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# Prevalence of Malaria Infection among Students of Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt.

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***Abstract***
*Malariasis is a common and life-threatening disease of the tropics and sub-tropic regions of the world. It is caused by a protozoan parasite, Plasmodium falciparium,which is transmitted by the Anopheles mosquito, and has been described by the world health organization as a major public health problem that poses serious socio-economic challenge. This study was conducted to investigate the prevalence of malaria infection among students of Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt, Rivers state, Nigeria. A population of six hundred (600) students was randomly selected for the study. Strict safety measures were adopted in the collection of finger-prick blood samples by swabbing the area to be sampled with 70% alcohol and allowed to dry before collection. Thick and thin blood films were made on clean slides and labeled accordingly. Out of the 600 students investigated, 398 had the infection, (164 were male and 234 were female students diagnosed positive for Plasmodium falciparium trophozoites). Results showed that the female students diagnosed with Plasmodium falciparium were more susceptible to malaria infection than their male counterparts. The prevalence rate of the female students (59.1%) is higher than that of the male (40.9%) with malaria infection occurring more in the months of January and February. It is important that students be encouraged to use mosquito treated nets, maintain good personal hygiene and avoid poor environmental conditions that sustain the breeding of mosquitoes. Government should conduct a routine monitoring and support countries to strengthen their efforts in the fight against malaria disease. It is necessary that during community malaria health campaigns, health workers from Government and non-governmental organisations (NGOs), should endeavour to bring to the knowledge of students the need for constant use of Long Lasting Insecticidal Nets (LLINS).*

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## I. Introduction

Malaria is a disease of the tropics and sub-tropics of the region of the world. It is caused by a protozoan parasite, *Plasmodium* with the commonest species been *Plasmodium falciparium.* It is mainly transmitted by *Anopheles gambiae S.S An. Funestus, and an arasbiensis.*Malaria was described as a major public health and developmental challenge by world health organization (2012). Each year, it causes disease in approximately 650 million people and kills between one and three million, most of them, infants in sub-Saharan Africa (Hay *et al*., 2014). There are currently over 100 countries and territories that are still at the risk of malaria transmission, and these are visited by more than 125 million international travelers every year. Malaria infection is endemic in Nigeria, with year round transmission. It is a serious sickness that any person can contact when mosquito bitesthe individual. It is rated as a major killer disease among Nigerianpatients who suffer from one episode of malaria each year,which accounts for over 45 percent of all outpatient visits (Ojurongbe*et al*., 2012).Young children, pregnant women, those who are immuno-suppressed and the elderly that engage in travels are particularly at risk of severe disease. Malaria due to *P. falciparum* in pregnant women travelers increases the risks of maternal death, miscarriage, still birth and neonatal death, (WHO, 2015).

In Nigeria, about 1 million people die from malaria or malaria related complications and it is also one of the big reason why people especially young children (below the age of five), die and do not grow well. Similarly, about 70% of pregnant women suffer from malaria, which contributes to maternal lack of blood (anemia), miscarriages, low birth weight, still births and other pregnancy related entanglement (Federal Ministry of Health Abuja, 2014).According to the United Nations development program (UNDP) human development index, Nigeria is ranked 142 out of 169 countries with under-five mortality estimated at 157 per 1000 live births and maternal mortality estimated at 545 per 100,000 live births for nearly all socioeconomic indicators in Nigeria. The southern part of the country is significantly better off than the North. For example under-five mortality rates are about one and a half times as high and maternal mortality rates are three times as high in some northern zones as in the rest of the country. The south west zone has the lower under-five mortality.

Consequently, beside the scourge of endangering the lives of infants *Plasmodium falciparium* imposes economic and socio-cultural burden on the nation, households and individuals in particular. Companies, government, and public-private partnerships continue to work to develop new drugs, since *Plasmodium falciparium*is the most common cause of morbidity and mortality in Africa, killing more African children than any other single diseases. It accounts for 9-10 percent of Africa's entire disease burden-with severe economic consequences. Countries with a high incidence of malaria can suffer a 1.3 percent annual loss of economic growth. A Harvard/WHO study suggest that if malaria had been eliminated 35 years ago, sub-Saharan Africa GDP could be $100 billion greater (Malaria Vaccine Initiative 2017). Each year, approximately 500 million people will be infected with malaria worldwide (Madabuchi*et al.*, 2016), and of those infected, roughly two million will die from the disease. In view of these enormous public health and economic implications of *Plasmodium falciparium* , this research wasdesigned to investigate the prevalence of malaria infection due to *P. falciparum*, among students of Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt, Nigeria.

