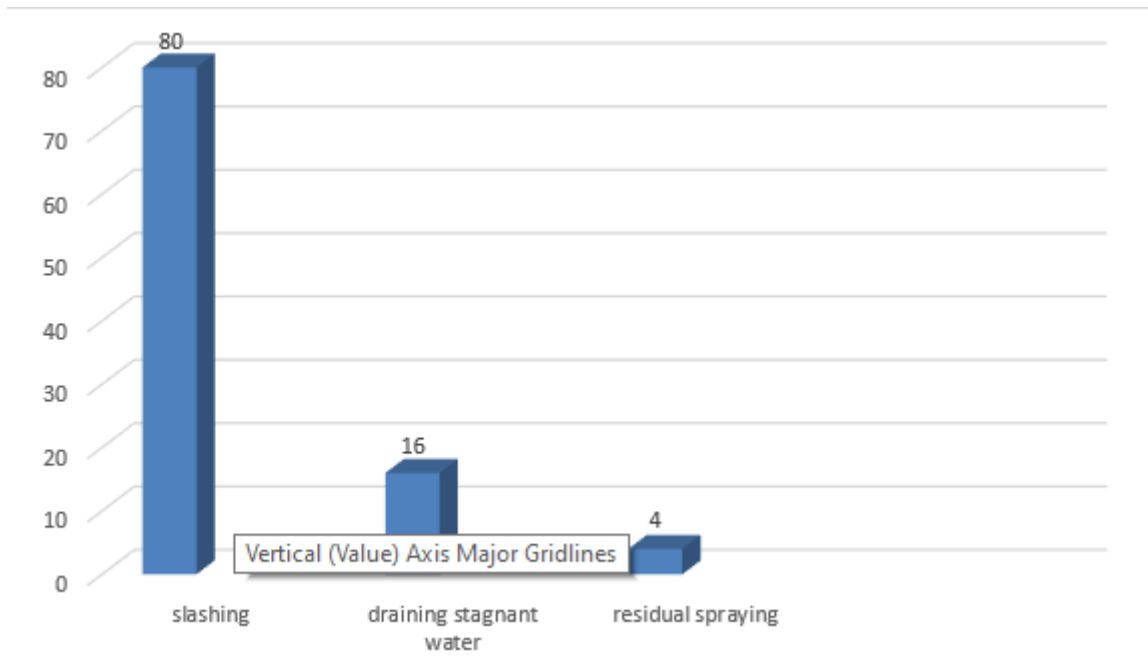
Figure 5: **Showing distribution of respondents on the control of mosquito population in their area.**

3.4. *Environmental factors influencing the prevalence of malaria among children under five years.*

100% of the respondents in Table 5 reported that the prevalence of malaria the was high during wet season and none of the respondents reported that the prevalence of malaria was high during the dry season. This clearly shows that children under five years are most affected with malaria during wet season and almost none is affected during dry season.

Figure 8 shows that mosquito bites were highest with 40(40%) in grass-thatched houses, followed by 38(38%) in houses with mad walls. It was also noted that mosquito bites were lower with 12(12%) in houses with open eaves and 10(10%) houses with unscreened windows.

Figure 9 shows that the majority 99% of the respondents reported that areas (warm) near the equator had higher prevalence of malaria, and 1 respondent did not answer.
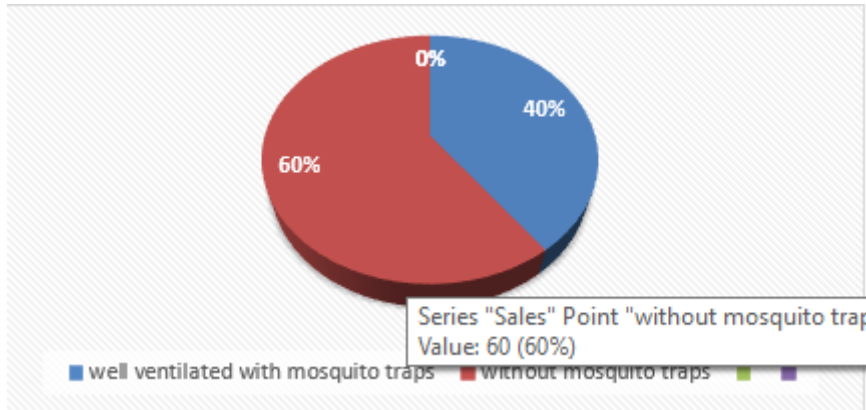
Humidity was another significant environmen-

