

Problems of Malaria Menace and Behavioural Intervention for its Management in Sub-Saharan Africa

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ABSTRACT Malaria, the most prevalent and most pernicious parasitic disease of humans, is responsible for at least a million deaths each year with Africa bearing the brunt accounting for more than 90 percent of the whole cases. Thus, it is a prime etiologic factor of slowed economic growth in Africa as a result of lost productivity or income associated with illness or death and other damages associated with *falciparum* malaria. In Nigeria alone, over 50% outpatients' attendance and 40% of hospital admissions, 30% of child mortality and 10% of maternal mortality are due to malaria. The ugly burden of malaria is intensified by the demise of certain antimalarial therapeutic drugs. Antimalarial drug resistance, which is a major contributor to the global resurgence of malaria, is now generally acknowledged to be one of the greatest threats on our ability to "Roll Back Malaria", and this accounts for the ban of chloroquine (CQ) in first-line Malaria treatment in most African countries, and Nigeria. Malaria is usually defined, interpreted, and managed at home before being referred to other care sectors. Such management is conceived in terms of treatment and prevention of malaria. In line with the foregoing, the paper examines the problems malaria control and concludes that there is still the need to settle some discrepancies between perception, sick role and health seeking behaviour if the menace of malaria must be effectively controlled in Africa and Nigeria in Particular.

INTRODUCTION

Malaria remains a major health problem of our time. Malaria which plagues human society and impacts obnoxious and immeasurable burden on human population. It displays full explosive power of vector-born infections, erupting suddenness and intensity that can overwhelm vulnerable communities (Kiszewski and Teklehaimanot, 2004). Malaria control becomes a major challenge especially in Africa where it has constituted a major setback for the crawling socio-economic progress. The burden of malaria is geographically biased to the sub-Sahara Africa. It is thus a health problem that has attracted concerted efforts over the years. It is quite unfortunate that despite these efforts malaria still remains a leading cause of morbidity and mortality especially in sub-Saharan Africa. Since it is a problem that affects the people, it is pertinent to examine some of the social connections in malaria prevalence and control. The incorporation of the multi-factorial scheme of biological, socio-cultural and ecological stance in our understanding of health is a major breakthrough of our time. This favours the exploration of health issues in the social realm. It is in line with this that the paper examines some of the social issues relating to malaria.

MALARIA MENACE IN AFRICA

Malaria has been well controlled or eliminated

in the five northernmost African countries: Algeria, Egypt, Libya, Morocco and Tunisia (WHO, 2003). The South of the Sahara is the most endemic region in the world and it is in the region that malaria claims its highest toll. Malaria becomes the most pernicious and prevalent health problem in the region where transmission occurs. It is responsible for at least a million deaths each year with Africa bearing the brunt of the disease accounting for more than 90% of the whole cases (Wellcome, 2002; WHO, 2003; White, 2004). Every year about 300 million clinical cases are also reported (Bloland et al., 2000; Nuwaha, 2001; Moree and Ewart, 2004; Breman et al., 2004; Barat et al., 2004; Agyepon and Kankeye-Kayonda, 2004). This indicates that malaria constitutes a major health constraints to the people and hinder them from day to day social activities as a result of clinical attendance, admissions, or ill-health. Malaria is a prime etiologic factor of slowed economic growth in Africa as a result of loss of quality manpower; productivity which might be expressed in terms of absenteeism from employment, discounted future life time earning of those who die, lost school days and permanent neurological and other damages associated with *falciparum* malaria. Malaria is a leading cause of child morbidity and mortality in Africa as children are said to account for the 90% of the whole cases (WHO, 1997; Baume, 2000; WHO, 2003; NPC, 2004).

In areas of stable transmission, very young children and pregnant women are the population groups at highest risk of malaria morbidity and mortality (WHO, 2002). The poor are also vulnerable as it has been observed that poverty breeds malaria and malaria impoverishes people and the society (WHO, 2000). This may be due to lack of information on etiologic factors, how to prevent it, expensive preventive measures, poor nutrition, higher exposure to etiologic agent, inadequate housing and drainage and so on. Another most vulnerable group are internally displaced persons and migrant or seasonal workers who move from non-malarious areas to malarious areas. This is because they may lack protective immunity against malaria.