## II. Materials And Method

### 2.1 Study Area

The study was carried out at the Ignatius Ajuru University of Education Hospital, Rumuolumeni, Port Harcourt, Rivers State.

### 2.2 Sample Collection

The medical records department of the hospital provided the records that were used to obtain data for the study. Six hundred students between the age of 18 and 25 years that were referred to the hospital laboratory for malaria test between March 2019 and December 2020 were investigated for malaria infection.The resident doctors at the hospital ensured that strict safety measures were adopted in the collection of finger-prick blood sample by swabbing the area to be sampled with 70% alcohol, and allowed to dry before collection. Experienced medical laboratory scientist did blood sample collections in the hospital.Thick and thin blood films were made on clean slides and labeled appropriately; as recommended by (Cheesbrough, 2013).The statistical analysis of the data was done using simple ratio and percentage.

## III. Results

The results of the investigation carried out on malaria infection among students of Ignatius Ajuru University of Education from 2019-2020 is presented below:

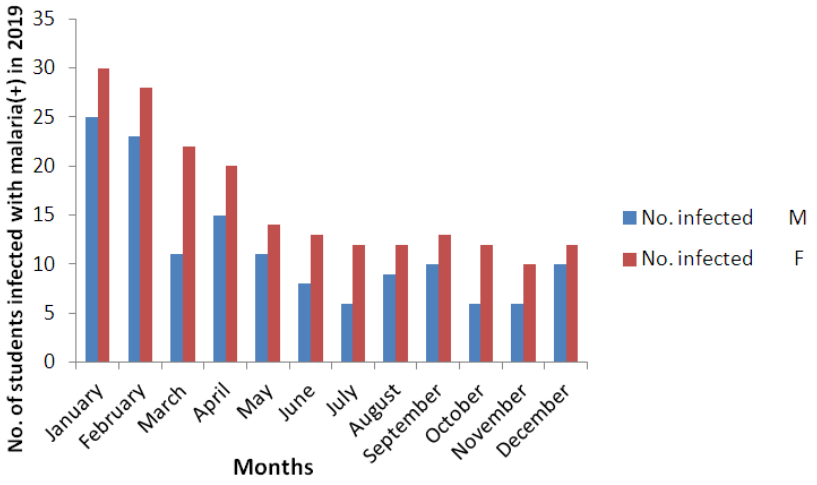


**Fig.1:** The prevalence of malaria infection among students of I.A.U.E, Rumuolumeni, Port Harcourt.

As shown in figure1above, malaria infection is higher in the month of January and very low in the months of July, August and November respectively.

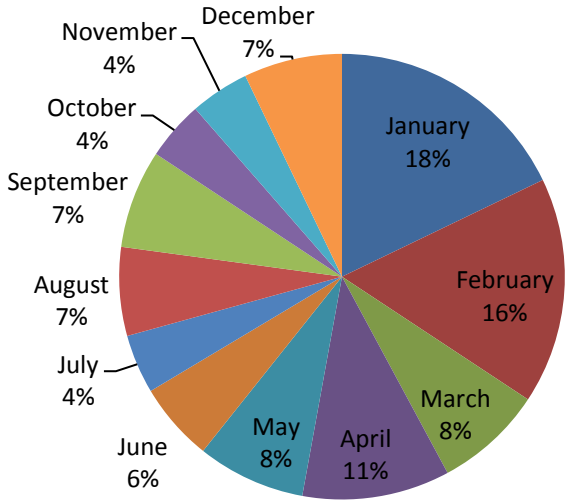


Fig..2. Percentage of students infected with malaria in 2019

Figure 2 above reveals malaria infection that among the students is higher in the months of January and February and very low in the months of July, October and November.

