

Prevalence of Malaria on Pregnant Women in Ado-Odo/Otta, Ogun State, Nigeria

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Abstract: Malaria is one of the most severe public health problems in Nigeria and in the whole world. Nigeria has the greatest number of malaria cases. Malaria is a mosquito borne infectious disease which is caused by protists of genus *Plasmodium*. Cross-sectional study of *Plasmodium falciparum* infection among pregnant women attending antenatal clinics at Ketu Adie-owe primary health care, Ado-odo/otta, Ogun state were considered in which three hundred and nine women were selected at random (309) using simple random sampling on their case note. This study was carried out to know if there is a relationship between infection of malaria and gravid status as well as gestation period of pregnant women and also to determine if the infection of malaria by pregnant women depends on their age. From the result, Malaria were found to be higher within the age group 20-24 and 25-29, also 25-29, 30-34 and 35-39 for primigravida and multigravida respectively. Also, the chi square result on malaria status against gravida and malaria status against gestational period shows that age has no effect on malaria status, gravida has no much effect on malaria status and gestation period is statistically significant during pregnancy. The most common symptoms are pains, headache, cold, and fever. The most common symptoms are pains, headache, cold, and fever.

Keywords: malaria, parasites, pregnancy, antenatal, gravida, symptoms, gestational

1. Introduction

The history of malaria stretches from its prehistoric origin as a zoonotic disease in the primates of Africa through to the 21st century. A widespread and potentially lethal human infectious disease, at its peak malaria infested every continent, except Antarctica (Carter R, Mendis KN 2002). Its prevention and treatment have been targeted in science and medicine for hundreds of years. Since the discovery of the parasites which cause it, research attention has focused on their biology, as well as that of mosquitoes which transmit the parasites. References to its unique, periodic fevers are found throughout recorded history beginning in the first millennium BCE in Greece and China (Neghina R, Neghina AM 2010). For thousands of years, traditional herbal remedies have been used to treat malaria (Wilcox ML, Bodeker G 2004). In Nigeria, like in other endemic areas, its severe and complicated effects are most common among infants and pregnant women (Warrell DA 1997). Pregnancy exacerbates malaria through a nonspecific hormone-dependent depression of the immune system. The protective antiplasmodial activity is suppressed at pregnancy, which has clinical consequences with important public health implications on pregnant women (Matteeli S, Caligras F 1997). Malaria infection leads to increased morbidity and mortality and the delivery of premature infants with low birth weights due to intrauterine growth retardation (IUGR) that may have been as a result of placental parasitisation (Stekeetee RW, Wirima JJ 1996). A comparable prevalence of malaria-associated deaths has been reported in the Thai-Myanmar border where the frequencies of annual fatal cases in pregnant women for *P. falciparum* and *P. vivax* were estimated as 0.28 % (12/4158) and 0.023 % (1/4298), respectively (McGready R 2014). Given its public health importance, understanding the clinical manifestations of malaria during pregnancy has been the focus of several

investigations. In particular, there is evidence indicating that the clinical presentation of the disease in pregnant women is modified by the immune status of the patient (Rogerson SJ 2007) as well as by the presence of multiple parasite genotypes (Beck S 2001). However, such associations may vary across the disease's broad geographic distribution.

In Nigeria and other endemic countries, malaria have posed adverse clinical out-comes including maternal morbidity and mortality in first and second trimester, abortion, still birth, premature deliveries and low birth weight (Federal Ministry of Health (FMH) 2005; Obioun, 2007) anemia and death (Rogerson et al., 2007; Conroy et al., 2012).

Also in Nigeria, more than 90% of the total population of the country is at risk of malaria infection and about 50% of the population suffer from at least one episode of the disease annually (WHO, 2008; Okpere et al., 2010). Almost 30 million women are threatened by malaria in pregnancy annually with 10,000 maternal mortalities attributed to the disease each year and about 200,000 neonatal deaths annually (Okpere et al., 2010).

Regarding the proposed association between presence of multiple parasite genotypes for *P. vivax* and *P. falciparum* infections and pregnant women, the issue remains unsolved due to the paucity of studies that include parasite genetics (Arango EM 2012). This study was undertaken to assess the prevalence of malaria among pregnant women attending antenatal clinics at Ketu Adie-owe primary health care, Ado-odo/otta, Ogun, south-West Nigeria. It is expected that data obtained from this study would be used to undertake a holistic health intervention in this area of stable malaria transmission.

