

Malaria Preventive Practices among Pregnant Women in Ebonyi State, Nigeria

Lois N. Omaka-Amari, PhD^{1*} Ignatius O. Nwimo, PhD¹ Dr. Chihurumnuanya Alo²

1. Department of Human Kinetics and Health Education, Ebonyi State University, PMB 53, Abakaliki, Ebonyi State, Nigeria.
2. Department of Community Medicine, Ebonyi State University, PMB 53 Abakaliki, Ebonyi State, Nigeria.

Abstract

Malaria remains a global health challenge especially in sub-Sahara Africa where the most dangerous species thrive. It is a popular belief that the best way of halting the spread of any communicable disease is to adopt health preventive practices. A cross-sectional survey was carried out to determine malaria preventive practices among pregnant women in Ebonyi State, Nigeria. Stratified sampling technique was used in selecting 504 pregnant women attending antenatal clinic in 12 hospitals in the state. A face validated, self constructed questionnaire which was subjected to a reliability test using Cronbach Alpha method yielded a reliability value of 0.91. Data were analysed using descriptive statistics of mean and inferential statistics of T-test and ANOVA. Results showed that pregnant women often ($\bar{x} = 1.70-3.05$) adopted most of the malaria preventive practices. There was a significant difference in 9 out of 11 malaria preventive practices adopted by women who reside in urban and rural areas in favour of women who reside in the urban areas. Level of education significantly affected malaria preventive practices in favour of women with post secondary education. Intervention efforts should focus on rural pregnant women and formulated to accommodate the less educated members of this group.

Keywords: Malaria, Preventive practices, Pregnant women, Ebonyi State, Nigeria

1. Introduction

The incidence of malaria and associated deaths in Nigeria is reportedly far more than those of any country in the world. This statement was underscored by the report that about 97% of Nigeria people stand the risk of having malaria; and that an estimated 100 million cases and 300, 000 deaths of malaria occurred every year in the country (United State Embassy in Nigeria, 2011). The disease poses significant risks to pregnant women and their offspring and it is found to be responsible for up to 10,000 maternal anaemia associated mortalities every year within sub-Sahara African regions (Tanya, 2004). Furthermore, Nigeria Millennium Development Goals (2010) noted that the proportion of children under-5 sleeping under insecticide-treated mosquito nets rose from 2.2% in 2003 to 5.5% in 2008. Malaria infection rates have dropped, but malaria still accounts for an average of 300,000 deaths each year. According to World Health Organization (2014), around the world, 3.2 billion people are at risk of contracting malaria. In 2013, an estimated 198 million cases occurred, and the disease killed approximately 584 000 people, most of them children under five in Africa. On average, malaria kills a child every minute.

Ebonyi State, which is in the South East part of Nigeria, is also seriously challenged by the burden of this disease (Nwonwu, Ibekwe, Ugwu, Obareze & Nwagbara, 2009). Ebonyi people including women are farmers and are highly involved in agricultural activities, which encourage the breeding of mosquitoes and consequently malaria infection. Malaria has numerous negative outcomes which include huge individual and financial involvement relating to poor standard of life, hospital visitations and remedies, as well as low productivity and lost incomes (Erhun, Agbani & Adesanya, 2005).

Research suggests preventive practices are crucial elements in any effort targeted towards the reduction of disease burden such as malaria (Minnesota Health Improvement Partnership Social Conditions and Health Action Team, 2010). Tyagi, Roy, and Malhotra (2005) reported that the failure to establish practice of community members regarding malaria was responsible for the inability of intervention programmes to achieve sustainable control. It has also been observed that community participation which is paramount in the control of malaria depends, among others, basically on the people's preventive practices (Sharma, Bhasin and Chaturvedi, 2007).

Some socio-demographic factors are known to influence the understanding as well as demonstration of preventive practices regarding communicable diseases, including malaria, in women who are pregnant. Furthermore, some cultural beliefs and myths about illness perception prevalent in many rural settings are likely to influence malaria preventive practices among rural dwellers. Since women population in Ebonyi state comprises different educational levels, it is vital to establish whether level of education will influence practice of actions that could prevent malaria among expectant mothers in the state. Further a comparison between urban and rural women in the state will offer valuable facts in years to come for planning, designing and execution of programmes aimed at malaria prevention in the state.

