

**PREVALENCE OF MALARIA AMONG PREGNANT WOMEN ATTENDING
ANTENATAL CARE AT MUKONO HEALTH CENTRE FOUR**

BY

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(BMS/0130/113/DU)

**A DISSERTATION SUBMITTED TO THE FACULTY OF CLINICAL
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DECLARATION

I Ssemakula Jonathan, a student of the faculty of clinical medicine and dentistry, Kampala International University western campus declare that this research proposal is my personal original work and has not been got from other studies done.

I hereby submit it in for partial fulfillment for the award of a Bachelor of Medicine and Bachelor of surgery in Kampala International University Western- Campus.

Signature.....

Date.....

SSEMAKULA JONATHAN

APPROVAL

This dissertation entitled; Prevalence of malaria among pregnant women attending antenatal care at Mukono Health Centre Four between January (2014) to October (2014), has been approved under my supervision.

I therefore forward it to the Faculty of Clinical Medicine and Dentistry for further consideration

Signature..... Date.....

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DEDICATION

I dedicate this work to my family members and my lovely parents (Mr Kizza Fred and Mrs Nalubowa Joyce). Thank you for being patient with me throughout the time of my study.

ACKNOWLEDGEMENTS

All praise due to God for providing me with everything and made it possible to be able to complete my dissertation.

I would like to express my sincere gratitude to my parents for their help in my entire life, may God grant them their wishes, Amen.

I want to acknowledge the eminent contribution of my supervisor MR SUNDAY A. MAGAJI, for the help and guidance from the beginning up to the end, may the Almighty God blessed you.

I want to thank all my lecturers from the faculty of clinical medicine and dentistry for their efforts in teaching and mentoring me up to this level, may the Almighty God bless you.

God bless you all.

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LIST OF ABBREVIATIONS

AIDS.....	Acquired Immuno Deficiency Syndrome
DHO.....	District Health Officer
HIV.....	Human Immuno Deficiency Virus
IDPC.....	Internally Displaced Person's Camps
IPT.....	Intermittent Preventive Treatment
IPTP.....	Intermittent Preventive Treatment Plan
LBW.....	Low Birth Weight
O.R.....	Odds Ratio
P.....	Mean
PF.....	Plasmodium Falciparum
SP.....	Sulphadoxine- Pyrimethamine
WHO.....	World Health Organisation

ABSTRACT

Malaria is a major public health challenge especially in the African region. It does not only affect maternal-child health but also hinders economic development where by a lot of money is wasted in combating its prevalence hence this study will possibly be helpful to policy makers in different faculties of health as far as decision making is concerned.

The objective of this study was to determine the prevalence of Malaria among pregnant women attending antenatal care at Mukono Health centre four, so as to generate information that will help in malaria prevention and control particularly among pregnant women. Hospital records were reviewed of pregnant women attending antenatal care at Mukono Health centre four. Selected health services and socio-demographic factors were assessed. The number of pregnant women attending antenatal care at Mukono health center four, the number of pregnant women diagnosed with malaria and the trimester in which malaria is most common during pregnancy were investigated.

Findings revealed that there was high number of pregnant women who attend antenatal care at Mukono health center four with the month of March reporting the highest number of women attending antenatal care with (2518) respondents and the month of February reporting the least number of antenatal attendances with only (1455) respondents. This study revealed a high prevalence of malaria among pregnant woman with the month of January reporting the highest number of pregnant women diagnosed with malaria with (60) respondents and September and October reporting the least number with only 2 cases each. Malaria was most common in the 3rd trimester with (48%) and least common in the 1st trimester with (28%). With the results got, malaria prevalence among pregnant women is still high and hence policy makers should implement preventive measures like use of mosquito-nets, utilization of IPT and continuous health education.

CHAPTER ONE

1.1 BACK GROUND

Malaria in pregnancy is a significant public health problem with substantial risks for the pregnant women. It is a parasitic infection transmitted by the bite of an infected female anopheles mosquito. Pregnant women, children, and Immuno-compromised individuals have the highest morbidity and mortality and Africa bears the heaviest burden. Pregnant women infected with malaria usually have more severe symptoms and outcomes with higher rates of miscarriage, anaemia, intrauterine demise, premature delivery, low birth weight neonates and neonatal death. It can be prevented with appropriate drugs; bed nets treated with insecticides and effective education outreach programmes. Malaria- associated maternal illness and low birth weight result from plasmodium falciparum (PF) infection which occurs predominantly in Africa. The symptoms and complications of malaria in pregnancy vary according to malaria transmission intensity in the given geographical area and the individual's level of acquired immunity, (Steketee, et al 2001). In high-transmission settings, where levels of acquired immunity tends to be high, plasmodium-falciparum infection is usually asymptomatic in pregnancy, yet parasites may be present in the placenta and contribute to maternal anemia even in the absence of documented peripheral parasitemia, (Steketee, et al 2001).

Both maternal anaemia and placental parasitemia can lead to low birth weight which is an important contributor to infant mortality. In high transmission settings, the adverse effects of plasmodium falciparum infection in pregnancy are most pronounced for women in their first pregnancy (premegravida). In low transmission settings where women of reproductive age have relatively little acquired immunity to malaria, malaria affects all pregnant women regardless of number of times they have been pregnant. (Steketee, et al 2001).

Clinically, malaria is categorised into two types; uncomplicated and severe .Uncomplicated malaria is characterized with a cold stage, consisting of cold sensation and shivering, and a hot stage with fever, headache, sweating and occasionally seizures. Symptoms generally last for 6 to 10 hours and occur every 2 to 3 days, depending on the infection species. Severe malaria, the second subtype is generally caused by plasmodium falciparum infection and is characterized clinically by organ damage or blood abnormalities including cerebral malaria,

hemolysis, severe anaemia, pulmonary oedema and acute cardiovascular collapse.(Praise, et al 1998)

Producing good estimates of the global burden of malaria is difficult due to poor numerator (number of women affected by malaria in pregnancy) and denominator (population at risk) data. However it is estimated to affect between 350 to 500 million people annually and accounts for 1 to 3 million deaths per year. (WHO, 2008). In Sub-Saharan Africa , the area most burdened by malaria with over 90% of the worlds malaria related death occurring in this region, (Ofori, et al 2009) .

