Knowledge and Practice of Malaria Prevention Among Pregnant Women Attending Secondary Health Facility in Calabar, Cross River State, Nigeria

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Malaria and pregnancy are mutually aggravating conditions. The physiological changes of pregnancy and the pathological changes due to malaria have a synergistic effect on the course of each other, thus making life difficult for the mother and child. The study focused on the knowledge and practice of malaria prevention among pregnant women attending secondary health care facility in Calabar, Cross River State. The study adopted a descriptive design and systematic sampling technique was used to get two hundred respondents representing 50% of the target population. Data collected were analyzed using descriptive and inferential statistics. The instrument has a reliability co-efficient of 0.70 using a test – retest reliability. The findings revealed that 83.9% of respondents had good knowledge of malaria prevention and 69% practised malaria prevention strategies. There was a significant relationship between knowledge and practice of malaria prevention when the calculated r-value of 0.62 was compared with tabulated r-value of .138. Despite the above, the result also showed that 16.1% respondents had poor knowledge and 31% did not practise malaria prevention strategies. Based on the above, it was recommended that midwives should carryout proper awareness campaign on malaria prevention in pregnancy. Insecticides treated net and Intermittent preventive treatment drugs should be given to women in antenatal clinics and the women should be encouraged to comply with malaria prevention strategy throughout pregnancy.

Keywords: Malaria prevention, Knowledge, Practice.

Introduction

Malaria control still remains a major public health problem in Africa
where 45 countries, including Nigeria are mostly affected with about 588 million people at risk. Each year, more than 30 million women in Nigeria and malaria endemic areas become pregnant and are at risk of infection with *Plasmodium falciparum*. This results to high prevalence of patent parasitaemia and clinical malaria in pregnancy. In Nigeria, past studies reported malaria parasite prevalence of between 60% and 72% among pregnant women. Malaria during pregnancy caused up to 10,000 maternal deaths each year and contributes to high rate of maternal morbidity including fever and severe anaemia, especially in first time mothers. A recent study estimated that malaria contributes to 3-5% of maternal anaemia, 8-14% of low birth weight and 3-8% of infant mortality. The harmful impact of malaria is most apparent to the first and second pregnancies of most pregnant women living in areas of relatively stable transmission. Knowledge of malaria prevention during pregnancy is relatively high as malaria is perceived as a serious illness. Contact with traditional healers and self medication is a common feature in African societies. Most pregnant women lack knowledge about the causative factors of malaria as they attribute the infection to be caused by living in an unclean environment, eating of oily food, poisoned food and witchcraft. A study reported that the practice of malaria preventive measures among pregnant women is not encouraging as their use of insecticide treated bed nets is unacceptably low and this contributes to high infection rates. The pregnant women’s knowledge and practice of intermittent preventive treatment (IPTP) is poor as the majority of women do not know sulphadoxine – pyrimethamine (SP) as the drug recommended for IPTP and are not aware that IPTP could be given to pregnant women.

Prevention of malaria in pregnancy is a major priority for the roll back malaria partnership. In high transmission areas including Nigeria, the roll back malaria partnership recommends a three pronged approach for reducing the burden of malaria among pregnant women, which are; effective case management of malaria infection, use of insecticide treated nets (ITNS) and intermittent preventive treatment in areas of stable transmission. In line with this recommendation, approach to prevention of malaria in pregnancy changed since the early 2000 moving from weekly or bimonthly chemoprophylaxis adopted in the year 2005.

Despite improved antenatal care services and the health education provided during these services, the prevalence of malaria in pregnancy continues to be high as portrayed by available statistics from health facilities in Calabar and Nigeria as a whole.

Based on these facts, it becomes necessary to ascertain knowledge and practice malaria prevention among pregnant women attending a secondary health facility in Calabar, Cross River State.
Hence the study sought to address the following specific objectives. These are to:

(a) Assess the level of knowledge of pregnant women about malaria prevention.
(b) To identify the measures utilized by pregnant women in prevention of malaria.
(c) Ascertaining whether there exist any relationship between knowledge and practice of malaria prevention among pregnant women attending secondary health facility in Calabar.

