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Abstract

South-eastern Nigeria is malaria endemic and pregnant women are exposed to severe consequences of malaria. Government policies and program strategies for the control of malaria in pregnancy have been found to end up in government health facilities. This work was designed to identify the health seeking behaviour of pregnant women in the area, its effect on malaria parasitemia and the factors responsible for the observed behaviour pattern. Three locations out of three state were selected. After due ethical clearance, 844 pregnant women were randomly selected from both public and private health facilities. Peripheral blood smears and placental histology were used to determine infection rate but placental histology with higher sensitivity was used in all comparisons. Questionnaires were used to capture information on attitude and choice of pregnant women. Private maternities/delivery homes were most preferred and patronized (41.14%), maternal/child health centers (26.4%) and private hospital with 20.1% of pregnant women. The least preferred was public hospitals (12.1%). Similar trend was found in all the locations except in Afikpo where maternal/child health centers were most preferred (37.6%) followed by private maternity/delivery homes (33.5%), private hospitals (17.8%) and public hospitals (11.2%). Differences were significant ($X^2 = 43.9514$, $P < 0.05$). Level of parasitemia was higher among pregnant women who patronized private maternity/delivery homes (70.8%) and reduced to the lowest (47.1%) among women who patronized public hospitals. Differences were significant ($X^2 = 30.0909$, $P < 0.05$). Good health attention was the most important factor determining the choice of women (42.3%) followed by financial status of the family (30%) with husbands' decision being the least (10.6). Public hospitals with full investment of resources and expertise to fight malaria in pregnancy are losing patronage to private maternities/delivery homes due to poor attitude to patients. This call for caution. Empowering women could improve the financial position of the family.

Keywords: Public Health, Health-Seeking Behaviour, Pregnant Women, Malaria, Parasitemia, Nigeria

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Introduction

Malaria which is a protozoan parasitic disease of man has occupied a prominent position globally as a disease of public health significance. Reports have shown that the disease is endemic in 103 countries of the world (Menendez, 1995) and infecting at least 500 million people annually (Mutero *et al*., 2005). About 40% of the world population live in areas where malaria is endemic (Egan, 2001) and these are mainly rural poor people living under the most difficult and impoverished conditions of life. The disease has been identified as a major cause of maternal death in hospital studies on African continent (Rutgers, 2001) as well as the cause of an estimated 400,000 cases of maternal anemia. Maternal anemia contribute to maternal mortality, causing about 10,000 deaths annually (CDC, 2005).

As malaria has its severest impact on African continent, African women of child-bearing age are not spared. About 24 million women that become pregnant each year in endemic areas of Africa are at increased risk of being infected with *Plasmodium falciparium*. In all malaria endemic areas the frequency and severity of infection are greater in pregnant women than in their non-pregnant counterparts. Susceptibility to infection is greatest in the primiparous women and diminishes with successive pregnancies, which according to Duffy and Fried (2003) is suggestive of an acquired immune response to antigenically distinct parasites. Primiparous women in areas of high malaria transmission are much affected because the level of acquired immunity against malaria is expected to be significant in this area (Okoko, *et al*., 2002). In areas of low malaria transmission however, the case is different. Pregnant women of any parity are comparably susceptible to malaria infection (Luxemburger, 2001) and severe malaria disease condition is more common (Nosten *et al*., 2003).

For effective control of malaria during pregnancy WHO recommended three lines of actions. These include: Intermittent preventive treatment, Use of insecticide treated nets and Proper case management of malaria illness. In Nigeria, Federal Ministry of Health (2005) recommended sulphadoxine/pyrimthamine combination drug for IPT to be given at least twice after quickening as directly observed regimen. This is presumed to reduce malaria parasitemia and anemia among pregnant women as well as reduce fetal and neonatal consequences of the infections. In their work in south eastern Nigeria, Nwosu *et al* (2011) observed that the production and supply of insecticide treated nets in Nigeria were initiated by the society for family health at subsidized price and distributed through the existing government health facilities. Proper management of febril malaria illness according to Roll Back malaria involves proper diagnosis and treatment of patients with effective antimalaria drugs. In his own submissions Kakkilaya (2006) was of the view that management of febril malaria cases in pregnancy should go beyond the treatment of malaria patient to management of possible complications and of labour.

Careful examination of all lines of actions for effective prevention and control of malaria in pregnancy reveals the involvement of not only skilled personals but also adequate technology obtainable in government health facilities. It is therefore expected that best practices in the prevention and control of malaria during pregnancy could be obtained in government health facilities. We carried out this work to determine the health seeking behaviour of pregnant women in selected locations in south eastern Nigeria and its effect on malaria paraistemia. We also tried to identify the factors responsible for the choice of option by pregnant women.

