

## Knowledge, Attitudes, and Practice on Malaria Prevention and Treatment among Pregnant Women in Karatu District, Arusha Region, Tanzania

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### ABSTRACT

*The spread of Malaria has been increasing rapidly in many Sub-Saharan countries including Tanzania. The increase in mortality rate caused by Malaria among people including pregnant women is contributed mainly by the absence of sufficient knowledge, attitudes, and practices of how to prevent and treat Malaria. This study explored knowledge, attitudes, and practice among pregnant women in Malaria prevention and treatment in Endabash Ward, Karatu District, Tanzania. Pregnant women are vulnerable to Malaria due to invasion of the placenta by Plasmodium. This study involved a Descriptive Cross-Sectional Design. The study used Mixed Approach. Data were collected through In-Depth Interview (IDI), Focused Group Discussion (FGD), and Questionnaire. It was found that the majority of pregnant women had an understanding of the meaning, transmission, signs and symptoms and ways of preventing and treating Malaria. However, there were some pregnant women who still lacked knowledge on this condition. It is recommended that policy-makers should improve knowledge and control strategies on Malaria in this population.*

### Keywords

Knowledge, Attitudes, Practice, Malaria, Pregnant women, Karatu District.

### Introduction

Malaria persists to be the most illustrious cause of morbidity and mortality in many tropical regions of the world. About 3.4 billion people are at risk of the diseases, 1.2 billion are at high risk

worldwide [1]. In sub-Saharan Africans, Malaria is accounted to be one of the most dangerous diseases which affect badly humanity and it has become a serious health problem mainly among pregnant women [2-4]. During the pregnancy period, Malaria is reported to be a common cause of complications to both mother and fetus. The mother may develop severe Malaria [5], severe anemia [6-8], and placental malaria [5] or may die [9]. The fetus may be aborted, prematurely delivered or stillborn and the fetus may have low birth

weight. Prevention of Malaria during pregnancy is, therefore vital as it helps to promote the health of the mother and the fetus [10].

Various studies conducted in endemic areas of Africa pertaining to knowledge, attitudes, and practices about malaria prevention and treatment among pregnant women showed that Malaria is regarded as a serious illness as it causes a high rate of infant mortality, and low birth weight [11]. Among pregnant women in Ghana, Malaria accounts for 28.1% of outpatient department attendance, 13.7% of inpatient and 9.0% of maternal death [12].

Malaria is the leading public health problem in Tanzania. The disease is accounted to be one-fifth death among pregnant women [13]. About 34.5 million populations in Tanzania are at risk of Malaria though endemicity and risk of transmission vary [14]. About 75% of the population is subjected to stable perennial or stable seasonal Malaria transmission, 8% to the unstable highly seasonal transmission and 17% to no Malaria transmission in the average year. But still, there is a risk of epidemic Malaria. Tanzania is the third largest population at risk of stable Malaria in Africa after Nigeria and the Democratic Republic of Congo [15,16].

There has been a shortage of studies that documented the knowledge, attitude and practices of Malaria prevention and treatment in Endabash community in Karatu District; Arusha, Tanzania. Therefore, this study explored the missing gaps in knowledge attitudes and practices on malaria prevention and treatment among pregnant women in Endabash ward, Karatu District.

## Methods

### The Study Design

This is a Descriptive Cross-Section Study. We examined pregnant women's knowledge, attitudes, and practices on malaria prevention and treatment. The study group was made up of consenting pregnant women attending Antenatal Clinic (ANC) at Endabash Health Center.

### Study Area

The study was carried out in Endabash Division, Karatu District. Karatu District is one of the seven districts of Arusha Region. It is a high land area located in the Northern part of Tanzania. It borders Ngorongoro District to the North, Iramba District to the West, Mbulu District to the South, Monduli District to the East and Lake Manyara to the South East. It covers 3300 km squares among which 102,572 hectares are good for agriculture and 155,808 are good for grazing. It has population of 230,166 people, of which 117,769 (48.8%) are males and 112,397% (51.2%) are females. This is according to the 2012 Tanzania National Census. It has a growth rate of 2.7 % per annum. Endabash division has 4 wards, 14 villages, 13,364 households and a population of 69,797 people.

