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Children, Pregnant Women and the Culture of Malaria in Two Rural Communities of Ghana

Collins K. Ahorlu, Kwadwo A. Koram and Mitchell G. Weiss

The Malaria situation in Ghana is typical of many tropical African countries, where it remains a major cause of morbidity and mortality. Control methods generally emphasize prompt diagnosis and treatment. However, local experiences and meanings continue to influence help-seeking behaviour, which either promotes risk of infections or prevention. The aim of this study was to elicit relevant contemporary ethnographic features of malaria in children and pregnant women in two rural villages in Ghana for intervention. Ethnographic data collection methods such as free listing and rating, participatory mapping, focus group discussions and in-depth interviews were used. Malaria was listed as the most common illness in the study communities. Outside help is sought two to three days after illness onset. Mosquitoes were identified as a major nuisance and a cause of malaria and convulsions. This study highlights sociocultural features of malaria in two rural Ghanaian communities, and it indicates needs for regular re-evaluation of community experiences, meanings and behaviour to inform the implementation and effectiveness of control programmes.

Introduction and Background

Malaria remains a major cause of morbidity and mortality worldwide, especially in sub-Saharan Africa where it accounts for more than 90% of the estimated 1.2 million deaths per year, worldwide (WHO, 2004). According to Breman (2001), between 400 and 900 million acute febrile episodes of malaria occur yearly in children under five years of age living in endemic areas.
In Ghana, malaria is the most common cause of death in children under five years of age (MOH, 1999). In most cases, treatment for a febrile malaria episode is initiated at home where many households depend on a combination of herbs and over-the-counter drugs, usually consisting of inadequate doses of chloroquine and analgesics (Agyepong 1992; Ahorlu et al. 1997).

It is estimated that over 400,000 women develop anaemia during pregnancy annually as a result of malaria in sub-Saharan Africa alone. Severe anaemia due to malaria occurs in 1.5 to 6.0 million African children annually with a case fatality rate of nearly 15% (Murphy et al. 2001; Steketee et al. 2001).

Nevertheless, malaria control in Africa remains compromised by inadequate resources coupled with drug resistance (Sachs 1999; Winstanley 2002). Innovative strategies to meet the challenges of malaria control in Africa requires better appreciation of local malaria-related illness treatment and control measures that may be useful for control initiatives.

Home management of malaria is being promoted as a control strategy. This is justified by the fact that malaria treatment initiated promptly at home may minimize the incidence of severe episodes and reduce mortality (Pagnoni et al. 1997; Dunyo et al. 2000; Kidane & Morrow 2000; Sirima et al. 2003). For home management of malaria to be effective, we need to acknowledge and respond to the impact of culture and community concepts.

To understand the local health systems and make them achieve what we expect—life-saving and enhancing the life of the people who need them (WHO 2000)—we need to define health systems to include the traditional health care systems. This should include the patterns of beliefs about the cause of illness, norms governing choice and evaluation of treatment, socially legitimated status roles, power, relationships, interactions settings and institutions (Kleiman 1980).

This study concerns how beliefs and practices relate to social changes in both health and disease, especially febrile malaria illness (Helman 2000). Hahn (1999) argued that intervention, including public health action, is fundamentally a process of social and cultural exchange. This exchange is a dynamic one, involving national and global context of local society and culture, which is constantly changing.

Brown (1997) suggests that cultural, rather than parasitological or entomological, factors are the primary cause of the current resurgence. Much of the scientific and political discussion about emerging and resurgent of infections has emphasized the disease pathogens, has de-emphasized the role of human behaviours in creating these new epidemiological trends, and has underemphasized human empowerment to improve health conditions.

To demonstrate the importance of culture and human behaviour in the equation of malaria transmission, prevention and control, this study examined sociocultural factors in two rural communities in southern Ghana. The study was motivated by questions about practical implications for interventions, bearing in mind the changing nature of local experiences, meanings and behaviours, inasmuch as this affects risk or preventive behaviour.
Methods

Study Area

The research was conducted from October 2002 to April 2004 in two malaria-endemic villages in Ghana: Galo-Sota in the Keta District and Obosomase in the Akuapim North District. Keta District is located in the coastal savannah zone of Ghana, where about a third of the total surface area is covered with lakes and ponds. The Anlo people constitute the majority of people in this district (98.8%). They are patrilineal, and predominantly subsistence food crop farmers, but many also cultivate shallot, a tropical spice grown commercially. Some are also fishermen and petty traders (Keta District Annual Report 2001).

