Original Research Article

KNOWLEDGE, PRACTICES AND PERCEPTION OF MALARIA AND ITS HOME MANAGEMENT USING ARTEMICININ-BASED COMBINED THERAPY (ACT) AMONG MOTHERS OF UNDER-FIVE

ABSTRACT

Malaria is a serious public health problem, yet preventable and treatable. The disease is one of the world's highest rates of all cause of mortality for children under five, and about one in six children die before their fifth birthday. Hence, mothers of under-five and caregiver have a pivotal role to play in tackling this issue by improving their knowledge and skills concerning the treatment, prevention, and control using the appropriate approach. This study was carried out to assess knowledge, practices, and perception of malaria and its home management using Artemicinin-based Combined Therapy (ACT) in Yemetu community of Ibadan North Local Government. The study was a descriptive cross-sectional survey involving the use of Expanded Programme on Immunization (EPI) to facilitate the sampling and interview of respondents. This included recruiting all the mothers of under-five in Yemetu community who gave consent for the study. Four hundred (400) mothers of under-five in Yemetu community consented to participate in the study and were selected. A validated semi-structured questionnaire interviewed and self-administered questionnaire was used for data collection and respondents were assessed on a 62-points knowledge scale, 5-points practice scale, and 17-points perception scales. Knowledge score ≤21 were rated poor, scores ≥22≤42 fair and scores ≥43 were considered good. Practice score ≤3 was recorded as poor practice while scores ≥3 good practice. Perception scores ≤ 9 were considered unfavourable perception and scores ≥ 9 were considered favourable. Descriptive statistics and Chi-square tests were used to analyze the data at 95% level of significance.

Respondents' mean age was 29.9 ± 7.0 years and the majority of them (91.1%) of them were Yoruba. The majority (91.0%) of them were married and (91.1%) were Yorubas. Only (23.0%) correctly identified plasmodium as a cause of malaria. The correctly mentioned signs and symptoms of simple malaria were; cold (89.3%), body ache (91.3%) and fever (88.5%). The fairly corrected home management practice steps include; Exposure of baby to fresh air, administration of paracetamol, and then provision of coartem (2.6%) and bathing the baby, use of paracetamol and administration of coartem (1.3%). Negative perception shown by the respondents includes: Only (15.0%) believed that malaria is a disease of the poor and preference

of herbal medicine to medical medicine for treating children at home when they have malaria episode because it is cheaper (19.8%). Overall, (2.9%) had poor knowledge, the majority (87.3%) had a fair knowledge, and 9.8% had good knowledge. There are several gaps in the respondents' knowledge relating to malaria and its management in under-five. Therefore, there is a need for peer education/training approach in this regard to upgrading mothers' knowledge and skills concerning the treatment, prevention, and control of malaria.

Keywords: Under-five, Home management of malaria, Artemicinin Combination Therapy (ACT)

1.0 INTRODUCTION

Malaria remains one of the world's greatest childhood killers and is a substantial obstacle to social and economic development in the tropics It is a major cause of morbidity and mortality especially among the vulnerable groups to which children, especially aged less than 5 years belong. (Idro, Otieno, White, Kahindi, Fegan, Ogutu, Mithwani, Maitland, Neville, and Newton C.R., 2007). It was observed that malaria accounts for 25 percent of infant mortality and 30 percent of childhood mortality in Nigeria thereby imposing a great burden on the country in terms of pains and trauma suffered by its victims as well as loss in outputs and cost of treatments (WHO, 2000).

The parasite responsible for these deaths—*Plasmodium falciparum*—is transmitted to people when they are bitten (usually at night) by an infected mosquito. In the human body, the parasites reproduce in the liver before invading red blood cells. Here, they multiply again before bursting out and infecting more red blood cells as well as causing a high fever and sometimes damaging vital organs. The transmission cycle is completed when a mosquito bites an infected person and ingests parasites with its blood meal.

