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The Impact of Malaria on the People of Anambra State Nigeria and their Response to the Disease

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Abstract

Malaria has been identified as a major public health problem in sub-Saharan African countries such as Nigeria, where the disease's morbidity and mortality for children under 5 years of age, pregnant women and the very old is very high [1]. Anambra State and Nigeria as a country have experienced a continuous lack of access and healthcare underutilization of biomedical health services for malaria treatment and has suffered immensely due to poverty [2]. Malaria more heavily affects people who are in poverty, as they have no means of paying for healthcare. It is a common infectious disease that is widespread in most tropical regions of the world, especially Asia and Sub-Saharan African countries where malaria infects about 515 million persons a year and is responsible for 1.5 to 2 million deaths per annum among children under age 5. Malaria has been linked to poverty, since it is known to affect people and regions in poverty that cannot afford malaria treatment (WHO, 2015).

Keywords: Malaria; Poverty; Healthcare; Utilization; Access

Introduction

Malaria is an infectious disease with very high morbidity and mortality in Anambra, Nigeria Mbachu, Uzochukwu, Onwujekwe, Ilika, & Oranuba, 2013. Malaria has been identified as a major public health problem in sub-Saharan African countries such as Nigeria, where the disease's morbidity and mortality for children under 5 years of age, pregnant women and the very old is very high [1]. Malaria is one of the major causes of preventable death and the third leading cause of death among infectious diseases [3]. It is a common infectious disease that is widespread in most tropical regions of the world, especially Asia and Sub-Saharan African countries where malaria infects about 515 million persons a year and is responsible for 1.5 to 2 million deaths per annum among children under age 5. Malaria has been linked to poverty, since it is known to affect people and regions in poverty that cannot afford malaria treatment (WHO, 2015).

Statement of the problem

Malaria is a deadly infectious disease that is transmitted by protozoan parasites and poses huge public health crises in poor countries [4]. The disease is the most common cause of outpatient visits in Nigeria [3]. Most rural Nigerian towns experience high malaria transmission, with an estimated 990,000 people dying from malaria in 1995; that is more than 2,700 deaths per day, or 2 deaths per minute. Among children under 5, malaria is responsible for the deaths of 1.5 to 2 million people every year [5]. An initial literature review revealed that the relationship between culture and healthcare seeking behavior is unclear. Furthermore, the nature of the relationship between the local religions practiced in Anambra and malaria treatment seeking behavior needs to be clarified. The problem is that, while scientists know that malaria is one of the most complex diseases facing mankind, and is responsible for 25% infant mortality and 30% childhood mortality in Nigeria [5]. Researchers do not know how local cultures and religions influence how people see malaria treatment.

Human malaria parasites

In 1890, Italian investigators Giovanni Batista Grassi and Raimondo Filetti introduced the *Plasmodium vivax* and *P. malariae* two of the malaria parasites that affect humans. Laveran had believed that there was only one species, *Oscillaria malariae*. An American, William H. Welch, reviewed the subject and, in 1897, named the malignant tertian malaria parasite *P. falciparum*. It was not until 1922 that John William Watson Stephens identified the fourth human malaria parasite, *P. ovale* (WHO, 2015). Today, *P. falciparum* is still an active and effective human pathogen [1].

Who is most vulnerable

Young children and the very old with little or no protective immunity against malaria are the most vulnerable [6]. Pregnant women in their first and second pregnancies, whose immunity has decreased, along with immigrants to places where malaria has high transmission rate are also highly vulnerable [1]. Places such as the sub-Saharan African countries are also highly vulnerable as they maintain high transmission rate. In areas with lower transmission (such as Latin America and Asia), residents are less frequently infected. Many persons may reach adult age without having built protective immunity and are thus susceptible to the disease (WHO, 2015).

