

KNOWLEDGE, ATTITUDE AND PRACTICES OF MALARIA PREVENTION AMONG PREGNANT WOMEN ATTENDING ANTENATAL CLINIC AT GOMA HEALTH CENTER III, MUKONO DISTRICT: A CROSS SECTIONAL STUDY.

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Abstract

Objectives

To determine the level of knowledge, attitude and practices about malaria prevention among the pregnant women attending antenatal clinic at Goma Health center III. Methodology: The study was a descriptive cross-sectional study that involved the use of quantitative approach of data collection and analysis. Consent from 145 pregnant women attending antenatal clinic at Goma Health center III was sought before participation into the study, they answered questions in the questionnaires in line with the study objectives and the results data was stored in Microsoft excel and analysed using stata version 14.0.

Results

Out of the 145 pregnant women who participated, 87 of them (60%) were aged between 21-40 years, and only a few were aged 45 years and above. All of them had heard about malaria in pregnancy whereby most of them (98, 67.58%) had heard about it from health facilities. They all believed that mosquitoes were the Vectors that spread malaria, but a few were ignorant about its transmission where 6 (4.13%) believed it was transmitted by coming into contact with a malaria patient, other 6 (4.13%) by eating contaminated food, some 2 (1.37%) believed in transmission by eating so many mangoes.

Conclusion

The participants' basic knowledge about malaria in pregnancy was good because all of them (100%) had heard about it and most of them knew its correct transmission, signs and symptoms, and prevention measures. Their attitudes towards malaria prevention were not so good because most of them strongly agreed that the disease is serious and life-threatening, their practices towards malaria prevention were good.

Recommendations

The researcher therefore recommends that more health education should be done about malaria transmission to ensure excellent knowledge, self-medication should be strongly condemned because most Africans believe in it but it is risky to pregnant women.

Keywords: Knowledge, Practices, Attitude, Antenatal, Pregnant Women, Prevention, Goma Health Centre III.

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Background

Malaria is a life-threatening disease that is caused by parasites transmitted to people through bites of an infected female anopheles' mosquito (WHO, 2022). It is one of the most severe public health problems worldwide with nearly half of the world's population (3.2 billion) at risk of the disease (WHO, 2021). The disease spreads in a way that, when a female anopheles' mosquito bites a malaria infected individual, it takes in the malaria parasites which like after a week it mixes with its saliva. Then, when it takes in another blood meal, it injects the mixture into another individual, infecting them with the disease also. In addition, the disease

can also be transmitted through transfusion of malaria infected blood, sharing syringes or needles with infected individuals, from mother to unborn child, and many more ways. There is heightened malaria in pregnancy in Uganda according to a study by Wafula S, T., Mendoza, H., Nalugya, A. et al (2021), which revealed that prevalence of the disease was ranging between 13.1% and 50% and could be at a higher rate of 80% in areas that were highly endemic. Mukono district experiences a year-round malaria transmission just like most areas in Uganda. In addition, it experiences low temperatures during months of March to May, and during October to December, then high

temperatures during the rest of the months every year which conditions make the district malaria endemic. The district area is endemic for malaria with high disease prevalence, according to Mbonye A, Buregyeya E, and LaRussal P (Malaria journal, 2016). Despite measures like giving fansidar, IPTp-SP, to pregnant women, providing them with Insecticide Treated Nets, indoor residual spraying, use of mosquito repellants, and other many ways to protect them from malaria, malaria remains a challenge among pregnant women. According to David et al (June 2015), many people still do not have enough knowledge concerning the measures that can be used to prevent malaria especially among the pregnant women. Therefore, this study will establish knowledge, attitude and practice of malaria prevention among the pregnant women so that interventions can be suggested to avert the problem.

Methodology study design

The study design was a descriptive cross sectional study design which involved the use of quantitative approach of data collection and analysis.

