

Research Article

Knowledge of malaria amongst caregivers of young children in rural and urban communities in Southwest Nigeria

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Abstract

Purpose: To compare the awareness and treatment knowledge of malaria amongst caregivers of young children in urban and rural areas of Ado-Odo/Ota Local Government Area in Ogun State.

Method: Structured questionnaires were administered to caregivers of children under the age of five years in 1472 households using a multistage random sampling technique.

Results: Many respondents (65%) attributed the cause of malaria to mosquito bite. The knowledge of malaria treatment (particularly the knowledge of pediatric doses) was generally poor. Caregivers in urban areas had better understanding of the dosage regimen for both adult and pediatric doses ($p < 0.05$) than those in rural areas ($p < 0.05$). However, caregivers in urban areas also sought more frequently for treatment of their children that are febrile than those living in rural areas. The latter visited the patent medicine vendors more frequently than the former ($p < 0.05$).

Conclusion: The caregivers of children in the communities studied have poor knowledge of malaria. Those in urban areas have better health-seeking behaviour than those in rural areas. There is therefore need for urgent interventions to promote appropriate treatments of malaria in rural areas.

Key words: Caregiver, children, malaria, treatment knowledge

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Introduction

Household responses to illness are influenced by socio-economic and cultural factors^{1, 2} and ease of access to treatment sources³. In sub-Saharan Africa, rural and urban populations differ demographically, in socio-economic and cultural composition, and in proximity to formal and informal treatment sources⁴. Malaria is one of humanity's worst diseases and the suffering it causes is now a global crisis. One fifth of the world population is at risk of malaria and there are more than 300 million cases each year⁵. It is responsible for over a million deaths each year and most of the deaths occur in children under five years^{6, 7}.

Nigeria is a malaria-endemic area, and malaria is the principal cause of childhood mortality. The cumulative prevalence rate for malaria infection in most parts of the country is 100 percent in any 18 month period. It is estimated that at least 10 percent of all childhood deaths are due directly to malaria and 25 percent are due indirectly to it⁸. Majority of victims are children under five who die because they do not receive treatment quickly enough^{6, 7}. Malaria has an insidious and far-reaching effect on economic and social development. In addition to the direct costs of treatment and prevention, malaria is responsible for significant losses in productivity and undermines educational achievement. It discourages savings and investment by household, constrains optimal land use and deters foreign investment and tourism⁹.

The strategies for combating malaria now focus on reducing mortality and morbidity through early diagnosis and prompt treatment¹⁰. Uncomplicated malaria has fever as a key symptom, but can rapidly develop into a life-threatening condition if not managed quickly. Prompt and appropriate treatment will however be influenced by factors related to cost, availability and

cultural beliefs about the causes and effective cures¹¹.

Although relatively few studies have compared rural and urban residents' treatment seeking patterns in African countries none, to the best of the researchers' knowledge, has been carried out in Nigeria^{4, 12}. This study aimed to compare knowledge and the treatment-seeking patterns of caregivers living in rural and urban areas in Ado-Odo/Ota in Southwest Nigeria in uncomplicated childhood fevers.

Method

Ado-Odo/Ota is a local government area (LGA) located in Ogun State in South Western Nigeria. It lies about 75 km Northeast of Lagos. The total population of the LGA in 2002 was 319,380 (1991 projected population figure). Yoruba is the major language of its inhabitants. The LGA has eight health districts (four rural and four urban) with an average of 10 settlements per district.

Two districts each were selected from the rural and urban districts using the simple random technique. In each of the four districts first selected, a listing of all the settlements was made to form a sample frame. Five settlements were selected from each district using the random number table. A systematic random sampling technique using an interval of every fourth house was then used to select the households. A household was defined as 'a person or group of people living in the same house, who are answerable to the same head and share a common source of food and/or income'⁴. The starting point was determined by spinning a bottle within each village square and picking the first house that is closest to the mouth of the bottle. The household without an eligible child was skipped and the next closest household visited. Of the 1800 eligible

households visited, 1472 caregivers accepted to participate in the study.

Data collection

Structured questionnaire aimed at caregivers of children less than five years of age was used. A caregiver was defined as the mother, the father or any adult responsible for the care of the child. Information in the questionnaire included identification (name, ward, village), demographic characteristics (age, sex, education, employment), distance to health facilities, treatment seeking practices and types of anti-malarial used. The knowledge of treatment of the most commonly used anti-malarial was also assessed using the current WHO malaria treatment regimen. Pre-testing of the questionnaires was carried out in a community in a neighboring LGA and then administered to the caregivers after appropriate amendments were made. Where applicable, trained interpreters were used in the administration of the questionnaire to the caregivers.

Data quality and analysis

Eight Local Government primary health care (PHC) officers were recruited as field workers for the study. They were trained using participatory approaches in communication skills, form-filling and demographic techniques. All data collected were entered into the computer, double-checked, verified and analyzed using Epi-info version 6.0 (WHO/Centre for Disease Control, USA).

Results

The sociodemographic characteristics of the caregivers interviewed are given in Table 1. About 85% of urban households were located up to 1 km near a health centre while only 49% of rural households were so located. In these areas, there were nearly

twice as many female caregivers as male caregivers.