Galo-Sota is a rural village with a population of about 6,000–7,000. There is a health post in the centre of the village, which is staffed by a midwife, two community health nurses and two auxiliary workers. Malaria was the most common health problem treated at the community health post in 2002.

The Akuapim North District is situated in the forest zone. The Akuapim-Twi speaking people predominate, and they are mainly food crop farmers and petty traders. Oil palm, a cash crop, is cultivated on a limited scale. The district is currently being prepared as a site for a malaria vaccine trial. A Centre for Scientific Research into Plant Medicine is located in the district (Akuapim North District Annual Report 2001).

Obosomase (population 7,000–8,000) is the rural study village in the Akuapim North District. It has a community clinic staffed by a midwife, a community health nurse and one auxiliary staff. As in Galo-Sota, malaria was the most common health problem treated at the community clinic in 2002.

Study Methods

Free listing and rating

Free listing and rating is a semi-structured technique, and can be conducted as part of an interview, or as a written exercise. It is used to understand the contents and scope of a domain (Sinha 2003). In our study, it was conducted as a written exercise and was employed to identify the contents and scope of common illnesses in the communities. Twelve participants (six men and six women) took part in the sessions. After individual sessions, participants were asked to discuss the individual reports as a group to form consensus on common illnesses and their perceived importance. This technique identified priority illness categories, about which we inquired in the course of subsequent focus group discussions and in-depth interviews.

Participatory social mapping

Social mapping is used to present information on village layout, demography, health patterns etc. In our study, this approach was used to map out perceived mosquitoes breeding sites and malaria risk areas in the communities. During the mapping exercise, villagers were asked to locate areas of particular risk, which included water bodies and other receptacles that could breed mosquitoes.
Focus group discussion

Focus group discussion (FGD) has been widely used in qualitative research (Hardon et al. 2001). This method was used to facilitate interactive social processes, to elicit divergent viewpoints, and to observe the consensus-building process on issues concerning febrile malaria illness (FMI). FGD participants were randomly selected and grouped according to age groups and sex; experience has shown this grouping to facilitate free and open discussions in rural Ghana. Four FGDs for each of the three age categories (11–17, 18–30 and 31 and above years) of men and women were held in each community.

Key-informant in-depth interview

For detailed individual accounts, in-depth interviews were held with selected key informants. Questions were open-ended as we aimed at qualitative narrative accounts of the individual (Hardon et al. 2001). This enabled us to probe further issues that were raised during focus group discussions. Fourteen sessions were held in each community (four with the chiefs and elders, two with women’s leaders, four with pregnant women, and four with caretakers of children under five years of age).

Data Analysis

Qualitative narrative data were entered into a word processor (Microsoft Word) and imported in a format that allows automatic coding by interview item in MAXqda, a program for textual analysis. This enabled us to perform content analysis of relevant coded segments for presentation. These data were analysed to clarify aspects of illness-related experience, meaning and behaviour. Results were triangulated and were, for the most part, consistent and therefore presented together. Any notable differences, however, were noted and discussed.

Results

Common Illnesses

Common illnesses identified by respondents are presented in Tables 1 and 2, with their approximate English translations. FMI was considered the most common health problem in both communities. This was a consistent finding from free listing and rating sessions, FGDs and in-depth interviews. The remarks of a pregnant woman in Obosomase were illustrative:

Anytime I am pregnant like this, atridii is what worries me most; it attacks me very frequently, sometimes every two months, even though I have been going to the clinic for treatment.