In February 2011, the Ebonyi State Government in collaboration with Roll Back Malaria took positive steps to reduce the spread of malaria in the state. The action involved house to house distribution of Insecticide Treated Nets (ITNs) to mothers. However, as laudable as this effort was, the entire exercise could not be adjudged successful until certain issues were properly addressed. This is because, after the distribution of the nets, a casual discussion with some of the recipients revealed that the act of distributing the net was seen as a political programme, and the nets were seen as gifts from politicians rather than a malaria preventive venture. A few of them women reported they would keep the nets until rainy season before using them. These observations made about the women suggested a possible gap in practice of preventive measures, which according to Sharma, Bhasin and Chaturvedi (2007), play important role in the overall success of any malaria control and prevention programmes. Inferring from the statements of Vijayakumar, Gunasekaran, Sahu, Jambulingam (2009), there was therefore need to establish the local preventive practices regarding malaria in order to appropriately carry out traditionally acceptable, enduring and efficacious malaria programmes in the state.

The purpose of the study, therefore, was to determine malaria preventive practices among pregnant women in Ebonyi State. Two null hypotheses were tested as follows:

1. There is no significant difference in malaria preventive practices adopted by urban and rural pregnant women in Ebonyi state.
2. There is no significant difference in malaria preventive practices adopted by pregnant women in relation to level of education.

Data on malaria preventive practices (e.g., as the use of ITNs, receiving IPT, early diagnosis and prompt treatment, and environmental management) among pregnant women will serve as an important instrument to health workers for the reformation of malaria control strategies and could form the basis for appropriate health education messages with respect to preventive practices among pregnant women in the state and beyond.

2. Literature Review

Child Welfare Information Gate Way (2011) defined prevention as consisting of methods or activities articulated with the aim to reduce or avert specific problems, protect the current state of well-being, or promote desired outcomes or behaviours. Vermont Department of Health (2014) simply defined prevention as a literal term which means to keep something from happening or those interventions that occur before the initial onset of disorder.

Despite the urgent need for the eradication of malaria, practice of its preventive measures remains a major challenge in Nigeria especially with respect to the three prong preventives measures recommended by RBM for pregnant women. These measures as earlier stated include the use of ITN, uptake of IPT and Prompt treatment and early diagnosis. World Health Organization (2005) revealed that although many health facilities in many endemic countries including Nigeria have begun the implementation of IPT and prompt case management, only 5% pregnant women receive good preventive regimen with the situation being more severe among pregnant women residing within local settings. Research report (Steketee, Wirima & Campbell, 2006) on some countries in African revealed that pregnant women who make use of preventive regimens in line with the prescribed standards of WHO are only about twenty percent. Studies (Enato, Okhamafe & Okpere, 2001; Mubyazi, Bloch, Kamugisha, Kitua, & Ijumba, 2005; Mazigo, Obassy, Mauka, Manyuri, Zinga, Kwoka, Mnyanne, & Heukelbach, 2010) from Nigeria and other sub-Saharan African countries have reported low practice of IPT and ITN among pregnant women attending antenatal clinics.

In Ebonyi, Insecticide Treated Nets were distributed to all mothers of reproductive age in 2011 by the state government in collaboration with RBM. With the distribution of these nets, it was expected that improved household ownership of ITNs occurred, consequently high level of ITN practice is expected among the women in the state.

Research has uncovered numerous factors that are likely to hinder the uptake of malaria prevention and control strategies. For example, Maslove, Mnyusiwalla, Mills, McGowan, Attaran and Wilson (2009) in a study reported that out of a total of 39 literatures reviewed on barriers to malaria prevention practices, 29 studies revealed that lack of knowledge regarding malaria and its mode of spread were two important factors that influenced practices of measures aimed at averting malaria. The CMS survey (Okello, 2001) report showed that about 10% of the study participants indicated that sleeping under the net hinders in flow of air and some twenty-six percent of the group observed that it feels very hot when sleeping under the net. The study also reported that the belief that mosquitoes bite even when under the net, and rigors involved in stepping out and in of the net, having to dress the net properly each time a person gets in or out of the net were other factors that influenced none use of net among the participants. High cost and poor accessibility of nets were also identified as principal cause of poor utilization of nets (Collins, 2003). Mangeni (2003) in a study identified inability to adjust to some sleep mannerisms when using the net and interference with sexual play. As reported by Dauda (2004) factors that prevent the use of treated nets are, accessibility problem, no information on where and how

nets could be gotten, inability to install net a home, limited area for installing net at home and the belief that the net could lead to suffocation in young children. (Okello, 2001; Dish II, 2002).