One twenty five million pregnant women are currently at risk of getting malaria and it accounts for over 10,000 maternal and 200,000 neonatal deaths per year. Studies carried out in Sub-Saharan Africa between 2000 and 2001 reported that prevalence in pregnant women attending antenatal clinics was 29.5% in East and Southern Africa and 35.1% in West and Central Africa, (WHO, 2008).

Malaria makes a large unquantifiable contribution to low birth weight in infants in the developing world and it is also a major cause of morbidity and mortality in infants and low gravid pregnant women hence preventing it would reduce severe maternal anaemia by 38%, low birth weight by 43% and perinatal mortality by 27%, (Dhiman, et al 2012).

Malaria in pregnancy continues to be a serious health risk for pregnant women in Uganda and is associated with anaemia and perinatal mortality .Isolated studies show that the prevalence of placental infection with plasmodium falciparum malaria in pregnant women can be as high as 62.1% in some areas (Ndyomugenyi, 1999). Although all pregnant women may be at a risk of malaria, its complications are greatest in those with modified immunity such as primigravidae, secundigravidae, adolescents, immigrants/visitors from non-endemic areas and those infected with HIV. In Uganda, malaria accounts for 25-40% of all out-patient attendances, 20% of all admissions and 14% of all in-patients deaths.(Ndyomugenyi, 1999).

1.2 PROBLEM STATEMENT

Malaria in pregnancy is a major cause of maternal morbidity and mortality and its estimated to affect 350-500 million people annually and accounts for 1 to 3 million deaths per year, (WHO, 2008). Studies carried out in Sub-Saharan Africa between 2000 and 2001 reported that prevalence in pregnant women attending antenatal clinics was 29.5% in East and Southern Africa and 35.1% in West and Central Africa, (WHO, 2008). The prevalence of malaria among pregnant women is still deep rooted in rural areas of Uganda. The prevalence of placental anaemia with plasmodium falciparum can be as high as 62.1% in some areas, (Ndyomugyenyi, 1999).

In Uganda malaria accounts for 25-40% of all out-patient attendances, 20% of all admissions and 14% of all in-patient deaths, (Ndyomugyenyi, 1999).

Despite of interventions to combat malaria in pregnancy, its prevalence is still high and thus this study is aimed at finding out its trends among pregnant mothers attending antenatal care at Mukono health centre four.

1.3 AIM OF THE STUDY

The aim of the study is to generate information concerning the prevalence of malaria among pregnant women attending antenatal care at Mukono Health Centre four.

1.3.1 Main objective

Determining the prevalence of Malaria among pregnant women attending antenatal care at Mukono Health centre four

1.3.2 Specific objective

To determine the trimester in which malaria is most common during pregnancy.

To determine the number of pregnant women diagnosed with malaria.

To determine the number of pregnant women attending antenatal care at Mukono health center four.

1.3.3 Research questions

In which trimester is malaria most common during pregnancy?

What is the number of pregnant women diagnosed with malaria?

What is the number of pregnant women attending antenatal care at Mukono health center four?

1.4 Significance

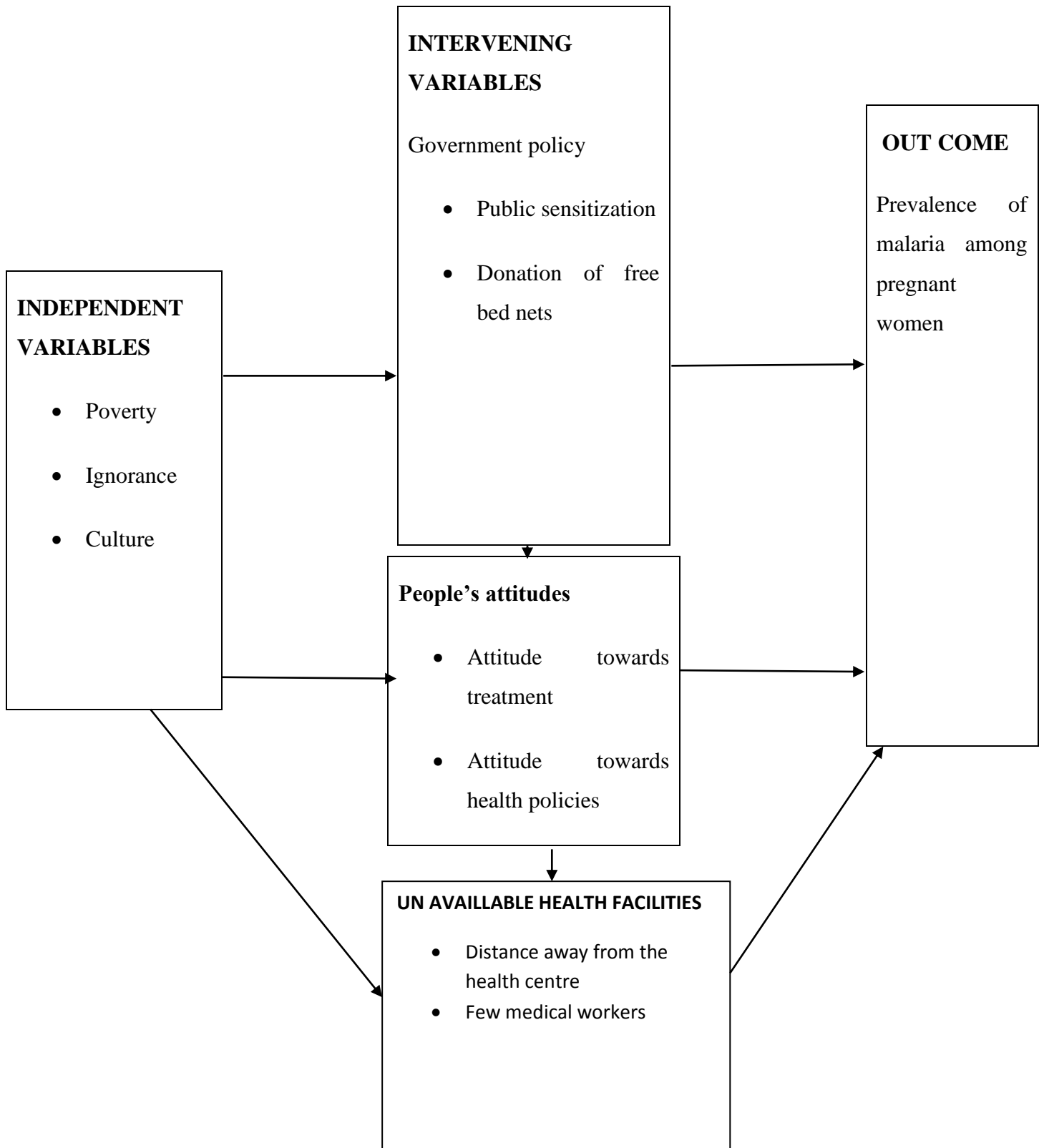
Prevalence of malaria during pregnancy has been a subject for intense research due to their potential negative effects towards the baby and the mother hence this research will be significant in promoting maternal-child health. The study will also be beneficial to both government and other regulatory bodies to identify areas that still need to be improved as far malaria in pregnancy is concerned. The research will provide scientific proof to the prevalent condition and also help to analyse the effects of government health programmes to the society.