Respondents categorized fever into three. These are malaria fever (known locally at Obosomase as atridii/ebun/fiva/huraye/malaria and at Galo-Sota as asra/judza/fiva/malaria), jaundice fever and yellow fever. Furthermore, malaria fever was grouped into common/ordinary fever or male fever. The male fever was characteristically very
difficult to cure. It could make affected persons behave wildly, as though they were mad. Ordinary malaria was regarded as the most common type of fevers, and could be easily treated with either herbal or biomedical medicines, or both.

**Causes of Febrile Malaria Illness and Convulsions**

Various causes of FMI were reported and prominent among them were mosquito bite and heat from the sun/fire. Prominent causes reported for convulsions were malaria fever and evil spirit (Tables 3 and 4).

**Signs and Symptoms**

Respondents mentioned various local signs and symptoms for FMI and convulsions (Tables 5 and 6). An illustrative account from a woman referring to malaria fever explained:

> When you have *asra*, your body will be very hot; you will be vomiting and cannot eat well, because you taste bitterness in your mouth.
<table>
<thead>
<tr>
<th>Ewe (local language)</th>
<th>Twi (local language)</th>
<th>English translations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afordsizde</td>
<td>Ayemur white</td>
<td>Diarrhoea</td>
</tr>
<tr>
<td>Afsutsiiisii</td>
<td>Wobe ye fitaa</td>
<td>Paleness</td>
</tr>
<tr>
<td>Alordordor</td>
<td>Wobe da pii</td>
<td>Sleepiness</td>
</tr>
<tr>
<td>Dooxorxor</td>
<td>Wohu bedor</td>
<td>Hot body</td>
</tr>
<tr>
<td>Enumarumaru</td>
<td>Wontumi didi</td>
<td>Loss of appetite/refusal of foods</td>
</tr>
<tr>
<td>Fifiadzedze</td>
<td>Nfrifie be tiwo</td>
<td>Sweating profusely</td>
</tr>
<tr>
<td>Lame gbordzorgbordzor</td>
<td>Wo beye mre</td>
<td>Weakness</td>
</tr>
<tr>
<td>Nku azu anutsiri</td>
<td>Woni beye akukor sradie</td>
<td>Yellowish eyes and urine</td>
</tr>
<tr>
<td>Numevevem</td>
<td>Woanum be ye nyunyuni</td>
<td>Bitterness in mouth</td>
</tr>
<tr>
<td>Nureree</td>
<td>Wo befifi</td>
<td>Vomiting</td>
</tr>
<tr>
<td>Nuzitsioame</td>
<td>Woa niso bebrewo</td>
<td>Dizziness</td>
</tr>
<tr>
<td>Taru</td>
<td>Etipae</td>
<td>Headache</td>
</tr>
<tr>
<td>Vuvor/Fofokplakplapla</td>
<td>Awor/Ahututuo</td>
<td>Chills and rigors</td>
</tr>
</tbody>
</table>

Columns sorted on alphabetical order in column 1.
Another woman referring to convulsions lamented:

A child with convulsions become very hot and stiff. Sometimes the eye balls shall be rolling with the eyes widely opened, the child could also be shaking and have locked jaws and look very weak.

**Home-Based Management**

First actions usually taken when a child is suspected of having FMI without convulsions included giving drugs, chiefly chloroquine and analgesics (either purchased from a shop or available as a leftover at home), or giving herbal medications for drinking, as enema, steaming (covering the patient with thick blanket with a bucketful of hot water for the patient to inhale and absorb the steam that comes out of the water until it cools down and the patient will come out full of sweat). In case of ‘excessive hot body’, cold water is used to shower the child to bring down the high temperature.

Some of these actions could be taken together, and the duration of any particular home treatment depends on how the patient responds to it. However, two or three days might pass before seeking outside treatment if the condition persists. Pregnant women are not allowed to take medications neither herbal nor biomedical without advice from ‘experts’.

When convulsions set in, biomedical drugs are not given at home. At that point, home treatment reported includes giving herbal medicine (drinking, enemas, smearing on the body or squeezing herbal juice into the nostril). Other interventions at home were scarification, showering with cold water left overnight in a cooking pot, and inserting an object into the throat to induce vomiting. Others involved burning herbs to keep away the causal spirit, covering the child with a menstrual pad (usually a piece of cloth used by rural ladies to soak up menstrual blood).