### Sample Size

In the present study, the sample size was 114 participants. This sample size was obtained by the formula of (Martin *et al.*, 1987).  
 $n = z^2 \times pq/d^2$

$n = 114$

$z =$  Standard normal deviation is 1.96 corresponding to 95% Confidence level.

$P =$  proportion in the target population  $pq = 0.0475$

$d =$  degree of accuracy desired (0.04)  $n = 114$

The sample size is 114.

### Data Collection Methods

Three methods were used in this study to collect data from participants and these were: in-depth interview (IDI), focused group discussion (FGD) and Questionnaire. We used these three techniques because they are complementary. Pregnant women attending ANC clinic for a check-up at Endabash Health Centre were invited to participate in an IDI and FGD. Among these pregnant women who were willing to provide information were involved in filling questionnaires of the study and those who refused were not involved.

Questions focused on health concerns, knowledge, attitudes and behaviors regarding Malaria prevention. The IDIs focused on individual behaviors; the FGD asked more broadly about community actions.

### Inclusion and Exclusion Criteria

Pregnant women attending Endabash Health Centre willing to participate in the study. Pregnant women who were not willing to participate in the study.

### Data Analysis

The data in this study were analyzed using the Statistical Package of Social Sciences (SPSS) version 18 and Thematic Coding Approach.

## Results

### Socio-Demographic Characteristics of the Participants

A total of 114 pregnant women participated in the study. Pregnant women aged between 16 – 20 years were 30 (26.3%), 21 – 30 years were 62 (54.4%), 31 – 40 years were 17 (14.9%) and 41-50 years were 5 (4.4%). Marital status: Singles were 32(28.1%), married were 76 (66.7%) and divorced were 6 (5.3%). Education level: Primary education were 70 (61.4%), secondary education were 28 (24.6%) and never attended school were 16 (14.0%). Occupation: Casual (5(4.4%), regular employee 19 (16.7%), business 21 (18.4%), farmer/ peasant 60 (52.6%) and unemployed 9 (7.9%). Religion: Christian 86 (75.4%), Muslim 14 (12.3%) and pagan 14 (12.3%) as shown in Table 1.

**Table 1:** Socio-Demographic Distribution of the Sample Population in Endabash Ward, Karatu District.

Age (years)	No. examined	Percent (%)
16-20	30	26.3
21-30	62	54.4
31-40	17	14.9
41-50	5	4.4

<b>Total</b>	<b>114</b>	<b>100</b>
<b>Marital status</b>		
Single	32	28.1
Married	76	66.7
Divorced	6	5.3
<b>Total</b>	<b>114</b>	<b>100</b>
<b>Education level</b>		
Primary	70	61.4
Secondary	28	24.6
Never attended school	16	14
<b>Total</b>	<b>114</b>	<b>100</b>
<b>Occupation</b>		
Casual	5	4.4
Regular employee	19	16.7
Business	21	18.4
Farmer/peasant	60	52.6
Unemployed	9	7.9
<b>Total</b>	<b>114</b>	<b>100</b>
<b>Religion</b>		
Christian	86	75.4
Muslim	14	12.3
Pagan	14	12.3
<b>Total</b>	<b>114</b>	<b>100</b>

### Knowledge of Malaria from the Participants

During the in-depth interview and FGD, participants were asked whether they know the meaning of malaria. Participants were asked if they understand what Malaria is 4 (40%) reported mosquitoes. While those remaining reported different answers.