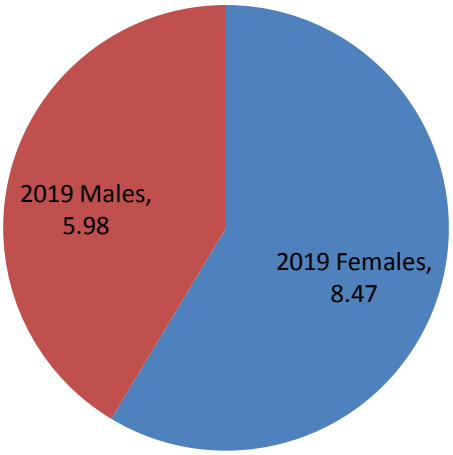


Fig..3: Percentage of female and male students infected with malaia in 2019

As shown in figure 3 above, malaria infection is higher in females (8.47) than in males (5.98) in 2019.

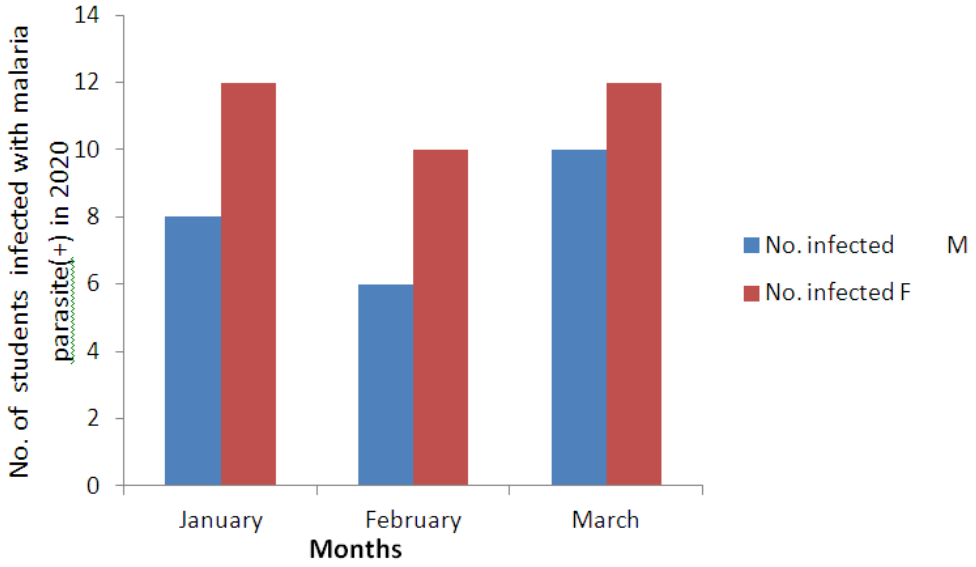


Fig. 4: No. of students infected with malaria parasite in 2020

In figure 4 above, malaria infection is higher in the months of January, February and March.

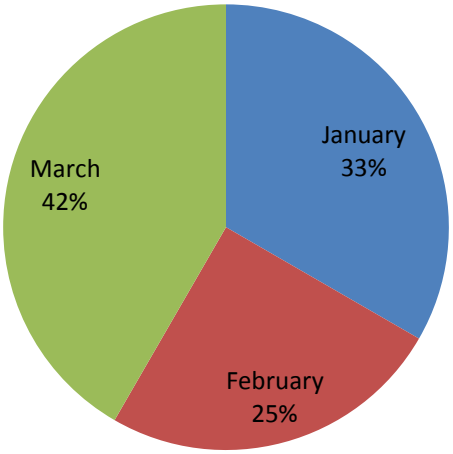


Fig. 5: Percentage of students infected with malaria in 2020

In figure .5 above, malaria infection was very high in the months of and March (42), January (33) and February(25).

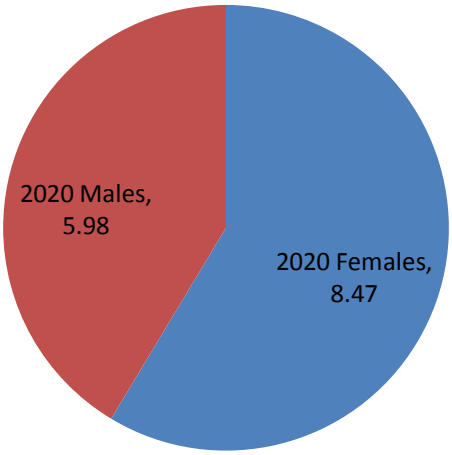


Fig. 6: Percentage of female and male students infected withmalaria in 2020
As shown in figure 6 above, malaria infection is higher in females (8.47) than in males (5.98)in 2020.

