



Treatment Delay Attitude of Caregivers in Management of Childhood Malaria in Rural Communities in Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Author ENE conceptualised the study and wrote the initial proposal. Authors FAO and MMM made substantial contributions to the proposal. All authors play important roles in various aspects of data collection. Author FAO drafted the manuscript for this article. Author EBE handled the data analysis and statistics. All authors read and approved the final manuscript.

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ABSTRACT

Aims: The aim of this paper was to assess the promptness of caregiver's action at the onset of malaria symptoms to giving recommended effective anti-malaria drugs from public health facility.

Study Design: It was a cross sectional study.

Study Setting: The study was conducted in Akpabuyo, a rural community in Cross River State, south eastern Nigeria, March to May 2011.

Methods: Announcements were made in the community inviting mothers/caregivers to

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bring their sick-children/wards to the public primary health facilities for free laboratory malaria test and treatment. Caregivers treatment seeking behaviour were assessed using an interviewer administered questionnaire. Data was collected from each of the ten electoral wards that make up Akpabuyo local government area (LGA) in Cross River State, Nigeria. Wherever necessary native language or broken-English was used.

Results: Eight hundred and sixty children between the ages of 6 months to 14 years participated in the study. Majority of them (68%) were under-five years of age. There were slightly more males (52%) than females, mean age of the children was 47 months. The mean time-lag between onset of symptom and presentation in the public health-care was about 168 hours. The mothers either bought their drugs from patent medicine vendors and/or used herbal-medicines, before eventually going to the public health facility, where there are both free drugs and skilled manpower. Twenty-seven (27%) of the caregivers did not give any known treatment.

Conclusion: Mothers/caregivers in this community treat their malaria sick children within 168hours, after lots of delay, trying other remedies, before presenting in public health facilities. There is need to improve their treatment seeking behaviour, using health education intervention and behavioural change communication.

Keywords: Malaria; mothers/caregivers; delay attitude; public health facilities.

1. INTRODUCTION

Malaria is a major health problem among people living in endemic countries especially in sub-Saharan Africa. The region bears 80% of global malaria cases and 90% of global malaria deaths [1]. It was estimated that of the 660,000 malaria deaths in the year 2011, 40% of them occurred in Nigeria and the Democratic Republic of the Congo [1]. It is estimated that 97% of the population living in Nigeria are at risk of the disease, the adult population experiences at least one episode of malaria, while children under 5 suffer 2 – 4 attacks of the infection every year [2]. It also contributes up to 25% of infant mortality, 30% of deaths in children under 5 years and about 11% of maternal mortality [3].

It has been recognised that six out of the eight Millennium Development Goals (MDG) can only be reached through effective malaria control [4]. The Roll Back Malaria initiative and Nigerian malaria treatment policy recommends early diagnosis and prompt treatment with effective anti-malarial drugs [5]. Prompt and effective treatment is more likely to be obtained from public health facilities, where the skilled manpower, free and effective anti malarial are available. The Nigerian ministry of health with support from Global Fund have made free effective ACTs available in the public health facilities. Seeking care from the right source at the right time is necessary for better treatment outcome, particularly in areas where access to health services is limited [6]. Receiving effective treatment promptly (24 hours from onset of the symptoms) could help prevent uncomplicated malaria from developing into severe malaria [7].

Most childhood deaths attributed to malaria have been shown to occur at home in rural areas of sub-Saharan Africa where access to prompt and effective healthcare is difficult [8]. Ezedinachi et al. [9] had reported that ineffective case management of malaria is associated with the level of education, occupation and religious beliefs. Other factors that influence effective malaria case management include; low rate of healthcare-seeking behaviour even by trained health care providers, delay in seeking care and proximity of the public health

care. Similarly increasing awareness of target community to early diagnosis and treatment as well as reduction of their ignorance of the severity of malaria illness will impact its control positively [10-14].

The aim of this paper was to evaluate the attitude, health seeking behaviour of care-givers and practices in relation to promptness in the start of effective treatment and use of the public health facilities in the management of malaria illness in their children.

2. METHODOLOGY

2.1 Study Design

This was a cross sectional study designed to describe the health seeking behaviour of mothers and other care givers in children with malaria illness and their use of the public health facilities in Akpabuyo local government area (LGA).

