

**THE PREVALENCE OF MALARIA PARASITAEMIA IN CHILDREN 0-11 YEARS IN
TWN-BRASS, BAYELSA STATE, NIGERIA**Dotimi Doris Atibinye¹, Dr. Alex-Hart Balafama Abinye^{2*}, Gilbert Preye Clapperton³¹Department of Community Health Science, Bayelsa State College of Health Technology, Otuogidi, Ogbia.²Department of Pediatrics, University of Port Harcourt Teaching Hospital.³Bayelsa State College of Health Technology, Otuogori, Ogbia.***Corresponding Author: Dr. Alex-Hart Balafama Abinye**

Department of Pediatrics, University of Port Harcourt Teaching Hospital.

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ABSTRACT

Background: Malaria is one of the most common deadly parasitic diseases and a public health challenge in Africa. Malaria is a major impediment to health in sub-Saharan Africa, and its greatest toll is found among children and pregnant women. It also remains the single biggest cause of mortality among young children in Africa. The objectives of the study were to identify the prevalence of malaria parasitaemia in children, the susceptible age group and the most affected gender in Twon-Brass, Bayelsa, Nigeria. **Method:** The cross-sectional study was conducted on 150 asymptomatic children in Twon-Brass between the ages of 0-11yrs. All 150 participants were classified into 5 groups; 0-6 months, 7 months – 2 years, 3-5years, 6-8years and 9-11 years before they were tested for malaria parasite antigens. Data was presented on tables as frequency and percentages. **Results:** The findings indicated that out of the 150 children tested for malaria parasite, 57 (38%) were positive. The prevalence was highest among children 6-8 years 17(41.1%). More male (30) children had malaria parasites in their blood compared to females (27). **Conclusion:** The study indicated that the prevalence of malaria parasitaemia among children of 0-11years in Twon community is relatively high 57(38%). It was recommended that children should sleep under Insecticide Treated Nets (ITNs) to protect them from mosquito bites.

KEYWORDS: Children, Malaria, Insecticide Treated Nets, Bayelsa State.**INTRODUCTION**

Malaria is a febrile, mosquito-borne infection with symptoms like periodic chills, rigor, diarrhoea, weakness, vomiting, high fevers followed by profuse sweating.^[1,2,3] Anaemia, hypoglycaemia and cerebral malaria are features of severe malaria and the childhood deaths mainly results from anaemia.^[4,5,6] The female anopheles mosquito begins the infection by injecting sporozoites into the bloodstream of man during blood meal^(1,7). Plasmodium vivax, Plasmodium Falciparum, Plasmodium Ovale and Plasmodium Malariae are the four species of plasmodium responsible for human malaria.^[8,9,10]

Malaria, a preventable disease, is a public health challenge because it affects about 300-500 million people globally and an estimated 3.3 billion people are at risk.^[7,11,12,13] Ninety percent of the 300-500 million cases of malaria occur in Africa.^[1,14,15,16] Children from 0-5 years are among the most vulnerable group with an estimated mortality of 78% out of the 584,000 deaths globally in 2013.^[14] Research has it that a child dies every 30 minutes from malaria infection in Africa.^[17]

The economic burden of malaria is alarming. "Overall, funding for countries in the WHO African Region accounted for 72% of the global total. Between 2005 and 2013, international disbursements for malaria for this region increased at an annual rate of 22%. During the same period, the average annual rate of increase for domestic funding in the region was 4%, globally".^[6]

In Nigeria, malaria is preventable and treatment is also available, but it ranks among the five common causes of death in children.^[18] Malaria can be prevented with the use of Insecticide Treated Net and household protection against mosquitoes.^[19,20] A study conducted in three hospitals and a nursery school in Awka, Anambra State of Nigeria to assess the prevalence of plasmodium falciparum indicated that plasmodium falciparum was found in the peripheral blood of 253 (58%) of the children out of the sample size of 400 participants.^[21] A study in Abuja, the capital of Nigeria also recorded 61%.^[26] A study conducted in Gombe State of Nigeria also indicated 91% prevalence among young children.^[13] Several published work on malaria prevalence have been recorded in other parts of Nigeria, but no work is recorded about malaria prevalence in Twon-Brass,

hence, the need to conduct a research on the prevalence of malaria parasites in children 0-11 years in Twon-Brass.

