Knowledge of malaria and practice of home management of malaria among mothers of under fives

Zuwaira I Hassan[1], Tolulope O Afolaranmi[1], Yetunde O Tagurum[1],Hadiza A Agbo[1], Halima M Sule[2]

Abstract

Background: Malaria is a preventable and treatable disease associated with high morbidity and mortality. It is the 3rd leading cause of death for children under five years worldwide. Home-based management of malaria may go a long way in reducing the attending morbidity and mortality associated with malaria in this group of subjects.
Methods: A cross sectional study was conducted among 66 mothers of under five children accessing services in under five clinic in a tertiary health institution to determine the knowledge of malaria and practice of Home Management of Malaria (HMM).
Result: The respondents in the study were within the age range of 16 – 45 years with mean age of 25 ± 5 years. Majority (95.5%) of the mothers of under-fives were aware of malaria while only 34.8% had heard of HMM. Less than half (42.4%) of the respondent had practiced management of malaria at home within 24 hours of onset of fever and only 25% used the recommended drug. Age and level of education of the mothers of under fives were significantly associated with the practice of HMM ($P < 0.05$).
Conclusion: The study demonstrates the low level of practice of HMM among mothers of under-fives.

Keywords: Knowledge, Practice, Home Management of Malaria, Under-fives

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Introduction

Malaria is the 3rd leading cause of death for children under five years worldwide, after pneumonia and diarrheal disease.[1]Thirty countries in Sub-Saharan Africa account for 90% of global malaria deaths and about 1 out of 5 deaths of children under 5 in Africa is due to malaria.[1]

Malaria is a major public health problem in Nigeria accounting for an estimated 100 million malaria cases with over 300,000 deaths per year of which under-five children continue to bear the large brunt.[1,2] In response to this, many countries have adopted the strategy of Home-Based Management of Malaria (HBMM) supported by the World Health Organization (WHO) which is the process by which clinical cases of malaria in the under fives can be recognised and treated at home by parents, care givers, sometimes assisted by community health workers within 24 hours of onset.[2,3]Hence, this study was conducted to assess the knowledge of malaria and practice of Home Management of Malaria (HMM) among mothers of under fives attending the Under Five Clinic of the Jos University Teaching Hospital(JUTH).

[1]Department of Community Medicine, University of Jos, P. M. B. 2084 Jos, Plateau State, Nigeria. [2]Department of Family Medicine, University of Jos, P. M.B 2084 Jos, Plateau State, Nigeria.

All correspondences to:
Dr. Zuwaira I Hassan, Department of Community Medicine, University of Jos, P. M. B. 2084, Jos, Plateau State, Nigeria.
E-mail: zuwairahassan@yahoo.com

Materials and Methods

Study Area

JUTH is one of the tertiary health institutions in Plateau State with a capacity of about 600 bed spaces.[4]It was established in the year 1981 and is presently located in Lamingo, Jos North local government area. The Under Five Clinic is a service unit of the department of Community Medicine which provides services such as health education, nutritional counseling and rehabilitation, immunization, treatment of common diseases as well as growth monitoring every Monday to Friday.

Study Population

The study population comprised of mothers of under five children attending under five clinic in JUTH whose children were 6 months and above and less than 5 years.

Study Design

This was a descriptive cross sectional study conducted for a period of one month in 2013 using quantitative method of data collection. All mothers whose children were above 6 months and less than five years and had consented to participate in the study were included while mothers with children below 6 months and above 5years were excluded from the study.

Sample Size Determination

The sample size was calculated using standard acceptable formula[5] and 4.2% proportion of mothers who managed malaria at home with recommended drug from a previous similar study was used.[6]A minimum sample size of 66 was obtained after making provision for poor or incomplete responses.

Sampling Technique

A multi-stage sampling technique was used in this study. Jos University Teaching Hospital was selected from the list of the tertiary health institutions in Plateau state using simple random sampling technique by balloting. From the Under five clinic booking register, a list of all the under five children booked for clinic visit who have met the inclusion criteria was obtained daily for the period of data collection and all mothers of under fives who consented to participate in the study and had met the inclusion criteria were sampled daily (Mondays to Fridays) until the sample size was met.

Data Collection

The tool of data collection was pretested in an under five clinic of a secondary health facility in the state. This helped in making appropriate corrections and assessed the ease of administration. Verbal informed consent was sought and obtained from each of the participants with explanation of the aims of the research. Anonymity and confidentiality of the information obtained was assured and maintained. Ethical clearance was obtained from Ethical Review Committee of JUTH, Jos.