Causative agent

Malaria parasites are transmitted by female *Anopheles* mosquitoes (WHO, 2015). When the parasites make it into the human blood stream they multiply within red blood cells, causing symptoms that include light-headedness, shortness of breath, tachycardia, as well as other general symptoms such as fever, chills, nausea, flu-like illness, and in severe cases, coma and death [7]. Malaria can be prevented by avoiding bites from mosquito by making use of mosquito nets, using insect repellents, or using the many available mosquito control measures which includes spraying insecticides inside houses and draining standing water where mosquitoes lay their eggs (CDC, 2012).

There are four different species of these plasmodium parasites that are capable of infecting humans [7]. The *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium ovale* and *Plasmodium malariae* are introduced into humans during a blood meal, the most lethal being *Plasmodium falciparum* [7]. While in the blood stream, they spend some parts of their life cycles inside a mosquito, and the remaining cycle is spent in humans. Parts of the life cycle that is spent in human body allows the parasites to infect and multiply in the liver and in red blood cells. The red blood cells eventually burst from the increasing numbers of the multiplying parasites infecting more blood cells while the ones in the liver are broken down and excreted. *Plasmodium falciparum* is responsible for causing the fatal types of malaria in humans (CDC, 2012).

Humans infected with malaria parasites can develop a wide range of symptoms that varies from asymptomatic infections, to the classic symptoms of malaria such as fever, chills, sweating, headaches, and muscle pains, to severe complications such as cerebral malaria, anemia, and kidney failure that can result in death [7] The severity of the symptoms depends on factors such as the type of species infecting parasite and the human's acquired immunity and genetic background (WHO, 2015).

The blood stage parasites are those that cause the symptoms of malaria. When certain forms of blood stage parasites (gametocytes) are picked up by a female *anopheles* mosquito during a blood meal, they start another, different cycle of growth and multiplication in the mosquito (CDC, 2015). The parasites are found in mosquitoes' salivary glands in about 10 to 18 days. If and when an *anopheles* mosquito bites a human taking a blood meal, the sporozites are injected with the mosquito's saliva and start another human infection when they parasitize the liver cells. This is how a mosquito carries the disease from one human to another (CDC, 2015). In parts of Mexico, Central and South America, Africa, Haiti, India, Pakistan, Turkey, Afghanistan, Sri Lanka, Bangladesh, Nepal, Maldives, China, South Asia, Papua New Guinea, Malay Archipelago, and several South Pacific Islands, malaria is carried by mosquitoes [8]. Residents of counties that have high infection rates have been exposed to malaria parasites on many occasions. In general, after the initial infection, a person's immune system creates a protection so that consequent infections are not as severe as the initial one, assuming that one is infected within the next 2 years. If one does not experience any further infection within 2 years, the immunity usually dissipates [8].

Other than by mosquito bites, malaria can also be spread in high transmission areas by receiving contaminated blood transfusions, sharing drug needles, and by transportation of contaminated organs. Pregnant mothers can pass malaria to their unborn children through the umbilical cord, leading to low birth weights and sometimes fatality [4].

Factors that determine the occurrence of malaria

For malaria to occur in any environment, three components must be present: humans, *anopheles* mosquitoes, and parasites. *Anopheles* mosquitoes must be in contact with humans, and the parasites must be in contact with humans to complete the "invertebrate host" half of their life cycle. However, in rare occasions, malaria parasites can be transmitted from one person to another without requiring passage through a mosquito, as in malaria transmission from mother to child (congenital malaria), shared needles, blood transfusion, and organ transplantation [4].

Climate

All three components can be influence by a number of things, the most important of which is the climate. Changing climate conditions give rise to increased infectious disease such as malaria [3]. Water from rainfall can accumulate in places that become breeding sites for *anopheles* mosquitoes to lay and deposit their eggs, and larvae and pupae develop into adulthood. This process takes approximately 9-12 days in most tropical countries. These breeding sites can be eradicated if sites dry up prematurely due to lack of rainfall, or they can be flushed away by erosion and destroyed by excessive rains. Areas with standing water, such as those created by dams built by farmers to irrigate their crops, become breading grounds for the mosquitoes that carry malaria [9].

