

Original Research Article

## Assessment of Knowledge of Lassa fever Among Residents in North-Eastern Nigeria

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### ABSTRACT

**Introduction:** Lassa fever is an acute viral hemorrhagic illness caused by Lassa virus, a member of the virus family it has a huge negative impact on the health of residents from the North-Eastern part of Nigeria and the people globally. In Nigeria, the recent outbreak in Bauchi State which occurred mid-November 2015 was unprecedented. By January 2016, the virus had already spread to other states like Nasarawa, Niger, Taraba, Kano, Rivers, Edo, Plateau, Gombe and Oyo. This study assessed the knowledge of Lassa fever among residents of North-Eastern States of Nigeria.

**Materials and Methods:** The study employed a descriptive survey research design. The population included all residents from the study area estimated number of 18,971,96. The sample was drawn based on Krejcie and Morgan (1971). Data was collected using structured questionnaire. Data collected was analyzed using SPSS version 22.

**Results:** knowledge of Lassa fever of 384 residents in North Eastern Nigeria who filled the questionnaire, 183 representing 47.7% were males, while 201 representing 52.3% were females. Using Chi-Square it was statistically significant ( $P<0.05$ ). It has been found that the P- Value of .001 when knowledge of Lassa fever between male and female residents were compared.

**Discussion:** Data were analyzed using descriptive and inferential statistics. A total of 400 questionnaires with completed data were analyzed (response rate 96%). Majority, 207 (51.8%), were males while 193 (48.2%) were females. Most, 234 (58.5%), had tertiary education while 148 (37%) had secondary education. Fifty-nine percent had heard of Lassa fever with radio as their major source of information. About 76% had inadequate knowledge, 54% had negative attitude while 51% had poor practice toward Lassa fever. Determinants of knowledge of Lassa fever include having higher education (Adjusted Odd Ratio (AOR)=11.49, 95% CI [3.10, 42.69],  $p=.0001$ ), being in civil service (AOR = 0.22, 95% CI [0.09, 0.51],  $p=.01$ ), and earning higher income (AOR = 4.23, 95% CI [2.61, 6.84],  $p=.0001$ ).

**Conclusion:** The study revealed that there is no significant difference between male and female residents in their knowledge of Lassa fever prevention in the North-Eastern States, Nigeria. Conclusion: Knowledge towards Lassa fever was highly connected with the level of education of the respondents in the North Eastern States of Nigeria.

**Keywords:** Knowledge, Lassa fever

### INTRODUCTION

Lassa fever is an acute viral hemorrhagic illness caused by Lassa virus, a member of the virus family Arenaviridae. Lassa fever is an acute viral zoonotic illness

caused by Lassa virus, an arenavirus known to be responsible for a severe haemorrhagic fever characterized by muscle aches, sore throat, nausea, vomiting, and chest and abdominal pain. The virus exhibits

persistent, asymptomatic infection, with profuse urinary virus excretion in *Mastomys natalensis*, the ubiquitous and highly commensal rodent host. Lassa fever is endemic in West Africa and has been reported from Sierra Leone, Guinea, Liberia, and Nigeria where it was first discovered.<sup>(1)</sup>

Outbreaks have been reported in Ghana, and serological evidence of human infection has been found in Ivory Coast, Senegal and Mali.<sup>(2,3)</sup> The virus is shed in their excreta (urine and feces), which can be aerosolized and inhaled by humans. Primary mode of spread is from rodent to man through contact with rodent excreta or urine in food or during hunting and processing of rats for consumption. The virus has the capacity for person to person spread, either within households during care for sick relatives or in health care settings.<sup>(4)</sup> Percutaneous or per-mucosal exposure to blood and other infected body fluids, especially if the fluids contain blood, can result in secondary human spread.

There have been reports of outbreaks in Ghana and Ivory Coast, however, several imported cases with hazardous outcomes have been reported in countries where it is not endemic which first case was reported in 1969 where two missionary nurses along with some other hospital workers were infected and lost their lives in the process at Lassa Village, Nigeria.<sup>(5,6)</sup>

Lassa fever presents initially with symptoms and signs that are common with other viral and bacterial infections and indistinguishable from those of febrile illnesses such as typhoid, malaria and other viral haemorrhagic diseases such as Ebola. All age groups are susceptible and it has an incubation period of 6-21 days, it is difficult to diagnose clinically but should be suspected in patients who present with fever ( $>38^{\circ}\text{C}$ ) that does not respond to antimalarial and antibiotic drugs, sore throat, retrosternal pain, conjunctivitis, bleeding from orifices, petechial haemorrhages, abdominal pains, vomiting and diarrhea. Multiple organ damage and

sensorineural hearing loss are part of the complications associated with Lassa fever.<sup>(7,8,9)</sup>