A semi – structured interviewer administered questionnaire divided into three sections was used to obtain information from the participants. Section A assessed information on socio-demographic characteristics of the respondents, section B assessed information on knowledge of malaria and its management at home and section C assessed information on practice of Home Management of Malaria.

Assessment of responses

Knowledge of malaria and its management at home: A total of 9 stem questions with 36 possible responses out of which 19 correct responses were attainable were used to assess the knowledge of malaria and it management at home.

Practice of Home Management of Malaria: A total of 5 stem questions were asked on Home Management of Malaria with 18 possible responses from which 11 correct responses were expected. Practice of Home Management of Malaria was assessed by the institution of anti-malaria treatment within 24 hours of onset of fever with any of these anti malaria drugs chloroquine suphadoxine & pyremethamine, artesunate alone and ACT with tepid sponging by parents or with assistance from community health workers.

Data Analysis

Data analysis was done using Epi Info™ statistical software package version 3.5.4 developed by CDC 1600 Clifton Rd. Atlanta, GA 30333 USA. Chi square statistical test was used to establish relationship between socio-demographic characteristics of the participants and practice of HMM, Fisher's exact test was used for correction of continuity where chi square test was not valid. A 95% confidence level was used for the study and a $P< 0.05$ was considered statistically significant.

Results

A total of 66 mothers of under fives participated in this study; most (63.6%) of the respondents were within the age group 16 – 25 years with the mean age of 25 ± 5 years. Majority; 90.9% and 98.8% of the respondents practiced Islam and were married. The highest level of education of the respondents was primary (9.1%), secondary (60.6%), tertiary (25.8%) and no formal education (4.5%). More than half (60.6%) of the respondents were unemployed.

Table 1: Socio-demographic characteristics of the respondents

Characteristics	Frequency	Percentage
Age group (years)		
16 – 25	42	63.6
26 – 35	23	34.8
36 – 45	1	1.5
Religion		
Christianity	6	9.1
Islam	60	90.9
Married	65	98.8
Educational status		
No formal	3	4.5
Primary	6	9.1
Secondary	40	60.6
Tertiary	17	25.8
Occupation		
Unemployed	40	60.6
Civil servant	6	9.1
Artisan	13	19.7
Trader	7	10.6

The majority (93.3%) of the respondents had heard of malaria and 58 (87.9%) knew that mosquito bite could

transmit malaria. A few of the respondents had misconceptions about the causes of malaria as 10 (15.2%) attributed malaria to farming in marshy land and living in dirty environment respectively. The commonly known symptoms of malaria among the respondent in this study were fever as mentioned by 51 (77.3%), headache 33 (50.0%), vomiting 17 (25.8%) and excessive crying 15 (22.7%). Respondents in the study mentioned anaemia 31 (47.0%), convulsions 20 (30.3%) and death 4 (6.1%) as complications of malaria respectively.

Table 2: Knowledge of malaria and practice of HMM among the respondents

Parameters	Frequency	Percentage
Aware of malaria	63	95.5
Causes of malaria*		
Farming in marshy land	10	15.2
Mosquito bite	58	87.9
Blood transfusion	5	7.6
Living in dirty environment	10	15.2
Symptoms of malaria		
Fever	51	77.3
Headache	33	50.0
Vomiting	17	25.8
Body weakness	13	19.7
Excessive crying	15	22.7
Complications of malaria*		
Anaemia	31	47.0
Convulsions	20	30.3
Organ failure	18	27.3
Death	4	6.1
Aware of home management of malaria	23	34.8
Ways of managing fever at home *		
Tepid sponging	13	19.7
Use of paracetamol	20	30.3
Use of antimalarial	39	59.1
Use of herbal concoction	2	3.0
Practiced HMM	28	42.4
Drug used for HMM in the episode of malaria*		
Chloroquine	13	46.4
Suphadoxine and pyremethamine	8	28.6
Artesunate alone	4	14.3
ACT	7	25.0
Paracetamol	2	7.1
Herbal concoction	2	7.1
Source of anti-malarial		
Patent medicine vendor	21	75.0
CHWs	6	21.4
Relatives	1	3.6

*= multiple responses obtained, CHWs = Community Health Workers

Twenty three (34.8%) of the mothers' of under fives were aware of what HMM was. In furtherance, the knowledge of actions to be taken at home when a child has fever likely to be due to malaria among the respondent was expressed as tepid sponging by 13 (19.7%), administration of paracetamol 20 (30.7%), use of anti-malaria 39 (59.1%) and administration of herbal concoction 2 (3.0%) (Table 2).