2.2 Study Setting

The study was conducted in Akpabuyo LGA, Cross River State, Nigeria from March to May 2011. The LGA lies between latitude 4°5' and 5°40' and longitude 8°25' and 8°32 East, within tropical rainforest belt of southern Nigeria. The major ethnic groups are the Efiks, Quas and Efuts. The people are predominantly farmers and fishermen. The LGA has a population of 271,395 with ten electoral wards each of which has 15-30 rural communities. The study was conducted in all the ten wards in the LGA. One primary health care (serving a cluster of 4-6 rural communities) was randomly selected from each of the electoral wards; the study therefore included a total of 10 primary health centres (serving a total number of 40-60 communities). Malaria transmission in the area is high and perennial [3].

2.3 Study Population

Participants were children between six months and 14 years. Inclusion criteria were ill children with malaria parasites (without any other diagnosis), fever ($\geq 37.5^{\circ}\text{C}$) or history of fever and had not been treated with an anti-malarial drug in the preceding two weeks. All children who reported to the health facilities during the week while the research team was in that study site were screened for inclusion. Children whose parents/legal guardians failed to give consent were excluded from the study but were assessed by the study physician for appropriate treatment by the health centre.

2.4 Ethical Approval

The proposal for the study was reviewed and approved by the Health Research Ethical Committee of the Cross River State Ministry of Health. Written informed consent was sought and obtained from parents/guardians at the time of interview when the study objectives and procedures were explained to them and study data kept confidential.

2.5 Procedure for Data Collection

Announcements were made few days before the arrival of the research team to each electoral ward, by the traditional heads through the village/community announcers. Parents/guardians were requested to bring children between six months and 14 years with

fever or history of fever to the health facility for free testing and treatment of malaria. Previous studies in the same environment had shown that mobilisation activities increases turn out of mothers/caregivers to health facilities [9,15]. The study team spent one week in each of the health facilities in each electoral ward. The study team screened every child for eligibility and obtained written informed consent from parents/guardians before they were interviewed.

2.6 Training of Research Team

Research staff were trained on the methods as stated in the protocol of this study. Emphasis was laid on tasks specific to their duties on data collection. Those trained included the clinicians, laboratory scientists, nurses, community health workers and follow-up staff. All team members could perform the malaria RDT test.

2.7 Data Collection and Patient Assessment

Demographic data of the parents, time of onset of illness and time of presentation were recorded. Clinical features of malaria such as fever, vomiting, headaches, body aches and pains, previous treatment given to the child were also obtained. Patient vital signs such as temperature, pulse and respiratory rates and anthropometric measurements were recorded. Malaria diagnosis was confirmed by both malaria rapid diagnostic test and microscopy. Only patients with uncomplicated malaria were included. The patients diagnosed to have severe malaria, or other associated illnesses were referred to secondary or tertiary health facility for further treatment. Patients with severe malaria were given first dose of intramuscular artemether and referred to higher level of care because primary health facilities are not usually equipped for treatment of severe malaria.

2.8 Definition of Terms

In this study, delay in giving treatment was defined as failure/inability of carer to take the ill child to the health facility for treatment within 24hours of onset of symptoms. Fever was defined as body temperature $\geq 37.5^{\circ}\text{C}$ measured in the axilla.

2.9 Statistical Analysis

Data was double-entered and validated in Microsoft Office Excel 2007 and analysed using Graph Pad Prism version 5.04 for Windows (Graph Pad Software, La Jolla, California USA).

3. RESULTS

3.1 Socio-Demographic Profile of Participants

Six hundred and six mothers/caregivers brought 860 children to the health facility during the study. Of the 606 caregivers, 64% (387) delayed in taking their children to health facility. The mean age of the children was 47 months (6 months -14 years), 68% were under five years of age (Table 1). The majority 82% (706/860) of the children were treated within 168 hours (Tables 1 and 2; Figs. 1 and 2). However only 8% (55/706) of these children received treatment within 24 hours. In 48 hours, 24% (167/706) of the children have received treatment. Seventy six percent (42/55) of these were U-5 years old children, compared to 24% (13/55) of over-5 years of age. Ninety seven (97%) of the caregivers gave various

reasons for the delay. Seventy four (74%) gave their reasons as “lack of finances”, which appears to suggest livelihood problem and/or a way to express “poverty”; others gave “had no free time to take the children to the health facilities”(9%), 5% did not consider the illness serious (Table 2).

Attitude and practices of the caregivers as regards anti malarial drug purchase and patronage of the public health facilities are shown in Table 1. The table shows that 53% of the drugs used, were bought from the PMV, 20% from herbal medicine dealers, 27% did not use any known drugs. Some of the attitude and practices were also demonstrated in Tables 1 and 2, as the majority patronised the hardly controlled drug dealers for their treatment of malaria. Although 82% (782/855) of participants gave history of fever, only about 8% actually had temperature >37.5°C on presentation.

