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Malaria in Under Five Children and Help Seeking Behavior of Mothers in Calabar, Nigeria

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Abstract
Malaria is a serious public health problem worldwide, yet preventable and treatable. However, in 2010 the disease killed an estimated 660, 000 people largely children under five years in sub-Saharan Africa; the Republic of Congo and Nigeria account for more than 40% of estimated global malaria deaths (WHO, 2013). Federal Ministry of Health (FMOH) reports Nigeria accounts for one quarter of all malaria cases in Africa, one of the world's highest rates of all cause -mortality for children under five, and about one in six children die before their fifth birthday (FMOH, 2012). In Cross River State under five mortality of 176 per 1000 births and infant mortality of 120 per 1000 births, placing Cross River among those with the highest child deaths in the country(State Ministry of Health, 2010), and malaria prevalence of 19.8% (National Population Commission, 2009). Hence, the malaria control targets include 100% children under five years and pregnant women to use mosquito nets by 2015 (Community Health Department, 2013). Objective of the study was to determine help seeking behavior of mothers with children less than five years, and factors that influenced behavior. We randomly selected six primary health facilities out of 41, and administered a structured questionnaire to four hundred (400) women who brought their sick children to outpatient department of selected health facilities, and gave oral informed consent. State Ministry of Health gave ethical clearance for access to community and health facilities. Most, 370 (93%) respondents completed the questionnaire, 37% were married, 50% had primary education, 26% secondary, and 10% tertiary, 42% were homemakers, 31% 19 -23 years, and 54% of children were within one year. Many respondents 46% brought babies to health facility due to fever, and 32.4% said child had fever for over a week, yet 39.0% gave fever as symptom of malaria and 39.4% mosquito bite. Most 96% had heard of malaria largely from electronic media 40.5% and parents 32.4%. However, despite knowledge about malaria, 35% gave tepid sponging, 31% herbal enema, 27% gave baby left over drugs; 40% said treatment at home lasted 4 to 6 days and 12% more than a week. Home intervention led to child's illness worsening 40%, and improved 38%. Respondents delayed taking children to hospital because they had no time 35.1%, husband was not at home 30%, had no money 22.7%, had no transport 6.2% and customary to first treat at home 6.0%. Furthermore, 52.4% said hospital was too far from residence and 14.0% no hospital in locality, 64.5% said father was responsible for child's treatment. Cost of care 47.5%, transportation 32.7%, waiting time 10.0% and lack of time 9.2% were major factors affecting help seeking. This study shows that significant relationship exists between mother's health seeking behavior and outcome of child's illness. Further, suggests as global and national efforts continue, the role of fathers in reducing morbidity and mortality among infants requires considerable attention, particularly in patriarchal traditional societies, where mothers depend on decisions of husbands to seek help for the child.
Key words: Malaria, Children and Malaria, Help Seeking Behavior of Mothers.

1.0. Introduction

Malaria is a serious public health problem worldwide, yet preventable and treatable. However, in 2010 the disease killed an estimated 660, 000 people largely children under five years in sub-Saharan Africa; the Republic of Congo and Nigeria account for more than 40% of estimated global malaria deaths (WHO, 2013). Malaria overlap with other diseases, difficult to put malaria as cause of death particularly in children who may also suffer other conditions, respiratory infections, diarrhea, and malnutrition (WHO, 2012). Federal Ministry of Health (FMOH) reports Nigeria accounts for one quarter of all malaria cases in Africa, and one of the world's highest rates of all cause mortality for children under five, about one in six children die before their fifth birthday (FMOH, 2012). Malaria is endemic in Nigeria, accounts for nearly 110 million clinically diagnosed cases per year, 60 per cent of outpatient visits, and 30 per cent of hospitalization; estimated 300,000 children die of malaria each year. In addition, malaria contributes up to 11 per cent of maternal mortality, 25% infant mortality and 30% under five mortality (National Population Commission, 2009).