Materials and Methods

The study was carried out in southeast zone of Nigeria. This zone is the home land of the Igbo speaking people. Geographically the zone lies in the high forest belt of Nigeria with some parts transformed into guinea savanna due to human activities and population pressure on land. Southeast is malaria endemic and the people especially pregnant women and children under 5 years of age are exposed to the severe consequences of the infection. Administratively the zone is made up of five states which include Abia, Anambra, Ebonyi, Enugu and Imo States. Three states (Abia, Ebonyi and Imo) were randomly selected for the study. One location was selected from each state and consequently Umuahia (Abia), Afikpo (Ebonyi), and Okigwe (Imo) were selected. Both private and public clinics in the locations were used in the study.

On approval by the ethical committee of Abia State University Uturu and research and training unit of Federal College of Agriculture Ishiagu, letters were sent to the Local Government Health Authorities in the selected area requesting for their permission to use the selected health facilities within their domain. The chief medical directors of both the public and private clinics and matrons of private maternity homes were also written requesting for permission to use their health facilities. On receipt of approval further contacts and other logistics for proper take-off of the project were put in place. Only qualified midwives were used in collection of specimen.

A total of 844 randomly selected pregnant women were involved in this study. This is made up of 301 from Okigwe, 287 from Afikpo and 256 from Umuahia. These were women who have come to deliver and were in the second stage of their labour. They were administered with structured questionnaire containing obstetrics and demographic questions through the midwives on duty. Peripheral blood samples were collected by puncturing the second fingers using lancet. Thick smears were prepared and allowed to dry at room temperature. They were packed in slide pack and transported to Federal College of Agriculture Ishiagu for laboratory examination.

The placenta from each of the selected pregnant women was collected after the delivery by the midwives, placed maternal slide up and cleaned with sterile normal saline. A paracentric area was incised and a lump of biopsy specimen of about 2.5cm^3 was cut and placed in a specimen bottle containing 10% neutral buffered formaline and corked. These were transported to Abia State University Teaching Hospital Aba for histological work. In the parasitology laboratory of Federal College of Agriculture Ishiagu, slides of thick blood smears were fixed and stained with filled stains using the method of Ochei and Kolhatkar (2008). Stained slides were mounted on a high power light microspe and viewed under immersion oil. In the histopathology laboratory of Abia State University Aba, the placental biopsy specimens were processed. Staining was done using Harris haematoxyline. After sectioning, the tissue were fixed on slides, stained and counterstained with eosin. This was followed with dehydration in graded alcohol for 10 mins and clearing with xylol for 15 seconds before

mounting under cover slip using Canada balsam. Examination of the slides was done using high power microscope to detect parasites or clumps of it as black dots.

The data collected in this study were analyzed using software package for social sciences (SPSS Version 17.0)

Results and Discussion

In the overall, placental histology revealed that 512 (60.7%) of the 844 pregnant women involved in the study had malaria while only 134 (15.9%) of them had the disease by peripheral blood smear. Consequently the result of placental histology with higher sensitivity than the peripheral blood smear was taken as an index of active infection and used in the comparisons made in this work. An attempt was made to identify the health seeking behaviour of the pregnant women and its impact on malaria paraistenia. Table 1 shows the four types of health care providers operating in the area and the levels of patronage they received from pregnant women. Private /maternities delivery homes received the highest patronage with 340 (41.4%) of pregnant women in the overall. This is followed by maternal/child care centers with 223 (26.4%) of pregnant women preferring it. Private hospitals were preferred by 170(20.1%) while the least preferred was public hospitals with only 102 (12.1%) of the women. In the locations, highest preference was recorded in the private/maternity delivery home except in Afikpo where maternal/child care centers received the highest patronage of pregnant women (37.6%). Public hospitals received the lowest patronage of women (10%, 11.2% and 15.6%) respectively in Okigwe, Afikpo and Umuahia and differences were statistically significant ($X^2 = 43.9514$, $P < 0.05$). Malaria parasitemia was found to be highest (70.8%) among pregnant women who sought health care in private/maternity/delivery homes followed by those patronizing private hospitals (60%). Least infections (47.1%) was found among pregnant women who sought health care in public hospitals and maternal/child care centers (51.6%). Differences in the level of parasitemia among women who patronized the different health care providers were statistically significant ($X^2 = 30.0805$, $P < 0.05$).

Factors determining the health-seeking behaviour of pregnant women in the area was investigated. Four factors were identified playing important role in determining the health-seeking pattern of pregnant women. These included husbands decision, financial status of the family, good health attention and nearness of health service provider (Table II). Good health attention was the most important factor of consideration by pregnant women indicated by 42.3% of them. This was followed by the financial status of the family taking 20% of the women. Husbands decision was the least factor considered only by 10.6% of the pregnant women. This overall picture was mirrored in the three locations. Good health attention received first consideration of pregnant women while husbands decision was the least favoured factor in the health-seeking behaviour of pregnant women. Statistical analysis yielded a significant results ($X^2 = 42.0464$, $P < 0.05$).

For the attainment of vision 20-2020 in controlling malaria among pregnant women there is the need to study the health-seeking behaviour of pregnant women as this may reveal hindrance on the pathway and profer solutions. In the south eastern Nigeria, this study was carried out. Four types of health-care providers were identified prominently operating and receiving patronage of pregnant women.

