



## Malaria Parasitaemia Among Pregnant Women Attending Antenatals In A Nigerian Specialist Hospital

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### ABSTRACT

The prevalence of malaria parasitaemia among pregnant women at Adeoyo Maternity Hospital Yemetu, Ibadan was investigated. Secondary data of 234 gravid women that attended antenatal clinics over a period of 8 months between February and September, 2018 were retrieved from the records of the hospital. 71 (30.34%) women were positive for malaria parasitaemia at least once in the course of their pregnancy, where 52 (22.22%) individuals had *Plasmodium falciparum* and 19 (8.12%) had *Plasmodium malariae*. Prevalence according to parity type showed 33.09, 27.50 and 25.86% for the primigravidae, secundigravidae and multigravidae women respectively. This was statistically significant ( $P < 0.05$ ). Individuals between the ages 15-20years, 21-30years, 31- 40years, > 40years showed prevalence of 40.0, 42.86, 23.18 and 47.37% respectively. This, was however not statistically significant ( $P > 0.05$ ). These results showed that there is a high prevalence of malaria parasitaemia among pregnant women in the study area. Hence, the protocol for malaria prophylaxis regimen should be strictly adhered to by health professionals and care givers should ensure that pregnant women dutifully take their malaria drugs as prophylactics or therapeutics, depending on the cases.

**Keywords:** Prevalence, malaria, *Plasmodium*, Parasitaemia, gravid.

### INTRODUCTION

Malaria is the most prevalent tropical disease with high morbidity and mortality. It is of high economic and social impact. Pregnant women constitute the main adult risk group for malaria due to natural immune depression in pregnancy (Fievet *et al.*, 2007). Malaria in pregnancy is a significant health problem in Sub-Saharan Africa where 90% of the global malaria burden occurs. The symptoms and complications of malaria during pregnancy differ with the intensity of malaria transmission and with the level of immunity the pregnant woman had acquired (Permann and Troye-Blombery, 2000). Pregnant women and the unborn children are particularly vulnerable to malaria which is a major cause of prenatal mortality, low birth weight and maternal anaemia (Greenwood *et al.*, 2007). Each year, at least 3 million pregnancies occur among women in malarious area of Africa, most of who reside in areas of relatively stable malaria transmission (Brabin, 2000). *Plasmodium falciparum* infection is the major cause of morbidity and mortality particularly among the vulnerable groups (Warsame *et al.*, 1995). In Nigeria, the National Malaria Control Programme (NMCP) reported 4.3 million suspected malaria cases in 2009, a 42% increase compared to 2000 (WHO, 2010). Beyond the impact of malaria on children and pregnant women, it affects the general population. 100% of the total population of Nigeria is at risk of malaria and at least 50% of the population suffers from at least one episode of malaria each year (WHO, 2010). Malaria cases and deaths have been increasing in the country, mainly due to injudicious use of antimalarial drugs, delayed health-seeking and reliance on the clinical judgment without laboratory confirmation in most of the peripheral health facilities (Vander *et al.*, 2005).

**MATERIALS AND METHODS**

Secondary data were used for this study. The data of 234 gravid women that attended antenatal clinics at the Adeoyo Maternity Specialist Hospital Yemetu, Ibadan, Nigeria, between February and September, 2018. These gravid women consisted of 136 primigravidae, 40 secundigravidae and 58 multigravidae.

**Statistical Analysis**

Descriptive and inferential statistics were used to analyse the data. The prevalence rates were expressed as a percentage of the number of gravid women while Pearson Chi-square was used to evaluate the relationship between the prevalence of infection and the respective variables evaluated.

**RESULTS**

Out of 234 pregnant women that attended antenatal at the clinic, 71 tested positive to malaria parasite indicating an overall prevalence of 30.34%. Out of this number, 52 gravid women were positive with *Plasmodium falciparum* with a prevalence of 22.22% while 19 pregnant women were infected with *Plasmodium malariae* showing a prevalence rate of 8.12% (Table 1).