3. Description of Ebonyi State

Ebonyi State was formerly part of old Enugu and Abia states. The state was created in 1996 with a land mass of 5,932sq.km and lies approximately 7°3'N longitudes 54'E and 645'E (Ebonyi State House of Assembly, 2006). It is boarded in the East by Cross River state, in the North by Benue state, in the West by Enugu state and in the South by Abia state. Ebonyi state has a population of about three million people going by the 2006 population census (Ebonyi State Government, 2011). The state is richly blessed with savannah and semi tropical vegetations; humid, sandy and dotted marshy soil. Ebonyi State grows different types of cash and food crops like yam, rice, cassava, cocoyam, oranges, mango and pear, among others (Ebonyi State Government, 2011). Agriculture is the main stay of the economy and women just like the men are essentially farmers with relatively fewer civil servants, industrialists, students and business women (Ebonyi State House of Assembly, 2006). The state is also highly dominated by rural settings, while Abakaliki the state capital, Onueke and Afikpo are the only urban centres. Ebonyi State has thirteen local government areas. Each of the local government areas has at least one general hospital.

It is worthy to note that the high agricultural activities among the people coupled with humid environment may have accounted for the reported high prevalence of malaria in the state. Furthermore, the estimated few civil servants and industrialists suggest that the state possibly has more women who are not educated than the educated which may likely affect their knowledge of malaria. These facts underscore the need for the present study and the selection of Ebonyi State as the area of study.

3. Methods

The cross-sectional survey research design was adopted for the study which was carried out in Ebonyi State, Nigeria. The population for the study comprised a total of 1278 pregnant women, who registered for antenatal clinics per week at the fourteen government-owned and three mission-owned hospitals in the state for the month of February, 2013. The government owned hospitals included general hospitals in Owutu Edda, Okposi, Onicha, Itimukwu, Ishiagu, Iboko, Ezzamgbo, Odomoke and Elunwobvu. Others are Agba, Igboji-Ikwo, Umuezeoka, Onueke and Federal Teaching Hospital Abakaliki (FETHA). The three mission hospitals were Marter Mesericordia Hospital Afikpo, Mile Four Hospital Abakaliki, and Presbyterian Joint Hospital, Uburu. However sampling was conducted using the stratified sampling technique. The 17 hospitals were grouped into urban and rural location using stratified sampling technique. Due to the limited number of urban settings and consequently few general hospitals in the urban area, the four hospitals in the urban were selected for the study while simple random sampling technique was used to select eight (70%) government hospitals in the rural area. Finally, opportunistic sampling was used to select the first 42 pregnant women in attendance for antenatal supervision on the day of data collection in each of the sampled hospitals. Thus from each of the 12 selected hospitals, 42 pregnant women were chosen and this resulted to a total sample of 504 pregnant women

3.1 Instrument

The researchers used a self-developed questionnaire, the malaria preventive practices questionnaire (MPPQ), which comprised 13 items arranged in two sections, namely: A and B. Section A, contained two items that elicited information o the level of education and location of residence of the participants. Section B, consisted of 11 items on malaria preventive practices.

Five experts in health education from Ebonyi State University were used for validating the MPPQ. Thirty pregnant women attending antenatal clinic at a Community Health Center in a neighboring Enugu state were used for test of reliability. The internal consistency of the instrument was computed using Cronbach (1951) alpha. The reliability co-efficient of the MPPQ was 0.91. Since reliability co-efficient of above 0.60 was obtained on the MPPQ, the instrument was considered reliable (Ogbazi & Okpala, 1994) for use in the study.

3.2 Data Collection

Approval gained from hospital authorities helped the researchers gain access to the respondents and to personally administer the questionnaire to 504 pregnant women. In order to ensure that the women responded willingly, a brief note of consent soliciting their compliance accompanied the questionnaire. The researchers employed fifteen research assistants who were helpful in the administration of the MPPQ and interpretation of the instrument to the women in their local dialects. Administration of the questionnaire by the assistants was closely supervised by the researchers and completed copies of the questionnaire were collected on the spot. The respondents were required to indicate on a 4-point scale, the frequency they adopt malaria preventive practices using always (AL), often (OF), occasionally (OC) and never (NE).