The first participant who was number 4 asserted that *“Malaria is caused by mosquitoes. In supporting this assertion, another participant 2 unveiled that “Malaria is a disease which occurs during the rainy season.”* The second participant went on discussing various symptoms of Malaria. She stresses *“Malaria is a disease characterized by diarrhea and headache and is caused by tics, cold, bed bugs mosquito, eating uncooked maize.”*

The other participants revealed the danger of this disease by affirming, *“Malaria is a serious disease that if you don’t seek medication earlier it may lead to death.”* Other participants revealed that they did not know much about this disease. One participant says, *“I don’t understand anything about Malaria.”*

These qualitative data concurred with statistical findings whereby a total of 91 (80.0%) of the participants reported Malaria to be the most common disease in the area they live in. 78 (68.0%) of the participants had information about Malaria. The source of information about Malaria, 55 (48.0%) being a hospital clinic, and 25 (22.0%) being from village health workers. 91 (80.0%) of the respondents reported that Malaria is transmitted by mosquitoes. 107 (94.0%) participants reported the main signs and symptoms of Malaria were fever, headache, vomiting, shivering, nausea, loss of appetite and sometimes diarrhea.

### Knowledge of Malaria in Relation to Age among Pregnant Women

A total of 114 pregnant women were involved in the study to

determine the knowledge of Malaria. Pregnant women between the age of 16-20 years, 24 (26.3%) had adequate knowledge and 6 (5.3%) inadequate knowledge. Age group between 21-30 years, 47 (41.2%) had adequate knowledge while 15 (13.1%) had inadequate knowledge. Age group 31-40 years, 16 (14.0%) had adequate knowledge while 1 (0.88%) had no knowledge and the age group of 41-50 years, 3 (2.6%) had the knowledge and 2 (1.7%) had no knowledge.

### Knowledge of Malaria in Relation to Education Level

Participants with primary education, 59 (51.7%) had knowledge while 11 (9.6%) had no knowledge. Those with secondary education, 25 (21.9%) had the knowledge and 3 (2.6%) had no knowledge. Participants who never attended school, 6 (5.3%) had the knowledge while 10 (8.8%) had no knowledge.

### Knowledge of Malaria in Relation to Religion

Participants of different religions participated in the study, Christian, 68 (59.6%) had the knowledge and 18 (15.8%) had no knowledge. Muslim, 14 (12.3%) had the knowledge while 0 (0%) in this category there was none. Pagan, 8 (7.0%) had the knowledge while 6 (5.3%) had no knowledge.

### Attitudes towards Malaria Treatment and Prevention

When participants were asked about ways cultures, believe and taboos which affect malaria treatment had different responses. The majority of the participants reported that they sought medication from a traditional healer/witch doctor. One participant says, *“When we fall sick we seek medication from witch doctor /traditional healer 6 participants.”*

3 participants among those 6 reported that they used the traditional herbal medicine. They said, *“We used herbal medicine like mwarobaini.”* One participants among those six reported it is better to go for laboratory check-up before going to the witch doctor, and few of the participants reported different answers. She describes, *“In my opinion, it is good to do laboratory tests before going to the witch doctor.”* Another participant supported the previous participant by saying that she better go to health center. She argues, *“If I go to the hospital, Medical attendance can bewitch me but not all of them.”*

Again, the qualitative findings are in agreement with statistical findings. Among the participants, 44 (39.0%) responded Malaria can only be treated in health facilities while 69 (61%) responded Malaria can be treated in places other than health facilities. Regarding the affordability of Malaria treatment, 32 (28.0%) responded that Malaria treatment was expensive while those who responded that Malaria treatment was affordable were 43 (38.0%). Participants were asked who was responsible for Malaria prevention, 34 (30.0%) said government alone, 41 (36.0%) said doctors and nurses, 18 (16.0%) responded community and government, 20 (18.0%) responded individual and community while 58 (51.0%) responded that they have no role to play on Malaria prevention.