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Figure 6: **Showing distribution of respondents regarding if their houses were well ventilated with mosquito traps.**
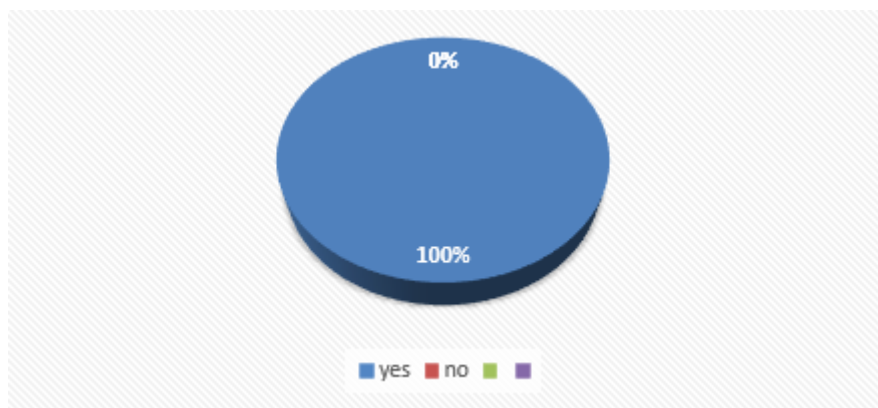

Figure 7: **Showing distribution of respondents regarding mothers level of education influencing the prevalence of malaria.**

Table 5: **Distribution of respondents regarding seasonal prevalence of malaria (n=100)**

Respondents	Frequency	Percentage (%)
Dry	00	0
Wet	100	100
Total	100	100

tal factor accounting for 100%.

Figure 10 shows that the majority 76(76%) of the respondents reported that malaria prevalence was higher in low lands whereas 24(24%) didn't respond.

4. Discussion

4.1. Demographic data

This study revealed that the majority 45 (45%) of the respondents belonged to the 25-34 age bracket followed by 35(35%) of the respondents in the age bracket of 40 and above, 15(15%) in the 35-44 and least 5(5%) respondents belonged to the age bracket of 15-24. This variation could be because most of the women get married and give birth at the age of 25 and above.