In Nigeria, the recent outbreak in Bauchi State which occurred mid-November 2015 was unprecedented. By January 2016, the virus had already spread to other states like Nasarawa, Niger, Taraba, Kano, Rivers, Edo, Plateau, Gombe and Oyo. A total of 81 cases and 35 deaths were reported, with a mortality rate of 43.2%.<sup>(10)</sup> The speculation is that Lassa viral infection may affect between 2 to 3 million people each year in certain portions of the West African region, causing a mortality of about 10,000 during the same period. Lassa fever is one of the endemic zoonosis in Nigeria with a high probability for nosocomial transmission due to several health care sector challenges. Although treatment is available for Lassa fever, early diagnosis is still difficult in almost all Nigerian health care institutions.<sup>(11,12)</sup>

A suspected outbreak of the current Lassa fever epidemic in Nigeria was reported on the 8<sup>th</sup> January 2016. By 14<sup>th</sup> January, 2016, the number dead were 53 from 140 suspected cases in 14 states with a case fatality rate (CFR) of 37.9% and as at 20 January 2016 the number of deaths had reached 63 from 210 suspected cases in 17 states of the country, although local media reported 212 suspected cases. It is also reported that the local media had warned of potential deaths as high as 1,000 from the outbreak. It was further quick to point out that some sources reported the first case of Lassa fever outbreak in November 2015, in North Eastern state of Bauchi, while others reported August 2015, in Niger state.<sup>(13,14)</sup> The lack of prompt response to deaths due to Lassa fever as a result of cultural and religious beliefs from the northern states which led them to not reporting the Lassa fever cases in the states. According to Disease outbreak news of 27 January 2016, the outbreak of Lassa Fever from August 2015 – 23 January 2016, was 159 suspected cases of Lassa Fever, including 82 deaths across 19 states. It is against this

background that the study is designed to Assess the knowledge and practice towards prevention of Lassa fever among residents of North- Eastern Nigeria.

### **Statement of the Problem**

The ideal requirement demands that residents from north- eastern part of Nigeria should perceive knowledge and practice towards prevention of Lassa fever as a social support their health. It is also expected that health care providers should educate people on the importance and benefit of knowledge and practice towards prevention of Lassa fever.

In Nigeria Lassa fever outbreaks occur almost every year in different parts of the country, with yearly peaks observed between December and February. <sup>(15)</sup> Studies conducted in places around the country have shown that knowledge of the disease is lacking among many and inadequate amongst quite a large proportion thereby making it difficult for people to avert the occurrence of the outbreak. <sup>(16,17)</sup> However, the researchers observed in the area of study somewhat negative attitude towards prevention of Lassa fever, perhaps it either due to poor knowledge of the disease.

It is against this stated problem that the researchers carried out this study on assessment the knowledge and practice towards prevention of Lassa fever among residents of North Eastern Nigeria.

### **Objective of the Study**

The main objective of this study is to find out whether there is or there is no significant difference between male and female residents in their knowledge of Lassa fever in North eastern Nigeria.

## **MATERIALS AND METHODS**

### **Research Design**

The research design that was used for this study was a descriptive survey design. A descriptive survey research design is one in which a group of people or items are studied by collecting and analyzing data from only a few people or items considered

to be representative of the entire group. It is also a commonly used design in which the researcher tries to explore what is going on in a given situation. The researcher therefore decided to use this design because it is the most appropriate for the study.

### **Population of the study**

The population of the study comprises all male and female residents in North – Eastern Nigeria, According to 2006 population census figure; North-Eastern states have a population of 18,971,965. <sup>(18)</sup>

### **Sample and Sampling Technique**

The sample for the study was 384 male and female residents in North - Estern states. The researchers employed purposive sampling procedure to select the participants from three (3) states out of the six states that formed the North Eastern States of Nigeria for the study. 384 respondents were selected from general hospitals and health centres from each selected state.

### **Instrument for Data Collection**

The instrument for data collection was a structured questionnaire titled questionnaire on assessment of knowledge towards prevention of Lassa fever. It was developed by the researcher based on the objectives of the study. It consisted of ten closed ended questions and had two sections. In section A, the respondents were required to provide their personal and demographic information such as age group, educational level, occupation and so on. Section B of the questionnaire sought information about their knowledge towards prevention of Lassa fever

### **Method of Data Collection**

The researcher went to the selected states on several occasions to administer the instrument to the respondents with the help of five research assistants who were trained for two days. They were taught how to interpret the questions on the instrument correctly to illiterate and less educated women and how to fill the respondents' responses correctly. The questionnaire was administered to the respondents directly by the researcher and assistants and the completed copies of questionnaire issued to

the male and female were collected on the spot. This was to ensure a high percentage return rate. It also enabled the researcher and the assistants to be available to explain questions that the respondents did not understand. Confidentiality was ensured. The administration and collection of the instrument lasted for one week. The research ethical principles of confidentiality, beneficence and justice were also assured.