The burden of malaria is so enormous and no tolerable limit needs to be admitted. It is astonishing that since the dawn of the pernicious disease about 3200 – 7000 years ago, despite the global efforts, malaria is still claiming it tolls. Its burden on the health of the people is alarming. As it has been mentioned, it is a leading cause of mortality especially in children. It may lead to low birth weight which is as a result of incessant malaria during pregnancy and is a major cause of death in the first month of life. Repeated infection in children may lead to cerebral malaria or severe anaemia which may result in mortality in no time, and increase susceptibility to other childhood illnesses. An estimated 2% of children who survive from malaria infections affecting the brain (Cerebral malaria) suffer from learning impairments and disabilities due to brain damage, including epilepsy and spasticity (Murphy *et al.*, 2001). This indicates that malaria may also lead to long-term disability.

In all malaria-endemic countries in Africa 25-40% (average 30%) of all outpatient clinic visits are for malaria and between 20% - 50% of all hospital admissions are a consequence of malaria, (WHO, 2003). In Nigeria, over 50% of outpatients' attendances and 40% of hospital admission, 30% of child mortality and 10% of maternal mortality are due to malaria (Mosanya 2000 and Abdulkareem, 2001). In Cote D'ivoire, up to 40% of outpatient attendance, over 50% of hospital admissions and 20% of hospital deaths are due to malaria. The data are similar in most endemic countries.

Following the Abuja summit on Roll Back Malaria in year 2000, the following specific burden of malaria was admitted.

- Nine out of ten cases of malaria worldwide occur in Africa South of the Sahara;
- Malaria cost Africa more than US \$12 billion annually, and can be controlled for a small fraction of that amount;
- Those who suffer most are some of the continent's most impoverished and that malaria keeps them poor;
- A poor family living in malaria affected areas may spend up to 25 percent or more of its annual income in prevention and treatment.;
- Malaria has slowed economic growth in African countries by 1.3 percent per year. As a result of the compounded effect of over 35 years, the GDP level for African countries is now up to 32 percent lower than it would have been in the absence of malaria; and
- Malaria can re-emerge in areas where it is under control. (WHO, 2000).

Having admitted all this, malaria could then be described as a major health problem in Africa. It is so as far as it affects the people in large number and has attracted global efforts in terms of control and prevention. This paper has its root in the social dimension of health through the consideration of the social connections in health, variation of behaviour in relation to adaptive needs. Local connections with malaria in terms of perception and health behaviour have not helped to alleviate the problem. The perception is expressed in terms of perceived aetiology, mode of transmission, vulnerability, age specificity and symptoms. The elusiveness of these social correlates may account for retrogression in rolling back the disease (Amzat, 2004). It is in line with this that the paper examines some of these social correlates in malaria control and other health related practices toward malaria.

Perception of Malaria

Perception of disease is related to a person's socio-cultural reality (their social role and expected behaviours) to shape both behaviour and ability to respond to disease (Jones and Williams, 2004). It is further observed that it is the interaction between the expected behaviour and perceptions of disease, as defined individually and by society, that affects both if and how an individual acts to prevent disease, as well as what they do when they become sick (their illness behaviour). Kleinman (1981) also observed that illness recognition, definition and management

procedures depend on the general axiom about health and illness within a people's culture. Erinsho (1998) buttresses the fact that culture incorporates belief systems, which in turn undermines the perception and interpretation of disease in societies. Hence, there are different etiologic categories among different cultures. Jegede (1998) examines causes of illness based on four categories: natural causes (when unclean water or unhygienic food is taken), supernatural causes (when illness is inflicted by witchcraft and other underworlds), mystical causes (result from neglect of gods, broken taboos etc) and hereditary causes (passed from one generation to the other).