During an informal discussion with an elderly woman at Galo-Sota, she explained that a spirit believed to cause convulsions also hates unhygienic conditions, hence,
the use of the menstrual pad to cover the child. These metaphors are believed to drive the spirit away for medications to be effective. Although most adults could manage convulsions, only recognized local healers could protect children from subsequent attack after treatment.

Another treatment, referred to as ‘water ritual’ is described by a respondent in Galo-Sota:

If a child is having a convulsion and loses consciousness, we throw water onto the roof, and the child is placed under the dripping water from the rooftop, as we call out the name of the child. This makes the child to cry out, which signals relief.

Social Support

Social support through visiting and empathy are available from relatives in response to ill health. Financial support, on the other hand, was not readily available, but for a more severe illness, one can get some financial support from close relatives in the form of a loan. It was however, reported by a female FGD group (18–30) at Obosomase that it is becoming easier to get financial assistance from the church during illness than from family members.

Treatment of FMI Outside the Home

Two main sources of outside treatment were reported. These were clinic/hospital attendance and consulting local healers. A mother at Galo-Sota summed-up the treatment-seeking behaviour:

When my child is having asra I usually give herbal medication either as enema or for drinking for three days, and if the child is not getting well, then I buy drugs from the vendors for him or her. I will only take the child to the clinic when the asra persisted after doing all these.

Convulsions can be treated effectively at the clinic/hospital, but those caused by the spirits require the consultation of local healers to drive away the causal spirit to make biomedical treatments effective. Villagers were confident that local healers are able to treat convulsions, and protect children from subsequent attacks.

Generally, treatment at the clinic/hospital is preferred over other treatment options, because at the clinic/hospital people were sure of receiving appropriate drugs, which were expected to bring on recovery within two to four days. However, respondents maintained that they cannot afford to take every episode to the clinic/hospital because of the expense. The reported cost ranges from ₿20,000 to ₿30,000 cedis ($2.50 to $3.75) at the clinic, and between ₿80,000 and ₿150,000 cedis ($10 to $18.75) at the hospital per visit. Depending on the severity of a suspected illness, healers mostly treated FMI for a token or a freewill gift. The cost of treating cases with drugs at home was difficult to estimate by caretakers because it does not follow any pattern, and was made more difficult by the use of leftover drugs, for which it was difficult to specify cost.
Drugs could be bought with as little as $200 cedis ($0.025) from drug vendors. Also, trustworthy customers could obtain drugs on credit from the vendors. These have made it an attractive source for health seeking outside the home. Villagers at Obosomase reported keeping less drugs at home compared to Galo-Sota because they believe that drugs are properly stored in the shops than at home. At Galo-Sota, there was no permanent drug shop and the people largely relied on itinerant drug vendors.

Treatment Failure

Respondents attributed treatment failures to evil spirits or the mismatch between medications and patients’ blood. There was no reference to fake drugs by respondents. A respondent at Obosomase offered the following fatalistic account of treatment failures:

If the *atridii* will kill you, it does not matter how much medicine you take, whether it is herbal or biomedical, it will kill you. For instance, there are people who do not respond to biomedical drugs and there are some who also do not respond to treatments from local healers. So I think that the failure of medicine to cure a person depends on the person’s blood.

FMI Effect on the Blood of Patients

Villagers explained that malaria drains the blood of patients, resulting in a shortage of blood. An opinion leader at Obosomase explained:

The more you suffer from *atridii* the more your blood level reduces because it drains your blood. As a parent my children have gone through it several times.

Another reason given for the relationship between febrile malaria and shortage of blood was that malaria causes loss of appetite, and patients do not eat well. A pregnant woman at Galo-Sota said:

I was admitted at the hospital recently for *asra* and was given blood [(transfusion)], and when I was discharged they gave me blood tonic to take home for drinking. So I knew that it was the *asra* which has affected my blood.