Malaria is common and a serious health challenge in Cross River State. Children under five years make up 20% of the estimated 2,888,966 people. Health indicators are poor with maternal mortality 2000 per 100, 000 births, under five mortality of 176 per 1000 births and infant mortality of 120 per 1000 births, placing Cross River

among those with the highest maternal and child deaths in the country(State Ministry of Health, 2010). Cross-River had a malaria prevalence of 19.8% (National Population Commission, 2009) Government strengthens and dedicates the roll back malaria program in the Department of Community Health in the Office of the Governor. State malaria control targets include: 100% persons at risk have prompt access to appropriate treatment within 24 hours by 2015; and 100% children under five years and pregnant women to use mosquito nets by 2015 (Community Health Department, 2013).

1.1. Objectives

Objectives of this study were to determine help seeking behavior of mothers with children under five years, their knowledge of malaria and treatment options; factors that influence help seeking behavior, and effect of behavior on children.

1.2. Methodology

This study was in Calabar capital of Cross River State, Niger Delta, south -south geopolitical zone, within the tropical rain forest of Nigeria. Calabar had about 372, 848 people (National Population Commission, 2006). This study was limited to mothers of children under five years who brought their sick children to outpatient departments of selected primary health care (PHC) facilities. We randomly selected six primary health facilities out of 41, and administered a structured questionnaire to four hundred (400) women who gave oral informed consent. State Ministry of Health gave ethical clearance for access to community and health facilities. Pre - testing questionnaire was at a PHC facility outside Calabar with 20 mothers randomly selected.

2.0. Literature Review

2.1. Global Malaria Control

Malaria is the fifth leading cause of death worldwide, second leading cause of death in Africa, and almost half of the world population is at risk (WHO, 2010), It kills large number of African children each year and blights the life of many million, every 30 seconds a child dies from malaria in Africa (UNICEF, 2009). Seasonal malaria chemoprevention for infants is now possible. World Health Organization recommends intermittent preventive treatment through immunization, an estimated 28 million infants could benefit from preventive therapy, yet only Burkina Faso has adopted this simple, safe and effective procedure (WHO, 2013).

Effective treatment of malaria within 24 hours from onset of symptom helps to prevent life threatening complications. Unfortunately, most childhood deaths from severe malaria are often due to delay in prompt treatment and use of other remedies by mothers before taking the child to a health facility. Hence, effective management of malaria in children under- five years requires mothers to seek help promptly, obtain, and apply anti-malaria drugs. WHO (2006) argues use of insecticide treated nets is effective in preventing malaria, and regular use could reduce under-five mortality rate by 30% in endemic environments, particularly long lasting insecticide nets. In addition, due to increasing level of mosquito resistance to anti-malaria drugs, the World Health Organization recommended the use of combination rather than mono-therapy. Malaria control requires integrated approach, prevention, access to treatment, and prompt treatment with effective drugs.

2.2. Malaria Control in Nigeria

Early in 1975 Nigeria constituted the National Malaria Control Committee, which developed the first five-year plan of action 1975 to 1980, objective was to reduce malaria burden by 25% in 1980; this plan did not take off, however, control of malaria became joint responsibility of federal, state and local governments. Along with the adoption of Primary Health Care and the first National Health Policy in 1989, Federal Ministry developed national guidelines on malaria control. With inception of the Roll Back Malaria (RBM) Program in 1998, FMOH developed a strategic plan for malaria in 2000 to cover 2001 to 2005, emerging from needs assessment in four rural communities of six local governments. Results of assessment in 2005 showed poor achievement, largely due limited resource to scale up effective prevention and treatment interventions; and increased resistance of malaria parasites.

The National Malaria Control Program (NMCP) is progressing with increased funding from the Global Funds for AIDS, Tuberculosis and Malaria. Governments are working toward achieving five-year strategic targets: increase by 80% households with average of two insecticide treated nets (ITNs) by 2010 and sustain coverage by 2013; 100% of pregnant women attending ante natal clinic two or more doses of intermittent preventive treatment by 2013. Others are increase by 80% children under five years sleeping under ITN by 2010 and sustain by 2013; and increase by 80% persons treated with effective anti malaria within 24 hours of symptom by 2013 (FMOH, 2012). National minimum package for malaria control include availability of insecticide treated nets for every pregnant woman and child under five years; use of artemisnin based combination therapy (ACT) for uncomplicated malaria. Institutionalizing case management; and use of sulphadoxine - pyrimethamine for intermittent prevention in pregnant women (FMOH, 2007).