Various studies have documented perception of malaria. Inappropriate etiologic perception, elusiveness of mode of transmission, and inadequate perceived threat of malaria are among the major behavioural setbacks in malaria control and prevention. All this translate to discrepancies in health seeking behaviour and may cause delay in seeking appropriate treatment. Among the Yoruba of Southwestern Nigeria, *Iba* is the concept designated as malaria. In many cultures, there is no general term or illness concept that approximates malaria. An illness with symptoms like malaria might be subsumed under a general term. Among the Dangla of Ghana, *asra* is a contestable illness concept for malaria as it can also be attributed to other illness conditions (McCombie, 1996). Among women in rural Uganda, *omusujja* is the local term for malaria (Kengeya-Kayondo et al., 1994). In another study conducted in Ifakara in Tanzania, there is clear conceptual appellation as malaria is often referred to as *homaya malaria* (Malaria fever), which is often used interchangeably with *homaya mbu* (fever due to mosquitoes) (Muela and Ribera, 1998). The illness concept in the community gives a clear understanding of the etiologic agent of the disease. Where illness term that appropriate malaria is contestable there may be problem of perception and generally health seeking behaviour.

Etiologic consideration is also an important link in understanding people's understanding of malaria. In a study conducted in Kibaha district in Tanzania, severe malaria is often referred to as *degedege* (Comoro et al., 2003). Most of the mothers avoid mentioning it because there is a cultural belief that it is a bad omen. They simply refer to it as childhood disease. On the perceived causes, three views emerged, the dominating one being that it is caused by the *shetani* (evil spirits).

This is also in line with other studies (Aikins et al., 1993; Makemba et al., 1996; Ahorlu et al., 1997). In Masaka, Uganda, *Omusujja* (Malaria) is believed to be caused by what is eaten or drunk and other environmental condition (Kengeya – Kayondo et al., 1994). Only few of the respondents relate malaria to mosquito bites. Brieger et al. (2001) observed that there are still several points of overlap in etiological attributions in Nigeria which include mosquitoes, overwork, sun exposure, dirty water, eating red palm oil, intense heat (and so on). A study in Kenya among mothers reports that mosquito as a cause of malaria was mentioned by 56% but only 10% understood the mechanism of transmission. Communicability and age specificity was not understood by most of the respondents (Nwenesi et al., 1995). Amzat (2004) also reports that up to 51.9% of Bodija market women, Ibadan, Nigeria hold inappropriate etiologic agents of malaria while up to 71.9% do not know how malaria is transmitted or whether it can be transmitted. Several other studies have confirmed inappropriate etiologic perception and mode of transmission (Karanja, 1999; Akogun and John, 2005).

The problem of malaria recognition is also compounded by lack of definite symptom complex as it can manifest with different signs in individuals. Description of *asra* (malaria) in Ghana is often with headache, yellowish urine, hot body, vomiting, loss of appetite, weakness and so on (Ahorlu et al., 1997). In Kenya, 90% of women interviewed mentioned headache, fever, vomiting and the rest as symptoms of malaria. Other studies also confirm varying symptoms of malaria as recognized by the respondents (Reuben, 1993; Kengeya-Kayondo, 1994; Nwenesi, 1996; Muela and Rebera, 1998; Brieger et al., 2001; Clarke, 2003; Amzat, 2004, Akogun and John, 2005). There are also variations and inadequacy in recognizing complications of malaria especially in children. As it has been noted convulsion is usually attributed to evil spirit. Most mothers do not understand that malaria can result in stillbirth, low-birth weight and other pregnancy related complications are still elusive (Nwenesi, 1996). This lack of recognition of such complications may translate into delay in seeking appropriate care. Hence, severe morbidity, which may result in mortality may be developed.

Health Seeking for Malaria

Attempts to control malaria have usually

followed one of three approaches; eliminating the parasite by administering antimalarial, eradicating the carrier mosquito or reducing man-vector contact so as to cut an important link in the life-cycle of the parasite (Gomes, 1993). Health seeking for malaria will then involve all activities or modalities engaged in by the individual to avert or treat the occurrence of malaria. Cultural beliefs about the aetiology of illness will invariably dictate the kind of healers to be consulted or therapy to be utilized.