Knowledge of Pregnant Women Regarding Malaria Prevention

Each year between 75,000 and 200,000 infant deaths are attributed to malaria infection in pregnancy. Globally, between 200,000 and 500,000 pregnant women developed severe anaemia as a result of malaria in Sub-Saharan Africa and this is because the majority of infections in Africa are caused by *Plasmodium falciparum*.

In a study conducted on the awareness of and practice of malaria prevention strategies among pregnant women in Uyo, the result showed that the majority of the respondents (71%) have knowledge about malaria prevention in pregnancy and were aware that malaria had adverse effects in pregnancy. Also in another study the result revealed that 89% of respondents attributed malaria to the bites of mosquito and were aware of the prevention strategies while 11% still attributed the aetiology of malaria to other factors, including excessive ingestion of oil, exposure to sunlight, bite of cockroaches, witches and poisoned foods. They added that knowledge of the cause of malaria was directly proportional to the educational attainment of the women and that fever was the most acknowledged symptom of malaria.

Practice of Pregnant Women Towards Malaria Prevention

In a study on malaria prevention in Ekiti, using 40 respondents the results showed that 76% had heard of insecticide treated nets and used them while 24% respondents agreed of not using ITN. In the same study, only 30% of respondents received IPTP drugs from the hospital for malaria prevention, while 45% engaged in home treatment with drugs like analgesic and 25% respondents resorted to either treatment with herbs, visit chemist or resorted to prayers.

Barriers to Practice of Malaria Prevention

Various reasons have been identified as barriers to the practice of malaria prevention among pregnant women.
In Gboko metropolis of Benue State Nigeria, a study conducted on malaria parasite revealed that 30% of pregnant women do not sleep under insecticide treated nets because they feel uncomfortable due to the high temperature of the region and also they believe that nets are used to keep dead bodies. Various studies have identified barriers to practice of malaria prevention to include high cost, harmful effect of ITN to mother and fetus, low level of awareness and poor knowledge of IPT by the pregnant women and their belief that it can harm their unborn babies.

**Materials and Method**

A descriptive study design was adopted for the study. The study site was antenatal clinic of General Hospital Calabar located along Mary Slessor Avenue in Calabar Municipality, Cross River State, Nigeria. The target population consisted of all pregnant women attending and receiving antenatal care at the antenatal clinic of General Hospital between February and April 2012 which is 401. The accessible population comprises of 200 women, which represents 50% of the target population who consented to the study and were on appointment between February and April 2012. A systematic sampling technique was used and instrument for data collection was a structured/closed ended questionnaire. Face validity of the instrument was ascertained, and the instrument reliability co-efficient of 0.70 was gotten after 2 weeks interval using a test-retest reliability. A letter of introduction was sent to the ethical committee of the hospital seeking permission to carry out the study and approval was given. The consent of the subjects was sought verbally and they were duly informed about the purpose of the study, their anonymity and confidentiality was maintained. Data was analysed using descriptive statistics and hypothesis was tested using Pearson product moment correlation analysis to test the relationship between variables at 0.05 level of significance.

**Results and Discussion**

**Pregnant Women Knowledge on Malaria Prevention**

Result in Table 1 showed that 172 (86%) respondents cleared bushes around to prevent breeding of mosquito, while 28 (14%) did not. One hundred and seventy (85%) of respondents, used nets on their doors and windows to prevent malaria, while 30(15%) did not. The majority (92%) of the respondents said that eliminating stagnant water around the house prevent breeding of mosquito while 8% does not agree. Ninety two percent of respondents agreed that sleeping under ITN prevent malaria attacks, but 8% does not. Finally 129 (64.5%) respondents said that they
knew that IPTP should be taken twice after 16 weeks of pregnancy to prevent malaria attack while 71 (35.5%) said they did not know.

Based on the above, it was concluded that pregnant women attending antenatal clinic at the General Hospital have good knowledge of malaria prevention.

**Practice of Malaria Prevention by Pregnant Women**

Table 3 shows the practice of malaria prevention by respondents in secondary health facility in Calabar. One hundred and thirty eight respondents (69%) practised malaria prevention while 62 (31%) respondents were not practising malaria prevention strategies.