3.3 Data Analysis

The response columns of the MPPQ were allocated scores as follows: AL = 4, OF = 3, OC = 2, NE = 1. The completed copies of the MPPQ were examined for completeness of responses. Out of 504 copies of the MPPQ administered, 100% return rate was achieved and used for analysis of data. Data were analyzed using mean (\bar{x}) score, standard deviation, t-test and analysis of variance (ANOVA). Mean was used for the purpose of description. In describing the data, a mean (\bar{x}) score of 3.1-4.0 implied that the women adopted malaria preventive practices always (AL); 2.1-3.0 implied that the women adopted malaria preventive practices often (OF); 1.1-2.0 implied that the women adopted malaria preventive practices occasionally (OC) and 0.1-1.0 implied that the women never (NE) adopted malaria preventive practices. Standard deviation was used to determine how the responses of the respondents vary. T-test was used to test the hypothesis ($p > 0.05$) on location of residence of the women and ANOVA was used to test the hypothesis ($p > 0.05$) on the level of education of the women. All data analyses were done with Statistical Package for Social Sciences (SPSS) Version 20.0 for Windows.

4. Results

Table 1: Malaria preventive practices among pregnant women in Ebonyi state

S/N	Item	\bar{x}	SD	Decision
1.	Use of Insecticide Treated Bed Net (ITN)	2.26	1.23	Often
2.	Sprinkling of kerosene	1.70	1.05	Occasional
3.	Use of anti-mosquito spray	2.20	1.23	Often
4.	Cleaning of stagnant water	2.99	1.20	Often
5.	Clearing of bushes around the house	2.94	1.21	Often
6.	Sleeping under the fan	2.12	1.16	Often
7.	Wearing long sleeves outside at night time	2.04	1.17	Occasional
8.	Receiving malaria treatment from a doctor	2.75	1.20	Often
9.	Visiting the hospital when you have malaria	2.78	1.16	Often
10.	Receiving malaria preventive drugs (IPT)	2.98	1.18	Often
11.	Attending antenatal clinics	3.05	1.17	Often

Table 1 shows that the pregnant women often ($\bar{x} = 2.12-3.05$) adopted the entire malaria preventive practices except Sprinkling of kerosene ($\bar{x} = 1.70$) and wearing long sleeves outside at night time ($\bar{x} = 2.04$) which they occasionally adopted.

Table 2: Mean and t-test values of Malaria Preventive Practices between Urban and Rural Pregnant Women

S/N	Item	Urban (N = 171)		Rural (N = 333)		t-cal.	p-value
		\bar{x}	SD	\bar{x}	SD		
1	The use of insecticide treated bed net	2.51	1.29	2.13	1.18	3.263*	0.001
2	Sprinkling of kerosene in the house	1.66	1.10	1.73	1.02	0.756	0.448
3	Use of indoor anti-mosquito spray	2.51	1.13	2.04	1.08	4.532*	0.000
4	Cleaning of stagnant water	3.15	1.19	2.90	1.20	2.156*	0.032
5	Clearing of bushes around the house	3.08	1.20	2.87	1.22	1.880	0.061
6	Sleeping under the fan	2.37	1.19	1.99	1.12	3.525*	0.000
7	Wearing long sleeve at night time	2.24	1.25	1.93	1.11	2.798*	0.005
8	Receiving malaria treatment from a doctor	2.95	1.17	2.65	1.21	2.651*	0.008
9	Visiting the hospital when sick of malaria	3.06	1.07	2.64	1.20	3.867*	0.000
10	Taking malaria preventive drugs/IPT	3.29	1.03	2.82	1.21	4.346*	0.000
11	Attending to antenatal clinic	3.39	1.00	2.91	1.23	3.976*	0.000

* $p < 0.05$

Table 2 shows the mean scores and t-test values of malaria preventive practices of urban and rural women. It is evident from the results that women residing in the urban areas always adopted clearing of bushes around the house, sleeping under the fan, visiting the hospital when sick of malaria, taking malaria preventive drugs/IPT and attending to antenatal clinic as malaria preventive practices but the the best womrn in the rural do is adopting the practices often or occasionally. When t-test was run, differences existed in most of the practices in favour of the women residing in urban areas.