To reduce the global burden of malaria, this cycle needs to be broken. This can be done in several ways. First, mosquitoes can be controlled with insecticides. Second, individuals can avoid mosquito bites by sleeping under insecticide-treated nets. Finally, antimalarial drugs can be used to reduce the illness and death caused by the malaria parasite and can lessen the likelihood that a mosquito will pick up the parasite when it bites a person (WHO, 2005). Even though it is one of the oldest recorded diseases, malaria remains one of the world's most deadly infectious diseases. It is arguably, the greatest menace to modern society in terms of morbidity and mortality. Though preventable, treatable, and curable, there is no known immunity. Several

centuries after its discovery, malaria still remains a devastating human infection, resulting in 300-500 million clinical cases and three million deaths every year (WHO, 2005).

It is also believed to contribute up to 11 percent maternal mortality, 25 percent infant mortality, and 30 percent under-five mortality. It is estimated that about 132 billion Naira lost to malaria annually in the form of treatment costs, prevention and loss of work time in Nigeria (FMOH and NMCP, 2009)

Nigeria is known for the high prevalence of malaria and it is a leading cause of morbidity and mortality in the country. Available records show that at least 50 percent of the population of Nigeria suffers from at least one episode of malaria each year and this accounts for over 45 percent of all outpatient visits. (Ojurongbe, Ogungbamigbe, Fagbenro- Beyioku, Fendel, Kremsner, and Kun 2007).

Malaria is known to have a negative impact on performance and learning in children according to Holding and Snow (2001). It also aggravates anemia and malnutrition in children and pregnant women. (Murphy and Breman 2001).

Strategies are being promoted for the management of malaria as a result of the emergence of chloroquine resistance aimed at preventing the occurrence of malaria. The World Health Organization (WHO) currently recommends Artemisinin-based Combination Therapies (ACTs) for malaria control. The use of insecticide-treated nets is also now being strongly promoted. (WHO, 2006). Arigbabuwo, (2010) in his study also opined that prevention is better than cure, advising that people should learn to maintain personal and environmental hygiene.

Mothers have a crucial role to play in recognition, treatment, and prevention of malaria in under-five. The knowledge, perception and skills and practices relating to malaria among mothers of under-five in urban settings are yet to be well investigated. This study, therefore, focuses on knowledge, practices, and perception of malaria and its home management using Artemicinin Combination Therapy (ACT) among mothers of under-five in Yemetu one of the communities in Ibadan metropolis.

2.0 Materials and Method

The study was a descriptive cross-sectional survey involving the use of Expanded Programme on Immunization (EPI) to facilitate the sampling and interview of respondents. This included recruitment of all the mothers of under-five in Yemetu community who gave consent for the

study. Yemetu is a community located in Ibadan North Local Government Area (LGA) in ward 3 of Oyo State, Ibadan. South Western Nigeria. With ward number (3). It has a total population of 65,949. Four hundred (400) mothers of under-five in Yemetu community however, consented to participate in the study and were selected. The community had three (3) health facilities: A government-owned secondary health facility called Adeoyo Maternity Teaching Hospital, and two private health facilities namely Kola Daisi Foundation Center (for primary and community health) and Vine Branch Medical Clinic which are accessible to the people in the community. The total number of under-five children is 13,190 (National Population Commission, 2006). The community is heterogeneous consisting of people from different part of the country. The Yorubas, however, constituted the majority and their major occupation is trading.

2.1 Target Population

The populations for this study were mothers of under-five children residing in Yemetu Community of Ibadan North LGA in Oyo State, South West of Nigeria who merited the inclusion criteria for the study.

2.2 Sampling Procedure

The Expanded Program on Immunization (EPI) sampling technique was used to facilitate the sampling and interview of the respondents. The investigator started data collection by moving to the center of Yemetu community and spinned a bottle. The spinned bottled was allowed to turn round and round unhindered and allowed to come to rest. The interview started from the part of the community to which the mouth of the bottle was pointing. Every third house in the direction was selected and visited and one eligible respondent was selected by balloting for interview if more than one eligible respondent was met in a house. In a house where there was one mother, such a mother was purposively selected for interview if she consented to participate in the study. After reaching the end of the community, the investigator and the research assistants moved back to the center of the community and started recruitment and interview in another direction. This way a total of 422 eligible mothers of under-five who consented to be involved in the study were interviewed.