Area of the study

The study was carried out at Goma Health center III in Mukono district. Goma Health center III is a government facility under the ministry of health Uganda and it is located 11 km from Mukono town, in Misindye parish, Goma division, Mukono district, Central Uganda. The study was carried out at Goma Health center III in Mukono district. It was carried out in a period of 5 months. The study was aimed at determining the level of knowledge, attitudes and practices of malaria prevention among pregnant women attending antenatal clinic at Goma Health center III.

Research population

The study research population were all pregnant women attending antenatal clinic at Goma Health center III.

Inclusion criteria

The inclusion criteria were all pregnant women attending antenatal clinic at Goma.

Exclusion criteria

Any pregnant woman who was too sick to consent was excluded from this study.

Sample size determination

The research sample size was determined using the Kish Leslie formula (1965) which states that:

Where $n = Z^2 \times p(1-p) / d^2$

n= required sample size

z= standard error of the mean which corresponds to 95% confidence level (standard value of 1.96).

d= standard error/ margin of error set at 5% (0.05)

P=0.1(10%) i.e. proportion of pregnant women with malaria at Goma Health center III

Therefore, $n = 1.96^2 \times 0.1(1-0.1) / 0.05^2$

n=138

Non response factor of 5%=7

Total Sample size determination =145 respondents

Data collection Tools

Data was collected using an interviewer questionnaire developed basing on the study objectives. The questionnaire included both open and close ended questions. The tool was chosen because it consumes less time, it is easy to use and it can collect much data within a short period of time.

Data analysis and interpretation

The data gathered using a questionnaire survey was stored in Microsoft excel spreadsheet and analyzed using

Ethical considerations;

The research proposal was reviewed by the supervisor and presented to Mildmay Institute of Health Sciences administration for approval. An introduction letter from the institution and a copy of the proposal were then being presented to the in charge of Goma to permit carrying out the study. Also, informed consent was sought from the participants before data collection and also study numbers were used other than names in order to ensure participants' privacy.

Results

The demographic characteristics of the study respondents

Table 1: Table showing demographic data of the participants as provided from a standardised questionnaire filled in by study participants.

Characteristic	Frequency	Percentage (%)
Age (years) (n=145)		
1-20	53	36.55
21-40	87	60
41 and above	5	3.44
Level of education (n=145)		
No formal education	0	0
Primary	52	35.86
Secondary	73	50.34
Tertiary	20	13.79
Main source of income (n=145)		
Formal employment	26	17.93
Trading	36	24.82
Agriculture	7	4.82
Unemployed	76	52.41

Prepared from the primary data source.

Table 1 shows that out of the 145 participants, most pregnant women (87,60%) were aged between 21-40 years, followed by those aged between 1-20 years who were 53 (36.55%) and the least were those aged 41 years and above who were 5 (3.44%). Out of all (145 participants), none of them (0%) had not had formal education, 52 participants (35.86%) attained primary education, 20 participants (13.79%)

attained tertiary education and the majority participants (73) attained secondary education with a percentage of (50.34%). In terms of employment, majority of the participants 76 (52.41%) were unemployed, those practicing trading were 36 (24.82%), then 26 participants (17.93%) were formally employed, whereas the least number were farmers (7 participants, 4.82%).

Basic knowledge about malaria

Table 2: Table showing participants' basic knowledge about malaria, transmission, signs and symptoms, prevention and control measures.

Characteristic	Frequency	Percentage (%)
Heard of malaria (n=145)		
Yes	145	100
No	0	0
Source of information (n=145)		
Family member	30	20.68
Neighbor	18	12.41
Radio	40	27.58
Television	57	39.31
Health facility	98	67.58
Vector that transmits malaria (n=145)		
Mosquito	145	100
Housefly	0	0
How can malaria be transmitted to man (n=145)		
Coming to contact with a malaria patient	6	4.13
Eating contaminated food	6	4.13
Eating so many mangoes	2	1.37
Bites by mosquito infected by malaria	131	90.34
Malaria can lead to death if left untreated (n=145)		
Yes	142	97.93
No	3	2.06
What to do when you get malaria		
Self-medication	16	11.03
Visit a health facility	129	88.96
Effects of malaria on an unborn child		
Low birth weight	30	20.68
Premature death	132	91.03
Change in skin colour	7	4.82