## IV. Discussion

This research work was carried out to investigate the prevalence of malaria infection among students of Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt between 2019 and 2020. Out of the total number of 600 students that were referred to the schoolmedical laboratory for the diagnosis of *Plasmodium falciparum*(cause of malaria disease), 398 students had the infection. These number represented 164 males and 234 female students infected. The female students were more susceptible to malaria infection than their male counterpart. Similar observations have been reported in endemic and hyper-endemic area by WHO, (2015) and Sotimehin*et al.*, (2018*)*. It was found out that young children, women and 70% of pregnant women suffer from malaria and other problems. The ratio of the male students to that of the female is 1:2, with prevalence rates of 35.1% to 50.2% respectively.

In this study, the prevalence of*P. falciparum*infection among the studentsoccurred more in the months of January and February. This is in agreement with findings of other workers in malaria endemic countries (Aribodor*et al.*, 2013 &Sotimehin*et al.*,2018). Oparaocha, (2003)recorded 88.8% prevalence of malaria among the communities in Ikwuano Local Government Area of Abia State. Aribodor*et al*., (2014) haveindicated malaria prevalence of 66.0% in their study among the people of Ndiowu community of Anambra State, Nigeria. Kalu*et al*., (2012) have reported malaria prevalence of 71.43% in- their Comparative Study of the prevalence of malaria in Abia and Umuahia Urban Areas of Abia State, Nigeria. The malaria prevalence recorded in this study was relatively higher than that of Fatima, (2016)who reported malaria infection prevalence of 54.5% among the children below five years of age attending General Hospital Kankia, Katsina State. Similarly, Nwaorgu. & Orajaka, (2011) showed a relatively less prevalence of malaria (58.2%) among communities in Awka North Local Government Area, Anambra State, Nigeria.

The results of this study showed that males (71.43%) were more infected than females (69.96%) with no significant difference between male and female subjects (P>0.05).

The high prevalence could be attributed to the fact that theinvestigation was conducted before the onset of the raining season. The raining season has been regarded as a high transmission period during which the students may have been exposed to more mosquito bites. On the other hand, the presence of malaria parasite among the studentscould be due to cogential malaria as noted by Sotimehin*et al*.,(2018). Cogential malaria is the presence of malaria parasite in the erythrocytes of newborn aged 7<7days. Trammpuz*et al*.,(2013) reported that the high prevalence rate in the area could results to childhood anemia and other severe condition such as celebral malaria

Following the demonstration that vector control measures can substantially reduce malaria transmission, malaria morbidity and all-cause child mortality, it has been suggested that insecticide treated materials (ITMS) may also curb the spread of anti-malaria drug resistance (Diadier*et al*., 2017). Majority of household do not prevent mosquito bites and disease transmission in anyway and a high prevalence rate of 50.2% was recorded among this group of students. There is therefore the need to provide intense awareness and education and to make the ITNS available at an affordable price in these malaria endemic areas. The use of insecticide treated nets will help reduce the number of malaria cases among the students. Students leaving in the hostels should be encouraged to use bed nets so as to reduce*P. falciparum* transmission and malaria infection.It

is also important to avoid unhygienic environmental conditions and the presence of stagnant pools of water, which will encourage the breeding of Anopheles mosquitoes. Most times, anti-malaria drugs are used as prophylaxis without doctor's prescription. Self-medication is a practice that is very common among people living in malaria endemic areas (Akanbi*et al*.,2015).

## V. Conclusion

Based on the findings of the study, three hundred and ninety eight(398) students had the malaria infection (164 for males infected and 234 females infected. The results showed that a high percentage (50.2%) of students were infected with malaria.The prevalence rate is higher among the female than the male students,the infection occurred more in the months of January and February. It is so because infection takes place before the onset of raining season.

### 5.3 Recommendations

1. Students should constantly use anti mosquito treated nets to avoid the bites.
2. Government should promote active participation of immunization for both infants and adults as the preventive major of malaria.
3. Government should conduct a routine monitoring of anti-malaria drug resistance and support countries to strengthen their efforts in the fight against malaria.

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