2.3 Ethical Consideration

All interviews were conducted in compliance with the ethics of the health promotion and education profession. Copies of the research proposal were submitted to Oyo state Ethical Review Committee for approval before the study commenced. This was done in order to ensure that the study was conducted by ethical principle covering studies involving human objects. The research assistants were well trained to obtain informed consent for respondents before the interview. Respondent was informed on the purpose of the study and was given the option to participate through written or verbal consent or withdraw from participating. Information provided by the respondent was treated with confidentiality. The registration number was assigned to each questionnaire, no identifiers such as names, address or phone numbers were required on the questionnaire.

2.4 Data collection procedure:

A semi-structured questionnaire was used for data collection. The semi-structured interviewer and self-administered questionnaire were divided into six sections labeled sections A, B, C, D, and E consisting of open-ended and close-ended questions. It was developed from the literature review and adapted questions from related past studies in Nigeria. The structured questionnaire comprised of open-ended and close-ended questions which were used to elicit information on menace of malaria disease, home management and practices, and perception. The Yoruba version of the questionnaire was produced after necessary modification to the English version had been done. It consisted of 28 questions divided into five sections. The questionnaire was validated by the researchers and experts in Public Health they included, paediatricians, statisticians working on malaria control in the university of Ibadan. It was pretested in Ekotedo community in Ibadan North LGA a similar community in Ibadan North LGA. The data were then subjected to descriptive statistics which was basically frequencies and charts. The reliability coefficient obtained was determined using the Cronbach's Alpha technique. Any coefficient >0.5 is said to be reliable. In the study, the reliability coefficient score which is also called chronbach Alpha was calculated to be of 0.733.

3.0 RESULTS

3.1 Socio-demographic demographic characteristics of respondents

Table 1 presents the socio-demographic characteristics of the respondents. Respondents within the age group 20-29 years constituted the highest (41.8%) followed by those aged 30-39 (40%).

Respondents' aged less than 20 years were the least (6.0%). The mean age of the respondents was 29.9 ±7.0 years.

Most of the respondents (90.8%) were married. Respondents with secondary school (56.5%) topped the list of the highest level of education. While those with tertiary accounted for (23.8%) of the respondents.

Over half of the respondents were traders (57.8%). While artisans constituted (31.3%). Respondents in monogamous constituted the majority (71.0%). (See table 1 for details)

Table 1: Sociodemographic characteristics of the respondents

Socio-demographic characteristics	Frequency	Percent (%)
Age in years: (n=397)*		
Less than 20 years	24	6.0
20-29 years	166	41.8
30-39 years	161	40.6
40-49 years	46	11.6
Marital status: (n=393)		
Single	29	7.3
Married	364	91.0
Religion: (n=400)		
Christianity	207	51.8
Islam	190	47.5
Traditional	3	0.75
Ethnic group: (n=395)		
Yoruba	360	91.1
Igbo	23	5.8
Hausa	12	3.0
Highest level of education: (n=400)		
Primary	79	19.8
Secondary	226	56.5
Tertiary	95	23.8
Type of tertiary education: (n=75)		
University	24	32.0
Polytechnic	39	52.0
Diploma/nursing	12	16.0
Occupation : (n=396)		
Trading	229	57.8
Civil servant	41	10.4
Artisan	124	31.3

Unemployed	2	0.4
Family type: (n=387)		
Polygyny	112	29.0
Monogamous	275	71.0
Children aged less than five: (n=397)		
One	262	66.0
Two	129	32.5
Three	6	1.5

*****Mean age: 29.9± 7.0

Table 2: Pattern of use and storage of antimalarial drugs and related medicine for treating under-fives

