

Assessment Of Factors Responsible For The Recurrent Outbreak Of Lassa Fever In Nigeria: Health Education Perspective

Kwaskebe Justina

Ph.D. Research Student, Public Health Department, Adeleke University,
Ede, Nigeria

Abstract: Lassa fever, as an acute and fatalistic hemorrhagic infectious disease poses great public health tension in most West African countries, especially in Nigeria. Which its perennial resurgence, the disease has become one of the most dreaded public health emergencies that bedevils the country nearly within ceaseless intervals. Recent Lassa fever outbreaks in Nigeria has truly increased the awareness of the need for venturing into grass root solutions that is aimed at achieving a lasting panacea and emancipate the society from subsequent resurgence. As a descriptive study, this paper seeks to underscore diversified, and assiduous health education modalities to be adopted as indefatigable public health approach in controlling the perennial recurrence of Lassa fever in Nigeria. Thus, the research assumes that such modalities will set precedence for an intensified health education in rural and developed areas. Reaching the people in their localities, and using every available form of communication in promoting a grass root oriented health and hygiene projects, with unanimous intention of ridding the society of Lassa fever public health hazard. Educating people in high-risk areas about ways to decrease rodent populations in their surroundings and homes, and promoting community-based approaches that the masses can use to avoid rodent-human transmission, being the primary source responsible for the outbreak of Lassa fever.

Keywords: Factors, Lassa fever, Outbreak, Recurrent.

I. ENDEMIC NATURE OF LASSA FEVER IN NIGERIA

Lassa fever had been reported as a cause of many deaths, especially in endemic parts of Nigeria (Olowookere et al 2017). Since the year 1969, when the very first case index of Lassa virus was discovered in Lassa community, in northern part of Nigeria, the outbreak of Lassa fever has assumed endemic proportion with yearly resurgences in West African countries, with Nigeria, Sierra Leone, Guinea, and Liberia being major epicenters, with devastating public health implications (Omeh et al 2017). The etiological agent of Lassa fever, being Lassa virus has been isolated from patients from several countries in West Africa. Tracing the virus to the *Mastomys natalensis* rodents which are enzootic in such areas (Clegg and Lloyd, 1984). Lassa fever is a viral hemorrhagic disease caused by the Lassa virus (LASV) and endemic in West African countries with an estimation of 300,000 to 500,000 cases and 5,000 deaths annually (Abyot et al 2018).

These viruses are mainly transmitted through contact with the excreta of their natural hosts, rodents of the family *Muridae* (Lecompte et al 2006). The Old World arenavirus Lassa virus causes up to 300,000 cases of Lassa fever annually in endemic regions of West Africa (Lecompte et al 2006).

II. CURRENT STATISTICS OF LASSA FEVER EPIDEMIC IN NIGERIA

In the recent years, the continuous outbreaks of Lassa fever have risen tremendously in Nigeria. Taking a look at the records of reported outbreak cases in the concluding quinquennium in Nigeria; cases have increased since 2016 with the highest number, 633 cases, reported in 2018. From 1 January to 28 April 2019, 554 laboratory-confirmed cases including 124 deaths were reported in 21 states in Nigeria. (Dan-Nwafor et al 2019). In 2019, NCDC reported 793

number of confirmed cases with 162 fatalities. In the present year 2020, a total number of 1,026 Lassa fever cases has been reported, leading to 212 number of deaths between January and June 7, 2020 (NCDC 2020). With the present resurgence of older diseases like Lassa fever and the outbreak and spread of emerging infectious diseases such as corona virus in Nigeria, there is a demand for immediate and sustainable public health action.

III. FACTORS LIMITING THE CONTROL OF LASSA FEVER OUTBREAK IN NIGERIA

Variety of militating factors are existing and hampering the needed overall steps towards emancipating West Africa from the perennial shackles of Lassa virus outbreak that bedevils the region. Such factors beckon for identification and attention in order to ensure the winning of the long-existing battle of Lassa fever, a public health crisis that tortures the West African region on yearly basis.

POOR PUBLIC AWARENESS

Those who live in very rural and sub-urban communities experience poor awareness of the reality of Lassa fever (Olayinka et al 2019). Such lack of proper awareness result to continuous outbreak of Lassa fever in most rural communities in Nigeria, the populace seems to be devoid of serious health campaigns (Olayinka et al 2019). According to findings in (Ekanem et al 2018), there are reported misconceptions among community members concerning the knowledge of transmission, prevention and even practices to prevent Lassa fever infection. Irrespective of the best efforts to prevent future outbreaks of Lassa virus, the current resurgence in Nigeria which has again caught the international community remains a manifestation of the level of ill preparedness (Bryce et al 2018). Study findings revealed that those who should help in circulating proper awareness of the need good hygiene do not put in their very best. Even teachers in early childhood school do not show positive attitude towards upholding health and safety precaution in the learning environment (Olabisi et al 2015). Also, gender does not determine teachers' attitude to safety and health precautions. The school which should be grooming avenue for hygiene learning put less determination, the level of teachers' attitude to safety and health precautions remains at crippled stage. Based on the findings of previous studies, recommendations have been made in Olabisi et al (2015) that teacher training institutions for child educators should include courses on safety and health in their curriculum and regular workshop and training be organized by stakeholders to update teachers on issues about health and safety of children in early childhood schools, as those who got the necessary idea of disease prevention through hygiene will stand better opportunity to educate others.