Preventive modalities include, the use of bed net [insecticide treated net (ITN)], spraying the room with insecticide, burning of mosquito coils, taking antimalarial and so on. Inappropriate etiologic attributions in Ghana translate to certain preventive modalities as respondents claimed that *asra* caused by heat will continue to remain with them as far as sun continue to shine, *asra* caused by food can be prevented by eating good food (Ahorlu et al., 1997). In the same study, some respondents reported that malaria couldn't be prevented as we are all born with it. Bed net use was very low in the study. Nuwaha (2002) in a study in Uganda, claimed that malaria prevention strategies were linked to their perceived causes. This implies that better understanding may lead to improvement in the utilization of preventive strategies.

The major preventive measure that is been advocated is the use of insecticide treated Bednet (ITN). Since the launch of ITN at the Abuja Roll Back Malaria summit, its availability and utilization is still not widespread. Many reported that they have not heard of ITN, only 12% of household reported that they own at least one net while only 2% of household reported that they own an ITN as at 2003 in Nigeria (NPC, 2004). National Demographic and Health Survey in Nigeria further reveals that only 20% of pregnant woman reported preventive use of antimalarial and up to 58% used Daraprin/Metaprim which has been found to be ineffective as a chemoprophylaxis during pregnancy (FMOH, 2001). The data is similar in most African countries.

For the purpose of clarity, treatment-seeking patterns have been divided into three: Traditional healers and medicines, official health sector and self-treatment. Studies have shown that traditional healers are less relevant in the treatments of malaria as people already knew how to prepare herbal remedies to treat it (Abyan and Osman, 1993; McCombie, 1996). Especially for

uncomplicated malaria, if the use of traditional medicine is preferred, it is usually prepared at home. Traditional healers are likely to be consulted for severe malaria especially in rural areas. In Kenya, less than 1% of patients have consulted traditional healers before coming to the hospital (Snow *et al.*, 1992). It is still important to note that many people still have faith in traditional healers and their medicine. Muela and Ribera (1998) report that traditional care is dominant in Tanzania up to 43% of household use traditional medicine for reasons such as accessibility, low cost, efficacy etc. (Adera, 2003).

The official health sector includes hospitals, clinics, dispensaries, private practioners, health centres, village health workers. This pattern of care usually follows the use of modern care. Savigny et al. (2004) report that severe malaria is often treated with the use of modern health care in Tanzania as it accounts for up to 58.8% (both government and non-government providers). A study in Gambia also reports high use official health sector in the treatment of malaria (Clarke et al., 2003). Self-treatment is the most prevalent of all the health seeking patterns. Most cases reported to the official health sector or traditional healers must have been treated with one medications or the other. In a classical review, Brinkmann and Brinkmann (1991) found the rate of self-treatment ranges from as low as 19% in Guinea to as high as 94% in rural Ghana. Self-treatment includes both self-medication and what is called home treatment. The former involves treatment of self while the later involves treatment of a member of an household by another be a child or an adult. Self-treatment for malaria is usually the rule rather than exemption in African (Foster, 1995). Studies have revealed that self-treatment is predicated on time, cost, low severity and short duration of illness (McCombie, 2002). Antimalarials are usually used in self-treatment. Mostly used in chloroquine (Verhoef et al., 1999). In Togo, 83% of all fever cases were treated with an antimalaria at home (McCombie, 2002) and In Dar es Salaam, Tanzania, 68% of men and 77% of women reported using home reserve drugs for treatment in the past (Mnyika et al., 1995).

Malarial Treatment Patterns: Implications for Antimalarial Drug Resistance

Resistance to affordable and accessible drugs in Africa, which bears the greater brunt of malaria,

has reached critical levels. The continent faces the crucial issue of which drug regimen to switch to and when to switch (Yeung et al., 2004). Malaria drug resistance has been defined as the “ability of a parasite strain to survive and/or multiply despite the administration and absorption of drug which gain access to the parasite or the infected red blood cells for the duration of the time necessary for its normal action, and given in the doses equal to or higher than those usually recommended but within the tolerance of the subject (Bloland, 2001). It signifies a situation whereby certain drugs formerly efficacious in treating malaria are rendered obsolete or ineffective. The demise of these therapeutic drugs has been implicated in the global resurgence of malaria, and is now generally acknowledged to be one of the greatest threats on our ability to ‘Roll Back Malaria’. This accounts for the ban of chloroquine (CQ) in first time treatment in Nigeria in January, 2005, and it has also been banned in some other countries as resistance is spreading across the globe.