1.5 Rationale

Prevalence of malaria during pregnancy is still an outstanding issue in Uganda and therefore this research is expected to show the trends of malaria among pregnant mothers attending antenatal care at Mukono health centre four.

1.6 CONCEPTUAL FRAME WORK

FIGURE 1: DETERMINANTS OF PREVALENCE OF MALARIA AMONG PREGNANT MOTHER



CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Malaria makes a large but unquantifiable contribution to low birth weight in infants in the developing world and also a major cause of morbidity and mortality in infants and children. Malaria is one of the most devastating infectious diseases only second to tuberculosis. It is transmitted by bites from infected female anopheles mosquito. The World Health Organisation (WHO) defines Malaria as a disease of poverty caused by poverty. It is characterized with headache, fever, shivering, loss of appetite, muscle pain, nausea and vomiting. (Duffy and Fried).

2.1 Prevalence of malaria globally

Globally 125 million pregnant women are at risk of malaria every year in Sub-Saharan Africa, the area most burdened by malaria. The disease causes as many as 10,000 cases of malaria related deaths in pregnancy, mainly due to severe maternal anaemia, (WHO, 2008).

Statistics in 2008 suggested that there were 655,000 malaria-related deaths globally of which 86% were in children under the age of 5, however the number related to malaria infection in pregnancy was not known, (WHO, 2008).

Studies carried out in Sub-Saharan Africa between 2000 and 2001 reported that the prevalence of malaria in pregnant women attending antenatal clinics was 29.5% in East and Southern Africa and 35.1% in West and Central Africa, (WHO, 2008).

A study in Mozambique that assigned the cause of maternal death via autopsy examination found out that 10% of maternal deaths were directly due to malarial infection and 13% were secondary to (HIV) /AIDS, which can be exacerbated by coexisting malarial infection. (Mendez, et al 2008).

Another study conducted in Lagos state, Nigeria to assess the status of malaria among pregnant women showed that primigravidae accounted for a greater part of 60% prevalence that affected in their 1st and 3rd month of pregnancy. The ages of the infected women ranged from 30 to 39 years. Women with blood groups O and A had the highest prevalence of

malaria, but there was no statistically significant difference between them and the uninfected women. Women with genotype AA had the highest prevalence of malaria, while pregnant women in Ikeja division had the highest incidence of malaria(41.7%). (Desai, et al 2007).

2.2 Prevalence in Uganda

In Uganda, malaria accounts for 25-40% of all out patient attendances, 20% of all admissions and 14% of all in-patient deaths.(Ndyomugenyi, 1999).

In another study conducted to identify factors associated with increased risk of malaria in pregnancy showed that 288 out of 1069 enrolled pregnant mothers had peripheral malaria infections. The risk of peripheral malaria was higher in mothers who were younger, infected with HIV, had less education, lived in rural areas or reported no bed net use, where as the risk of placental infection was associated with more frequent malaria infections and with infection during late pregnancy.(Malaria Journal, 2013).

A cross sectional study to assess the plasmodium burden in pregnancy was carried out in Mulago National Referral Hospital in Kampala(Uganda) and the malaria prevalence by each of the three measures, peripheral smear, placental smear and placental histology was 9%(35/391), 11.3% (44/389), and 13.9%(53/3820) respectively.(Namusoke, et al 2010) Together, smear and histology data yielded an infection rate of 15.5% (59/380) of active infections and 4.5%(17/380) of past infections hence 20% had been infected when giving birth. A crude parity dependency was observed with main burden being concentrated in gravidae 1 through gravidae 3 where by 22% were afflicted by anaemia and 12.2% delivered low birth weight babies. Active placental infection and anaemia showed strong association (OR=2.8) where as parity and placental infection had an interactive effect on mean birth weight (p = 0.36) . Primigravidae with active infection and multigravidae with past infection delivered on average babies. Use of bed net protected significantly against infection (OR= 0.56) while increased hemoglobin level protected against low birth weight (OR=0.83) irrespective of infection status. Albeit a high attendance of antenatal clinics (96.8%), there was a poor coverage of insecticide treated mosquito nets (32%) and intermittent preventive anti-malarial treatment (41.5%). (Namusoke, et al 2010).

Malaria in pregnancy continues to be a serious health risk for pregnant women in Uganda and is associated with increased risk for maternal anaemia and prenatal mortality. Isolated studies

show that the prevalence of placental infection with plasmodium falciparum malaria in pregnant women can be as high as 62.1% in some areas.(Ndyomugenyi, et al 2010).