These include

- Public hospitals established by the government with highly skilled professionals and modern equipment.
- Private hospitals established and managed by skilled private practitioners as one-man business or by non-governmental organizations (NGOs).
- Maternal/child health centers established and managed by government in the rural communities and supervised by the local health authorities. Skilled professionals are involved in providing care.
- Private maternity/delivery homes: These were established and managed by either professional midwives who opted for private practice with or without permit or by auxiliary nurses who became skilled in the art of child delivery after spending some years of tutelage in the private hospital/clinic in labour management and child delivery. Their practice is entirely orthodox and in most cases without permit. It is important to note here that the traditional birth attendants who enjoyed patronage in the primordial Igbo society were observed t have disappeared due to education and civilization which made their services archaic and unfashionable to the people. This is a good development as it would help in the dissemination of best practices in orthodox health-care delivery especially to pregnant women.

Health seeking behaviour of pregnant women reveled that even though public hospitals have the best of trained personnel, equipment and specialization required for best service delivery, they were the least preferred (12.1%) while the private maternity/delivery homes with less professional competence received the highest patronage (41.45%). This situation is worrisome as it could hinder efforts at grassroots implementation of policies and programs relating to management and control of malaria among pregnant women. This argument becomes relevant as earlier studies in the zone by Nduka *et al*., (2011) revealed that most of the Government Health Policies and program translation in the southeastern Nigeria end up in Government health facilities leaving the private clinics and maternity homes located mostly in the rural areas at the shadow. The result also points to a regrettable situation where huge resources are invested by the Government every year in training, retraining and equipping her health facilities only to be patronized by very few number of pregnant women.

We further made effort to identify the reasons behind pregnant women preferring private maternity/delivery homes to public hospitals. We found the following reasons.

- Poor attitude of staff of public hospitals to their patients. The general opinion was that staff of public hospitals handle their patients and their complaints with a laissez-faire attitude especially during labour and this creates general dissatisfaction in them. Etusim, (2010) observed this and posited that the attitude of health-care providers

can either endear them to their patients or frighten them away. Comparatively private maternity/delivery homes are believed to offer personalized friendly attention and employ maximum commitment to achieving good result which endear them to their patients. Consequently good antenatal care became the most important factor determining health-seeking behaviour of pregnant women attracting 42.3% of women.

- Next is the financial position of the family. Private maternity/ delivery homes are comparatively cheap and adopt price discrimination in their charges. They sometimes offer a bail-out to patients with severe financial distress inform of postponed completion of payment of charges. This helps them enjoy the highest patronage of pregnant women.
- Nearness of health service provider was the third factor determining health-seeking behaivour of pregnant women. In explaining the importance of nearness of health care providers Etusim, (2010) argued that as they live closely to the people they share the same dialect, market, water source and schools for their children. This increases the social marketing of their services to the people.
- Husband decision was the least factor determining the health seeking behaviour of pregnant women and could play a significant role where education and empowerment are lacking among women.

In order to mitigate the problem of poor patronage of public hospitals by pregnant women, a new reorientation is suggested. This would be achieved through public enlightenment. Ejezie, (2005) stressed on the need for public enlightenment as a tool for convincing people on the needed change. Before this is done, there should be a visible change in the attitude of staff of public hospitals.

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Tables

Table 1: Distribution of pregnant women according to their health-seeking options and levels of malaria parasitenia

	Okigwe		**Afikpo**		**Umuahia**		**Total**	
Types of health care providers	**No of Prg. Women (%)**	**No infected (%)**	**No of Prg. Women (%)**	**No infected (%)**	**No of Prg. Women (%)**	**No infected (%)**	**No of Prg. Women (%)**	**No infected (%)**
Public hospitals	30(10)	13(43.3)	32(11.2)	15(46.9)	40(15.6)	20(50)	102(12.1)	48(47.1)
Private hospitals	54(17.9)	34(62.9)	51(17.8)	32(62.7)	65(25.4)	36(55.4)	170(20.1)	102(60)
Private maternity/delivery homes	152(50.5)	119(78.3)	96(33.5)	64(53.8)	101(39.5)	64(63.4)	349(41.4)	247(70.8)
Maternal/child health centers	65(21.6)	34(52.3)	108(37.6)	56(51.9)	50(19.5)	25(50)	223(26.4)	115(51.6)
Total	301(35.7)	200(66.5)	287(34)	167(58.2)	256(30.3)	145(56.6)	844(100)	512(60.7)

Table 2: Factors determining antenatal care-seeking behaviour of pregnant women in the study locations

Factors	**Okigwe No (%)**	**Afikpo No (%)**	**Umuahia No (%)**	**Total No (%)**
Husband decisions	35(11.6)	30(10.5)	24(9.4)	89(10.6)
Finance status of Family	87(28.9)	77(26.8)	89(34.8)	253(30.0
Good antenatal attention	135(45.2)	119(41.5)	102(39.8)	357(42.3
Nearness	43914.3)	61(21.3)	41(16.0)	145(17.2)
Total	**301(35.7)**	**287(34)**	**256(30.3)**	**844(100)**