Table 1: Sociodemographic characteristics of caregivers

	Rural (%)	Urban (%)
Age (yr)		
15-30	179 (12.2)	360 (24.5)
31-45	376 (25.5)	360 (24.5)
46-60	110 (7.5)	64 (4.3)
61-78	13 (0.9)	10 (0.7)
Total	678 (46.1)	794 (53.9)
Sex		
Male	249 (16.9)	242 (16.4)
Female	429 (29.1)	552 (37.5)
Total	678 (46.1)	794 (53.9)
Education		
Informal	148 (10.1)	121 (8.3)
Primary	158 (10.8)	252 (17.2)
Secondary	196 (13.1)	312 (21.3)
Post Secondary	171 (16.7)	105 (7.2)
Total	673 (46.0)	790 (54.0)

Knowledge of cause and prevention of Malaria

Sixty five percent of total respondents attributed the cause of malaria to mosquito bites. Other causes were attributed by the caregivers to dirty environment (19.3%), eating unclean food (5.8%), inhaling of dust (2.4%), stress (3.9%), and growth of milk teeth in infants (1.3%). The urban caregivers had significantly better knowledge of the cause and treatment of malaria than the rural caregivers ($p < 0.05$) (Table 2).

The most frequently mentioned means of malaria vector control were insecticide sprays/coils (46%) and clearing of bushes (26.8%). Others were the use of repellent creams (3.5%) and healthy eating and drinking habits (16%). Some of the caregivers (59.8%) were aware of the use of insecticide treated bed-nets for malaria vector control.

Table 2: Caregivers' knowledge of treatment of malaria

	Rural (%)	Urban (%)
Knowledge of correct cause of malaria	49.0	78.5
Knowledge of correct adult dose of antimalarial	37.5	43.5
Knowledge of correct pediatric dose of antimalarial	19.5	38.0
Knowledge of correct treatment duration of malaria	37.0	52.5

Knowledge of chloroquine treatment regimen

Chloroquine was the most commonly mentioned drug used to treat malaria (75.9%). The caregivers were asked about the correct dose. Some of the caregivers (41.0%) knew the correct adult dose of chloroquine but 48% of them mentioned sub-therapeutic doses and 11% mentioned toxic doses. Only 29% of the caregivers knew the correct pediatric dose of chloroquine. Fifty eight percent of them mentioned sub-therapeutic doses while 13% mentioned toxic doses. The urban caregivers had a better knowledge of the treatment regimen of chloroquine when compared with the rural caregivers ($p < 0.05$) (Table 2).

Treatment seeking practices

The caregivers sought for treatment of their children under 5 years from patent medicine stores, health centres, community health workers, private clinics, drug hawkers, traditional healers. Treatment at home was only done by a small proportion of the caregivers (Table 3). Caregivers from urban districts were more likely to visit the health centre than those from rural settings while the reverse was the case with respect to visiting the patent medicine dealers.

Discussion

The need to reduce malaria morbidity and mortality through the improvement of home treatment of childhood fevers has led to a number of community-based initiatives, including the training of mothers, community health workers, or shop-keepers in diagnosis, appropriate antimalarial use, and referral^{13, 14}. These initiatives have not

largely taken place in rural areas, and have demonstrated changes in treatment-seeking practice and, less frequently, reductions in morbidity and mortality^{15, 16}.

Table 3: Places where caregivers seek treatment

Source	Rural (%)	Urban (%)
Patent medicine store	37	16
Health centre	39	50
Community health worker	7	10
Private clinics	6	8.6
Drug hawkers	5.8	4.6
Traditional healers	4.8	2.4
Home	1	7.6

A comparison of knowledge and treatment seeking pattern for malarial illness in children under 5 years between urban and rural areas will therefore help a great deal to determine the type of modifications required in the design of future interventions. Many caregivers demonstrated a high level of knowledge on the means of malaria prevention. This was a reflection of their knowledge of the cause of malaria as confirmed in our study. Cultural beliefs and myths about illness perception prevalent in many rural setting may have contributed significantly to the poorer knowledge of caregivers in the rural areas as compared to those in the urban areas¹¹.

At the time of this study, chloroquine was the first line drug for malaria treatment in the areas studied. The poor knowledge of appropriate dosage regimen, which was more prevalent in the rural district than the urban ones ($p < 0.05$), has been earlier reported^{18, 19, 20, 21, 22}. This is a major obstacle in malaria control with the increasing

incidence of drug-resistant plasmodium species.

Primary health care workers and patent medicine vendors can be considered effective targets for intervention because they represent an important point for drug access, patient counseling and referral²³. However, studies have shown that patent medicine shop vendors often dispense drugs to their clients even when they do not know the appropriate information on correct drug indication and dosage²⁴.

Treatment seeking behavior has been shown to be related to the cost, availability and cultural beliefs about the causes and effective cures for malaria-like symptoms¹¹. The reported high patronage of patent medicine vendors by rural caregivers, when compared with urban caregivers, in this study may be linked to the "convenient" service and accessibility of drugs from the patent medicine stores. More importantly, rural dwellers may not be able to afford the cost of a complete treatment regimen for malaria likely to be prescribed at the health centre hence they may opt for the patent medicine vendors who are often willing to sell a few tablets instead of a complete course of treatment. However, a study on plasma levels of chloroquine (CQ) in young children in Ibadan, South West Nigeria²⁵ showed that independent of age, CQ was more frequently found in the blood of urban children than in the blood of children originating from the village. This suggests that there is easier access to the drug in urban areas compared to rural communities²⁶.

Conclusion

Many caregivers of children under 5 years in some rural and urban areas in Southwest Nigeria do not have adequate knowledge on the control and treatment of malaria. While acknowledging the need for urgent interventions to improve home management of childhood fever, consideration must be

given to the socio-economic and cultural context of drug use. Interventions to encourage responsible and effective treatments should aim at increasing the knowledge base of the population at large (including the mothers, health workers, schoolchildren, market sellers, and shopkeepers).

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