Table 3: Mean and ANOVA value of malaria preventive practices among pregnant women by level of education

S/N	Item	NFE		PE		SE		PSE		F-cal.	p-value
		\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD		
1	The use of insecticide treated bed net	1.94	1.16	2.04	1.24	2.34	1.19	2.65	1.23	7.390*	0.000
2	Sprinkling of kerosene around the house	1.70	1.07	1.65	1.10	1.74	1.09	1.78	1.03	0.194	0.901
3	Use of indoor anti-mosquito spray	1.71	0.94	2.06	1.10	2.33	1.14	2.52	1.12	9.921*	0.000
4	Cleaning of stagnant water	2.56	1.33	2.10	1.18	3.01	1.20	3.32	1.02	6.305*	0.000
5	Clearing of bushes around the house	2.48	1.37	2.87	1.20	3.06	1.16	3.18	1.13	6.122*	0.000
6	Sleeping under the fan	1.72	0.96	1.93	1.11	2.35	1.20	2.30	1.16	7.862*	0.000
7	Wearing long sleeve outside at night time	1.72	1.01	1.97	1.15	2.24	1.23	2.02	1.15	3.910*	0.009
8	Receiving malaria treatment from a doctor	2.42	1.28	2.52	1.18	2.91	1.18	3.02	1.12	9.468*	0.000
9	Visiting the hospital when sick of malaria	2.29	1.16	2.70	1.12	2.90	1.19	3.08	1.03	8.085*	0.000
10	Taking preventive drugs/IPT	2.49	1.26	2.91	1.14	3.09	1.18	3.25	1.05	7.262*	0.000
11	Attending to antenatal clinic	2.61	1.29	3.05	1.12	3.11	1.17	3.31	1.07	5.734*	0.001

* $p < 0.05$

Table 3 shows the mean scores and F-values of malaria preventive practices of women of the various levels of education. It is evident from the results that women with post secondary education (PSE) always adopted the practices. On the other hand, the other groups often adopted the preventive measures. When ANOVA was run, significant differences were observed in favour of the women PSE group.

5. Discussion

Results on malaria preventive practice as indicated in Table 1 showed the pregnant women often practised the use of ITN, anti-mosquito spray, clearing of bushes, sleeping under fan, receiving treatment from a doctor, visiting the hospital when sick, taking malaria preventive drugs (IPT) and attending antenatal clinics. When the malaria preventive practices were compared between urban and rural pregnant women differences existing in their mean responses significantly ($p < 0.05$) tended to favour the earlier than the later. These findings were interesting but however, failed to be in line with those of Sundarajan, Kalkonde, Gregg-greenough and Gosling (2013) who reported that preventive practices were inconsistent among their respondents. However, the results are consistent with those of Mazigo, Obasy, Mauka, Manyiri, Zinga, Kweka, Mnyone and Heukelbach (2010) who reported that the frequency of malaria preventive practices was reasonably acceptable among their respondents. However, the findings tend to be at variance with those of Sabin, Rizal, Brooks, Singh, Tuchman, Wylie, Joyce, Yeboa-Antwi, Singh and Hamer (2010) who reported that none of the women the studied indicated use of measures to prevent malaria during pregnancy.

It is interesting to emphasise that the most important measure to prevent malaria in the most tropical regions of the world, where grasses grow abundantly, is clearing of bushes which was observed among the women. This measure may have been influenced by the monthly clean up exercise in the state which attracts a fine to defaulters. This standing order of the state government makes it mandatory for every citizen of Ebonyi State to clear up bushes, gutters, stagnant water and do general clean up of the surrounding every last Saturday of every month. Second, since 2011 till date there have been television advertisements organized by the state government and ministry for attitudinal change on the need for clean environment. This programme which is usually presented in both English and local dialects could have also contributed to the present positive result. Further the practice regarding sleeping under the fan for malaria prevention was acknowledged but however very surprising. This is because sleeping under fan is an unconventional preventive method which is not among the the three prong malaria preventive practices recommended by the Roll Back Malaria Initiative for pregnant women. This practice also did not form part of the radio-malaria programme used in educating women on malaria prevention in the state. Perhaps pregnant women on their own may have observed that sleeping under fan keeps mosquitoes away from them.

