

Management Seeking Behavior of Malaria among Mothers of Under-five Year's Children in Damazin Locality, Blue Nile State, Sudan

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Abstract

Introduction: Malaria is a major public health problem and a common cause of death in Sudan, as in other tropical countries. In Africa still it is a major cause of mortality and morbidity. Due to many factors children are the most vulnerable candidates for malaria. Under-five children mortality is high due to inappropriate treatment or poor mother's knowledge about the disease itself and its complications. Blue Nile State in Sudan is a rich savanna region. This region is subjected to heavy rains for 5 to 6 months in the year which make good media for mosquitoes. The state classified as the higher state in Sudan with malaria prevalence. Objectives: Is to evaluate the awareness of caregivers towards the use of anti-malarial drugs and the options of malaria management. **Methods:** It a community-based cross sectional study take place in two localities in Blue Nile state, Damazin and Seraw Localities. 26 districts from Damazin with 400 mothers included in the study and 5 districts from Seraw with 43 mothers are selected for the study. The mothers or caregivers with children less than 5 years were selected by cluster technique and simple randomization for the two localities respectively. Data was collected using structured questionnaire and then analyzed using SPSS software. **Results:** in regard to ways to reach health facilities in case of a child with malaria, most of the caregivers go on foot and public transport, where small number goes with special car. The majority 84% of mother initiate medical management for their children in governmental hospitals for their children, where the remaining percent manage at home, traditional healers or religious healers. Most of the caregivers start management of their children when symptoms and signs first appeared 75%, but others delay treatment till danger signs appeared and small number (8, 1.8%) may not think of management of the child for more than 3 hours. **Discussion:** These findings are agreed by many reports from Africa. The study revealed many week points in the health system and urge the contribution of the health authorities, community and non-governmental organization for the control of malaria especially in young children.

Keywords: Under-five, Malaria, Blue Nile,

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I. Introduction

Malaria is a major public health problem and a common cause of death in Sudan, as in other tropical countries. Malaria remains one of the most important causes of child morbidity and mortality in sub-Saharan Africa it is the most prevalent parasitic endemic disease in Africa with more than 80% of the population south of the Sahara at risk of the disease. Ninety percent (90%) of the estimated 1-2 million deaths globally from malaria annually are estimated to occur in Africa(1). Children mortality is high due to inappropriate treatment or poor mother's knowledge about the disease itself(2).

Life of children is exposed to a high risk by their exposure to infection with malaria. Especially Children under five is the most vulnerable age group to malaria which is the first cause of death in Sudan. Unfortunately, many mothers are illiterate, although children under five receive attention from the local health facility; the mortality rate due to malaria among them is still high(3).

Insecticide treated nets (ITN) known to reduce 20% of death of children and episodes of malaria by 50%, but the situation in Sudan specifically in Blue Nile state is not clear(4).

The Blue Nile state which is lying in rich savanna is characterized by a long rainy season continue from May up to October and November and also known as endemic area with malaria(5).

Efficient management of malaria depends on clear understanding of the local epidemiological factors in the different endemic regions. Prevention and appropriate treatment of malaria in children is important to help in the ultimate goal of controlling malaria in the community, and the prevention of anti-malarial resistance. It is recommended by a previous research about the same issue that mothers usually go through different treatment option before consulting health facilities ending with obvious delay in seeking care. As early effective treatment is the main theme of the control programme, implementation of malaria home management strategy is urgently needed to improve the ongoing practice(6).

Over the last few years millions of Sudanese Pounds have been invested in achieving the high targets set in the National Malaria Strategy and to understand the progress we have made so far, health policy makers need empirical evidence to assess where they are now and to plan better for the future so that we can significantly reduce the burden of malaria in the Sudan.

Childhood malaria continues to be a major cause of childhood morbidity and mortality(2). Caregiver's ability to detect the illness in children early and institute effective treatment is critical to illness outcome (7, 8). The investigation of mothers' perception of malaria and treatment-seeking behavior in childhood malaria in a community in Damazin locality Blue Nile State, Sudan was therefore the aim of this study. This study intends to collect locality wide situational information on experience and response towards the management of malaria among mothers of under-five years across Damazin locality, and to evaluate the mother's awareness about malaria and its treatment.