Table 1. Characteristics of study participants at enrolment and mean time lag

	Number of participants	Percentage (%)	Mean time lag* (days) [95%CI]
Age group	589	68	168 hours; about (7.42 days [5.93-8.91])
< 5 years old	271	32	180 hours; about (7.5 days [5.92 -9.09])
Gender			
Male	451	52	
Female	409	48	
Total number of patients	860	100	
History of fever but temp <37.5°C	792/855	92.6	
Axillary temperature ≥37.5°C at presentation	63/855	7.4	
Given drugs bought from PMV	457/860	53.1	
Herbal medication	171/860	19.9	
Took no action	232/860	27.0	

*Time between onset of symptoms and use of effective treatment

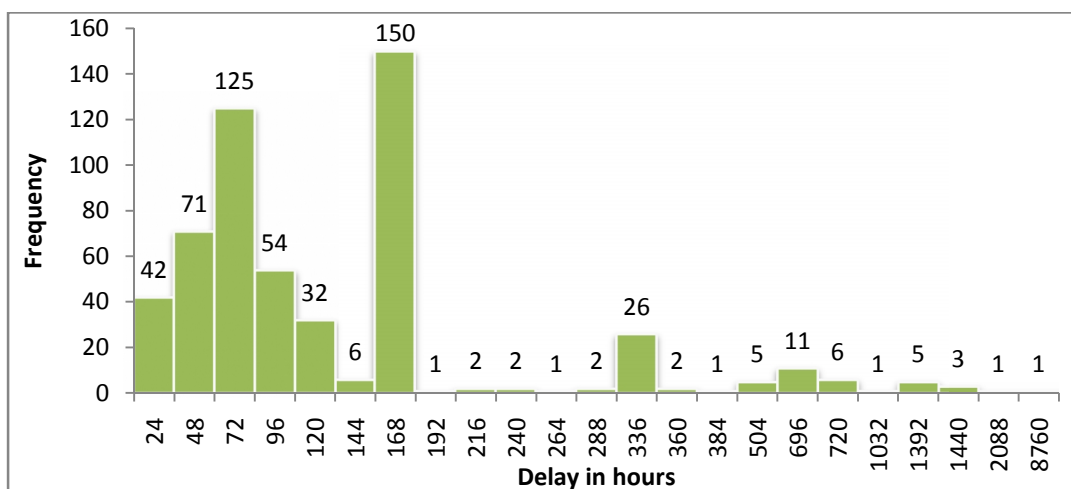


Fig. 1. Shows the time distribution among the under-fives

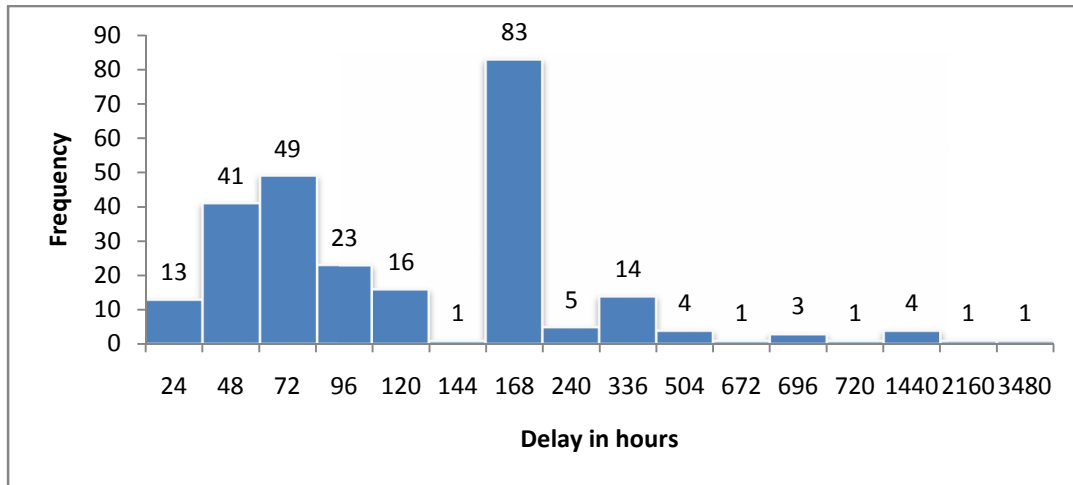


Fig. 2. Distribution of time response among the children over 5 years of age

Table 2. Reasons for delays in using public health facilities

Reason	Number of participants*	Percentage
Lack of finances to pay medical charges	280	74.3
Lack of transportation fare	71	18.8
Distance to health centre	44	11.7
No free time to bring child	33	8.8
Sickness not serious	20	5.3
Gave child drugs at home	16	4.2
Lack of consent from head of household	6	1.6
Others	11	3.9