Pattern of use of antimalarial	No	%
Ever used an antimalarial to treat under-five (N-398)		
Yes	357	89.7
No	41	10.3
Types of malarial medicine used(N=399)		
Coartem *	268	67.2
Artesunate*	65	16.3
Chloroquine -	28	7.0
Paracetamol -	18	4.5
Ampiclox -	13	3.3
Alabukun-	7	1.8
Pain relieving medicine normally used for treating under five at home in case of malaria(N=399)		
Paracetamol*	322	80.7
Novagen-	47	11.8
Ibuprofen -	22	5.5
Alabukun -	8	2.0
Places where antimalarial medicines are kept at home(N=399)		
Cool dry place*	287	72.1
Inside nylon +	60	15.1

Inside wardrobe+	32	8.0
In the kitchen -	19	4.8

Malaria treatment-seeking pathways for under-five during episodes of malaria preceding study.

Where sought treatment	No	%
Hospital*	156	39.1
Patent Medicine Vendors (PMV) ±	120	30.1
Health centre*	50	12.5
Private clinic*	37	9.3
Primary Health Care (PHC)*	30	7.5
Community Medicine Distributors (CMDs)+	6	1.5

Respondents step by step home management of malaria involving under-five child

Steps taking at home	No	%
Use paracetamol for the baby+	177	46.7
Bath the baby±	52	13.7
Bath the baby and use PCM for the baby+	55	14.5
Use agbo for the baby±	44	11.6
Mop the body with cloth soaked in cold water±	11	2.9
Bath the baby, use paracetamol for him/her and take him/her to the hospital*	25	6.6
Expose to fresh air, give paracetamol and give coartem*	10	2.6
Bath for the baby, use paracetamol and give the baby coartem*	5	1.3

3.2 Respondents' practices related to home management of malaria

Respondents pattern of use and storage of antimalarial drugs and related medicine for treating under-fives is highlighted in table 2. The majority (89.7%) of the respondents had used an antimalarial drug to treat their under-five child (ren) while only 10.3% had never used antimalarial drugs. The antimalarial drug normally used included; coartem (34.2%), artesunate (29.0%), amalar (24.3%), while (10.5%) listed fansidar. Respondents were further asked about the type of malarial medicine used. Respondents that used coartem (67.2%) topped the list. Respondents that used paracetamol for pain relieve in treating under-five at home had the highest proportion of (80.7%) A majority (72.1%) kept their related malaria medicine in a cool dry place. (See table 2 for details).

Table 2 highlighted malaria treatment-seeking pathways for under-five during episodes of malaria preceding the study. The highest proportion (39.1%) sought for the treatment in a hospital, followed by Patent Medicine Vendors (PMVs) (30.1%). The other listed places are contained in the table under reference. Respondents' step by step home management of malaria involving under-five children is specified in table 2. The fairly correct steps mentioned were as follows: Exposure of baby to fresh air, administration of paracetamol, and then provision of

coartem (2.6%) and bathing the baby, use of paracetamol and administration of coartem (1.3%) (See table 2 for detail). Categorization of overall respondents' practice score was assessed using a 5-point scale. Respondents with good practice (4-5points) constituted 94.0%, while the proportion of respondents with poor practice (0-3) accounted for 6.0%.

Table 3: Respondents' knowledge of the causes of malaria

Causes of malaria^	True (%)	False (%)	Don't know (%)	Total
Mosquito	392(98.0)	8(2.0)	0(0%)	400
Too much sun	221(55.8)	175(44.2)	4(1.0)	396
Change of weather	97(24.3)	281(70.3)	22(5.5)	400
Plasmodium	92(23.0)*	253(63.3)	55(13.8)	400
Taking too much palm oil	141(35.3)	230(57.5)	29(7.3)	400
Overwork/too much work	185(46.3)	199(49.8)	16(4.0)	400
Witchcraft	76(19.0)	292(73.2)	31(7.8)	399

Table 4: Respondents' knowledge of factors or condition that can make mosquito breed or multiply