Prevention and Control

Generally, respondents indicated fatalistic views and were sceptical about the capacity to eradicate febrile malaria illness, because the disease is also a feature of God’s creation. They believe, however, that something could be done to reduce its frequency in children. Measures considered capable of reducing malaria attacks include taking medication (herbal or biomedical) regularly, protecting oneself from mosquito bites, eating well-balanced foods, staying less in the sun. An elderly man at Obosomase said,

We cannot eradicate *atridii* from attacking us completely, but we can reduce the frequency of attack by taking good care of ourselves, especially the children.
The problem is that we shall continue to work in the sun, and mosquitoes will continue to bite us.

Presence of Mosquitoes

Mosquitoes were considered a major nuisance because of their noise and biting. Respondents at Galo-Sota said their community ‘is the breeding ground for mosquitoes in Ghana’, but it was different in Obosomase where it was reported that until recently mosquitoes were not a major problem. The presence of mosquitoes in both communities was attributed to many stagnant water bodies and other receptacles, especially tin cans. These environmental factors were consistent with areas mapped out during participatory mapping exercise identifying respondents’ perceptions of the location of mosquitoes’ breeding sites.

Mosquitoes were reported to cause malaria, jaundice and itching. Additional illnesses like measles, sleeping sickness and diarrhoea/cholera were reported at Galo-Sota. A female discussion group (18–30 years) at Obosomase also reported that mosquitoes could cause convulsions. Community members protect themselves from mosquito bites by burning coils and herbal repellents at night, screening windows and doors with nets, and swatting with cloths. Others use electric fans, insecticide spray, burning of cow dung, sleeping under bednets and sprinkling kerosene in rooms. Most of these protective measures, however, were said to offer no more than partial protection.

Bednet Use

Villagers in Obosomase reported that only a few people slept under bednets, but in Galo-Sota most people slept under untreated bednets. Respondents had heard about treated bednets on the radio, and would like to own one if they could afford to pay for them. Suggested affordable prices ranged from ₡10,000 to ₡40,000 at Obosomase and between ₡20,000 and ₡60,000 at Galo-Sota for a large size net ($1 = ₡8,000).

Discussion

This paper argues that febrile malaria illness experience, meaning and behaviour is a dynamic process which keeps changing in the context of local, national and global exchange and change (Hahn 1999). This study has shown that FMI was a well-recognized common health problem affecting children, and pregnant women in the communities studied. Most fevers in the communities are usually considered as FMI; however, distinctions were made between ‘malaria fever’ and ‘jaundice fever’ by respondents. The home is the starting point for the treatment of FMI using herbs, analgesics and limited anti-malarials. These anti-malarials were mostly leftovers from previous treatments that were purchased from local drug vendors without prescription. Such practices are widespread in Ghana and other communities in sub-Saharan Africa, and have been reported in other studies, indicating inappropriate use (Rooth & Bjorkman 1992; Snow et al. 1992; Mwenesi et al. 1995;
Ruebush et al. 1995; Ahorlu et al. 1997; Dunyo et al. 2000). However, the use of anti-malarials at home has not been fully evaluated to ascertain its appropriateness as suggested in most studies, and this needs further research.

Respondents attributed treatment failures to reasons other than resistance. They maintained that it was due to the blood of the individual or spiritual interventions. No reference was made to fake anti-malarial drugs, though this cannot be ruled out. This emphasizes the need to make more efficacious combination therapy available before people begin to lose confidence in biomedicine (Frankish 2003). This is particularly important because losing faith in anti-malarial drugs may seriously compromise the effectiveness of control programmes that rely on timely treatment.

Another concern is how to supervise and monitor the activities of drug vendors who are major sources of anti-malarials in the communities. However, at Obosomase, the most problematic itinerant peddlers were no longer operating because they have been pushed out of business by drug shop operators, who are easier to supervise and monitor. It has been demonstrated by Marsh et al. (2004) that training of shop-keepers in Kenya resulted in improved quality of prescriptions they filled, and better customer adherence to treatment.