RODENTS ACCOMMODATION IN HUMAN HABITATION

Wild rodents, especially the *Mastomys natalensis* species are known to be carriers of arboviruses. These small mammals

such as mice and rats are known to be in abundance in many regions throughout Sub-Saharan Africa, most of these have been described as reservoirs for many human pathogens including Lassa fever (Odoom 2014). Previous studies conducted in Nigeria in areas where Lassa fever cases have been reported shows that the infected rodents were trapped near human residential areas even inside the dwelling places (Wulff). Irrespective of specification in the isolation and identification of rodent groups, reported findings prove that Lassa virus infected rodents are of significant existence in Nigeria. The infected rodents orchestrate the transmission and outbreak of Lassa virus among humans (Wulff). The channel of the virus transmission begin from the contact activities of the *multimammate* rodents (*Mastomys natalensis*), being the reservoir of the Lassa virus through their fluids directly or indirectly with humans. This process results to zoonotic transmission of the virus (Bonwitt et al 2017). The urine, blood, even the saliva of an infected *Mastomys* rodent could be responsible to an outbreak of Lassa virus. Unfortunately, it has been observed that poor housing style and domestic arrangement encourage the sustained breed and population of the *Mastomys* rodents in and around communities and households in Nigeria. Consequently exposing humans in such communities to the transmission of Lassa virus from the *Mastomys* to humans (Bonwitt et al 2017). Transmission from rodents to humans is present both in the rainy and the dry season (Fichet-Calvetm et al 2007). This shows the danger of the occurrence of Lassa fever cases throughout the year. However, during dry season there is more risk of humans encountering *Mastomys* and their excreta inside living houses which may result in the increase of rodents to human transmission of Lassa virus cases leading to intensified community spreading of the virus. (Fichet-Calvetm et al 2007).

CONSUMPTION OF RODENTS

Diseases from rats are transmitted through eating of rats, rat bite and through several indirect contacts (Griebsh and Norris 2019). The spread of Lassa virus is very flexible and common in many sub-urban areas of West Africa. The primary transmitting and movement of this rodent-borne hemorrhagic fever begins from rodents to human, and then human to human (Giovanni et al 2015). In it all, rodent to human is foundational to Lassa virus transmission, because of the frequent nature of humans' interaction with rats; such as the consumption of rats by humans and the infestation of food items by Lassa virus carrier rats, through their saliva, urine, blood or faeces (Giovanni et al 2015). There is an inherent disgusting value in anything pertaining to rodents, as it is obvious that rats transmit diseases to humans both directly and indirectly (Rainey 2014). The Center for Disease Control (CDC) has identified and listed several deadly diseases that are transmittable directly or indirectly from rats to humans. Diseases such as; hemorrhagic fever, *salmonellosis*, *leptospirosis*, rat-bite fever, *listeriosis* and others (Rainey 2014). However, in many parts of the world, including countries in sub-Saharan African region, rodent meat is celebrated with high spirit. For instance, in various Nigerian communities, meat from rodents constitute long cherished

traditional food menu. In most cases various rat species are identified by their delicious taste and are served as special delicacy and usually much more expensive than either meat or fish (Oyarekua in Gruber 2015). The nature of the frequent interactions of rodents with human, both from the eating of rats and the consumption of foods infested by rats are precursory to the outbreak and transmission of Lassa virus.

POOR FOOD SECURITY AND HYGIENE

Rodents have been identified as serious threat to food security and safety. Results of findings show how humans live with and also come into contact with rodents, including those that are LASV reservoirs (Bonwitt, et al 2017). In Nigerian communities, the knowledge, attitude, as well as preventive practices to Lassa fever are poor (Olowookere et al 2017). It is a situation that calls for an increase in public education and the promotion of meticulous approach to improve hygienic practices. The practice of preventive hygienic measures remains one of the highly needed means to tackle the continuous resurgence of Lassa fever in Nigeria. However, findings in Gobir et al (2019) shows that there is a very high level of lack of the knowledge of hygiene, especially in the rural communities. The proper understanding of the fact that the prevention of the outbreak and spread of Lassa virus largely depends on the practice of both home and environmental hygiene. Furthermore, the failure of the understanding and practice of home and environmental hygiene is traced to mass illiteracy, especially among the housewives who are the custodians of home maintenance as research indicates that those who have formal education could better understand and practice the needed tenets of home hygiene (Gobir et al 2019). Amidst the educated women, there is high proportion of the ability of keeping food away from the rich of rats as cautions are put in place of how to understand and discard foods that have possibly been touched by rodents.