Besides documenting the malaria situation, it will be serve as the base for collaborative work with organizations, the ministry of health and the commencement of network for malaria research. This study explores the requirements of a successful home management strategy. The implementation of such strategy should take into account the ongoing treatment options in the area.

The Blue Nile state is endemic of the severe type of Malaria which is falciparum malaria(6). Malaria is a major contributor to child health. There are three principal ways in which malaria can contribute to death in under-five.

- 1- An overwhelming acute infection, which frequently presents as seizures and repeated convulsion or coma which is known as severe, may kill a child directly and quickly(9).
- 2- Repeated malaria infections contribute to the development of severe anemia that can cause anemic heart failure which is substantially increases the risk of death(10).
- 3- Low birth weight – frequently the consequence of malaria infection in pregnant women- is the major risk factor for death in the first month of life. In addition repeated malaria infections make under 5 more susceptible to other common childhood illnesses, such as diarrhea and respiratory infections, which may lead to respiratory, distress (acidosis) and thus contribute indirectly to mortality(5).
- All these in addition to hypoglycemia are the commonest and most important complications of P. falciparum which is the common parasite that cause malaria infection in under-five years(11). The situation in Blue Nile where we carried this study is worse than other regions of the country according to the survey done by National Malaria control programme in 2010. The prevalence reports of Malaria showed distractible findings as it representing an overall weighted prevalence of 1.8% nationally and the magnitude of the disease is higher among male compared to female members of the household in this region. Almost malaria is three times higher in rural areas compared to urban. In Blue Nile state the prevalence of malaria is (12.5%) which is the highest among other states(12).

This study is carried to evaluate the awareness of mothers towards the use of anti-malarial drugs and the best options of malaria management across Damazin locality, Blue Nile State, Sudan.

II. Methodology

Study Design:

This is a descriptive cross sectional community based study aiming at assessing the awareness of mothers and other family members or care givers to participate in malaria management and recognized factors that enhanced community willingness to participate in malaria management for under five years in Damazin locality. Interviews were done with deliberately selected mothers from each of the districts through structured questionnaire.

The research was involving all sectors in Damazin locality collecting data from these sectors which benefit from malaria control programme in the states. Twenty six districts were selected. Twenty one from Damazin sector with sample size of 400 mothers and 5 districts selected from a near sector called Seraw with sample size of 43 mothers. The study cases were selected by cluster technique and simple random technique respectively.

The study was carried out in two phases as shown in the chart below using both qualitative and quantitative tools for collecting information.

While the first phase concerned with preparatory work and team training the second phase pressed on data collection in the selected households and communities.

Chart 1: steps of the phase 1, the preparatory phase

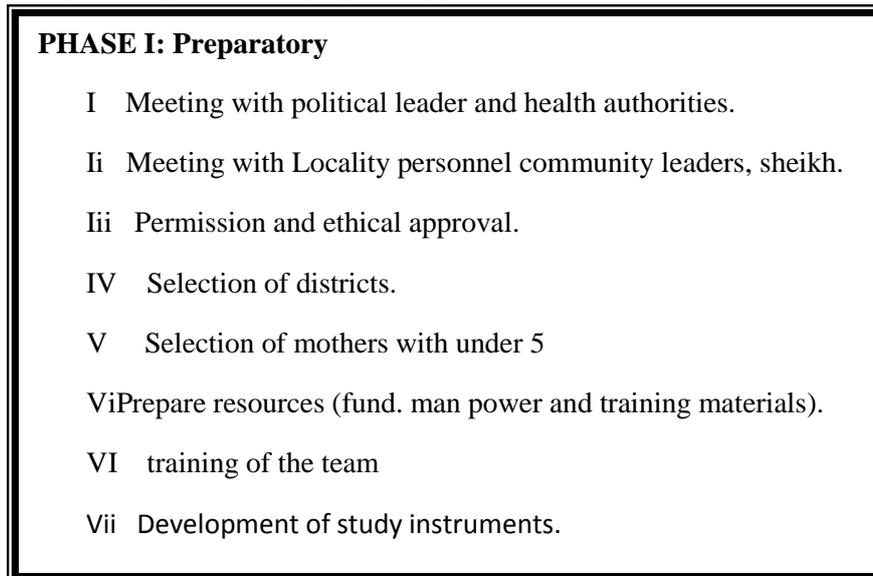


Chart 2: steps of the phase 1, the data collection phase

PHASE II

Data collection in 26 sections and areas per locality using

I- Questionnaire including: demographic data - age, sex, and occupation etc. in the different geopolitical and cultural areas of locality. And other knowledge, behavior and other factors concerning malaria management among under 5.

ii- Interview the mother to collect information and describe malaria illness experience, local knowledge, attitude and practices towards malaria management of under-5 episodes.