Consistent with findings from other studies in Ghana (Agyepong 1992; Ahorlu et al. 1997), perceived causes and preferred treatments that are locally relevant, but inconsistent with biomedical accounts still persist in our study villages. A new observation, however, was that the role of the mosquito as a major agent of transmission is gaining ground and this should offer a window of opportunity for delivering control measures aimed at protecting individuals from mosquito bites. Interv entional messages should aim at promoting desired behaviours instead of focusing on changing what seem irrational to the biomedical professionals. We should not make the mistake of equating rationality with appropriateness, because what may seem irrational to us may as well be rational and relevant to the local population.

The readily available access to drugs from drug shops influences home drug storage practices, and this must be promoted in other communities. Consequently, policy should incorporate drug vendors, especially the shop operators, into the control programme if one of the Abuja targets (thus, 60% of those suffering from malaria have prompt access to and are able to use correctly, affordable and effective treatment within 24 hours of symptom onset) is to be realized even at a later date other than 2005. Other studies have alluded to this (Ahorlu et al. 1997; Marsh et al. 2004).

Local idea that FMI causes shortage of blood could be as a result of health education at the clinics or on radio and television. However, the mechanism of causing anaemia is not usually explained by the nurses. Also public health efforts in health education are largely limited to cause/transmission, treatment and prevention and these have obviously affected local representation of causes/transmission, treatment and prevention in one way or the other. But these could not have accounted for locally relevant causal explanations of the effect of FMI on blood. The important point here is that it may encourage the acceptance of intermittent preventive treatment (IPT) and the need to take the full course of treatment. The message should be that the medicine will strengthen the blood of pregnant women to
better fight illness in general, but FMI in particular. Policy should consider introducing IPT for children under five years of age, since they are the most vulnerable segment of the population. The only fear is that, if not appropriately delivered, it may lead to misuse of the drug. This calls for appropriate health education on the need to take the full course of treatment as well as the negative effect of inappropriate use of antimalarial drugs.

The report that convulsions could be effectively treated at the health facility should offer a new hope for it management in the context of PHC. The explanation that convulsions caused by spirits could be treated after rituals are performed to drive away the causal spirits should offer hope for intervention to encourage timely treatment for convulsive cases. This calls for collaboration between the formal and traditional sectors to practice simultaneous healing. The collaboration should emphasize that the traditional healer should be consulted in proxy for the patient while he/she receives timely treatment at the health facility. All over Ghana, proxy consultations are done on behalf of seriously ill people (unpublished observation), so this should not be too difficult to accept by both care-takers and traditional healers.

The emerging link between malaria, mosquito and convulsions, and the prominence given to modern treatment at health facility departs from other reports from sub-Saharan Africa, where only limited links were reported between malaria and convulsions, and treatments were mostly sought from traditional healers (Ahorlu et al. 1997; Baume et al. 2000; Muela et al. 2002; Hill et al. 2003; Adongo et al. 2005).

At Galo-Sota, bednet usage was a rule rather than exception, but these nets were not treated and therefore do not provide full protection to the users (Aikins et al. 1994). At Obosomase where fewer people were using bednets, the reported usage of net materials to screen windows/doorways must provide an opportunity to have these screening materials treated, while encouraging the people to provide bednets for children under five years of age and pregnant women as envisaged in the national control programme (Ghana Health Service 2004).

The lack of resources for sustainable malaria control, the current spread of parasite resistance to chloroquine and the elusiveness of vaccine development indicate needs for innovative ways to make the use of existing tools more effective and sustainable. This can be possible when households are appropriately integrated into the FMI management and control process. Attention should focus less on what they are not doing appropriately and focus more on what they can do effectively to cope with FMI, bearing in mind that home management or self-treatment with biomedicine and herbal medications will remain persistent feature of community help seeking for febrile malaria-related illness.

**Conclusion**

This study shows how appreciation of the context of community experience, meaning and health-seeking behaviour may help to guide malaria control. We must be aware that community experiences, meanings and behaviours are not static, but always changing. As people go through daily experiences, coupled with new
information, formerly held interpretations and meanings will change, and this will continually influence the behaviour of the individual and the community at large. The study highlights sociocultural features of FMI in two rural Ghanaian communities, and it indicates needs for regular re-evaluation of community experiences, meanings and behaviours to regularly review and adapt control programmes to the changing needs of the local people.

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