It was also found that most 30(30%) of the respondents were Banyoro by tribe, Bakiga25 (25%), Baganda10 (10%), while Bayomba, Banyankore, Bagisu, Alur, Bafumbira, Basoga, and others accounted for only 5(5%). Banyoro being the majority could be attributed to the fact
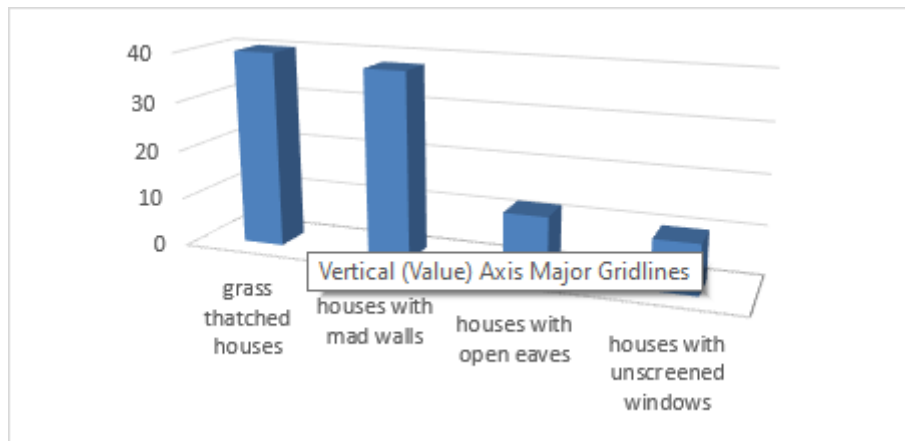
Figure 8: **Showing distribution of respondents by nature of houses in which mosquito bites are most likely high.**
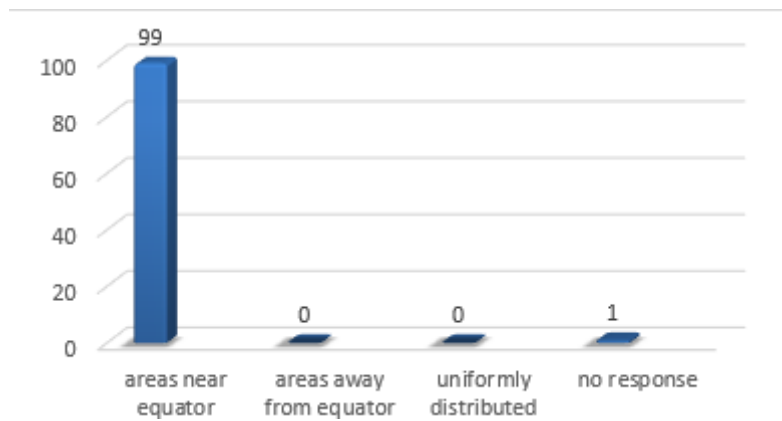

Figure 9: **Showing distribution of respondents regarding areas with high prevalence of malaria.**
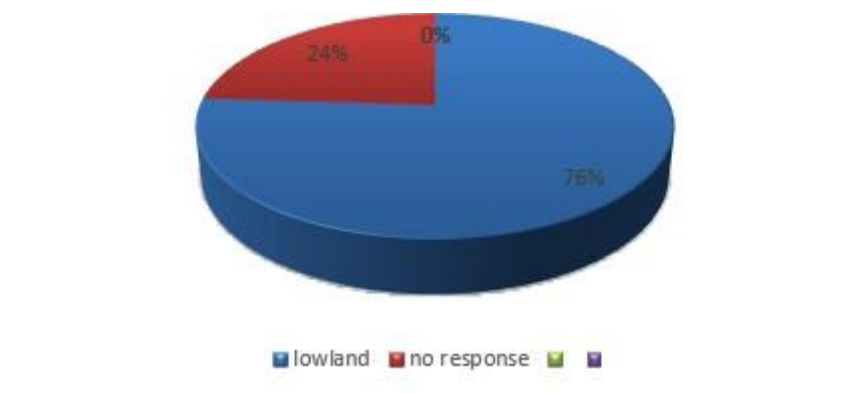

Figure 10: **Showing the distribution of respondents regarding the area where malaria prevalence is more common.**

that the study was done in western region particularly in Bunyoro kingdom. This was followed by Bakiga who also live in the same region while the rest of the tribes live in a different region of the country. In relation to the previous study that was done in Uganda by Benjamin, 2022 about the prevalence of malaria among children under five, it was identified that the regions of Karamoja, West Nile and Busoga were found to be significantly more endemic for malaria which is not in line with my study.

About religion, most of the respondents 50(50%) were Anglicans, 25(25%) were Catholics, 15(15%) were Born again, while 5(5%) belonged to both Muslims and Adventists. This could be because the area is mainly occupied by Anglicans more than other religions.

This study also found out that mostly 70(70%) of the respondents had attained primary education,20(20%) attained secondary, 5(5%) tertiary and 5(5%) of the respondents had no formal education. Therefore most of our respondents had primary level of education and a few from secondary. This could be due to the presence of many government primary schools in the area. The results of the study are in line with the study by Chilanga and others in 2020 that found out that children of mothers who had no formal education were more likely to be diagnosed with malaria than children of mothers who received secondary education.

Most of the respondents 90(90%) were married and 10(10%) were single. This could be because married women are more responsible.