2.3. Clinical Manifestation

Fever is a common symptom, others are shivering, severe pains in the joints, headache, vomiting generalize body

pains, convulsion and coma, coughing and diarrhea. Early diagnosis and treatment save lives and prevent the development of complication. The disease leads to death often due to severe anemia (Dunyo, 2000). Infants in warm climate, dirty environments with pools of water and unprotected homes are highly at risk of mosquito bites. However, most cases of malaria do not present at health facilities and mothers tend to try other remedies before taking children to the hospital. Cultural beliefs and practices lead to self-care, home remedies, and use of traditional healers in rural communities (Nyamongo, 2002). Furthermore, family size, parity, educational status and occupation of the head of family, age, gender and marital status affect health seeking behavior (Goldman and Heuveline, 2000). Understandably, Nigeria National Malaria Control Program reports that malaria parasitaemia is still high among children, impact of intervention scale -up anticipated in future. Higher prevalence is in rural communities, southwest geopolitical zone and among children, whose mothers have lower educational level (FMOH, 2012).

Rapid multiplication of parasite in the liver destroys red blood cells and infection of other cells in the body. Sirima (2003) suggests that depending on specie of mosquito the infected person becomes ill with malaria within a week or months, but largely within 7 to 21 days. Okeke and Okafor (2002) argue perception and opinion of child fever seen as typical and not requiring orthodox care, strongly influence care seeking behavior. Furthermore, people tend to perceive severe malaria cases as manifestation of the 'bad eye' and health facilities necessary as last option. Hill, Kendali and Auther (2003) in a study on mothers' behavior identified high fever, inability to stand or walk, refusal to eat, loss of consciousness, severe diarrhea, and severe vomiting as features of malaria. Episode became severe requiring treatment at a health facility.

3.0. Data Analysis and Interpretation

3.1. Demographic Characteristics

Most respondents 370 (93%) returned the questionnaire, 137 (37%) were married, 54(14%) single, 105(28%) separated, 29(9%) divorced; 184(50%) had primary education, 98(26%) secondary education, 37(10%) tertiary education. Most 154(42%) were homemakers, 100 (27%) farmers, 50(14%) businesspersons and 41 (11%) civil servant (table 1). Age respondents ranged from 113 (31%) were 19-23 years, 74 (20%) 13-18years, 51(14%) 34-39years, 39 (10%) 29-33years and 40(11%) 51 and above. Over half of children 198(54%) aged 0 to 1year; 130(35%) over 1 to 3 years; and 42(11%) over 3 to 5 years (table 2).

3.2. Knowledge on Symptom, Cause and Source of Information

Nearly half, 170 (46.0%) brought baby because of fever, 85 (23.0%) abdominal pains, 54 (14.5%) cold and catarrh, 39 (10.5%) diarrhea, and 20 (6.0%) convulsion. Duration of symptoms were less than 24hours 100 (27.0%) 1to 3 days 130 (35.1%), 4 to 7 days 20 (5.4%), and 120 (32.4%) said the child had fever for more than a week (table 3). Many 144 (39.0%) gave fever as symptom of malaria, 136 (36.7%) cough, and 53 (14.3%) vomiting; and causes of malaria were mosquito bites 146 (39.4%), fever 134 (36.2%), disease 60 (16.2%) others 30 (8.1%). A large number 355 (96.0%) had heard of malaria, from electronic media 150 (40.5%), 120 (32.4%) parents, 85 (23.0%) health workers, and 10 (2.8%) friends (table 4).

Table 1: Marital status, level of education and occupation

Marital Status	Number of Respondents	Per cent
Married	137	37%
Single	54	14%
Separated	105	28%
Divorced	29	9%
Co-habitating	45	12%
Total	**370**	**100%**
Educational Qualification		
Primary school	184	50%
Secondary school	98	26%
Tertiary School	37	10%
No Response	51	14%
Total	**370**	**100%**
Occupation		
Farmers	100	37%
Housewives	154	42%
Civil Servant	41	11%
Business Women	50	14%
Students	15	4%
Total	**370**	**100%**

Table 2: Age of mothers and babies

Age of Mothers	Number	Per cent
13 or less	0	0
14-18	74	20%
19-23	113	31%
24-28	30	8%
29-33	39	10%
34-38	51	14%
39-43	23	6%
44 and above	40	11%
Total	**370**	**100%**
Age of Babies		
0-1year	198	54%
Over 1-3years	130	35%
Over 3-5years	42	11%
Total	**370**	**100%**