2.3 Global perspective about malaria in pregnancy

The paucity of precise information on the burden of malaria among pregnant women has hampered effective lobbying for the inclusion of preventative strategies against malaria in safe Motherhood initiatives. This article reviews the evidence on the coincidental risks of Malaria and anaemia in Africa and attempts to estimate the probable burden of Malaria-related severe anaemia in this susceptible group. In areas with no malaria, the mean hemoglobin levels were markedly higher than those found in areas with stable malaria transmission though changes with increasing intensity of transmission were un-clear. Eighteen studies from areas with stable malaria transmission in Sub-Saharan Africa suggested that the median prevalence of severe anemia in all-parity women is approximately 8.2%. Assuming that 26% of these cases are due to malaria, it is suggested that as many as 400,000 pregnant women might have developed severe anaemia as a result of infection with malaria in Sub-Saharan Africa in 1999. As by (Guyat, 2001).

The symptoms and complications of malaria in pregnancy vary according to transmission intensity and the level of acquired immunity. Although these are presented as discrete epidemiological entities, the reality is usually more of a continuum, with a range of transmission intensity, acquired immunity and clinical presentation occurring within the same country. Areas of low or epidemic unstable transmission, pregnant women in these areas have little or no immunity to malaria and are at a 2 to 3 fold high risk of developing a severe disease as a result of malaria infection than are non pregnant adults living in the same area. In these areas, maternal death may result from complications of severe malaria (hypoglycemia, cerebral malaria and pulmonary edema being particular problems) or indirectly from malaria related severe anaemia. Malaria in pregnancy can also result in, still birth, spontaneous abortion, low birth weight (LBW < 2.5 kg), and neonatal death in areas of high or moderate transmission.(Steketee, et al 2001).

Most pregnant women in malaria-endemic regions of Africa live in areas of relatively stable transmission. In these settings, the deleterious impact of malaria is particularly apparent in first and second pregnancies. Although parasite prevalence and density are higher among pregnant compared to non-pregnant women, infection with plasmodium falciparum is usually

symptomatic but not severe and it is simply because of the partial clinical immunity acquired during years of exposure to the malaria parasite prior to pregnancy. However this does not prevent infection but reduces the risk of a severe disease. Clinical malaria is therefore a prominent feature of infection during pregnancy and the major detrimental effects are, low birth weight (LBW) and maternal anaemia. In areas of stable transmission, it is estimated that malaria during pregnancy causes up to 10000 maternal deaths each year mainly as result of severe anemia and counts for approximately 8-14% of LBW and 3-8% of infant mortality.(Steketee, et al 2001).

2.4 Ugandan perspective about malaria in pregnancy

In a study to assess knowledge and misconception about malaria among pregnant women in a post-conflict Internally Displaced Person's camps(IDPC) in Gulu district, Northern Uganda, 769 pregnant women were interviewed with age ranging from 14 to 45 years, 85% had heard of malaria and 47% of these people heard about malaria for the first time from the health centre. Knowledge about malaria signs and symptoms were fairly distributed with 146 (20%) of the respondents citing feeling cold, 141(19%) fever, 66(9%) mentioned they did not know any of the signs or symptoms of malaria. Also 577(80%) of the respondents attributed malaria to be transmitted by mosquito bites, 15 mentioned cold weather, 53 mentioned dirt, 35 said not sleeping under net, and 5% did not know, 683 of the respondents mentioned that malaria was caused by mosquito, 3 respondents said that malaria was caused by playing in the rain, 28 respondents said that cold foods was the cause of malaria, 19 respondents said that cold weather, 6 said eating mango and 10 respondents said they did not know the cause of malaria. Abortion was cited by 50% of the respondents as a consequence of malaria during pregnancy followed by jaundice at 34%. Giving birth to a low weight baby was the least mentioned by 16 (2%). When asked about groups at risk of malaria, 331(46%) indicated that pregnant women were at risk for malaria while 287 (40%) said it was children less than 5 years and 86(12%) of the pregnant women could not mention any group at risk of malaria. In this study majority of the pregnant women knew that mosquito bite was the mode of transmission of malaria, however this study also revealed the gaps about malaria transmission by some pregnant women who reported that malaria was transmitted through cold weather, from dirt, when do not sleep under net and others had no clue on the mode of transmission. It is evident therefore that misconception about malaria transmission still exist in endemic country like Uganda as shown by the study.(James, et al 2011).

In another study conducted about prevalence of malaria and treatment seeking behaviours among rural women in Mukono district in Uganda. It was conducted after surveys showed that high transmission of malaria in areas that were previously free of the disease were due to limited access to adequate treatment in the formal health facilities, increased resistance to antimalarial drugs and inadequate treatment of malaria at home were most people receive the first treatment. This study was conducted in nine sub-counties near the lake shore region of Mukono district in Central Uganda where by a new delivery system of IPTP in pregnant women was tested. The study assessed delivery of (IPTP) with sulphadoxine-pyrimethamine(sp) to pregnant women through community resource people, this approach constituted the intervention arm while provision of (IPTP) at health units was the control arm. The primary out-come measures were access and adherence to (IPTP), number of malaria episodes, prevalence of anaemia and birth weight while live births, abortions, still births, maternal and child deaths were secondary end points. Out comes showed that most 116(62.7%) of women who accessed (IPTP) in health units delivered their babies with the help of skilled attendants while fewer, 460 (40.6%) of 1133, who accessed (IPTP) with the new delivery system gave birth the help of skilled attendants. In both approaches, most deliveries over (98%) were live births while there were few abortions and still births. The prevalence of malaria episodes decreased from 261 of 667 at recruitment to 13 of 99 at delivery among women who accessed (IPTP) at health units. Reported malaria episodes decreased from 906 of 1830 at recruitment to 160 of 909 at delivery among women who accessed (IPTP) with the new delivery system. Both recruitment and delivery, the prevalence of reported malaria episodes was lower in women accessing the treatment at health units than in those accessing treatment in the new delivery system. In this study, it showed that adolescents and women in their first pregnancies were more likely to visit health units and it is probably because such people have no experiences with pregnancy and they visit health units for explanation and care in case of complications. Generally more women visiting health units were using insecticide treated mosquito nets and other prevention interventions due to information got from health units and hence had low malaria episodes. A higher proportion of women who accessed (IPTP) at health units also gave birth with skilled care reducing the risk of death from pregnancy related complications.(Mbonye, et al 2001).