The sick role perspective as advanced by Parsons (1951) stipulates that an individual needs to seek for medical help especially from health professionals. Malaria is usually defined, interpreted and managed at home before being referred to other care sectors especially when there is treatment failure at home. This implies that self-treatment is dominant. CQ has been the mainstay of antimalarial therapy and the emergence of resistance has challenged control efforts (Campbell, 1991). CQ was introduced in the mid-1940s and by 1989, CQ resistance was firmly established in sub-Saharan countries (Nuwaha, 2001).

Whether seeking for professional help or self-treating both have some implications for antimalarial drug resistance. From the official health sector there is persistence, presumptive treatment. This usually takes the form of clinical diagnosis, which exerts drug pressure. Drug pressure has been implicated in the emergence of antimalarial drug resistance (Bloland et al., 2000; Bloland, 2001, D’Alessandro and Buttiens, 2001; Nuwaha, 2003). In most health centres in sub-Saharan Africa, microscopic diagnosis of malaria is rarely available and a policy of presumptive treatment is promoted especially for children. Wrong prescription in terms of doses and duration of the therapy also contribute to the development of resistance. Reliance on clinical diagnosis may lead to wrong

diagnosis, hence treating malaria for a non-malaria case. This also contributes to the emergence of drug resistance.

In the cases of self-treatment, it is also usually based on presumptive treatment, and this has been implicated in development and spread of antimalarial drug resistance. Non-compliance with therapeutic regimen is common in self-treatment. McCombie (2002) reports that the widespread of stopping medication when symptoms resolve as drug may be saved for future episode is well known. Knowledge of correct dosage varies, in some cases it may be lacking. When it is lacking, it might not be given. This exposes the parasites to sub-optimal drug level and may result in the development of resistance.

Several socio-cultural correlates surround distribution and prevalence of disease. There is always public formation about illness. For instance, the Health Belief Model (HBM) was advanced to access such public formations and their implications for health and illness behaviour. Health behaviour includes activities engaged in and modalities used by the individual to prevent and detect undesirable health condition and to promote and enhance health. The perceived effect of complications of malaria may affect succession of change in behaviour of an individual. HBM propounds that the feeling of probable consequence of ill-health may motivate individual to undertake health behaviour. The extent of necessity to stay healthy following the perceived threat will go a long way to discourage or encourage certain health related behaviour especially preventive health behaviour. Another important link is perceived susceptibility. If there is high level of perceived susceptibility, there is the likelihood that the individual will take necessary action to avert the occurrence of undesirable health condition. If there is no expression or perception of the likelihood of contracting the disease, a person may show attitude of indifference.

The promotion of behavioural underpinnings that discourage the occurrence of ill-health may be an effect partly explained by the attractiveness of certain preventive modalities among individuals. Using ITN should be attractive among the people. This signifies that there should be perceived benefits of taking action. In averting negative behavioural mien in antimalarial drug resistance, people need to understand the importance of taking full dosage. This indicates that people need to be aware of the consequences of

their drug use patterns. In preventive health, the belief in the preventive action i.e. its efficacy will dictate peoples attitude towards the action.

The foregoing discussion stipulates some of the behavioural underpinning in the emergence of antimalarial drug resistance. Having examined the prevalence, perception, health seeking behaviour for malaria and some behavioural stance in drug resistance, one begins to wonder what behaviour intervention do we need to avert the likelihood of untreatable malaria in the face of drug resistance, or at least to reduce the general burden of malaria especially in Africa.

Behavioural Intervention for Management of Malaria

With the alarming incidence of malaria especially in Africa, it is rather disheartening that there are still misconceptions in cultural beliefs about malaria. The need for appropriate perception, symptom and complication recognition should be enhanced with massive socio-political approaches. This goes beyond television jingles, postal and bills. The roles of the health educators have been undermined in control efforts. Communities need to be taught in local languages all the social and biomedical correlates in the prevalence of malaria.