POOR HOUSING AND ENVIRONMENTAL SANITATION

One of the major factors that is leading to the constant resurgence of Lassa fever in most West African countries is the lack of proper awareness and knowledge of Lassa fever sustained by poor housing facilities (Adebimpe and Olalekan 2015). People who live in overcrowded rooms constantly encounter the intrusion of rats inside their houses both in the kitchens and living rooms. Human behavioral factors that are likely to contribute to rodent infestation of Lassa virus and high risk in community include, poor community hygiene, poor housing quality which are evident in rodent burrowing in houses where humans are living (Moses 2012). High human density in homes has also been associated with LF risk. It is unknown if human crowding increases rodent abundance and subsequent contact with LASV-infected rodents or if increased human density enhances person-to-person transmission. In Guinea, consumption of rodents was associated with a higher human seroprevalence of LASV antibody. A number of other human behavioral and environmental factors have been postulated to affect commensal *Mastomys* abundance and LASV transmission including food and water storage

practices, house proximity to fields, and type of house construction.

LOW FUNDING OF HEALTH CARE SYSTEM

In Nigeria, the funding of expenditure and sustenance of health care comes from diversified sources. This involves the government, international donors, non-governmental organizations (NGOs) and private sector (Eneji, et al 2013). However, the hallmark budgetary and allocations come from the government at various cadre; the federal, state and at the local government level (Eneji, et al 2013), with attending challenges that impacts healthcare delivery in the face of surging public health crisis, like that of Lassa fever. Most outbreaks of Lassa virus are usually accompanied by a high fatality rate if not discovered, diagnosed and treated promptly (Grove et al 2011). Challenging factors crippling the needed level of health care delivery in Nigeria ranges from inadequacy in standard and enough healthcare facilities, resulting from poor health funding, improper human resource management which could be traced to lack of job motivation and poor remuneration (Obansa and Orimisan 2013). The influence of corruption, unequal economic and political relation which manifest in in lack of procurement or the procurement of sub-standard healthcare facilities, leading to poor diseases surveillance and control cannot be ignored (Obansa and Orimisan 2013). Consequently, amidst such low economic status and the amalgamation of the noted vices, the scourge of Lassa fever in the endemic areas surfaces from time to time, and often remains misdiagnosed and untreated. A review in Uzochukwu et al (2015) attests to the fact that the Nigerian government has put in place various policies and plans to address health care financing. These policies often times become paralyzed with issues related to how and from where to raise sufficient funds for health; how to overcome financial barriers that exempt many poor citizens from accessing the needed health services; and how to provide an equitable and effective operation of healthcare services. Some of the policies and plans consists of the National Health Policy, Health Financing Policy, National Health Bill and National Strategic Health Development Plan 2010–2015 (Uzochukwu et al 2015).

IV. CONCLUSION

With the continuous outbreak of Lassa fever disease with high endemic degree in West Africa, the countries in question are faced with more challenging healthcare responsibilities that must not be snubbed. The government and the people have to realize that the yearly outbreaks of Lassa fever in the endemic regions with its high morbidity and mortality, and create serious public health impacts which are impediment to nation building. In as much as Lassa fever remains a resurgent public health crisis in Nigeria and the neighbouring countries, it is not just a threat to West Africa alone, but also to the entire globe, especially in the face of heightened and continuous intercontinental relations and rapid globalizing phenomena and transactions at various facets. Unfortunately, as the case were, several efforts invested in attempts to pursue a lasting

solution and control of Lassa fever is overwhelmed by resource scarcity in the endemic West African region. Furthermore, lack of adequate research programs, illiteracy, poor political will power, lack of energetic sustenance in the activities of donor agencies of both the international and local levels are altogether hampering the winning of the fight against Lassa fever in the affected areas. There is absence of solid and proactive measures in controlling the menace of Lassa fever, which should be reversed towards the targeting of adequate health education of the masses, training of health care professionals, consistent public health campaigns, and improved policies that will yield the long awaited result in order to eradicate Lassa fever and its long existing scourge in the sub-Saharan Africa.

V. RECOMMENDATIONS

Public health workers should develop socio-cultural and socio-religious system of public health promotion and health education that is solely aimed at winning the battle of the perennial resurgence of Lassa fever in Nigeria, since religion occupies a center-stage in the daily life of every Nigerian. Thus religious language could better be suitable in reaching the people with consistent effort to convince them of their obligation in eradicating the scourge of Lassa virus in human community.

There is need for unrented and continuous health education and awareness campaigns. Taking the message and supervised methods to private homes and corporate bodies, forming an appropriate techniques and measures for the processing and storage of food, for both personal, family and commercial purposes.

Formal education should be encouraged with all amount of sincerity especially among the female folk. This will speed up the level of better knowledge and understanding of the nature of disease at least at the primary level. Women who passed through elementary and secondary schools have better understanding of home hygiene and food protection compared to those that did not experience any form of formal education.

Governmental policies should be prepared in such a way that reasonable proportion annual budget fund reserve and fund allocations should be made available for proper running of health system services, covering surveillance, disease control, sustained and successful clinical research for accurate vaccine as well as assiduous and tenacious public health education and promotion in both urban and rural communities.

Primary health care system should be made viable and empowered to reach the people and also ensuring that other public health and social welfare facilities are put in place for the people in a sustainable manner.

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