The surrounding temperature, rainfall, and humidity determine the survival chances of these adult mosquitoes. For malaria transmission to be successful, female *anopheles* must survive long after they infect the human blood to enable the parasites to complete their growth cycle. These cycles range anywhere between 9 to 21 days with an ambient temperature that ranges between 25°C or 77°F. The warmer the temperature, the shorter the cycle, a condition that elevates the chances of transmission [2].

Climate also determines human behaviors that may increase contact with *Anopheles* mosquitoes between dusk and dawn, when the *anopheles* are most active [4]. Hot climate conditions increase the chances of people contracting food poisoning, malaria, and a host of other infectious diseases [7] Hot weather may encourage people to sleep outdoors or discourage them from using bed nets exposing themselves mosquito bites. During harvest seasons, agricultural workers might sleep in fields or nearby locales, without protection against mosquito bites. It has been speculated that current trends of global warming may increase the geographic range of malaria and may be responsible for malaria epidemic [3]. Global environmental degradation that includes soil erosion from heavy rains, deforestation, no clean drinking water and clean environments all contribute to increased risks of infectious disease including malaria [9].

Population at risk

The populations at risk are citizens of Anambra State and, like most parts of Nigeria, the impact of malaria has posed a huge public health concern [2] Ethnically, the people of Anambra State are Igbo and are mainly Christians with a few traditional worshipers [10]. Their enterprising business acumen has earned them the reputation as skilled business people. Their native language is Igbo, while English is widely spoken and used in schools for education.

Because of limited dry land due to undulations and narrow ridges above the flood plains, the state has small land area for settlement [9]. The settlement pattern is further dispersed, especially on deep slopes; however, due to the urbanization of places such as Nnewi, Onitsha, Nkpor, Awka, Obosi, and Akpoko, large cities have come have become part of the landscape. The northern part of the State that is surrounded more by the rivers Anambra and Niger are settled more closely due to the deep slopes [2].

Anambra State was created in 1976 but was broken into Anambra and Imo States when East Central State was divided. Since that time, the state has been comprised of the present Anambra State and Enugu State, which covers parts of Ebonyi State and Abakaliki. In 1991, the state was further divided into Enugu State and Anambra State as

presently constituted, with Awka as its capital. The state derives its name from the Anambra River, the largest, most southerly, left bank tributary of the River Niger. The river derived its name from the town Anam that it surrounds–the river is the source of livelihood for the Anam people as they rely on it for fishing and the irrigation of the farmlands. Anambra State is located on very low elevation on the eastern side the River Niger with a total land area of 4,416 sq.km. The state shares boundaries with Enugu, Kogi, Imo, Delta, Abia, Edo, and Rivers states [11].

Anambra state is made up of 21 local government areas with the state capital at Awka, known for its craft industries, especially wood carving and blacksmithing [12]. The state is divided in to three main senatorial districts, (a) Anambra North, comprising Awka North and South, Njikoka, Dunukofia, Anaocha, and Idemili North and South Local Government Areas (LGAs); (b) Anambra Central, made up of Onitsha North and South, Ogbaru, Oyi, Ayamelum, and Anambra East and West LGAs; and (c) Anambra South consisting of Orumba North and South, Aguata, lhiala, Ekwusigo, and Nnewi North and South LGAs [13]. The 1991 National census estimates the population of the state to be 2,796,475 within its 4,416 sq.km, meaning that the average population density is 633 persons per 1 square kilometer making it one of the most densely populated states in Nigeria [14]. The urban centers appear to be more populated than the rural areas with averages exceeding that of the state where Nnewi is sporting 738 persons per square kilometer, Nijikoka at 1,379, Aguata at 1,420, Idemili at 14,448 and Onitsha at 3,771 (Encyclopedia Britannica, 2015) [15].

Summary

This paper provided the main intent of this study including the purpose of the study, the problem statement, the population at risk, the theoretical framework, research questions and the background of the problem [16,17]. The paper discussed malaria as one of the major causes of morbidity and mortality for children under five in most tropical countries including Anambra State, Nigeria [18,19]. The study identified and fingered poverty as the main cause for lack of accessing malaria treatment while pointing out that cultural beliefs, religion, disease awareness and perception of healthcare are contributing factors influencing healthcare-seeking behavior in the state.