CHAPTER THREE

METHODOLOGY

3.1 Study design

The study was retrospective whose main aim is to analyse the prevalence of Malaria among pregnant women attending antenatal care at Mukono health center four between January 2014 to October 2014.

3.2 Study area

The study was carried out at Mukono Health Centre Four, located in Mukono town along Jinja road 20 km away from Kampala capital city, Central Uganda.

3.3 Study population

This constituted all pregnant women diagnosed of malaria between January 2014 and October 2014 at Mukono health centre four.

3.4 Sampling method

I considered all the pregnant mothers diagnosed of malaria from January 2014 to October 2014 using the health center records and statistics by random selection.

3.5 Sample size determination

The sample size was calculated using the Kish and Leslie formulae.

$$n_0 = \frac{Z^2 pq}{e^2}$$

Where;

n_0 =sample size

z = is the abscissa of the normal curve that cuts off an area α at the tails ($1 - \alpha$ equals the desired confidence level, e.g., 95%) which is 1.96

e = is the desired level of precision which is 0.05

p= is the previously reported prevalence of malaria . The previous prevalence was 30% hence p=0.3

q= 1-p

Thus;

$$n_0 = \frac{1.96 \times 1.96 \times 0.3 \times 0.7}{0.05 \times 0.05}$$

n = 323

3.6 Ethical consideration

Permission was attained from the faculty of clinical medicine and dentistry (Kampala International University) through an introductory letter which was presented to the in-charge at Mukono health centre four.

Confidentiality of the information got was highly maintained and results were only known to the researcher and the concerned bodies.

3.7 Exclusion criteria

All pregnant women who were diagnosed of other illnesses.

3.8 Data collection methods

Data was collected from patients admission and treatment books regarding malaria in pregnant women between January 2014 and October 2014.

3.9 Limitations

I expect to be challenged by heavy down pours since it's a rainy season but I hope to use umbrellas, jackets or gumboots.

I expect to be challenged by time (deadline) due to delays in getting permission and accessing records.

3.10 Data analysis

Data collected was presented in form of a text, pie charts tables and graphs, and was followed by discussion , conclusion and recommendation.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS

4.0 Introduction

This chapter presents the findings of the study according to the specific objectives. Information gathered through reviewing the hospital records is integrated to give an overall view of the situation under study. (323) records were reviewed concerning the prevalence of malaria among pregnant women attending antenatal care at Mukono Health Centre four.

4.1 Socio-demographic Background characteristics of the respondents

This chapter provides demographic characteristics of the respondents on the prevalence of malaria among pregnant women attending antenatal care at Mukono Health Centre four. It begins by describing; Age, Marital Status and level of education basic background characteristics.

Table 1: Socio-demographic Background characteristics of the respondents

Socio-demographic Background characteristics		Frequency(323)	Percentage (%)
Age	18-24	85	26.3%
	25-32	167	51.7%
	33-40	56	17.3%
	41 +	15	4.6%
Total		323	100.0
Level of education	no school	28	8.7%
	primary school	139	43.0%
	secondary school	109	33.7%
	Post-Secondary School	47	14.6%
Total		323	100.0
Marital status	Married	308	95.4%
	Single	10	3.1%
	Separated/Divorced	1	0.3%
	Widowed	4	1.2%
Total		323	100.0

Source: *Primary Data*

4.1.1 Age of the respondents

The research reviewed the age of the respondents to enable the research to determine whether a link exists between age and the prevalence of malaria among pregnant women. The ages were reported in years which are grouped into four categories of; (18-24), (25-32) years, (33-40) years, and 41 years and above. From table 1 above, most of the respondents (51.7%) were between 25 to 32 years. This was followed by age groups of 18- 24 and 33-40 years with (26.3%) and (17.3%) respondents each respectively. The study also attracted elderly people who were 41- years and above with (4.6%). This indicates that the research cut across all the age groups.

4.1.2 Level of education for the respondents

The research was also interested in the level of education of the respondents to determine the prevalence of malaria among pregnant women with the level of education. As indicated in figure 1 above, most of the respondents (43.0%) had primary level of education, (33.7%) had secondary school level of education, (14.6%) had attained Post-Secondary education. There were also a significant number of respondents who had no formal schooling with (8.7%) respondents. However most of the respondents had attained basic level of education. Education has a significant effect on the health of people. It is believed that lower education leads to poor health. However from the findings most of the respondents had attained basic level of education.