Factors/conditions	**True (%)**	**False (%)**	**Don't know (%)**
Blocked gutters/drains with water	388(97.0)*	11(2.8)	1(0.3)
Improper refuse disposal	385(96.3)*	15(3.8)	0(0)
Stagnant water	340(85.0)*	58(4.5)	2(0.5)
Empty containers or vessels (e.g. bottles, cans, plastics etc.)	217(54.3)*	162(40.5)	21(5.3)
Engine oil in a container that is not covered+	120(30.0)	250(62.5)	30(7.5)
Stagnant water containing spent engine oil+	122(30.5)	246(61.5)	32(8.0)

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211 **Table 5: Respondents' knowledge of signs and symptoms of simple malaria**

Signs and symptoms of simple malaria	Responses		
	Correct (%)	Wrong (%)	Don't know (%)
Inflammation of the skin	169(42.3)	175(43.8)	56(14.0)
Fever	354(88.5)*	38(9.5)	8(2.0)
Nausea+	347(86.8)	45(11.3)	8(2.0)
Diarrhoea	247(61.8)	136(34.0)	17(4.3)
Vomiting	320(80.0)*	71(17.8)	9(2.3)
Cold	357(89.3)*	36(9.0)	7(1.8)
Tiredness	358(89.5)*	34(8.5)	8(2.0)
Catarrh	365 (91.3)*	34(8.5)	1(.3)
Body ache	365(91.3)*	32(8.0)	3(.8)
Itching +	264(66.0)	125(31.3)	11(2.8)
Fatigue	310(77.5)*	75(18.8)	15(3.8)
Sore throat+	230(57.5)	148(37.0)	22(5.5)

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213 **Table 6: Respondents' knowledge of signs and symptoms of severe malaria**

Symptoms of severe malaria^	Responses			Total
	Correct (%)	Wrong (%)	Don't know (%)	
Fever	361(90.5)*	25(6.3)	13(3.3)	399(100%)
Chills	352(88.0)*	31(7.8)	17(4.3)	400(100%)
Organs dysfunction	154(38.5)*	126(31.5)	120(30.0)	400(100%)
Abnormal bleeding	104(26.0)	167(41.8)	129(32.3)	400(100%)
Clinical jaundice	140(35.0)*	129(32.3)	131(32.8)	400(100%)
Febrile convulsion	175(43.8)*	107(26.8)	118(29.5)	400(100%)
Respiratory distress	130(32.5)*	119(29.8)	151(37.8)	400(100%)
Impaired consciousness	121(30.3)*	118(29.5)	161(40.3)	400(100%)

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Table 7: Respondents knowledge of preventive measures against malaria

Preventive measures	True (%)	False (%)	Don't know (%)	Total
Using insecticide-treated net	367(91.8)*	31(7.8)	2(.5)	400(100%)
Eating a balanced diet	218(54.5)+	171(42.8)	9(2.3)	389(100%)
Clearing of residential environment of grasses/overgrown weeds	322(80.5)*	77(19.3)	1(.3)	400(100%)
Clearing blocked gutters	311(77.8)*	87(21.8)	2(.5)	400(100%)
Bathing daily	136(34.0)+	248(62.0)	15(3.8)	400(100%)
Use of insecticide	292(73.0)*	97(24.3)	11(2.8)	400(100%)
Use of antimalarial drug(SP) by pregnant women	199(49.8)*	175(43.8)	26(6.5)	400(100%)
Having enough sleep	87(21.8)+	283(70.8)	30(7.5)	400(100%)
Not eating too much palm oil	98(24.5+	272(68.0)	30(7.5)	400(100%)
Not working in the sun for a long time	90(22.5)+	273(68.3)	37(9.3)	400(100%)