2. Materials and Methods

2.1 Study Area

This study is limited to the data collected on pregnant women who came for their ante-natal visit at Ketu Adie-owe health care, Ado-odo/otta, Ogun state between 2017/2018 year. Three hundred and nine (309) case notes were selected randomly without the prior knowledge of their clinical and family history. Data were collected on age, gravida, symptoms and gestational age of the pregnant women from their medical records.

Generally, the method employed in any diagnosis is an important criterion in reporting valid results. In this case, the accuracy of malaria microscopy is determined by factors such as training and re-training, experience, motivation, and laboratory facilities.

2.2 Data Analysis

The statistical analysis for significant differences was done using chi-square (χ^2). Significant level was placed at $p < 0.05$. The statistical package used was the SPSS software which is capable of handling large amount of data and can

perform all of the analyses covered in the text and much more.

3. Result

Table 3.1.1

Chi-square	Value	Df	Sig.
Malaria Status * Age	32.850 ^a	27	.202
Malaria status * Gravida	1.927 ^a	1	
Malaria status * Gestational Period	7.159 ^a	2	.028

Table 3.1.2: Malaria Status * Gravida

		Gravida		Total
		Primigravida	Multigravida	
Malaria Status	Negative	34	111	145
	Positive	50	114	164
Total		84	225	309

Table 3.1.3: Malaria Status * Gestational Period

		Gestational Period			Total
		First Gestation	Second Gestation	Third Gestation	
Malaria Status	Negative	26	38	81	145
	Positive	14	39	111	164
Total		40	77	192	309