Table 3: Reason for taking child to hospital and duration symptom

Reason for Taking Child to Hospital	**Number of Respondents**	**Per cent**
Fever	170	46.0%
Cold	54	14.5%
Diarrhea	39	10.5%
Abdominal pain	85	23.0%
Convulsion	22	6.0%
Total	**370**	**100%**
Duration of symptoms		
Less than 24hours	100	27.0%
1-3 days	130	35.1%
4-7 days	20	5.4%
More than a week	120	32.4%
Total	**370**	**100%**

Table 4: Knowledge of symptom, cause of malaria and source of information

Knowledge on Symptoms of Malaria		
Fever	136	36.7%
Cough	144	39.0%
Vomiting	53	14.3%
Other signs	37	10.0%
Total	**370**	**100%**
Knowledge on Cause of Malaria		
Mosquito bite	146	39.4%
Fever	134	36.2%
Disease	60	16.2%
Others (specify)	30	8.1%
Total	**370**	**100%**
Information on Malaria		
Heard of Malaria	355	96.0%
Did not	15	4.0%
Total	**370**	**100%**
Source of Information on Malaria		
Radio & television	150	40.5%
Parent	120	32.4%
Health workers	85	23.0%
Church	8	1.4%
Friends	10	3.0%
Total	**370**	**100%**

3.3. Help Seeking Behavior of Mothers

3.3.1. Treatment Options Prior to Health Facility

Respondents treated the child before going to the health facility, tepid sponging of the baby 128 (35%); herbal enema 116 (31%); and 100 (27%) gave left over medication. A large number 149 (40%) said treatment at home lasted 4-6 days, 99 (27%) 1-3 days, 79 (21%) less than 24 hours and 43 (12%) more than a week. Outcome of home intervention varied, 148 (40%) said illness became worse, 139 (38%) child's health improved, and 60 (16%) illness persisted (figure1). Interestingly, 180 (50%) said home treatment was more expensive, and 90 (24%) less expensive (table 5)

3.3.2. Factors that Influenced Help Seeking Behavior

Mothers delayed taking children to health facility after onset of symptom for many reasons, 130 (35.1%) had no time, 111 (30.0%) husband was not home, 84 (22.7%) had no money, 23 (6.2%) had no transport, and 22 (6.0%) customary to treat at home first before the hospital. Over half 194 (52.4%) said hospital was too far from residence, 124 (33.5%) was not far, and 52 (14.0%) no hospital in the locality. Most, 239 (64.5%) said father was responsible for child's treatment, 121 (32.7%) mother and 10 (2.7%) guardian. A large number 204 (55%) said attitude of health workers contributed to non-utilization of health facility, and 166 (45%) said it did not. However, 222 (60%) cost of treatment was a major factor for the delay, and 148 (40%) said it did not. Again, major reasons affecting help seeking behavior were cost of care 176 (47.5%), transportation 121 (32.7%), 39 (10.5) waiting time at health facility, and 34 (9.2%) lack of time (table 6).

Table 5: Treatment options prior to health facility

Variable	Number of Respondents	Per cent
Treatment options		
Tepid sponge	128	35%
Herbal enema	116	31%
Left over medication	100	27%
No response	26	7%
Total	**370**	**100%**
Duration of home treatment		
Less than 24 hours	79	21%
1-3days	99	27%
4-7 days	149	40%
More than a week	43	12%
Total	**370**	**100%**
Cost of home treatment		
Less expensive	90	24%
More expensive	185	50%
Not much difference	95	26%
Total	**370**	**100%**