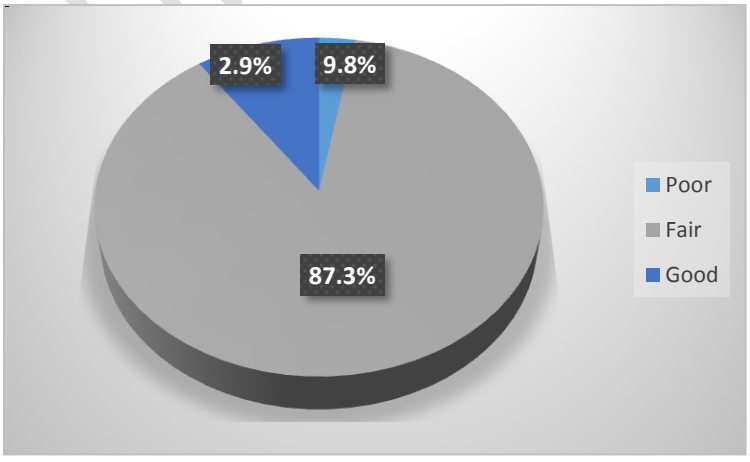
Table 8: Respondents' knowledge of malaria related treatment actions involving under-five children treatment

Treatment steps actions^	True (%)	False (%)	Don't know (%)	Total
Tepid sponging	363(92.2)*	25(6.3)	10(2.5)	398
Use of paracetamol	384(96.2)*	14(3.5)	1(0.3)	399
Use of coartem	363(91.0)*	22(5.5)	14(3.5)	399
Use of agbo	267(66.9)	125(31.3)*	7(1.8)	399
Use of chloroquine	256(64.2)	132(33.1)*	11(2.8)	399
Going to a health care facility for treatment	365(91.5)*	27(6.8)	7(1.8)	399

Table 9: Respondents' knowledge of coartem and paracetamol dosage regimen for children aged 0-5years

Ages(years)	Coartem dosage regimen^	Right	Wrong	Don't know	Total
6months-3years	1 tablet twice daily(3days)*	248(62.2)	93(23.3)	58(14.5)	399
	2 tablet twice daily(3days)	55(13.9)	280(70.7)	61(15.4)	396
	1 tablet thrice daily(3days)	33(8.3)	300(75.8)	63(15.9)	396
3-5years	1 tablet twice daily(3days)	100(25.3)	246(62.1)	50(12.6)	396
	2 tablet twice daily(3days)*	200(50.1)	150(37.6)	49(12.2)	399
	3 tablet thrice daily(3days)	55(13.9)	290(73.2)	51(12.9)	396
	Paracetamol dosage regimen				
6months-3years	1/2 tablet twice daily(3days)*	256(64.0)	93(23.3)	51(12.8)	400
	1 tablet twice daily(3days)	74(18.6)	270(68.0)	53(13.4)	397
	1/2 tablet thrice daily(3days)	38(9.6)	308(77.6)	51(12.8)	397
3-5years	1 tablet twice daily(3days)	190(47.9)	169(42.6)	38(9.6)	397
	1 tablet thrice daily(3days)*	143(35.8)	219(54.8)	38(9.5)	400
	1 tablet once daily(3days)	48(12.1)	306(77.1)	42(10.6)	397

The knowledge of treatment/dosage regimen for coartem and paracetamol for children aged 0-5 years is summarized in table 9. More than half of the respondents (62.2%) were knowledgeable about the correct treatment/dosage of coartem for children ages 6 months – 3 years. About half (50.0%) were conversant with the correct treatment/dosage regimen for coartem for children aged 3-5 years. The majority (64.0%) knew the correct treatment/dosage regimen of paracetamol for children aged 6 months – 3years while only (35.8%) were knowledgeable of the correct treatment/dosage regimen of paracetamol for children aged 3–5 years. (See table 9 for details).



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235 Figure: 1 Categorization of respondents' knowledge scores relating to the general knowledge of
236 malaria and home management of malaria.