Twenty eight (42.4%) of the respondents had managed the last episode of malaria in their babies within the last 6 months at home. The drugs used for the management of malaria episode were chloroquine as stated by 13 (46.4%), suphadoxine/pyremethamine by 8 (28.6%), Arteminisin Combination Therapy (ACT) by 7 (25.0%) and 2 (7.1%) of the respondents used paracetamol and herbal preparation respectively. Twenty one (75.0%) of the mothers who had managed malaria at home within the last 6 months mentioned patent medicine vendor as the source of the anti-malaria used, 6 (21.4%) community health workers and 1 (3.6%) relatives as the source (Table 2).

Table 3: Relationship between characteristic of the mothers and practice of HMM

HMM	Yes	No		
Characteristics	Freq (%)	Freq (%)	Total	P - value
Age group (years)				
16 – 25	12 (28.6)	30 (71.4)	42 (100.0)	
26 – 35	15 (65.2)	8 (34.8)	23 (100.0)	0.005*
36 – 45	1 (100.0)	0 (0.0)	1(100.0)	
Level of education				
No formal	1 (33.3)	2 (66.7)	3 (100.0)	0.035*
Primary	1 (16.7)	5 (83.3)	6 (100.0)	
Secondary	14 (35.0)	26 (65.6)	40 (100.0)	
Tertiary	12 (70.6)	5 (29.4)	17 (100.0)	
Aware of HMM	10 (43.5)	13 (56.5)	23 (100.0)	0.899

*= Fisher's exact

Age and level of education of the mothers showed statistically significant relationship with the practice of HMM, as the practice improves with age and level of education (Table 3).

Discussion

The findings of this study in relation to the age of the respondents had similarities with that of studies conducted in Sudan and Nigeria.[7,8,9] The highest educational level attained by the respondents in this study differs to what was found in other Nigerian studies.[8,9]This study found that majority of the respondents had heard of malaria and knew that mosquito bite could transmit malaria with a few of them still attributing the cause of malaria to farming in marshy land and living in dirty environment. These findings had similarities with what was obtained in some studies conducted in Nepal, Nigeria and Sudan.[9,10,11]However, other studies carried out in Kenya and Nigeria reported a lower proportion of respondents

with proper knowledge of cause of malaria.[12, 13]The commonly known symptoms of malaria in this study were fever, headache, vomiting and excessive crying. This is probably a reflection of symptoms of clinical malaria the mothers had observed or experienced in the course of caring for their children or by themselves. Other studies carried out in Nigeria and Tanzania also reported findings such as fever, vomiting, loss of appetite, convulsions and body pains as symptoms of clinical malaria.[8,14] Furthermore, this study revealed that anaemia, convulsions and death are complications associated with malaria which is in synergy with findings of another Nigerian Study.[15] On the knowledge of HMM, 23 (34.8%) of the mothers of under fives knew what it was. Respondents in this study mentioned tepid sponging, administration of paracetamol, use of anti-malarials and administration of herbal concoction as actions that could be taken at home when a child has fever suspected to be due to malaria which is common to findings of another Nigerian study.[16]

Less than half (42.4%) of the respondents in this study reported the practice of home management of malaria which is significantly higher than the 3% obtained from a previous study.[17] The respondents in the study indicated that they had given chloroquine, suphadoxine /pyremethamine, ACT, paracetamol, artesunate alone and herbal concoction to their children with fever suspected to be malaria within 24 hours of onset. Chloroqiune was the most commonly used drugs in this study which is in agreement with what was obtained in another study conducted in urban area of Lagos Nigeria, whereas paracetamol was the most commonly used drug in another study. [6,8]Other studies reported the use of chloroquine, suphadoxine – pyremethamine, paracetamol and herbal preparations for the treatment of fever.[18,19,20] Only a quarter of the respondents who treated malaria at home used the recommended drug (ACT) in this study which is significantly higher than 4.2% obtained elsewhere.[6] The adequacy of the dosage of the drugs and the correctness of the prescription was not explored as majority of the mothers of under fives obtained the drugs used for managing fever suspected to be malaria from chemist/patent medicine vendors while a few got the drugs from community health worker and relatives.

This study implies that more work needs to be done on HMM among mothers of under fives particularly on the use of recommended anti-malaria. The study could not ascertain the appropriateness of the dosages of anti-malaria medications used by the mothers within 24 hours of onset of fever.