**Testing for Hypothesis**

**Relationship Between Knowledge and Practice of Malaria Prevention**

The result of Table 4 indicates that the calculated r-value of 0.62 obtained at 0.05 level of significance with 198 degrees of freedom. When compared to the critical value of .138 was found to be greater. On the basis of this observation, the null hypothesis is rejected and this implies that, there is a significant relationship between pregnant women’s knowledge and practice of malaria prevention.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Item</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Does clearing bushes around the house prevent breeding of mosquito?</td>
<td>172</td>
<td>28</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>(86%)</td>
<td>(14)</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>Does netting doors and windows prevent malaria attack?</td>
<td>170</td>
<td>30</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>(85)</td>
<td>(15)</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>3.</td>
<td>Does eliminating stagnant water around the house prevent the breeding of mosquitoes?</td>
<td>184</td>
<td>16</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>(92)</td>
<td>(8)</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>4.</td>
<td>Does sleeping under insecticide treated net prevent malaria attack?</td>
<td>184</td>
<td>16</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>(92)</td>
<td>(8)</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>5.</td>
<td>Do you know that IPTP should be taken twice after 16 weeks of pregnancy to prevent malaria attack</td>
<td>129</td>
<td>71</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>(64.5)</td>
<td>(35.5)</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>
### TABLE 2
#### Summary of Respondent’s Knowledge on Malaria Prevention

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good knowledge</td>
<td>168</td>
<td>83.9%</td>
</tr>
<tr>
<td>Poor knowledge</td>
<td>32</td>
<td>16.1%</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100%</td>
</tr>
</tbody>
</table>

### TABLE 3
#### Practice of Malaria Prevention Among Women in Secondary Health Facility in Calabar

<table>
<thead>
<tr>
<th>Practice of Malaria prevention</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I practised malaria prevention during pregnancy</td>
<td>138</td>
<td>69%</td>
</tr>
<tr>
<td>I did not practice malaria prevention during pregnancy</td>
<td>62</td>
<td>31%</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100%</td>
</tr>
</tbody>
</table>

### TABLE 4
#### Pearson Product Moment Correlation Analysis of the Relationship Between Pregnant Women’s Knowledge and Practice of Malaria Prevention (n=200)

<table>
<thead>
<tr>
<th>Variables</th>
<th>$\Sigma x$</th>
<th>$\Sigma x^2$</th>
<th>$\Sigma xy$</th>
<th>$r$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of malaria prevention</td>
<td>3466</td>
<td>5977</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practice of malaria prevention</td>
<td>3316</td>
<td>5484</td>
<td>89435</td>
<td>0.62</td>
</tr>
</tbody>
</table>

Significant at 0.05 level, df = 198, critical value .138.
Discussion

Result of findings from data collected from the knowledge revealed that pregnant women who attended antenatal clinic at General Hospital Calabar have knowledge of malaria prevention with 83.9% level of good knowledge. This result is supported by a study\textsuperscript{10} which showed that the overall understanding of ways to prevent malaria transmission were good. The result also was at par with a study\textsuperscript{9} conducted in Uyo metropolis which showed that the majority of the pregnant women had knowledge about malaria prevention in pregnancy and that this is probably because malaria and its prevention is a major component of health talks/education given by nurses during antenatal clinic.

On the issue of practice of malaria prevention among the pregnant women, the result revealed that 69% of respondents practised malaria prevention strategies to prevent malaria in pregnancy. Similar results have been recorded from studies in other states in Nigeria\textsuperscript{11-12}.

The result of hypothesis using Pearson product moment correlation analysis showed a significant relationship between women’s knowledge and their practice of malaria prevention. The result agrees with the study\textsuperscript{9,11} which showed that the majority of women had good knowledge of malaria prevention and practised the prevention strategies. Ideally good knowledge should correspond with good practice and this is what was discovered in the study. However, the result also showed that 16% of respondents had poor knowledge of malaria prevention and 31% did not practice malaria prevention strategies.

Conclusion

In the light of this result, there is an indication of a gap between knowledge and practice of malaria prevention in pregnancy. The researchers therefore solicit the alertness of nurses on the importance of emphasizing malaria prevention when delivering health education during antenatal clinic and the need to render free ITN and IPTP to mothers in the clinic. This will promote the practice of malaria prevention, prevent and reduce any complication that may occur as a result of malaria in pregnancy.

Acknowledgment

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REFERENCES