MATERIALS AND METHODS

The cross-sectional study investigated the prevalence of malaria among children from 0-11 years in Twon-Brass. Ethical approval was obtained from the Institutional Review Board of Bayelsa State College of Health Technology. This approval was also presented to the Chief of Twon Community who also gave his verbal approval for the research to be conducted in his community. The families in the community were invited to the town square where the study was conducted. The convenience sampling technique was used to recruit 150 children after receiving a verbal consent from their parents. All 150 participants were classified into 5 groups; 0-6 months, 7 months – 2 years, 3-5 years, 6-8 years and 9-11 years before they were tested for malaria parasite antigens. The instrument for data collection was the use of Antigen based malaria Rapid Diagnostic Test kits (RDT) to diagnose the presence of malaria parasite antigens in the peripheral blood after a sterile lancet was used to prick the heel of children 0-6 months and thumb of children 7 months and above. A blood specimen collected from the participant is applied to the sample pad on the test card along with certain reagents. After 15 minutes, the presence of specific bands in the test card window indicate whether the patient is infected with *Plasmodium falciparum* or one of the other 3 species of human malaria. This was done following strict aseptic procedures. Data was presented on tables as frequency and percentages.

RESULT

Table 1: shows the distribution of participants examined according to age. In age 0-6 months 12 (8%) were

examined. In age 7 months – 2 years, 25 (16.7%) were examined. In age 3-5 years 40 (26.7%) were examined. In age 6-8 years 41 (27.3%) were examined and in age 9-11 years 32 (21.3%) were examined.

Table 1: Age distribution of participants.

AGE GROUPS	NUMBER EXAMINED
0-6 months	12 (8%)
7 months – 2 years	25 (16.7%)
3-5 years	40 (26.7%)
6-8 years	41 (27.3%)
9-11 years	32 (21.3%)
Total	150 (100%)

Table 2 shows distribution of participants according to sex. In the study, 73 (48.7%) of the children were males, and 77 (51.3%) were females.

Table 2: Sex distribution of participants.

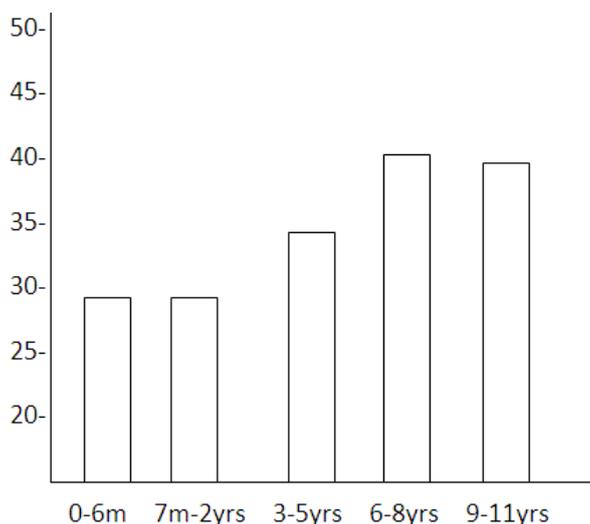
SEX	NUMBER EXAMINED
Male	73 (48.7%)
Female	77 (51.3%)
Total	150 (100%)

Table 3 shows the prevalence of malaria in age groups. In age 0-6 months 12 were examined and *plasmodium falciparum* was present in 4 (33.3%) participants. In age 7 months- 2 years 25 were examined and *plasmodium falciparum* was present in 8(32%) participants. In age 3-5 years 40 were examined and *plasmodium falciparum* was present in 15(37.5%) participants. In age 6-8 years 41 were examined and 32 were examined and *plasmodium falciparum* was present in 17(41.5%) participants, and in 9-11 years *plasmodium falciparum* was present 13 (40.6%) participants.