One malaria preventive practice that may have become a convention among pregnant women in the

developing countries is the use of insecticide treated net (ITN). It is a thing of joy to have observed that the women in the present study reported the use of this all important material. This important malaria preventive practice was reported to be on the decline among pregnant women Akaba, Otubu, Agida and Onafowokan (2013) studied.

Worthy of note is that in what ever frequency pregnant women in the present study adopted the malaria preventive practices, the inclination tended to favour those who had some form of post secondary education (PSE). A closer look at the results could reveal that respondents with PSE had significantly ($p < 0.05$) higher mean scores than the other groups. The above speculation confirms Wakgari and Mebrahtom (2008) findings with respect to malaria preventive practices.

6. Implications of the Study for Health Education

Allied Health Professionals (2002) described a health educator as a person who promotes, maintains and improves individual and community health by teaching them how to assume responsibility for addressing health care issues. Aniefok (2004) opined that health educators are very strategic in disease control activities whether they work in schools or community level. Therefore health educators should lead research team, evaluate health education strategies, develop malaria messages and help to evaluate the outcome of every health education activity geared towards malaria prevention and control.

In the year 2008 for instance, a health education programme which examined, among other things, the impact of health education and prevention of malaria among caregivers of children fewer than five was carried out in Jengre, North Central Nigeria. This intervention programme impacted positively on caregivers' willingness to access anti-malarial treatment when their children have fever (Chirdan, Zoakah, & Ejembi, 2008). A similar intervention was conducted in 2010 with the aim of examining whether a concerted malaria prevention education effort was associated with reduced malaria disease burden among children under the age of 5 years residing in conflict-affected settings in Northern Uganda. The results from this survey showed significantly lower rates of reported malaria among children less than 5 years in the intervention camp (Ogur) compared with children in the reference camp.

This above could suggest that including enhanced malaria prevention education as an integral component of ITN distribution programmes could help promote the use of malaria prevention methods and help stem malaria infections (Ssengonzi & Makumbi, 2010). Lately a four week malaria and RBM initiative education among a group of pregnant women was conducted in Abakaliki, Ebonyi State.

These are a few practical examples of how health education can be applied to improve malaria preventive practices. Unfortunately, health educators tend to emphasise theories in negation to practical skills that could assist recipients in their disease control and prevention endeavours. They have hitherto restricted health education to classroom teachings thereby limiting the potential benefits of health education.

7. Conclusion and Recommendation

One practical way to stem malaria episode is adopting healthy preventive practices. It is evident that pregnant women in Ebonyi state adopted measures that are capable of minimising episodes of malaria. It was observed that pregnant women in urban areas significantly practices prevention measures more than those in the rural areas. Women with PSE of education were found to be superior to other level of education in practice of preventive measures.

Although study indicated that malaria preventive practices were often adopted among pregnant women in Ebonyi State, there is still need for a well packaged malaria health education intervention which could address malaria misconceptions among the women. Women with lower levels of education, and those in the rural areas should be given more attention with respect to information prevention of malaria.

Limitations of the Study

The questionnaire as the sole instrument for data collection posed some difficulties to the researchers. The instrument like any other one was not 100% free from flaws. There was problem of inability of most women to understand the items and instructions on how to respond to them. This was seen more among women from the rural areas that could neither read nor write but could only understand their local dialect. To avert this challenge, indigenous health assistants were recruited and trained to help interpret the questions. This was particularly useful in the rural settings.

Another major problem encountered by the researchers was the poor attitude displayed by pregnant women towards responding to the questionnaire. Most of the women were more concerned about being attended to by physicians. They were very much in a hurry to consult the doctor early and leave in order to get home early. Some of the pregnant women displayed lack of interest in the exercise since, according to them, it had no immediate benefit. Some others complained of being too weak and tired to respond to the questionnaire. These issues were surmounted with the help of nurses on duty who often encouraged them to give attention to the

exercise and would hold on attending to the women until the exercise was over. Again the presences of research assistants were also very helpful.