Most of the respondents were peasants 70(70%), followed by students 20(20%), and then business 10(10%). It is clear that most of the respondents came from a low socio-economic status which would further influence malaria prevalence. This is similar to a study carried out by Paul and others in 2018 which showed that malaria decreases with an increase in wealth.

4.2. Prevalence of malaria among children under five years.

The study found the prevalence of malaria to be at (92%) as evidenced by 92 of the respondents who reported that their children had ever suffered from malaria and only 8(8%) of the respondents whose children had never suffered from malaria. The mothers and caretakers of these children under five on pediatric ward reported that their children suffered from malaria at least thrice prior to admission.

Despite the fact that malaria is endemic in almost all parts of Uganda, this is so much higher compared to a study by Benjamin in 2022 in Uganda about the prevalence of malaria pattern in children by background characteristics where the average national malaria prevalence was at 9%, and that of west Nile region at 22%; 12% in Lango; 34% in Karamoja and 21% in Busoga region. This variation in the prevalence could have arisen from the difference in the study populations.

The study found out that 24(72.7%) of the 33 children that had died of malaria in the previous 2 years were in the range of 7-9 children followed by 9(27.3%) in the range of 0-3 children while none was reported in the ranges of 4-6 children and above 9 as reported by the respondents. This may be due to the fact that the respondents were ignorant of any other deaths. This study is in agreement with the study carried out by WHO 2022 which showed that the estimated number of malaria deaths stood at 627000 in 2020 – an estimate of 69000 death over the previous year that represents about 14million more cases in 2020 compared to 2019 and 69000 more deaths.

4.3. Socio-demographic factors influencing prevalence of malaria among children under five years.

Majority 90(90%) of the respondents in the study reported that rural setting is highly affected by malaria compared to only 10(10%) of the respondents who reported that it is common in urban areas. This is because rural areas have much mosquito population as a result of various bushes and stagnated water. This study agrees with the study carried out by Tkachenko, 2022 which described disease 'ethno-gender-age typological aspect taking the rural area into consideration.

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The study revealed that majority 90(90%) of the respondents reported that the children slept under an insecticide treated net and then 10(10%) did not sleep under insecticide treated nets indicating that most of the respondents had insecticide treated mosquito nets hence reducing the cases of malaria. This study is in agreement with the study carried out by Tsegaye and oth- ers (2019) who reported that regularly sleeping under long-lasting treated nets (LLIN) was associated with decreased odds of malaria.

The study also revealed that 80(80%) of respondents controlled the mosquito population in their area by slashing, 16(16%) by draining stagnant water while only 4(4%) respondents reported using residual spraying showing that there is use of poor control methods. This is in support with the study done by Yang, and others (2020) that showed that indoor residual spraying(IRS), insecticide treated net (ITN) use were significantly associated with malaria prevalence.

This study also found out that mostly 70(70%) of the respondents had attained primary education, 70(70%), 20(20%) secondary, 5(5%) tertiary education and 5(5%) of the respondents had no formal education. Therefore, most of our respondents had primary level of education and a few from secondary. This could be due to the presence of many government primary schools in the area. The results of the study are in line with the study by Chilanga and others (2020) that found out that children of mothers who had no formal education were more likely to be diagnosed with malaria than children of mothers who received secondary education.

4.4. *Environmental factors influencing the prevalence of malaria among children under five years.*

The study also found out that all (100%) of the respondents reported that the prevalence of malaria was high during wet season and none of the respondents reported that the prevalence of malaria was high during the dry season. This clearly shows that children under five years are most affected with malaria during wet season and almost none is affected during dry season. This

corresponds to the study by Oliver, and others(2022) which showed that malaria transmission was higher during the rainy season with an incidence of 61.1% versus 38.89% for the dry season.