Iii- Data analysis.

V Report, dissemination and propose strategy.

III. Description of Study Area

Blue Nile state is a border state located in the eastern south of Sudan; it is surrounded by Sinnar state in the North, Upper Nile (South Sudan) in the South and West, and Ethiopia in the east(13). The total surface area is about 37000Kms and the total population is 800000, it is compose of seven localities .It has long rainy season most of the parts of the state is inaccessible in this season .The climate is rich savannah. Rainy season is about 5 months from June to October with rain fall about 900-1000ml.

Damazin locality is the biggest locality in the state which is the capital of the state; it is located in the northern part of the western bank of Blue Nile with two sectors, Damazin and Seraw sectors. It has the biggest hospitals in the state. This locality is selected to apply the study because it is represent the whole ethnic groups that reside in the state. The centralization of medical services in this city facilitates the availability of the study population.

Study population

The study population selected from mothers or a care giver with children less than 5 years. There were no differences in the communities regarding cultures and traditions. Tribes living in the locality are different tribes; the main tribe in the northern part of the locality, seraw sector is Fulani tribe which is originally a western African tribe, while in Damazin sector there are several tribes' Fong tribes, western tribes and eastern, northern and middle Sudan tribes and these are mixed African and Arab tribes. Questionnaires used to collect information (quantitative data) from mothers of under-five years on their' perception, beliefs, and practices about malaria in children. We include all mothers or care givers with children less than five years and being a resident in the locality for at least six months.

Sample size and sampling technique

The sample size is determined using cluster technique from the study group, administrative unit (strata which are 2 in number) then clusters which are 26 in number (21 from the big strata, Damazin strata, and 5 from the other strata, Seraw strata then the families with under-five years children. The ultimate sample unit is the mother or care giver to under-five years' child.

All sectors selected from the locality and 26 districts selected statistically (21 from Damazin sector and 5 from Seraw sector according to the size of the population in each sector). With about 443 in the sample of targeted population a 95% confidence is possible the mother (or caregiver) interviewed. Approximately 2 children are expected in every household.

IV. Methods of data collection

Data were collect by a researcher and the trained team from our institution and members from each sector. They collected data from targeted households with under-five year's children using structured questionnaire. They visit houses and interview mothers and if any clinical malaria diagnosed in any child from the targeted population the cases were reported. This work held in September, October, November and December 2015 and these are the months in which malaria expected to have high episode due to heavy rain. The interviews also continued in January, and February which are the months in which there is no malaria expectations.

V. Results

In this descriptive study according to the information's collected through questionnaire and observation which reveal the perception of the participants the results showed many points summarized in the followings:

Ways to reach the health facility:

Significant numbers of our studied population face difficulties to reach the health facility when their children suffered symptoms and signs of malaria. As shown in table 1, most of them go to the health facility on foot (n=270) or with public transportation (n=152).

Table 1: Way of reaching health facility

Method of reaching health facility	Frequency	Percent
On foot	270	60.9
Public transportation	152	34.3
Special car	21	4.7
Total	443	100.0

Attitudes towards malaria in children and time taken to initiate management:

Table 2 showed the time taken by caregivers to initiate the management of the children when symptoms and signs of malaria appeared. The majority of caregivers start the management immediately in the first hour (n= 335), where about 48 start the management in the second hour. However, small number (n= 8) do not initiate management at all in the first hour. The initiation of management does not mean always to take the child to the health facility, as other modalities of management are described in table 3.

Table 2: Time taken to initiate management of malaria in children.