The major preventive measure being stressed is the use of ITN Using bed-net is a protective measure from the medical model, as well as a response to a risk factor (Panvisavas, 2001). It may then be a cultural distortion since it does not originate from cultural model. The use of bed-net is also a political and economic problem. Many people do not have access to information on ITN while many people are unable to purchase it. Sleeping under an ITN needs cultural acceptance before people could use it. There have not been adequate social marketing and demonstration of efficacy of ITN. Spraying indoor insecticide is also restrained because of growing resistance. More so, the cost of insecticide is very high and the rate of refusal to insecticide spraying rate is getting higher. Introduction of preventive measure need not to be monopolized by medical and allied profession alone, as the community participation is a vital link in successful preventive efforts. Prevention of malaria goes beyond launching ITN in Abuja with the expectation that people will respond positively. Even if ITN is freely distributed, it takes more efforts to enhance

cultural acceptability especially to convince people to net their beds.

It is important to commend Roll Back Malaria for the 2005 slogan of the African Malaria Day: 'Together we can Beat Malaria'. This points to the fact that malaria is a collective and political problem. While the day is assumed to be celebrated, many do not know its existence and significance as it turns to be a political program organised in some urban cities without any phase in the real rural communities where the problem is more alarming. Since diagnosis and treatment of malaria take place at home, efforts should be directed to improve its quality (Ahorlu et al., 1997). This means that misconceptions likely to adversely affect control efforts need to be removed and give credence to those cultural beliefs and practices that may contribute positively to control strategies (Ahorlu et al., 1997).

With the demise of CQ and Sulfadoxine-Pyrimethamine (SP) in Malaria treatment, there is the possibility that other therapeutic regimens may also be rendered obsolete. Combination therapy may just be effective for a while if the behavioural influences in drug use are not improved. Switching to another therapy may be difficult because of the challenges involved in the development of new vaccines. To what extent can we continue to replace therapeutic regimen? Discrepancies in self-treatment have been implicated in the emergence and spread of anti-malarial drug resistance. Since most malaria case management usually start and end at home, it only requires that self-treatment should be improved. With 84% of women not knowing the correct dose of CQ required to treat a child under 5, knowledge of the treatment dose urgently need to be improved (Clarke et al., 2003). This is inspite of the fact that CQ has been banned in Nigeria. The introduction of Combination therapy is a welcome development in most countries. On the contrary, the goal of slowing down the development of resistance by using combination therapy may be undermined by these economic and behavioural influences (Bloland et al., 2000).

The inappropriate use of the limited and shrinking pharmacopoeia of affordable and effective antimalarial drugs should not be allowed to continue (Bloland et al., 2000). It is further argued that new therapeutic strategies, a better understanding of the mechanism of resistance, improved drug use patterns need to be brought into play. If actions are not taken to enhance

appropriate use of antimalarial therapy, resistance will continue to grow. Hence, there is likelihood of untreatable malaria in the future since development of new vaccines may be jeopardized due to incessant therapeutic changes. Development of antimalarial drug resistance is also associated with inadequate preventive measures. Constant man-vector contact even after treatment, especially when the drug level is declining in the blood may also expose parasite to sub-optimal drug level which may result in drug resistance. This is why preventive efforts must be strengthened in the fight against resistant malaria. Individuals in the society need to be encouraged to adopt effective preventive measure based on personal choice and conviction. The attitude of multiple treatment need also to be controlled since drug-drug interaction can also contribute to the development of drug resistance. Many people may use both traditional medicine and modern antimalarial, or certain combination of drugs concurrently without the knowledge of its implication.

CONCLUSION

Malaria is a serious health issue in Sub-Saharan Africa and Nigeria in particular. Therefore it is expected all hands must be on deck to eradication this. This requires the crucial roles of health workers and other relevant stakeholders. Since the roles of health workers are crucial in providing information on drug use, pharmacists, physicians, nurses, local chemists, and other health workers should be trained on the behavioural influences and attributable causes of antimalarial drug resistance so that they could pass information to the patients on appropriate drug use patterns. Community health workers ought to be reoriented towards preventive care rather than mere cure. It is against this background that they may play pivotal roles in health talk within the community especially as regards appropriate perception and health seeking behaviour at the community level. The community initiatives introduced by Roll Back Malaria (RBM) must be fully implemented in the control of malarial in Africa and elsewhere. The goal to halve the burden of malaria by 2010 could then be achieved.

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