The study showed that mosquito bites were highest in grass thatched houses with 40(40%) followed by houses with mad walls with 38(38%). It was also noted that mosquito bites were lower in houses with open eaves having 12(12%) and then houses with unscreened windows with 10(10%). This this because these nature of houses harbor more mosquitoes. The study agrees with the results by Kaindoa and others in 2018 that showed that the number of mosquitoes was significantly higher in houses with open eaves, grass roofs, Mud walls, and unscreened windows.

The study further revealed that 99(99%) of the respondents reported that areas (warm) near the equator had higher prevalence of malaria, and 1 respondent did not answer showing that mosquitoes breed more in warmer regions. This study is in agreement with study by CDC, 2020 that revealed that malaria was more intense, and transmitted year-round in warmer regions closer to the equator than in colder regions.

5. **Conclusion.**

This study specifically sought to assess sociodemographic factors influencing the prevalence of malaria among children under five years attending pediatric ward in Hoima Regional Referral Hospital.

It was established that majority of the respondents reported that malaria was more common in rural areas, slept under an insecticide treated nets that were freely obtained from health centers, controlled mosquito population in their area by slashing and draining stagnant water, and that mother's level of education influenced the prevalence of malaria among children under five years. With reference to these findings, slashing and draining of stagnant water as a way of controlling mosquito population, being in rural area and mother's level of education were significantly associated with the prevalence of malaria while sleeping under insecticide treated nets freely obtained

from health centers was not significantly associated with prevalence of malaria.

This study further assessed the environmental factors influencing the prevalence of malaria among children under five years attending pediatric ward in Hoima Regional Referral Hospital. It was established that malaria prevalence was high in wet season, areas (warm) near the equator, humidity, grass thatched houses, houses with mud walls and in low lands. In view of these findings, wet season, areas (warm) near the equator, humidity, sleeping in grass thatched houses and houses with mud walls and low lands were significantly associated with the prevalence of malaria among children under five years.

From the above study it was clearly showed that sociodemographic and environmental factors were significantly associated with the prevalence of malaria among children under five years attending pediatric ward in Hoima Regional Referral Hospital.

However, more studies need to be carried out to assess different factors and issues concerning malaria prevalence among children under five years attending pediatric wards in Hoima Regional Referral Hospital.

6. Study limitations.

The weather condition at HRRH for instance on a rainy day where few patients reported on the pediatric ward.

7. Recommendation.

From the results obtained from the study, the researcher therefore recommends that;

The government in conjunction with the administration and health workers of HRRH should carry out regular and comprehensive health education programs and campaigns regarding malaria. This could be done over every visit at the hospital for example during immunization and family planning, medial channels like televisions and radio stations, social gatherings like schools and churches. These campaigns could encompass educating mothers and care takers on the proper

use of insecticide treated nets, sleeping in houses which are well ventilated with mosquito traps, empowering girl child education before marriage or encouraging adult education

The government could also support those in highly endemic areas for malaria like those living in rural areas, near the equator, sleeping in grass thatched houses and low lands with improved vector control methods like indoor residual spraying among others as well as providing easy access to health centers and prompt management of those affected among others.

More studies need to be carried out to assess different factors and issues concerning malaria prevalence among children under five years attending pediatric ward in Hoima Regional Referral Hospital.

8. Acknowledgement.

9. List of abbreviations.

ACTs : Artemisinin Based Combination Therapy
AOR : Adjusted Odds Ratio
GAMM : Generalized Additive Mixed Model
Gov't : Government
HIV/AIDS : Human immunodeficiency virus infection / acquired immunodeficiency syndrome
HRRH : Hoima Regional Referral Hospital
IRS : Indoor-residual spraying

ITNs : Insecticide-treated mosquito nets
IVM : Integrated Vector Management
LLITNs : Long Lasting Insecticide Treated Nets
MOH : Ministry of Health
NIMR : National Institute of Medical Research
NMCD : National Malaria Control Division
NMCP : National Malaria Control Program
RDTs : Rapid Diagnostic Tests
UNHCR : United Nations High Commissioner for Refugees
UNICEF : United Nations Children Education Fund
USAID : United States Agency for International Development
VHT : Village Health Team
WHO : World Health Organization

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