References

- Akaba, G. O., Otubu, J.A.M., Agida, E.T., & Onafowokan, O. (2013). Knowledge and utilization of malaria preventive measures among pregnant women at a tertiary hospital in Nigeria's federal capital territory. *Nigerian Journal of Clinical Practice*, 16(2), 201-206.
- Allied Health Professionals. (2002). *Health education*. Retrieved May 27, 2015, from www.healthpronet.org/ahp_month/07_02.html
- Aniefork, M. (2004). The health education teacher and burden of exotic diseases: Implication for nation building. *Health and Movement Education Journal*, 8(1), 76-82.
- Child Welfare Information Gateway. (2011). *What is prevention and why is it important*. Retrieved October 26, 2014 from <http://www.childfare.gov/preventing/overview/Whatispcsp.cfm>
- Chirdan, O.O., Zoakah, A.I., & Ejembi, C.L. (2008). Impact of health education on home treatment and prevention of malaria in Jengre, North Central Nigeria. *Annals of African Medicine*, 7(73), 112-119.
- Collins, A. (2003). A Report on insecticide treated materials promotion and other malaria control activities in Kumi district. In D.W. Batega (Ed.), *Knowledge attitudes and practices about malaria treatment and prevention in Uganda: A literature review*. Retrieved May 20, 2014 from http://health.go.ug/mcp/Literature_Review_of_KABP_2004.pdf
- Dauda, W.B. (February, 2004). *Knowledge, attitudes and practices about malaria treatment and prevention in Uganda: A literature review*. Prepared for Ministry of Health: Health Communication Partnership based at Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs Supported by a five-year cooperative agreement from the U.S. Agency for International Development. GPH-A -00-02-00008-00
- Dish II. (2002). *Home management of fever in under five and pregnant women in Uganda: A qualitative research*. DISH II, Kampala.
- Ebonyi State Government. (2011). *Dairy*. Abakaliki: Ebonyi State Ministry of Information and Orientation.
- Ebonyi State House of Assembly. (2006). *Dairy*. Abakaliki: Ebonyi State Ministry of Information and Orientation
- Enato, E.F., Okhamafe, A.O., & Okperee, E. (2001). Prevalence of malaria during pregnancy and antimalaria intervention in an urban secondary health care facility in southern Nigeria. *Medical Principle Practice*, 16(3), 240-243.
- Erhun, W.O., Agbani, E.O., & Adesanya, S. O. (2005). Malaria prevention: Knowledge, attitude and Practice in Southwestern Nigerian Community. *African Journal of Biomedical Research* 8, 25-29.
- Mangeni, J.B.W. (2003). *Analysis Of acceptance and compliance with intermittent presumptive treatment (IPT) in Busia District, eastern Uganda*. Unpublished Thesis, Makerere University Kampala, Uganda.
- Maslove, D. M., Mnyusiwalla, A., Mills, E. J., McGowan, J., Attaran, A., and Wilson, K. (2009). Barriers to the effective treatment and prevention of malaria in Africa: A systematic review of qualitative studies. *BMC Internal Health of Hum Rights*, 9(1), 26.
- Mazigo, D., H., Obasy, E., Mauka, W., Manyuri, P., Zinga, M., Kweka, E., J., Mnyonne, L.L., & Hackleback, J. (2010). Knowledge Attitude and practices about malaria and its control in rural northwest Tanzania. *Malaria Research and Treatment*, Article1079261, 9, doi: 10461/201017944261
- Minnesota Health Improvement Partnership Social Conditions and Health Action Team. (2010). *A call to action. Advancing health for all through social and economic change*. Retrieved July 23, 2011 from <http://www.health.state.mn.us/dws/cfh/ohp/resources/does/calltoaction.pdf>.
- Mubyazi, G., Bloch, P., Kamugisha, M., Kituua, A., & Ijumba, J. (2005). Intermittent preventive treatment of malaria during pregnancy: A qualitative study on knowledge attitude and practices of district health managers, antenatal care staff and pregnant women in Korogwe district Northen-eastern Tanzania. *Malaria Journal* 4, 31-37.
- Nigeria Millennium Development Goals. (2010). *Countdown strategy 2010-2015*. Abuja: Federal Republic of Nigeria. Retrieved May 10, 2015, from www.mdgs.gov.ng
- Nwonwu, E.U., Ibekwe, P.C., Ugwu, J.I., Obarezi, H.C., & Nwagbara, O.C. (2009). Prevalence of malaria parasitemia and malaria related anaemia among pregnant women in Abakaliki south east Nigeria. *Medical and Dental Association of Nigeria*, 12(2), 182-186.
- Ogbazi, J.N., & Okpala, J. (1994). *Writing research report: Guide for researchers in education, the social sciences and humanities*. Enugu: Press Time Ltd.
- Okello, O.F. (2001). Knowledge, attitudes and practices related to malaria and insecticide treated nets in Uganda. Kampala: CMS-Uganda.
- Sabin, L.L., Rizal, A., Brooks, M.I., Singh, M.P., Tuchman, J., Wylie, B. J., Joyce, K. M., Yeboah-Antwi, K.,