### Method of Data Analysis

At the end of data collection exercise, the researcher tallied and coded the responses to get the aggregate scores of the respondents. Descriptive statistics of Mean were used in answering the research question while chi square was used to answer research question advanced.

## RESULTS

The result obtained from the study based on the objectives of the study on the knowledge

of Lassa fever prevention based on gender was discussed below:

**Table 1: Mean responses of respondents on knowledge of Lassa fever**

Educational Level	Respondents	Mean	Std. Deviation
No formal Education	179	55.76	2.909
Primary Education	120	86.84	2.984
Secondary Education	46	90.01	3.117
Tertiary Education	39	98.3	3.135

The mean responses on knowledge for residents with tertiary education were 98.30 while the standard deviation (SD) was 3.135, while mean responses for residents with secondary education were 90.01 with standard deviation (SD) of 3.117, those with primary education had the mean of 86.84 with standard deviation (SD) 2.2984 and those residents with no formal education had the mean of 55.76 with standard deviation (SD) of 2.909.

**Hypothesis Tested:** There is no significant difference between male and female residents in their knowledge on Lassa fever.

**Table 2: Summary of Chi-square Analysis on Knowledge of Lassa fever among residents in North- Eastern Nigeria**

Knowledge of Lassa Fever	Frequency Observed	Frequency Expected	$\chi^2$	Degree of freedom	P-value
Male	183	191.0	123.760	1	.001
Female	201	191.0			
Total	384				

$\chi^2_{\text{tab}} = 3.84$ , df:1; P < 0.05

The summary of chi-square analysis on knowledge of Statistical computation of Chi-square on the table above shows ( $\chi^2=3.84$ , df:1; P<0.05). The P- value of .001 is statistically lower than 0.05 level of significance; therefore the null hypothesis which stated that, there is no significant difference between male and female residents in their knowledge towards Lassa fever prevention in North – Eastern Nigeria is here by rejected.

## DISCUSSION

This study revealed that residents in Northern Nigeria have knowledge of Lassa fever. It is also in agreement with Knowledge Attitude and Practices Toward Lassa Fever Control and Prevention Among Residents of Ile-Ife and the study revealed that Lassa fever had been reported as a cause of death especially in endemic parts

of Nigeria. (3,13) This study assessed the knowledge, attitude, and practices toward Lassa fever control and prevention among residents of Ile-Ife, southwest Nigeria. Descriptive cross-sectional study was conducted among consenting randomly selected adults using an interviewer administered questionnaire. Data were analyzed using descriptive and inferential statistics. A total of 400 questionnaires with completed data were analyzed (response rate 96%). Majority, 207 (51.8%), were males while 193 (48.2%) were females. Most, 234 (58.5%), had tertiary education while 148 (37%) had secondary education. Fifty-nine percent had heard of Lassa fever with radio as their major source of information. About 76% had inadequate knowledge, 54% had negative attitude while 51% had poor practice toward Lassa fever. Determinants of knowledge of Lassa fever

include having higher education (Adjusted Odd Ratio (AOR)= 11.49, 95% CI [3.10, 42.69], p = .0001), being in civil service (AOR= 0.22, 95% CI [0.09, 0.51], p = .01), and earning higher income (AOR= 4.23, 95% CI [2.61, 6.84], p = .0001). In conclusion, the knowledge, attitude, as well as preventive practices to Lassa fever were poor. It is necessary to increase public education and improve hygienic practices. The study contradicts the study conducted on the study the knowledge, attitude and practice of prevention of Lassa fever, amongst students resident in the campuses of University of Benin. Methods: A cross-sectional epidemiological study was conducted in the two campuses (Ugbowo and Ekenhuan) of the University of Benin, Benin City, Edo State, Nigeria. [2] Three hundred students were selected by stratified random sampling technique. Pretested structured questionnaires were used to obtain socio-demographic data, knowledge, attitude and preventive practices against LF amongst students. Data obtained from consenting respondents were analyzed using SPSS v22. Results: The knowledge of the majority 276 (91.7%) of the study population about Lassa fever disease was poor. Good preventive practices were reported by 28 (73.3%) of respondents and fair practices was reported by 10 (24.3%) of respondents with good knowledge. It was found that preventive practices were significantly associated with level of study of students (p=0.033). Conclusion: Continued dissemination of accurate information on Lassa fever disease is indicated at all levels of study in the University system to improve preventive practices and reduce risk of Lassa fever disease amongst student's population. [12,14]

## CONCLUSION

Knowledge of Lassa fever was highly connected with the level of education of the respondents in the North Eastern States of Nigeria, This influences the attitude of the respondents to employ necessary measures against Lassa fever.

Regular campaign against Lassa fever can help tremendously to improve preventive their Lassa fever disease among the residents of North Eastern States of Nigeria.

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How to cite this article: Abdulkadir S, Mohammed AS. Assessment of knowledge of Lassa fever among residents in North-Eastern Nigeria. Int J Health Sci Res. 2019; 9(2):197-202.

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