Initiation of child management	In the first hour	1-2 hours	2-3 hours	More than 3 hours	Total
Immediately when symptoms and signs appear	335	48	1	1	385
When child condition is deteriorated	43	5	0	0	48
Not think of management	8	2	0	0	10
Total	386	55	1	1	443

Attitude of the caregivers after the attack of malaria to the under-five year's children:

The studied population differs in their attitude after the attack of malaria. Most of the parents take their children to the governmental health facility (n=374), where others start management at home (n=32), go to traditional healer (n=23) or to the religious healer who is known as Sheikh (n=14).

Regarding the options taken by the parents or healers who are dealing with ill children we found that in health facilities the only method of treatment is the use of pharmaceutical drugs. The home management usually initiated by pharmaceutical drugs (n= 28), but as well herbs and non-pharmaceutical preparations are used (n=4). In dealing with malaria in children, traditional healers use medicines, herbs and others (n= 11, 9, and 3

respectively). The sheikh as well uses medicines, herbs, and religious rituals (n= 10, 3 and 1 respectively) for treatment of malaria in children. All these are explained in table 3.

Despite of the different attitudes of the caregivers that observed in this study, but when the child is deteriorated and developing the danger signs of malaria like convulsions, shock or coma, most of them took their children immediately to the governmental health facility and ignore other modalities of management.

Table 3: Option of malaria treatment for the child chosen by caregivers the attack

Initial management options	At home	Traditional healer	Health facility	Shiekh (religious healer)	Total
Use of pharmaceutical drugs	28	11	374	10	423
herbs	4	9	-	3	16
Other non-medical methods	-	3	-	1	4
Total	32	23	374	14	443

VI. Discussion

In this study the majority reaches the health facility on foot or with public transportation, sometimes the health facility may be very far and this will be reflected on the child's condition which will deteriorate and be complicated. This finding is agreed with many studies (2, 6). The health authorities need to be aware about these results as to increase the number of health facilities and community awareness of the seriousness of the disease for under- five years children.

The initiation of management and the time needed for the caregivers to start management of their ill children is another point of discussion in this study. After appearing of symptoms and signs of malaria in children most of our studied population started the management in the first hour (n= 335). This is good and seen in many studies(14, 15),but still there are some others who delay the management of children to the second our (n=48) and even more than 3 hours in some cases. This attitude will worsen malaria in children and related to the development of malaria complications and death(16, 17).

Some care givers as appeared in this study will not initiate treatment till the child's condition deteriorated. Forty three of them initiate treatment in the first hour after appearing of signs of deterioration and 5 initiate the treatment in the second hour. The similar results observed in study done in Sudan and Tanzania (6, 18).

Some of parents and caregivers ignore malaria and not seeking or think of treatment in children for hours and even for days. Despite of the fact that this number is small in our study and comprise of only 8(2%) of the studied population, but this bad attitude which as well seen elsewhere is very dangerous and need to be solved by increase the awareness of the communities to the seriousness of malaria and children and the importance of hospital management especially for under-five years old children(6, 18, 19).

Regarding management of the attack of malaria in children our study showed that most of the caregivers initiate management with pharmaceutical drugs, but still there are some who went traditional healers and religious healers, 23 and 14 respectively. In Africa especially in rural areas, still there is a role played by the traditional and religious healers (6, 18, 20).

In this study minimum number of parents use herbs at home for treatment of malaria (n=4). Traditional healers and Sheiks as well use herbs (n= 9 and 3 respectively). This attitude is widely practiced in Africa and need to be controlled as it has negative impact on malaria in children, despite of the fact that some herbs can help in improving of some symptoms, but not cure the malaria itself(18, 20).

VII. Conclusions

- Despite of the efforts done by the health authorities and non-governmental organization to raise the awareness of population about malaria and its complications in children, but we found that some of the participants delay managing their children and go through many options before consulting health providers.
- Educational level, family income, distance, habits and culture and traditions were the main factors staining parent's practice.

VIII. Recommendations

- Formulation of suitable curriculum to increase community awareness to facilitate their participation in Malaria management among under-five year's children through a mass public education on a various aspects of diagnosis and treatment of malaria.
- Encouraging researches that enhancing community participation in Malaria control and management and makes use of them and also make use of faculties of medicine and health sciences students through the community courses.

- Giving rise to collaboration and integration with non-governmental organizations and solidarity with governmental corporations -e.g. health insurance Corporation.

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