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## Practice of Prevention and Treatment of Malaria

Participants were interviewed about the practice of prevention and treatment of Malaria. Participants reported to be sleeping under mosquito nets, and another half reported different answers. One participant claims *“We prevent Malaria by slashing tall grasses around house destroy mosquito breeding site, removing of debris and containers that can hold water near houses and educating communities.”* Another participant supported her by saying, *“To fill holes near the house, to burn the cow dung, to allow cows to eat long grasses around the house, to light the fire in the house for the smoke to prevent mosquito.”*

The third participant revealed other ways of preventing and treating Malaria. She asserts, *“Not to chew the sugar cane and the maize stalk, environmental sanitation, personal hygiene, using Malaria prophylaxis like SP, to seek medication earlier, to make sure that wall and floor are well covered, no cracks because cracks and holes in floor and wall can hold bed bugs and ticks which causes severe Malaria.”*

These findings resemble statistical results where 68 participants (60.0%) responded to be using bed nets to protect themselves from Malaria. Regarding the duration to start Malaria treatment, 30 (26.0%) sought treatment immediately, 19 (17.0%) sought treatment after one day, 17 (15.0%) sought treatment after 2-3 days and 48 (42.0%) responded after 3 days from the onset of signs and symptoms of Malaria.

## Discussion

This study sought to provide a better understanding of how the knowledge, attitudes, and practices regarding malaria prevention and treatment among pregnant women attending ANC at Endabash Health Centre, Karatu district. The study measured the knowledge of malaria transmission and prevention behavior; attitudes towards morbidity-signs, and symptoms of Malaria.

The study reported a level of the knowledge of participants on Malaria, 80% of all respondents identified that Malaria is a common disease in the area they live and 48% indicated that Malaria is transmitted by mosquitoes. Measuring knowledge variables on Malaria, the results in the present study show variables such as age and the education level, Age group 21-30 years had more knowledge. The results in this study contradict with the study done by Agomo and Oyibo (2013) who reported that young mothers have low knowledge about issues related to Malaria as a disease.

Level of education; in the present study participants who have not attended school had the poor knowledge on Malaria. The results agree with Bauch, Gu, and Baltzell (2013) who reported that non-formal education demonstrated the lower level of knowledge about malaria. This group is at risk of malaria transmission and morbidity.

Attitudes; attitudinal response in the study shows that the majority (61.0%) do not prefer getting treatment of Malaria in health facilities and (51.0) of pregnant women reported that they had no

role to play in malaria prevention. These responses demonstrate that their attitudinal dispositions are inappropriate. The results agree with Atulomah (2012) who reported that when levels of awareness are high addressing ignorance and the individuals at risk of a particular disease, usually would arise attitudinal dispositions that contribute to preventive behavior.

## Malaria prevention practices

Malaria still accounts a significant burden of clinical cases among pregnant women globally and in particular Tanzania. Pregnancy outcome can be complicated by poorly treated Malaria and therefore every effort has to be directed toward improved prevention practice with regard to malaria transmission. The results of responses in the present study show that among pregnant women in the study, 68.0% of the source of information about Malaria was from health facilities and 22.0% was from the village health workers. 60.0% claimed to sleep under insecticide-treated bed nets to protect themselves from malaria transmission. Furthermore, 42.0% of the pregnant women responded that they seek treatment after 3 days when they start feeling signs and symptoms of malaria. The results agree with Obache (2001) who reported that in Kenya those suffering from malaria attacks were found to be taking an average of 2-3 days to seek medication.

## Conclusion

Despite efforts on Malaria control nationwide, knowledge of Malaria prevention was low among pregnant women in the study area. There is a need for health education intervention to improve knowledge. Continuous efforts at providing necessary information by relevant health organizations are needed to control and reduce the incidence of malaria in the general public.

## Study Limitation

This study was limited only on examination of practices, knowledge and attitudes of pregnant women on the prevention and treatment of Malaria. The study was constrained by the language barrier where by some participants speaking Barabaiq and Masai which were not known by authors.

## Data Availability

The data used to support this study are available to the corresponding authors, upon the formal request.

## Ethical Approval

Ethical clearance was obtained from Tumaini University KCM-College Ethical Review Board. Permission was sought from the District Executive Director (DED), District Medical Officer (DMO) Karatu, Division Executive Officer and the Doctor In charge of Endabash Health Centre in Karatu. Consent to participate in the study was obtained from study participant. The aim of the study was explained to each participant, those who were willing to participate signed and fingerprints were also used on a consent form. The participants were told that all information would be confidential.



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