- Singh, N., & Hamer, D.H. (2010). Attitudes, Knowledge, and Practices Regarding Malaria Prevention and Treatment among Pregnant Women in Eastern. *American Journal of Medical Hygiene*, 82(6), 1010-1016.
- Sharma, A.K., Bhasin, S., & Chaturvedi, S. (2007) Predictors of knowledge about malaria in India. *Journal of Vector Borne Diseases*, 44, 189-197.
- Ssengonzi, R., & Makumbi, F. (2010). *Assessing the effect of a combined malaria prevention education and free insecticide-treated bed nets programme on self-reported malaria among children in a conflict-affected setting in Northern Uganda*. RTI Press Publication No. RR-0011-1004. Research Triangle Park, NC: RTI International. Retrieved May 5, 2011 from <http://www.rti.org/rtipress>
- Steketee, R., Wirima, J.J., & Campbell, C. (2006) Developing effective strategies for malaria prevention programs for pregnant African women. *American Journal of Tropical Medicine Hygiene*, 55, 95-100.
- Sundarajan, R., Kalkonde, Y., Gregg-greenough, P., & Gosling, R. D. (2013). Barriers to malaria control among marginalized tribal communities. a qualitative study. *PLoS One*, 8(12), e81966.
- Tanya, M. (2004). Determinants of uptakes for both ITN and IPT by pregnant women and the role of individual knowledge and socio economic status on each of these. *Malaria Journal*, 3(42). doi: 10.1186/1475-2875-3-42.
- Tyagi, P., Roy, A., & Malhotra, M.S. (2005). Knowledge, awareness and practices towards malaria in communities of Rural, semi-rural and bordering areas of east Delhi, India. *Journal of Vector Borne Disease* 42, 30-35.
- United States Embassy in Nigeria. (2011). *Nigeria malaria fact sheet*. Retrieved June 5, 2014, from <http://photos.state.gov/libraries/nigeria/23177/Public/December.Malaria.FactSheet2pdf>
- Vermont Department of Health. (2014). *What is prevention*. Retrieved October 26, 2014 from http://healthvermont.gov/adap/prevention/prevention_fact.aspx
- Vijayakumar, K.N., Gunasekaran, K., Sahu, S.S., & Jambulingam, P. (2009). Knowledge, awareness and practices towards malaria in communities of Rural, semi-rural and bordering areas of east Delhi, India. *Journal of Vector Borne Disease*, 42, 30-35.
- Wakgari, D., & Ahmed, A. (2009). Malaria-related perceptions and practices of women with children under the age of five years in rural Ethiopia. *BMC Public Health*, 9(259). doi: 10.1186/1471-2458-9-259
- World Health Organization. (2005). *Deliver global conference, RBM malaria in pregnancy: Information sheet, roll back malaria department*. Geneva: World Health Organisation. Retrieved May 9 2012 from <http://www.womendeliver.org>
- World Health Organization. (2014). MDG 6: combat HIV/AIDS, malaria and other diseases. Geneva: World Health Organization. Retrieved May 10, 2015, from http://www.who.int/topics/millennium_development_goals/diseases/en/

The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage:

<http://www.iiste.org>

CALL FOR JOURNAL PAPERS

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

Prospective authors of journals can find the submission instruction on the following page: <http://www.iiste.org/journals/> All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: <http://www.iiste.org/book/>

Academic conference: <http://www.iiste.org/conference/upcoming-conferences-call-for-paper/>

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digital Library, NewJour, Google Scholar