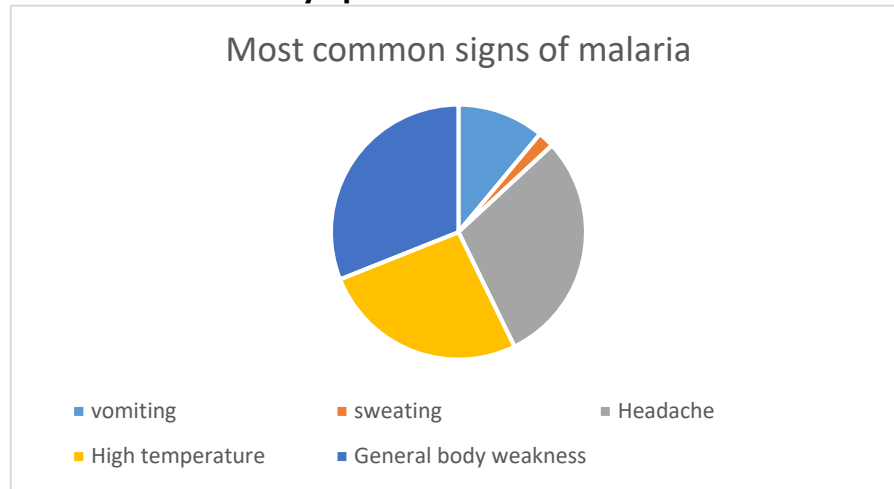
Prepared from the primary data source

Table 2 summarises the participants' basic knowledge about malaria. Out of the 145 participants, all of them (145 participants, 100%) had heard about malaria in pregnancy, none of them (0 participants, 0%) had never heard about malaria. Majority of the pregnant women (98 participants, 67.58%), had heard about the disease from health facilities, followed by (57 participants, 39.31%) from televisions, then those who had heard from radios were (40 participants, 27.58%), followed by (30 participants, 20.68%) who had heard from family members, the least number (18 participants, 12.41%) had heard about the disease from neighbors. All the 145 participants (100%) believed that mosquitoes spread malaria and none of them (0%) believed that houseflies spread the disease. Concerning knowledge about malaria transmission, out of 145 participants, most of them (131 participants, 90.34%) believed that the disease is

transmitted by bites from a mosquito infected by malaria, 6 participants (4.13%) believed it was transmitted by coming into contact with a malaria patient, also 6 patients (4.13%) believed in transmission by eating contaminated food. The least number (2 participants, 1.37%) believed in transmission by eating so many mangoes. 142 participants (97.93%) believed that malaria could lead to death if left untreated while 3 participants (2.06%) believed that the disease couldn't lead to death if left untreated. Most participants (129, 88.96%) visited a health facility whenever they got malaria whereas 16 participants (11.03%) self-medicated themselves. Most participants (132, 91.03%) believed in premature death as an effect of malaria on an unborn child, followed by 30 of them (20.68%) who believed in low birth weight effect, and the least number of

participants (7, 4.82%) believed in change in skin color as an effect.

Figure 1: A pie chart showing participants' knowledge about the most common signs and symptoms of malaria