*Multiple responses

4. DISCUSSION

Although this paper has shown that 82% of the ill children received effective treatment within 168 hours from the onset of malaria symptoms, only 8% of these started their treatment within 24 hours of symptoms onset. The World Health Organisation guidelines on treatment of malaria recommend that treatment should be started within 24 hours of onset of symptoms [5,7]. This is very important as uncomplicated malaria can progress very rapidly to severe malaria if effective treatment is not started soon after onset of symptoms [7,8]. In the public health centres there are trained and skilled manpower, free, antimalarial drugs for malaria treatment. However, it has been shown that mothers usually start treatment with available drugs at home, then go to the traditional healer and/or patent medicine vendor before eventually going to the formal health sector [16]. The study by Najnin et al. [10] showed that 41% of mothers in Bangladesh did not seek care from trained personnel. It was observed in this study that 20% of caregivers went to traditional healers and 53% try patent medicine vendors before finally presenting at the public health centres which are the nearest with effective ACT drugs for malaria treatment.

In this study, announcements were made, informing and requesting the community (mothers and caregivers) to bring their sick children/wards for free malaria testing and treatment in

their public health facility from the given dates. Although, it is possible that mothers who have an ill children could have delayed, while waiting for the study teams' arrival, previous studies in this environment suggested that such announcements actually brought out children who might not have been taken to the health facility [9,15,17,18]. Thus, announcements for free laboratory test and free treatment were considered beneficial to all. It helps patients receive free malaria laboratory test for better diagnosis of the illness and receive effective anti malarial. More important is detection and referral of none malaria cases to higher health facility. It is also good for the research team, as it saves time of the survey. Most strikingly important, is that even those who never had "finances" (about 74%, as mentioned above), transport and time were all moved to attend. Finally it created a meeting occasion between the caregivers/patients and the health facilities workers, contact that is unfortunately not always cordial. Besides the issue of "lack of finance" appears or could be another way of expressing poverty, including other livelihood problems (12), since people do not go around saying they are poor.

This study also shows that mothers administer none effective treatments at home before eventually presenting in the health facilities. One factor that probably works against mothers seeking early treatment for their children is unregulated advertisements in the media. Adverts by drug companies for analgesics like paracetamol for instance in the radio announce that the drug could be used for 2-3 days, "if it did not work, consult your doctor". Such information could give mothers a false sense of hope since the analgesic will not cure malaria. The mother/caregiver administers analgesic for 2-3 days at home and only move to the public health facility, with the child who could have developed malaria complications and risk of death.

Lack of finances (here may be considered as poverty as mentioned above) and inability to pay medical service charges was the main reason for delay in seeking care from the public health facilities. Other studies confirm the role of poverty as the reason for delay in accessing care [14,17,18]. The report by Najnin et al. [10] showed that more caregivers of children from the upper social classes sought healthcare from the formal sector than those from the lower socioeconomic class. Poverty is closely associated with inability to afford transport (the second commonest reason for delay in accessing care from public health facilities in this study) to public health facilities. In this study, the influence of socioeconomic background with the choice of where mothers seek healthcare for their ill children was not assessed. It is worrying that in spite of the availability of free effective ACTs in the public health facilities, mothers still complain of lack of resources to seek care. It is either caregivers are ignorant of the availability of free drugs in public health facilities, or are the drugs actually dispensed freely to them? However, studies from India [13] and Kenya [19-21] identified distance to health facility as the most important reason for delay in seeking care for ill children which was the third most important factor in this study. The main factors responsible for delay in accessing care by mothers/caregivers therefore appear to be universal.

The question then is what can be done to address this issue of access to healthcare services so as to eventually control malaria and maybe eliminate it. The present study cannot answer that question. However, advocating poverty reduction, health education and behaviour change communication interventions to target caregivers in the lower socioeconomic group is a possible approach to address this problem [10].

5. CONCLUSION

The authors conclude that majority of mothers/caregivers in this community attend to their malaria sick children within 168 hours from the onset of symptoms. Only 8% took effective action within the first 24 hours. They often tried other remedies, before using their public health care facilities. Their major reasons for the delay (74%) “lack of finances” appear to be associated with livelihood problems, especially poverty. There is need to probe their socio-ionic status, while applying health education and behavioural change communication intervention to improve the community awareness of the importance of early treatment of illness and use of the public health facilities.

CONSENT

As stated in the body of the methodology, informed consent was obtained from the participants.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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