Table 3: Prevalence of malaria in age groups.

AGE GROUPS	NUMBER EXAMINED	NUMBER POSITIVE	PREVALENCE
0-6 months	12	4	33.3%
7 months-2 years	25	8	32%
3-5 years	40	15	37.5%
6-8 years	41	17	41.5%
9-11 years	32	13	40.6%
Total	150	57	38%

This is a Bar representation of the prevalence of malaria among age groups.



Bar Chart

Table 4: shows the distribution of malaria according to sex. Out of the 73 males, plasmodium falciparum was present in 30 (41.1%) participants. Out of the 77 females, plasmodium falciparum was present in 27 (35.1%)

participants. Table 4 also shows that the prevalence of malaria among children 0-11 years in Twon community is 57 (38%).

Table 4: Prevalence of malaria in sex distribution of participants.

Sex	Number examined	Number positive	Prevalence
Male	73	30	41.1%
Female	77	27	35.1%
Total	150	57	38%

DISCUSSION

This study indicated that the prevalence of malaria among children of 0-11 years in Twon community is relatively high 57(38%). This could be due to the fact that the children in this area are prone to mosquito bite due to poor environmental sanitation or lack of other preventive measures such as use of insecticide treated bed nets (ITNs) and unscreened windows and doors.^[22,23,25,27] This result confirmed the findings of a study that reported a prevalence of 45.79% in Federal University of Technology, Akure-Nigeria.^[2] However, another study indicated a low prevalence of 17% in Ibadan, Oyo state-Nigeria.^[2] This contraction might be due to reasons of environmental and climatic differences in various parts of the country.

Another finding in the study indicated that the most susceptible age group among children 0-11 in Twon community was 6-8years with a prevalence of 41.5%. This confirmed the findings of Umaru and Gabriel on the prevalence of malaria in patients attending the General Hospital Markarfi, Kaduna-State, North-Eastern Nigeria, which indicated that malaria was more prevalent in children 5-15years.^[18] Although, the World Health Organization maintains that children less than 5 years are more at risk of the disease because they may not have developed protective immunity against the disease and

its most severe form.^[4] This presumed shift in the prevalence among this age means that more attention and care are given to children less than 5 years of age than the older children. Also, children above 5 years are termed the school age children, and they may be leaving the comfort of their homes for the first time for boarding schools or other purposes, hence are away from direct parental care and supervision.^[24,25]

Finally, the study indicated that the prevalence tends to be higher in males than in females with a prevalence of 41.1% and 35.1% respectively. This confirmed the findings of other studies that males had a higher prevalence of malarial infection than females.^[18,19] This suggests that males may be more prone to malaria infection. Also, studies have shown that females have better immunity against parasitic diseases than the males due to hormonal and genetic factors.^[2,4,26,27,28,29]

CONCLUSION

Out of the 150 children 0-11 years that were studied, 57 (38.5%) were infected with the malaria parasite, out of which children between 6-8 years were observed to have the highest prevalence 17 (41.5%). Therefore, the following recommendations were made:

The high priority target areas for malaria intervention and control programmes should include remote areas like Twon community and these interventions should be increased in rainy seasons as the season coincides with high malaria remission. Free insecticide treated nets (ITN) should be given to mothers and caregivers to control malarial infection in children. Children should be placed under malaria chemoprophylaxis every three months to prevent malaria and to kill (if any) the early stages of the malaria parasite. Health workers in the rural areas should create awareness in the communities on the importance of environmental sanitation.

Authors Contribution: All authors participated in the study design, collection and analysis of data and writing of the manuscript.

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