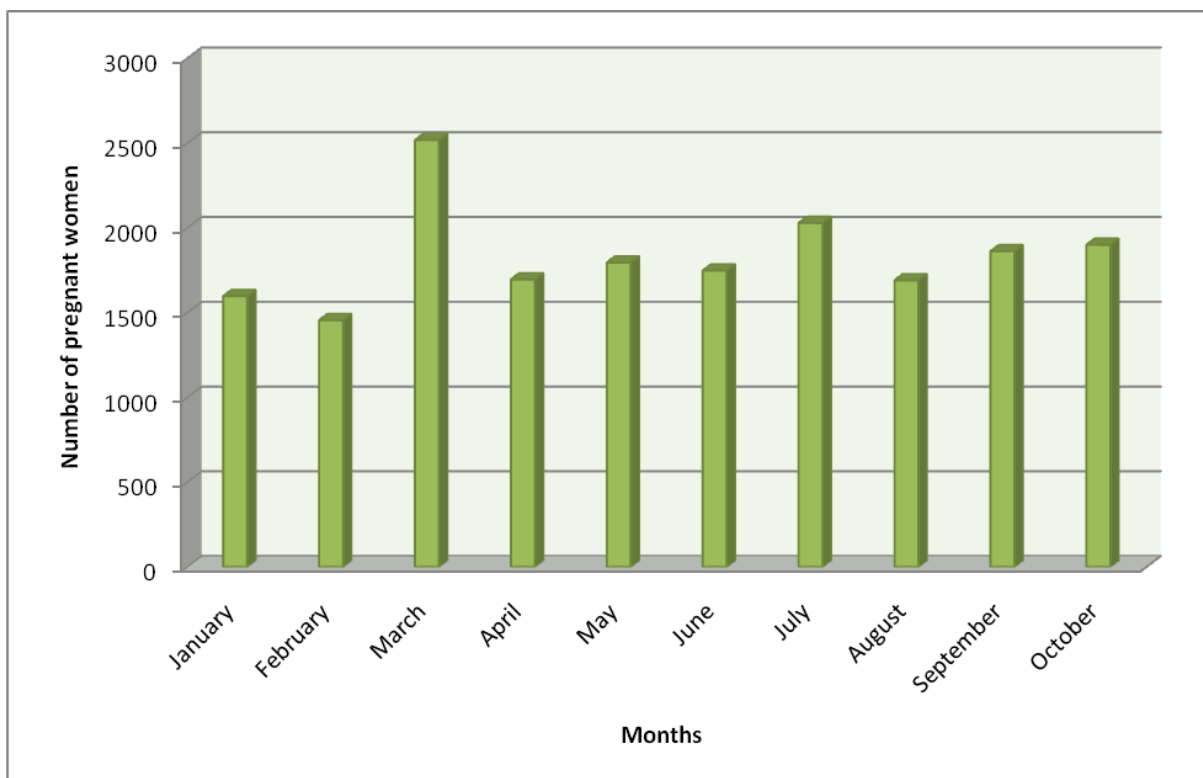
4.1.3 Marital status

The research also reviewed the marital status of the respondents to ascertain the number of participants with family responsibilities and married. From the table above, most of the respondents were married with (95.4%), this was followed by (3.1%) respondents who were single, (1.2%) respondents were widowed and only (0.3%) respondents were divorced or separated.

4.2 The number of pregnant women attending antenatal care

The first objective of the study was to determine the number of pregnant women attending antenatal care at Mukono health center four. A total of 323 respondents completed the study. Of these, (51.7%) were between 25 to 32 years. The age groups of 18- 24 and 33-40 years had (26.3%) and (17.3%) respondents each respectively. Most of the respondents (43.0%) had primary level of education, (33.7%) had secondary school level of education, (14.6%) had attained Post-Secondary education. there were also a significant number of respondents who had no formal schooling with, (8.7%) respondents. And most of the respondents were married with (95.4%).

Figure 2: showing the number of pregnant women attending antenatal care



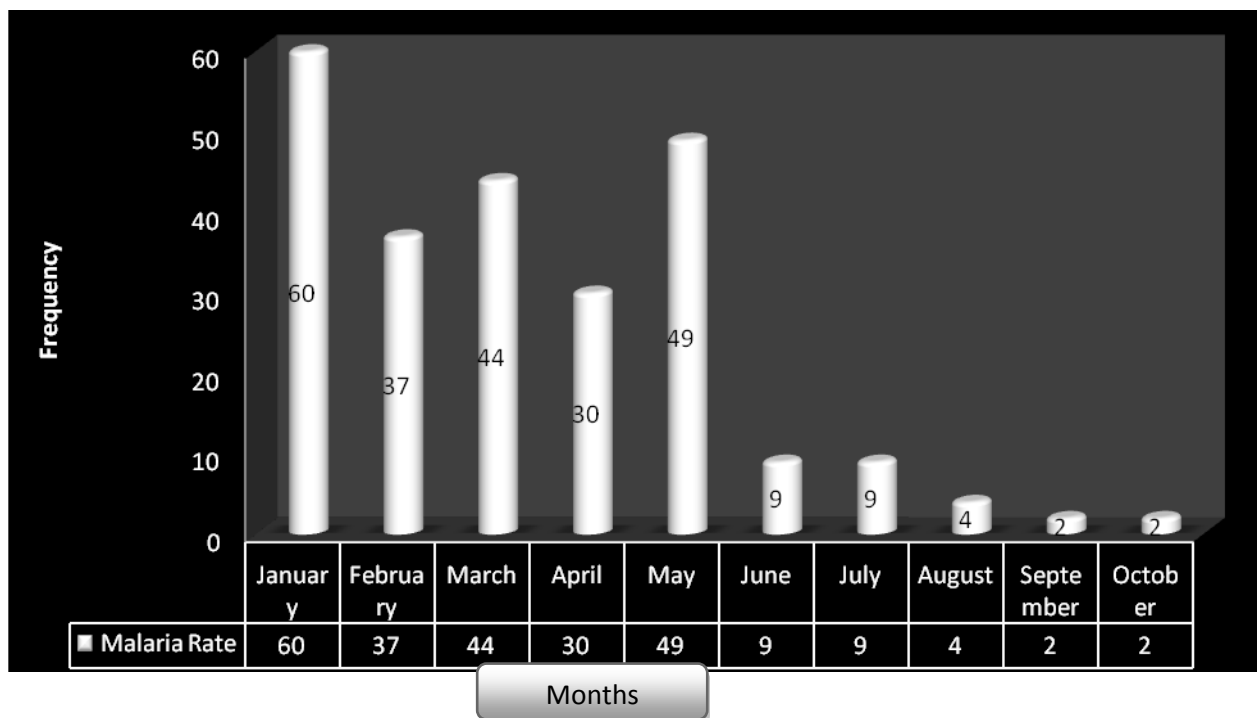
The figure above presents the number of pregnant women attending antenatal care at Mukono health center four. From the figure, the month of March reported the highest number of women attending antenatal care with (2518) respondents, this was followed by the month of July with (2029) respondents, the month of January had (1597) respondents and the month of February had the least number of respondents with (1455), the month of April had (1696) respondents, the month of May had (1796) respondents, the month of June had (1748) respondents, the month of August had (1691) respondents, the month of September had

(1862) respondents and the month of October had (1900) women who attended antenatal care. This implies that there are many pregnant women who attend antenatal care at Mukono health center four.

4.3 The frequency of pregnant women diagnosed with malaria.

The second objective of the study was to determine the number of pregnant women diagnosed with malaria. The study shows that from the sample size of 323 women who attended antenatal care at Mukono health center four from January to October 2014; the following were diagnosed with malaria.

Figure 3: showing frequency of pregnant women diagnosed with malaria.