References

1. Iwuafor A, Egwuatu CC, Nnachi AU, Ita Okokon I, Ogban GI, et al. (2016) Malaria Parasitaemia and the use of insecticide-treated nets (INTs) for malaria control amongst under-5 year old children in Calabar, Nigeria. BMC Infect Dis 16: 151.
2. Mbachu CO, Onwujekwe OE, Uzochukwu BC, Uchegbu E, Oranuba J, et al. (2012) Examining equity in access to long-lasting insecticide nets and artemisinin-based combination therapy in Anambra State, Nigeria. BMC Public Health 12: 315.
3. Uguru NP, Onwujekwe OE, Tasie NG, Uzochukwu BS, Ezeoke UE (2010) Do consumers' preferences for improved provision of malaria treatment services differ by their socio-economic status and geographic location? A study in southeast Nigeria. BMC Public Health 101-106.
4. CDC (2014) Center for Global Health, Division of Parasitic Diseases and Malaria.
5. Kiemde F, Spijker R, Mens PF, Tinto H, Boele, M, et al. (2016) Aetiologies of non-malaria febrile episodes in children under 5 years in sub-Saharan Africa. Trop Med Int Health 21: 943-955.
6. Mbachu CO, Uzochukwu BC, Onwujekwe OE, Ilika AL, Oranuba J (2013) How do health workers perceive and practice monitoring and evaluation of malaria control interventions in South-east Nigeria? BMC Health Services Research 13: 1-9.
7. Hyacinth EI, Ataguba JE, Fonta WM (2013) Economic behavior of medicine retailers and access to anti-malarials. International Journal of Social Economics 40: 367-384.
8. WHO (2010) Working to overcome the global impact of neglected tropical diseases. World Health Organization, WHO, Geneva, Switzerland.
9. Ito EE, Egwunyenga AO (2015) Schistosomiasis: The Aftermath of 2012 Floods in Delta State, Southern Nigeria. International Medical Journal 22: 218-223.
10. Onwujekwe O, Uguru N, Etiaba, E, Chikezie I, Uzochukwu B, et al. (2013) The Economic Burden of Malaria on Households and the Health System in Enugu State Southeast Nigeria. Plos ONE 8: 1-5.
11. Onyeneho NG, Idemili-Aronu N, Igwe I, Iremeka FU (2015) Perception and attitudes towards preventives of malaria infection during pregnancy in Enugu State, Nigeria. J Health Popul Nutr 33: 22
12. Adigun AB, Gajere EN, Oresanya O, Vounatsou P (2015) Malaria risk in Nigeria: Bayesian geostatistical modelling of 2010 malaria indicator survey data. Malar J 4: 1-8.
13. Deressa W, Ali A, Enqusellassie F (2003) Self-treatment of malaria in rural communities, Butajira, southern Ethiopia. Bull World Health Organ 81: 261-268.
14. Fagbamigbe AF, Bamgboye EA, Yusuf BO, Akinyemi JO, Issa BK, et al. (2015) The nigeria wealth distribution and health seeking behaviour: Evidence from the 2012 national HIV/AIDS and reproductive health survey. Health Economics Review 5: 1-10.
15. Isiguzo C, Anyanti J, Ujuju C, Nwokolo E, De La Cruz A, et al. (2014) Presumptive Treatment of Malaria from Formal and Informal Drug Vendors in Nigeria. Plos ONE 9: 1-14.
16. Okeibunor JC1, Orji BC, Brieger W, Ishola G, Otolorin E, et al. (2011) Preventing malaria in pregnancy through community-directed interventions: evidence from Akwa Ibom State, Nigeria. Malaria Journal 10: 227-236.
17. Rollbackmalaria (2016) For malaria free world.
18. WHO (2012) Schistosomiasis: progress report 2001-2011 and strategic plan 2012-2020.World Health Organization.
19. WHO (2010) World Malaria Report