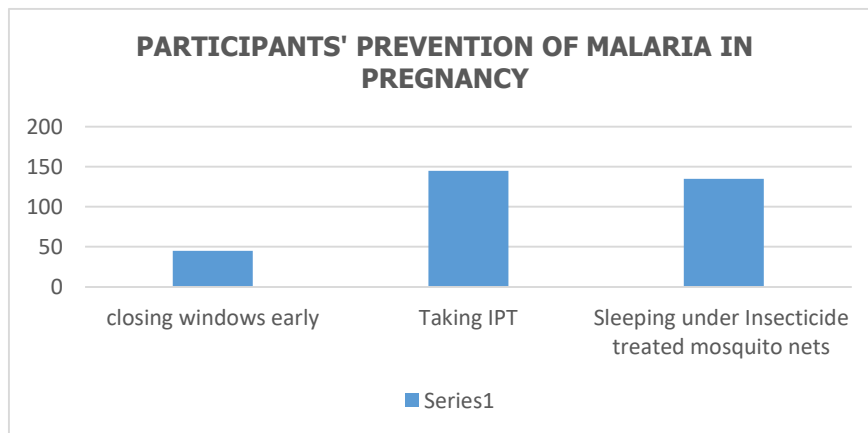


Prepared from the primary data source

From the pie-chart above in Figure 1, out of the 145 participants asked about the most common signs of malaria, most of them (45, 31.03%) believed that General body weakness was the most common sign of malaria, followed by 43 participants (29.65%) who believed in Headache, then

38 participants (26.20%) who believed in high temperature, then 16 participants (11.03%) who believed in vomiting, and the least number of participants (3, 2.06%) who believed that the most common signs of malaria was sweating.

Figure 2: A bar graph showing the participants' ways of preventing malaria in pregnancy



Prepared from the primary data source

From the above bar graph in Figure 2, out of 145 participants, most of them (143, 98.62%) believed in taking IPT to prevent malaria in pregnancy followed by 135 participants (93.10%) who believed in sleeping under

Insecticide treated mosquito nets and the least number of participants (30, 20.68%) believed in closing windows early to prevent malaria in pregnancy.

Participants' attitudes towards malaria
Table 3: Participants' attitudes towards malaria

Variable	Strongly Disagree n (%)	Disagree n (%)	Strongly Agree n (%)	Agree n (%)
Malaria is a serious and life-threatening disease	8 (5.51)	7 (4.82)	121 (83.44)	9 (6.20)
A person can recover spontaneously from malaria without receiving any treatment	94 (64.82)	20 (13.79)	10 (6.89)	21 (14.48)
Not taking malaria medicine completely during pregnancy is dangerous	3 (2.06)	13 (8.96)	118 (81.37)	11 (7.58)
Malaria can be transmitted from one person to another like common cold	93 (64.13)	24 (16.55)	17 (11.72)	11 (7.58)
The best way to prevent malaria is avoiding mosquito bites	4 (2.75)	3 (2.06)	120 (82.75)	18 (12.41)
Anyone can get infected by malaria	7 (4.82)	16 (11.03)	115 (79.31)	7 (4.82)
Only pregnant women and children are at risk of malaria	102 (70.34)	33 (22.75)	5 (3.44)	5 (3.44)
I can buy anti-malaria drugs from a health facility to treat myself in case I get malaria	77 (53.10)	29 (20)	24 (16.55)	15 (10.34)
Sleeping under an ITN is one way I can prevent myself from getting malaria	6 (4.13)	5 (3.44)	122 (84.13)	12 (8.27)
Sleeping under ITNs has no negative effects	10 (6.89)	45 (31.03)	79 (54.48)	11 (7.58)
IPT is very essential for malaria prevention in pregnancy	0 (0)	2 (1.37)	130 (89.65)	13 (8.96)

Spraying my house using anti-malaria sprays is not harmful to a pregnant woman and her unborn child	44 (30.34)	43 (29.65)	30 (20.68)	28 (19.31)
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Prepared from the primary data source

From Table 3, out of 145 participants, most of them (121, 83.44%) strongly agreed, 9 (6.20%) agreed, 8 (5.51%) Strongly disagreed, and the least number (7, 4.82%) disagreed that malaria was a serious and life-threatening disease. Most participants (94, 64.82%) Strongly disagreed, 21 (14.48%) agreed, 20 (13.79%) disagreed, and 10 (6.89%) Strongly agreed that a person could recover spontaneously from malaria without treatment. Most participants (118, 81.37%) Strongly agreed, (13, 8.96%) disagreed, (11, 7.58%) agreed and 3 (2.06%) Strongly disagreed that not taking malaria medicine completely during pregnancy was dangerous. Most participants (93, 64.13%) Strongly disagreed, (24, 16.55%) disagreed, 17 (11.72%) strongly agreed, and (11, 7.58%) agreed that malaria could be transmitted from one person to another like common cold. Most participants (120, 87.75%), strongly agreed, (18, 12.41%) agreed, (4, 2.75%) Strongly disagreed and (3, 2.06%) disagreed that the best way to prevent malaria was avoiding mosquito bites. Most participants (115, 79.31%) Strongly agreed, (16, 11.03%) disagreed, (7, 4.82%) Strongly disagreed, and (7, 4.82%) agreed that anyone could get infected by malaria. Most participants (102, 70.34%) Strongly disagreed, (33, 22.75%)