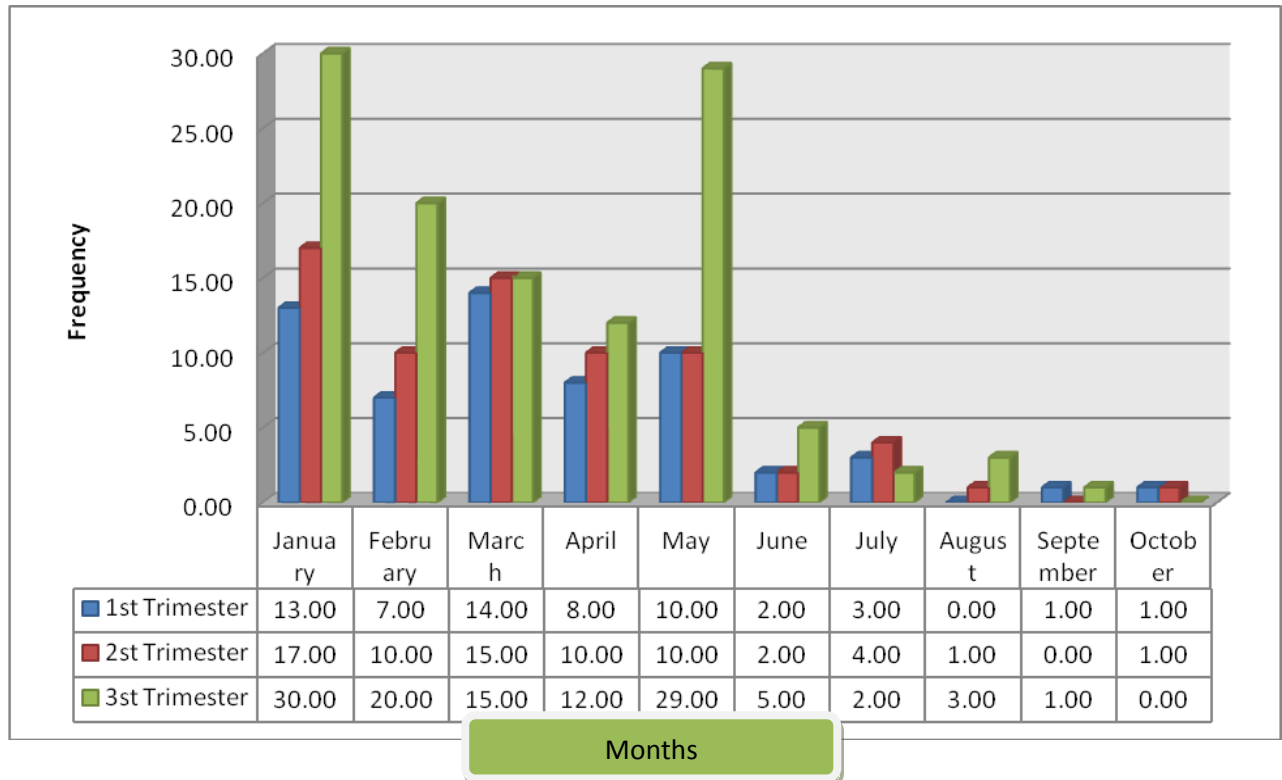


From the figure above, the month of January reported the highest number of pregnant women diagnosed with malaria with (60) respondents, this was followed by the month of May with (49) respondents, the month of March had (44) respondents, the month of February had (37) respondents, the month of April had (30) respondents, the month of June had (9) respondents, the month of July also had (9) respondents, the month of August had (4) respondents, the month of September and the month of October had (2) respondents each. This implies the prevalence of malaria during the beginning of the year was high and it kept on reducing with months till September and October reporting the least women with malaria at Mukono health center four.

4.4 The prevalence of malaria in trimesters

The third objective of the study was to determine the trimester in which malaria is most common during pregnancy.

Figure 4: showing the prevalence of malaria per trimester during each month.