Conclusion

The study has demonstrated the low level of practice of Home Management of Malaria among mothers of under fives, therefore there is need to provide appropriate interventions targeted at mothers of under fives on proper practice of Home Management of Malaria.

Conflict of Interest

None declared in this work.

References

1. United States Embassy in Nigeria. Nigeria Malaria Fact Sheet. 2011. Available from: http://photos.state.gov. Last accessed on17th April, 2013.
2. Nzayirambaho M, Bizimana JD, Freund RJ, et al. Impact of Home-Based Management of malaria combined with other community-based interventions: what do we learn from Rwanda? Pan Afr Med J. 2013;14:50. doi: 10.11604/pamj.2013.14.50.2096.
3. Malaria Consortium. Home Based Management of Fever. Available from: http//:www.malariaconsortium.org. Last accessed on 25th April, 2013.
4. Jos University Teaching Hospital. Information. Available from: http://www.juth.gov.ng Last accessed 3/7/2013.
5. Jekel JF, Katz DL, Elmore JG. Sample size, randomization and probability theory. In: Epidemilogy, biostatistics and preventive medicine. 2nd ed. Philadelphia, USA: W. B Saunders; 2001. p.199.
6. Okafor IP, Odeyemi KA. Home management of malaria by caregivers of under-five children in an urban area in Lagos, Nigeria. Nig Q J Hosp Med. 2009; 19:37-41.
7. Malik EM, Hanafi K, Ali SH, Ahmed ES, Mohamed KA, Malar J. Treatment-seeking behaviour for malaria in children under-five years of age: implication for home management in rural areas with high seasonal transmission in Sudan. Malar. J. 2006; 5:60. doi:10.1186/1475-2875-5-60
8. Alex-Hart BA, Frank- Briggs AI. Mothers' perception of fever management in children. The Nigerian Health Journal. 2011;11:69 – 72
9. Chirdan OO, Zoakah AI, Ejembi CL.Impact of health education on home treatment and prevention of malaria in Jengre, North central, Nigeria. Ann Afr Med. 2008; 7:112-119.
10. Oreagba AI, Onajole AT, Olayemi SO, Mabadeje AFB. Knowledge of malaria amongst caregivers of young children in rural and urban communities in Southwest Nigeria. Trop. J Pharm Res. 2004;3:299-304
11. Salah MT, Adam I, Malik EM. Care-seeking behavior for fever in children under five years in an urban area in Eastern Sudan. J Fam Community Med. 2007;14:25-28.
12. Daboer JC, John C, Jamda AM, Chingle MP, Ogbonna C. Knowledge and treatment practices of malaria among mothers and caregivers of children in an urban slum in Jos, Nigeria. Niger J Med.2010. 19:184-187.
13. Shey ND, Longdoh NA, Kamga FLH, et al. Knowledge and practices relating to malaria in Ndu community of Cameroon: Signs and symptoms, causes and prevention. Journal of Public Health and Epidemiology. 2011; 3(6): 294-300.
14. Kinung'hi MS, Mashauri F, Mwanga RJ, , et al. Knowledge, attitudes and practices about malaria among communities: Comparing epidemic and non-epidemic

prone communities of Muleba district, North-western Tanzania. BMC Public Health.2010; 10 : 1471–2458.
15. Oshikoya KA, Senbanjo IO. Fever in Children: Mothers' Perceptions and their Home Management. Iran J. Pediatr. 2008; 18: 229-236.
16. Afolabi BM, Brieger WR, Salako LA. Management of childhood febrile illness prior to clinic attendance in urban Nigeria. J. Health Popul Nutri. 2004;22:46 -51
17. Deressa W. Treatment seeking behaviour for febrile illness in an area of seasonal malaria transmission in rural Ethiopia. Malar J. 2007;6:49. doi:10.1186/1475-2875-6-49
18. Ajayi IO, Falade CO. Pre-hospital treatment of febrile illness in children attending the general outpatients clinic, University College Hospital, Ibadan, Nigeria. Afr J Med Med Sci. 2006;35:85-91.
19. Fawole OI, Onadeko MO. Knowledge and home management of malaria fever by mothers and caregivers for under-five children. West Afr J Med. 2001; 20:152-157.
20. Salako LA, Brieger WR, Afolabi BM. Treatment ofchildhood fevers and other illnesses in three rural Nigerian communities. J Trop Pediatr. 2001; 47: 230-238.