disagreed, (5, 3, 44%) Strongly agreed, (5, 3.44%) agreed that only pregnant women and children were at risk of malaria. Most participants (77, 53.10%) Strongly disagreed, (29, 20%) disagreed, (24, 16.55%) Strongly agreed, and (15, 10.34%) agreed that they could buy anti-malaria drugs from a health facility to treat themselves in case they got malaria. Most participants (122, 84.13%) Strongly agreed, (12, 8.27%) agreed, (6, 4.13%) Strongly disagreed, and (5, 3.44%) disagreed sleeping under ITNs was one way they could prevent malaria. Most participants (79, 54.48%) Strongly agreed, (45, 31.03%) disagreed, (11, 7.58%) agreed and (10, 6.89%) Strongly disagreed that sleeping under ITNs had no negative effects. Most participants (130, 89.65%) Strongly agreed, (13, 8.96%) agreed, (2, 1.37%) disagreed and (0, 0%) Strongly disagreed that IPT was very essential for malaria prevention in pregnancy. Lastly, most participants (44, 30.34%) Strongly disagreed, (43, 29.65%) disagreed, (30, 20.68%) Strongly agreed and the least number (28, 19.31%) agreed that spraying their houses using anti-malaria sprays wasn't harmful to pregnant women and their unborn children.

Participants' Practices Towards malaria prevention
Table 4: Participants' malaria prevention practices (n=145)

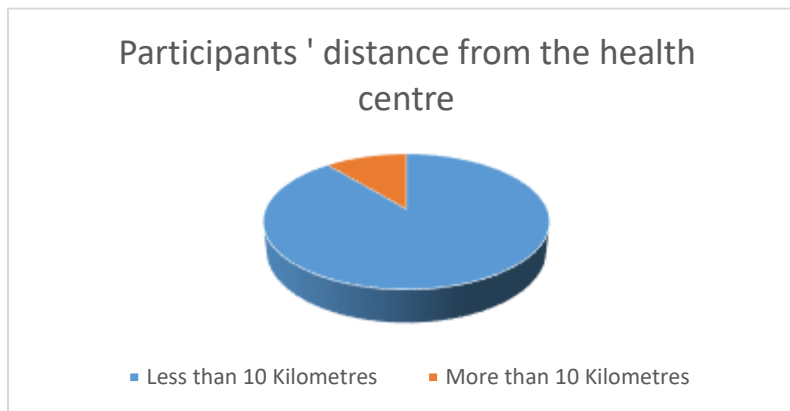
Variable	Always (n, %)	Sometimes (n, %)	Never (n=145)
How often do you sleep under an Insecticide Treated mosquito Net?	129 (88.96)	14 (9.65)	2 (1.37)
How often do other household members sleep under an Insecticide Treated mosquito Net?	116 (80)	29 (20)	0 (0)
How often do you check for holes in your Insecticide treated mosquito net for repair?	77 (53.10)	62 (42.75)	6 (4.13)
How often do you take IPT in order to prevent malaria during your pregnancy?	136 (93.79)	7 (4.82)	2 (1.37)
How often do you use anti-malaria spray in your home?	12 (8.27)	30 (20.68)	103 (71.03)
How often do you visit the health facility to receive Maternal Child Health Services for malaria?	138 (95.17)	7 (4.82)	0 (0)