Prevalence according to parity type indicated that out of 136 primigravid women tested, 45 were positive with a prevalence rate of 33.09%. In the same vein, out of 40 secundigravid women examined, 11 were positive with a prevalence of 27.50%. Also, 58 multigravidae were examined, out of which 15 tested positive with a prevalence rate of 25.86% (Table 2). There was a significant difference ( $P < 0.05$ ) between malaria parasitaemia and type of parity.

Age-related prevalence indicated that 15 gravid women between 15-20years of age were examined, of which 6 were positive with a prevalence of 40.0%. Gravid women aged 21-30years old were 49 in number, out of which 21 were positive with a prevalence of 42.86%. Those aged 31-40years old were 151, out of which 35 tested positive showing a prevalence of 23.18%. Also, 19 gravid women aged 40years and above were examined, out of which 9 were positive with a prevalence rate of 47.37% (Table 3). There was no significant difference ( $P > 0.05$ ) between malaria parasitaemia and age in this study.

**Table 1: Prevalence of malaria parasitaemia among the gravid women population**

Parameters	Numbers	Percentage %
Number examined	234	
<i>Plasmodium falciparum</i> (+ve)	52	22.22
<i>Plasmodium malariae</i> (+ve)	19	8.12
Total positive	71	30.34

**Table 2: Prevalence of malaria parasitaemia according to parity**

Parity type	Number Examined (%)	Number Positive (%)
Primigravidae	136	45 (33.09)
Secundigravidae	40	11 (27.50)
Multigravidae	58	15 (25.86)
Total	234	71 (30.34)

**Table 3: Age Distribution of Malaria Parasitaemia among Gravid Women**

Age (years)	Number Examined (%)	Number Positive (%)
15-20	15	6 (40.0)
21-30	49	21 (42.86)
31-40	151	35 (23.18)
> 40	19	9 (47.37)
Total	234	71 (30.34)

**DISCUSSIONS**

The prevalence of malaria parasitaemia in pregnant women in this study is relatively high. This is a reflection of the high rate of asymptomatic malaria parasitaemia in endemic regions. This observation is in agreement with the report of Achidi *et al.*, (1995). However, the prevalence rate of 30.34% recorded in this study is lower than the 64.4% and 63.6% prevalence reported by Aribodor *et al.*, (2009) and Akinboro *et al.*, (2010) respectively. The lower prevalence recorded in this study may be attributed to the benefits of attending antenatal clinics, improved compliance to interventions in malaria control strategies like use of long lasting insecticide treated nets (LLIN) or alternative intermittent prevention treatment with Pyrimethamine-sulfadoxine (SP). However, the prevalence of 30.34% recorded in this study, as low as it appears, is relatively high. This high prevalence could also be because this study spanned across the wet season. According to Ayanda (2009), prevalence of *Plasmodium falciparum* infection is higher in the wet season than in the dry season since the rainy season presents favorable environmental conditions that enhance mosquito breeding and survival, through the proliferation of larval habitats and improved humidity respectively. *Plasmodium falciparum* and *P. malariae* being the two species found in this study is in agreement with studies of Abdullahi *et al.*, (2009) and Adefioye *et al.*, (2007) who observed that *Plasmodium falciparum* is the most dominant species in pregnancy. In studies conducted by Brabin in (1996) and Balogun (2009), the primigravidae were more susceptible to malaria infection than the multigravidae, as agreed by this study. Prevalence was highest among the primigravidae (33.09%) and malaria positivity decreased as parity increased. This is probably because cell-mediated immune responses to malaria antigens are more markedly suppressed in first than in subsequent pregnancies. The multigravida are presumably least affected because immunological memory from first pregnancy is retained (Brabin, 1996). Older women appeared to be most susceptible to malaria infection in this study as prevalence was highest among those older than 40 years of age (47.37%). This is in agreement with the findings of Adefioye *et al.*, (2007), who reported 36-39years old group to be most susceptible. However, this contradicts the findings of Dicko *et al.*, (2003) who observed that adolescents and young adult pregnant women were more susceptible to malaria than older pregnant women, because of continuous development of malaria immunity in older women.

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