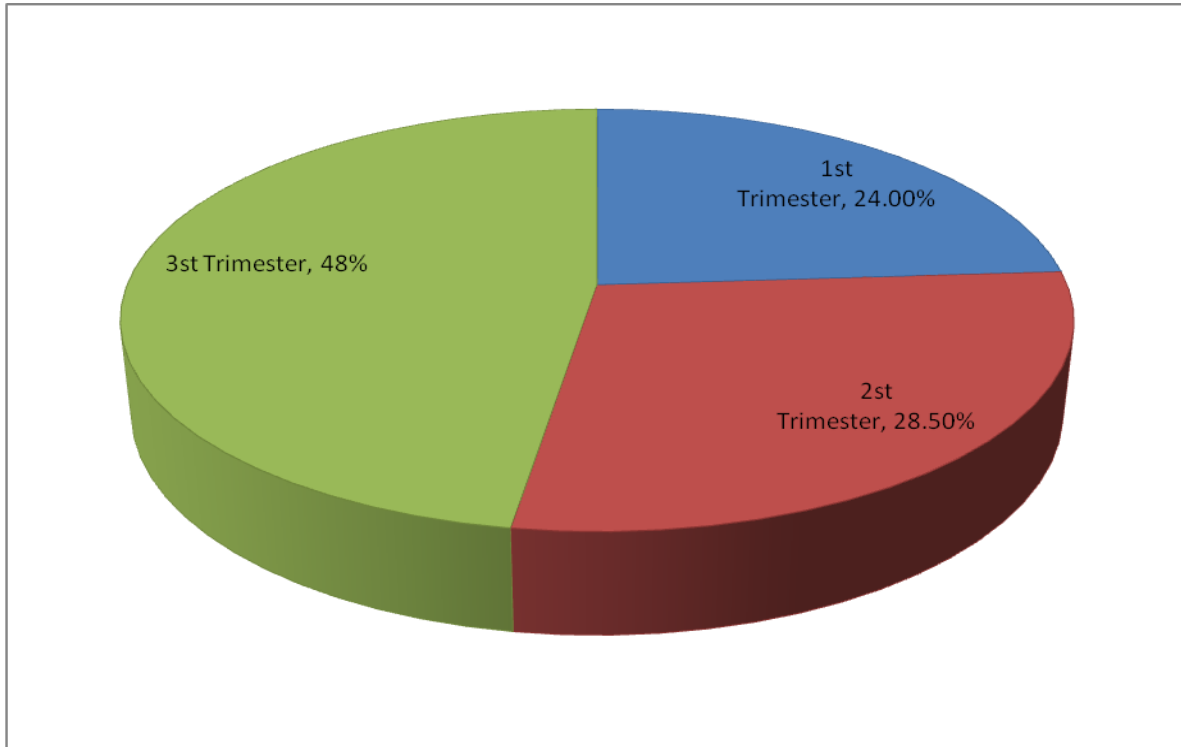


The figure above shows the distribution of trimester in which malaria is most common during pregnancy according to months, the figure shows that, in January and May during the 3rd trimester, the prevalence of malaria was the highest with (30) and (29) respondents each respectively, this was followed by the month of February with (20) respondent in the 3rd trimester. In the 1st trimester, the prevalence of malaria was highest during the month of March with (14) respondents and the lowest during the month of August. In the second trimester, the malaria prevalence was highest during the month of January with (17) respondents and lowest during September.

4.4.1 The prevalence of malaria according to trimester.

The third objective of the study was to determine the trimester in which malaria is most common during pregnancy.

Figure 5: showing the percentage prevalence of malaria according to trimester.



From the figure above, malaria prevalence during pregnancy was most common in the 3rd trimester with (48%) respondents, in the 2nd trimester, the prevalence of malaria during pregnancy was (28%) respondents, and the 1st trimester had the least prevalence of (24%) during pregnancy.

CHAPTER FIVE

DISCUSION, CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter discusses the research findings in this study concerning the prevalence of Malaria among pregnant women attending antenatal care at Mukono Health centre four according to the specific objectives. 323 records were reviewed; most of the records (51.7%) were between 25 to 32 years. The age groups of 18- 24 and 33-40 years had (26.3%) and (17.3%) respectively. Most of the respondents were married with (95.4%) and (43.0%) had primary level of education, (33.7%) had secondary school level of education and (14.6%) had attained Post-Secondary education.

5.1 Discussion of the findings according to the objectives

5.1.1 The number of pregnant women attending antenatal care

In this study, findings revealed that there was a high number of pregnant women who attend antenatal care at Mukono health center four with the month of March reporting the highest number of women attending antenatal care with (2518) respondents followed by the month of July with (2029) respondents. On the other hand, the month of January had (1597) respondents and the month of February had the least number of respondents with (1455). The other months reported average attendance of antenatal care. These study findings are in line with Mcgrowder and colleagues (2010) in Nigeria where it was revealed that over 50% of pregnant women attend antenatal care during the first half of the year, therefore, there is no surprise that this study reveals similar trends of pregnant women attending antenatal care.

5.1.2 The prevalence of pregnant women diagnosed with malaria.

This study revealed a high prevalence of malaria among pregnant woman with the month of January reporting the highest number of pregnant women diagnosed with malaria with (60) respondents, this was followed by the month of May with (49) respondents, the month of March had (44) respondents, the month of February had (37) respondents, the month of April had (30) respondents, the month of June had (9) respondents, the month of July also had (9) respondents, the month of August had (4) respondents, the month of September and the

month of October had (2) respondents each. This implies the prevalence of malaria during the beginning the year was high and it kept on reducing with months till September and October reporting the least pregnant women with malaria at Mukono health center four.

Results from this study indicate that the prevalence of malaria among pregnant women was high. This may be because pregnant women for one reason or the other might have over reported that they suffered from malaria or due to incompetent diagnostic skills. However this does not rule out the fact the malaria prevalence is still high among the among pregnant women attending antenatal care at Mukono Health Center Four. Malaria transmission intensity differs across malarious landscapes, Carter et al recommends that for an intervention to be fully or, in many situations, even moderately successful, it is necessary to identify and target all pockets of high malaria risk and transmission intensity(Carter et al., 2000).

5.1.3 Prevalence of malaria during pregnancy according trimesters

The study findings indicates that in January and May during the 3rd trimester, the prevalence of malaria was the highest with (30) and (29) respondents each respectively, this was followed by the month of February with (20) respondent in the 3rd trimester. In the 1st trimester, the prevalence of malaria was highest during the month of March with (14) respondents and the lowest during the month of August. In the second trimester, the malaria prevalence was high during the months of January with (17) respondents and lowest during September.

The highest prevalence of which malaria during pregnancy was most common in the 3rd trimester with (48%) respondents, in the 2nd trimester, the prevalence of malaria during pregnancy was (28%) respondents, and the 1st trimester had the prevalence of (24%) during pregnancy. This indicates that pregnant women are at high risk of being infected with malaria during the last months of their gestation period.

5.2 CONCLUSION

The study established that the prevalence of Malaria among pregnant women attending antenatal care at Mukono Health centre four. The prevalence of malaria among pregnant women in Mukono Health centre four was high in the first months of the year and kept on decreasing towards the last months. Most of the pregnant women were affected with malaria during the 3rd trimester.

Socio-demographic factors were found to be significantly associated with malaria prevalence among pregnant women in Mukono Health centre four with the biggest number of respondents having reached primary level, married and between the age limit of (25-32). This therefore indicates that even though a good number of pregnant women in Mukono town get antenatal services at Mukono Health centre four, the issue of malaria prevalence among them should be highly considered by the concerned bodies.

5.3 Recommendations

1. When implementing malaria control interventions, the DHO should take into account the high prevalence of malaria among pregnant women in Mukono Health centre four and knowledge of this should guide the distribution of health workers, funds, mosquito nets, and drugs.
2. The DHO should also ensure that malaria prevention interventions in Mukono Health centre four encompass measures to improve housing conditions and encouraging people to live at least more than a kilometer away from water bodies.
3. In addition to improving housing conditions, pregnant women should be encouraged to take fansidar for IPT.
4. The DHO should also place more effort to increase ownership and use of mosquito nets in Mukono Health centre four.

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APPENDIX 1: MAP OF MUKONO



APPENDIX 2: MAP OF UGANDA