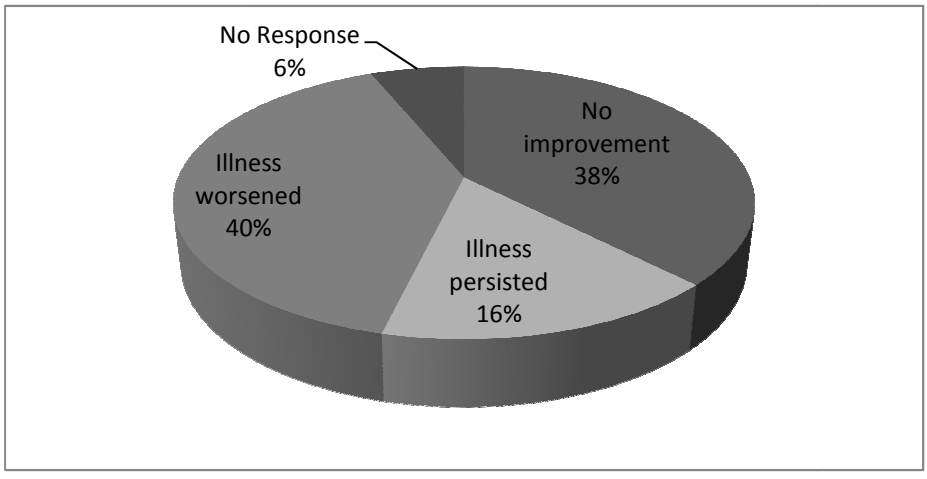

Figure 1: Outcome of Home Treatment

Table 6: Factors that influenced help seeking

Factor	Number of Respondents	Per cent
Reasons for delay in seeking help		
Had no time	130	35.1%
Husband not at home	111	30.0%
Had no money	84	22.7%
Had no transport	23	6.2%
Customary to first treat at home	22	6.0%
Total	**370**	**100%**
Distance from home to facility		
Hospital was too far	194	52.4%
Hospital was not too far	124	33.5%
No hospital in the locality	52	14.0%
Total	**370**	**100%**
Person responsible for child's treatment		
Father was responsible	239	64.5%
Mother was responsible	121	32.7%
Guardian was responsible	10	2.7%
Total	**370**	**100%**
Major reasons affecting help seeking		
Cost of treatment	176	47.5%
Transportation	121	32.7%
Waiting time at the facility	39	10.5%
Lack of time	34	9.2%
Total	**370**	**100%**

3.4. Perceptions on Effect of Delay and Preventive Measures

Many respondents 162 (44%) felt the child became very ill due to delay, 130 (35%) child had convulsion, and 73 (20%) fever persisted. Preventive measures applied 156 (42%) netted windows and doors, 162 (44%) gave anti-malarial drugs, and 52 (14%) kept surrounding clean; 126 (34%) had no idea why preventive measure did not work, 158 (43%) too many mosquitoes in the area, and 84 (23%), could not afford treated net. Many respondents, 156 (42%) suggested malaria drugs should be free or affordable to encourage mothers utilize the public health facilities, 130 (35%) regular workshop on malaria prevention, and 84 (23%) fumigation of the environment.

Similarly, health workers said the usual complaints of mothers were lack of money 159 (43%), lack of transport especially at night 129 (35%) and high cost of drugs and care 82 (22%). They suggested that making drugs free 166 (44.8%) for the under-five, 120 (32.4%) paying more attention to health education, 104 (28.1%) reducing long waiting time at health facilities.

4.0 Conclusion

Respondents were largely literate, 50% had primary education, 26% secondary education, and 10% tertiary education; 42% were homemakers, most 95% had heard of malaria through the mass media 40.5%. Nearly half, 46.0% brought baby because of fever, and 39% gave fever as symptom of malaria, yet 35% said the child had fever for 1 to 3 days, and 32.4% had fever for more than a week. However, respondents gave different treatment at home tepid sponging of the baby 35%, herbal enema 31% and 27% gave left over medication. Many, 40% treated child at home 4 to 6 days and more than a week 12% before taking the child to the health facility. Understandably, child's illness worsened 40%, interestingly, 50% said home treatment was more expensive. Mothers had different reasons for not taking child for health care at onset of symptom 31.1% had no time and 30% and 30% said husband was not at home. This means husbands have important role in health of children because financing care largely depends on them. In addition to affordability, access to health facility was a serious factor since 52.4% said hospital was too far from residence, 14.0% no hospital in the locality. A nagging issue in the Nigerian health system continues to surface 55% said attitude of health workers contributes to non-utilization of health facility. This study shows that significant relationship exists between mother's health seeking behavior and outcome of child's illness. Further suggests as global and national efforts continue, the role of fathers in reducing morbidity and mortality among infants require considerable attention, particularly in patriarchal traditional societies, where mothers depend on decisions of husbands to seek help for the child.

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