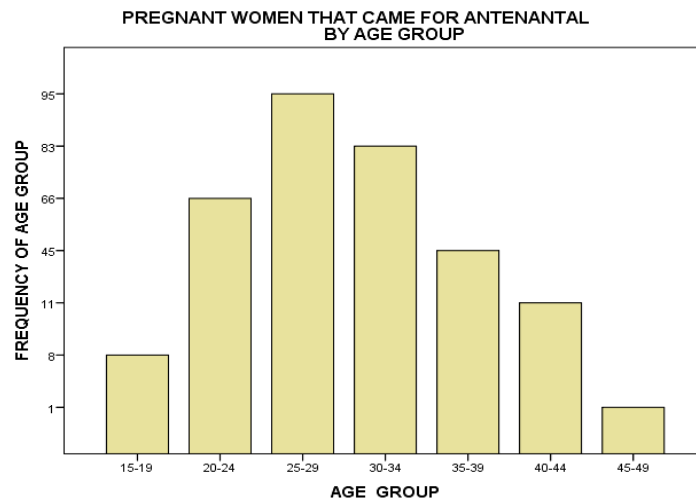


Figure 3.1.1

Figure 3.1.1: Pregnant women that came for antenatal by age group

Pregnant Women that came for antenatal by infected and non-infected with malaria

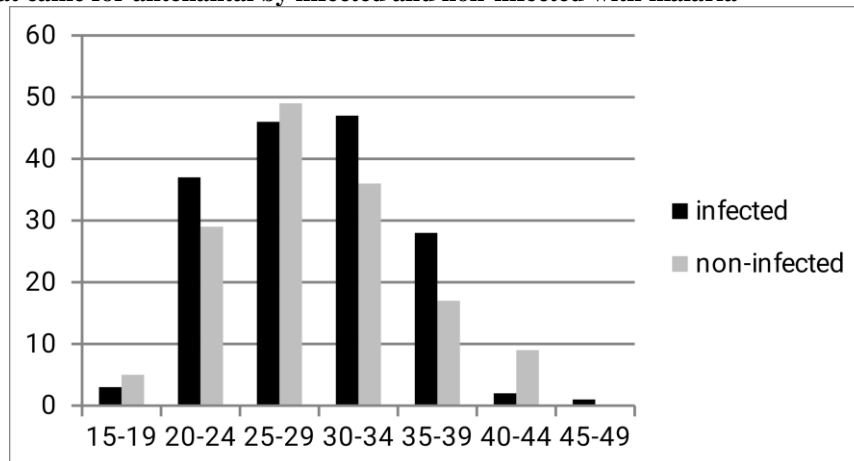


Figure 3.1.2

Pregnant Women that came for antenatal by gravid

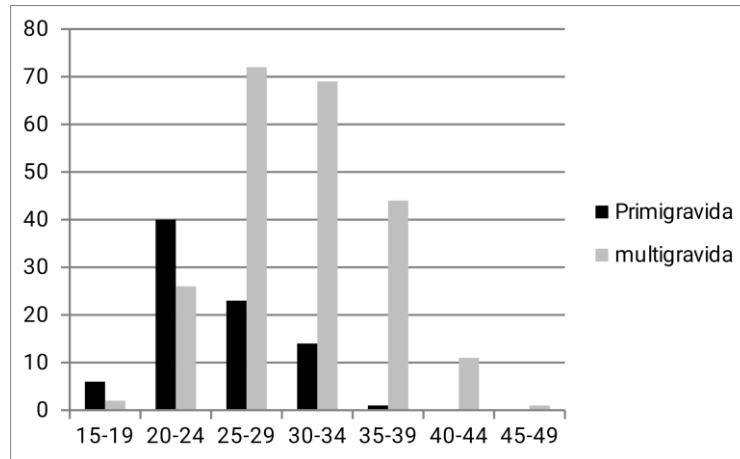


Figure 3.1.3

3.1.4 Pregnant women that came for antenatal by infected and non-infected with malaria in primigravida

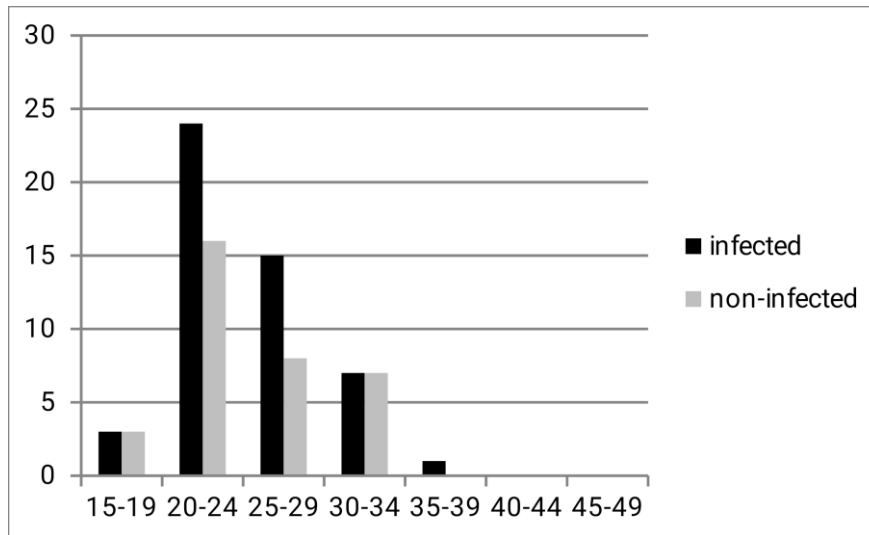


Figure 3.1.4

3.1.5 Pregnant women that came for antenatal by infected and non-infected with malaria in multigravida

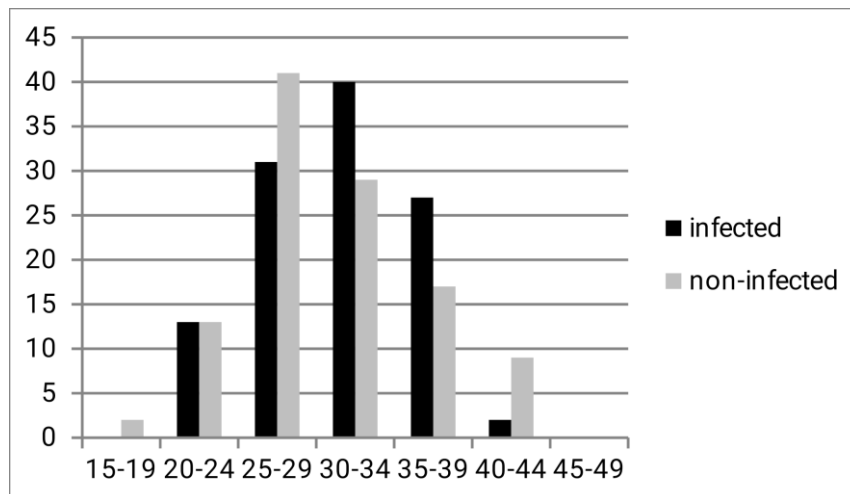


Figure 3.1.5

3.1.6 Pregnant women that came for antenatal by infected and non-infected with malaria during the gestational period.

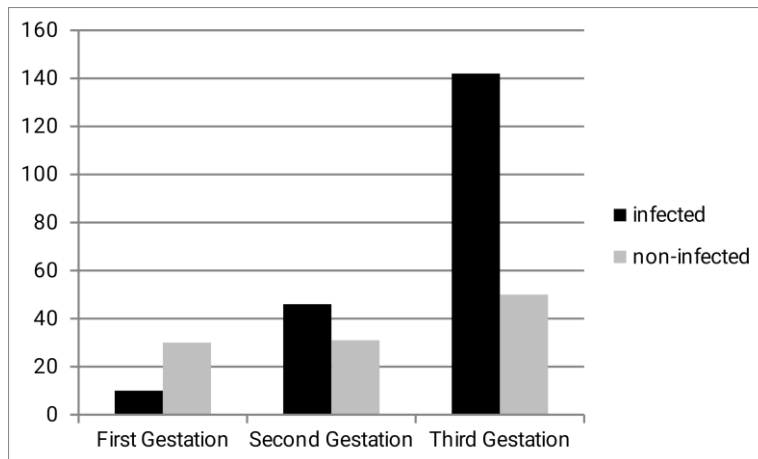
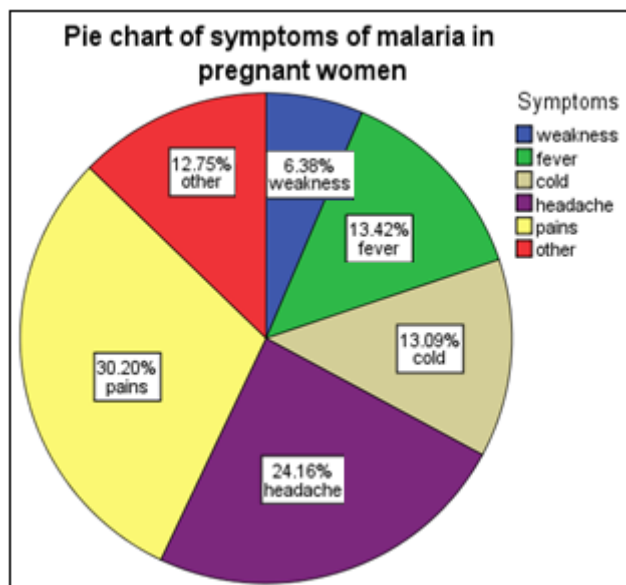


Figure 3.1.6

3.2 Pie Chart Analysis

Pie Chart of Symptoms of Malaria in Pregnant Women



For the infected rate, one can easily observed that age group of 30-34 of multigravida pregnant women are highly infected by malaria.

The quadrant represents the number of the symptoms. And it could be seen that, quadrant with label pains, headache, cold, fever and others (vomiting, cough, catarrh, dizziness) has the larger quadrants meaning they are the common symptoms of malaria among pregnant women of which pains is the most among all because it has the largest quadrant.

5. Conclusion

The result of the work conducted indicates that pregnant women are infected by malaria. The multigravida group has the highest number of infection. Also, malaria was found to be higher among the age group 20-24, 25-29 and 30-34 is highly affected by malaria. Gestation was significant associated with the malaria status of the pregnant women and the third gestational period is mostly affected by malaria during pregnancy. The most common symptoms are pains, headache, cold, fever and others (vomiting, cough, catarrh, dizziness).

4. Discussion

In table 3.1 the Chi square for malaria status against age , malaria status against gravida and malaria status against gestational period are show, it is observe that age has no effect on malaria status, gravida has no much effect on malaria status and gestation period is statistically significant.

From the chat, it can be deduce that age group 25-29 came for their antenatal, than that of other age group. Also, from figure 3.1.2 It is observed that the age group 20-24 is infected by malaria and most especially age group 25-29 and 30-34 is highly infected by malaria

From figure 3.1.3 It is observed that the multigravida pregnant women came for their antenatal, than that of the primigravida pregnant women likewise from figure 3.1.4 it is observe that age group of 20-24 and 25-29 of primigravida pregnant women is highly infected by malaria.

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