237 **Table 10: Respondents perception relating to vulnerability to seriousness and of treatment**
238 **of malaria.**

Perception	Agree	Undecided	Disagree
Perception relating to vulnerability			
My child is not prone to malarial so no need of taking preventive measures	11(2.8)±	4(1.0)	385(96.3)+
I believe malaria is a disease of the poor, our child cannot get it because we are not poor	60(15.0) ±	3(0.8)	337(84.3)+
I make sure my child stays away from people or other children having malaria to avoid getting it.	55(13.8) ±	9(2.3)	336(84.0)+
I am of the opinion that a child that is well fed cannot have Malaria	50(12.5) ±	12(3.0)	338(84.5)+
Perception relating to seriousness			
I do not believe malaria is a serious disease for children	12(3.0) ±	4(1.0)	384(96.0)+
Malaria cannot lead to death of children aged less than five years	7(1.8) ±	9(2.3)	384(96.0)+
Perception relating to treatment			
Malaria infection is caused by witches and wizards, so telling me about using drugs to treat it is a waste of time	6(1.5) ±	28(7.0)	366(91.5)+
I believed malaria infection will disappear on its own without treatment/medicine	11(2.8) ±	12(3.0)	377(94.3)+

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241 **Table 11: Respondents' perception relating to home management of malaria**

Perception	Agree	Undecided	Disagree
I believe chloroquine alone is enough to treat my child of any kind of malaria at home	20(5.0) ±	52(13.0)	328(82.0)+
I am of the opinion that coartem should be used at home only when the child's malaria is serious	27(6.8) ±	68(17.0)	305(76.3)+
Malaria infection in a child is best treated at home with chloroquine than Arthemicinin-based Combined Therapy (e.g coartem, artesunate etc)	24(6.0) ±	70(17.5)	306(76.5) +
The first dosage of malaria drug is enough to treat children when they have malaria	9(2.3) ±	47(11.8)	344(86.0) +
I prefer herbal medicine to medical medicine for treating my child at home when he/she has malaria because it is cheaper for treating under-five with malaria	79(19.8) ±	68(17.0)	253(63.3) +
Traditional medicine used at home is more effective for treating malaria in children aged less than five years	82(20.5) ±	67(16.8)	251(62.8) +
It is better to wait for a day or two to see whether an under-five has malaria before treating him/her at home with malaria medicine	105(26.3) ±	24(6.0)	271(67.8) +
Every mother should keep medicine at home for the home	301(75.3)±	9(2.3)	90(22.5) +

management of malaria when the need arises			
It is wrong for a mother to treat her under-five children at home in case of malaria	133(33.3) ±	8(2.0)	259(64.8)_

3.3 Perception relating to malaria

Respondents in this study had a good perception of home management of malaria. Majority of the respondent believed that ACT is best used in treating under-five children at home when they have malaria. A similar study was carried out by Ajayi, and Falade (2006); Salako, Brieger, Afolabi *et al* (2001) where respondents use chloroquine, and sulphadoxime/pyrimethamine(SP) at home for the treatment of malaria.

4.0 Conclusion

This study revealed that the level of awareness and knowledge of malaria among respondents was fair. However, there are several gaps in the respondents' knowledge relating to the disease and its management in under-five. The respondents had poor knowledge of the cause and fair knowledge of the factors that could promote the breeding of malaria. Advocacy, training, and public enlightenment are necessary to address the situation.

5.0 Recommendations

The recommendations based on the findings of this study are as follow:

1. Sustained public enlightenment interventions relating to malaria targeted at mothers of under-five are needed. These interventions should be aimed at improving their knowledge and their malaria prevention and control skills.

2. Artemicinin Combination Therapy (ACT) is a new strategy for managing malaria. Training is needed to improve their knowledge and skill relating to the approach.

3. Formal health care facilities are commonly used by the residents for the management of malaria in under-five. The capacity of health workers should be enhanced to help upgrade mothers' knowledge and skills relating to the correct treatment regimen for managing malaria.

4. Training on home management of malaria should be organized for respondent. A peer education approach should be used in this regard to upgrade mothers' knowledge and skills concerning the treatment, prevention, and control of malaria.

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