Prepared from the primary data source

From table 4, out of 145 participants, 129 (88.96%) always slept under ITNs, 14 participants (9.65%) Sometimes, and 2 participants (1.37%) Never slept under ITNs. 116 participants (80%) had other household members always sleeping under ITNs, 29 participants (20%) had other household members sometimes sleeping under ITNs and none of the participants (0, 0%) had household members never sleeping under ITNs. Most participants (77, 53.10%) always checked for holes in their ITNS, 62 participants (42.75%) did so sometimes, whereas 6 (4.13%) Never checked for holes in their ITNS for repair. Most participants

(136, 93.79%) always took IPT, 7 participants (4.82%) took it sometimes, and 2 (1.37%) Never took IPT to prevent malaria in pregnancy. Most participants (103, 71.03%) never used anti-malaria sprays, 30 participants (20.68%) used it sometimes, and 12 participants (8.27%) always used anti-malaria sprays in their homes. Most participants (138, 95.17%) always visited health facilities to receive Maternal Child Health Services for malaria, 7 participants (4.82%) did sometimes, and none of them (0, 0%) never visited health facilities to receive Maternal Child Health Services for malaria.

Figure 3: A pie-chart showing participants' distance from the health centre



Prepared from the primary data source

From the pie-chart above, out of 145 participants, 129 (88.96%) lived less than 10 kilometres from the health centre while 16 participants (11.03%) lived more than 10 kilometres from the health centre.

Discussion

The main objective of the study was to determine the level of knowledge, Attitudes and practices of malaria prevention among pregnant women attending antenatal clinic at Goma Health center III. And the findings of the results reveal that out of 145 participants, all of them (100%) had ever heard about malaria in pregnancy and none of them (0%) had never heard about malaria in pregnancy. The results are in agreement with those in a study conducted by Oyekale A, S (2014) in Nigeria which indicated that 78.28% of the pregnant women surveyed had correct knowledge concerning malaria by answering that mosquitoes were responsible for it.

From the study in accordance with the second objective, 121 participants (83.44%) Strongly agreed that malaria was a serious and life-threatening disease. Similarly, a study by K Mbonye., et al (2006) revealed that in Mukono district, a

large proportion of the population had a perception that malaria was a very serious disease affecting pregnant women.

According to the study results, 129 participants (88.96%) always slept under ITNs. This is in disagreement with results in a survey by Taremwa, I. M., Ashaba, S., Adrama H.O., et al (2017) in rural South-Western Uganda which revealed that out of the 369 pregnant women interviewed, 41% were not sleeping under ITNs because they feared side effects like getting cancer from the chemicals in them and others feared the excessive warmth cause a lot of sweating. Others hated them claiming that they were not long enough to cover their entire beds, and that they were very rough.

Conclusion

In the study, the first research question was, “what is the level of knowledge about malaria prevention among pregnant women attending antenatal clinic at Goma Health center III?” And the level of knowledge was found to be good. And for the second research question which was “what are the attitudes of the pregnant women attending antenatal clinic at Goma Health center III towards malaria

prevention?” And the attitudes were found to be not so good. For the third research question which was “what are the common prevention practices for malaria among the pregnant women attending antenatal clinic at Goma Health center III?” The most common malaria practices among these pregnant women were taking IPT and sleeping under ITNs.

Recommendation

Further studies should be carried out on why some pregnant women still opt for self-medication yet in their state they need medical attention so much. Pregnant women should be sensitised more about the use of anti-malaria sprays and that they are not as harmful as they think.

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List of abbreviations

AIDS.....	Acquired	Immunodeficiency Syndrome
CDC.....	Centers for Disease Control and Prevention	
DHMT.....	District Health Management Team	
DRC.....	Democratic Republic of Congo	
GDP.....	Gross Domestic Product	
HIV.....	Human Immunodeficiency Virus	
HMIS.....	Health Management Information System	
IPT.....	Intermittent Preventive Treatment	
IRS.....	Indoor Residual Spraying	
ITN.....	Insecticide- Treated Nets	
LBW.....	Low Birth Weight	
MOH.....	Ministry of Health	
NSAID.....	Non-Steroidal	Anti-Inflammatory Drugs
RBM.....	Roll Back Malaria	

WHO.....World Health Organization

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Conflict of interest

The author had no conflict of interest.

Author biography


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