

Knowledge, Attitude and Practice of Healthcare Workers toward Lassa Fever Prevention in Ifedore Local Government Area, Ondo State, Nigeria.

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Abstract

Introduction: Lassa fever is of immense public health concern as a result of the high morbidity and mortality associated with the disease. Hence, it is very critical for the general public especially those in the rural communities to have adequate knowledge of the disease as well as involve in proper measures that will prevent the occurrence of future outbreaks.

Objective: To assess the knowledge, attitude and practice of healthcare workers toward Lassa fever prevention in Ifedore LGA, Ondo State, Nigeria.

Methods: This was a descriptive cross-sectional study among healthcare workers in Ifedore LGA, Ondo State. The participants were selected using multistage sampling technique. Data was collected using structured interviewer-administered questionnaires and data analysis was by IBM SPSS version 27.0.1.0. the level of significance was set at $p < 0.05$.

Results: Ninety-six respondents with a mean age of 35.0 ± 6.4 years participated in the study. Majority (79.2%) have heard of Lassa fever. In addition, 67.7% and 86.7% had knowledge of Lassa fever occurrences and positive attitude towards preventive measures against Lassa fever, respectively. Most respondents (39.6%) indicated that they will show some discriminatory attitudes towards individuals suspected of having Lassa fever. However, many of the respondents are ignorant of the nonexistence of vaccine against Lassa fever.

Conclusion: The study showed high awareness, a fair knowledge of the disease and poor infection control measures among respondents. There is a need for capacity building and sustained education of all cadres of health practitioners in order to improve how to curtail nosocomial transmission, prevention and control of Lassa fever.

Keywords: Knowledge, attitude, practice, Lassa Fever

Date of Submission: 14-01-2022

Date of Acceptance: 29-01-2022

I. Introduction

Lassa fever is an acute viral haemorrhagic illness caused by the Lassa virus that is endemic in some countries in the West African sub-region including Nigeria (1). The natural host for the virus are multimammate rats, which breed frequently and are distributed widely throughout West, Central, and East Africa (2). Both zoonotic and human to human contacts are also possible (3).

In addition, in endemic regions up to 80% of all rodents caught in houses are multimammate rats with the prevalence of Lassa virus infection in them ranging from 6-50% (4,5). Transmission to humans occurs primarily through exposure to rodent excreta, as well as when rodents are caught and prepared as food (4). However, secondary transmission between human occurs through direct contact with infected blood and bodily fluids, usually in the process of caring for a sick family member or in the nosocomial setting.

In Nigeria where the disease was first identified in 1969, Lassa fever is one of the diseases for which weekly epidemiological reporting to the health authorities is being done and a rapidly changing epidemiological pattern had been reported over the years because it causes mortality and morbidity where outbreaks occur (3).

Lassa fever is caused by a single stranded RNA virus (2). The main feature of this fatal infection is impaired or delayed cellular immunity leading to fulminant viraemia, usually starting as fever of unknown origin (6).

Epidemiological data showed that Lassa fever occurs throughout the year, but more cases are recorded during the dry season from November through May. Some of the factors contributing to the disease outbreak are population movements, poor sanitation, overcrowding, inadequate resources to manage victims and poor epidemic preparedness (7). The escalating global travel and the likelihood of use of the Lassa virus as a biological weapon may have increase the potential for harm beyond the local level, and stressed the need for greater understanding of Lassa fever and more effective control and treatment programs.

Ondo State is geographically close to Edo State that has persistently been having the highest number of both suspected and confirmed cases of Lassa fever in Nigeria in past years (8). With the symptoms of Lassa fever mimicking that of malaria which is endemic in Nigeria, the potential of missing the diagnosis of Lassa fever is high. Health care workers in both public and private clinics are often the first set of personnel to handle suspected cases of Lassa fever which is also a possible source of nosocomial infection. In situation where health workers are not adequately equipped with requisite knowledge and materials to handle cases of Lassa fever, transmission and outbreak of the infection is likely. Therefore, the aim of the study is to investigate the knowledge, attitude and practice of healthcare workers toward Lassa Fever prevention in Ifedore LGA, Ondo State, Nigeria.

II. Methodology

Study Location

Ifedore the study area is a Local Government Area in Ondo State, Nigeria. Its headquarters is in the town of Igbara-Oke with a population of about 176,327 (9). There are general hospitals, and numerous Primary Health Care (PHC) centres and private hospitals providing primary care services in the Local Government. Healthcare workers in public PHCs in Ifedore Local Government constitutes the study population.

Study Design

A cross-sectional descriptive study on knowledge, attitude and practice of healthcare workers toward Lassa Fever prevention in Ifedore LGA was carried out from September to December 2021.

Study Population

Healthcare workers in the health facilities in the local government area were selected for this study in order to investigate their knowledge, attitude and practice toward prevention of Lassa Fever.

Inclusion criteria

Healthcare workers working in the public health care facilities in the LGA.

Exclusion criteria

Healthcare workers in private public health care facilities and those outside the study area.

Sample Size Determination

The sample size was determined using Leslie Fischer's formula of sample size for population less than 10,000 (10).

$$n = \frac{Z^2 P(1-P)}{I^2}$$

Where:

n= Sample size [where population > 10,000]

Z= Normal deviation at the desired confidence interval. In this case it will be taken at 95%, Z value at 95% is 1.96

P= Proportion of the population with the desired characteristic.

Q = Proportion of the population without the desired characteristic.

I² = Degree of precision will be taken to be 10%. Since the proportion of the population with the characteristic is not known, then 50% will be used

Therefore,

$$n = \frac{1.96^2 \times 0.5 [1 - 0.5]}{[0.1][0.1]}$$

= 96 taking into consideration possible

attrition and non-response.

Sampling Technique

Multi stage sampling method was used in sample selection. In stage 1, two towns in the LGA (Ifedore and Igbara-Oke) were selected using simple random sampling employing simple balloting.

In stage two, six of the ten listed Communities (per district) were selected using simple random sampling employing simple balloting. In stage 3, a list of PHCs per Communities was collected from the LGA health authority, and three were also selected using simple random sampling employing simple balloting. In each PHC, the two most senior clinical (work) related health care worker in each facility were reached by the researcher for the purpose of explaining the research objectives and obtaining the permission to distribute questionnaires to the respondents. In the event of leftover questionnaire after equal allocation to PHCs, more Communities were randomly selected towards administration of the research instrument. The table below gives a summary of the sampling method.

Summary of Sampling Technique

Sampling Stage	Normal pattern	Selection	Sampling method
Stage 1	1 LGA district	2 districts selected	Simple random
Stage 2	10 Communities per district	6 Communities selected per districts	Simple random
Stage 3	1PHCs per Community	3 PHCs selected per LGA	Simple random
Stage 4	Many health care workers per PHC	The 2 most senior selected for permission	Purposive

Instrumentation

Instrument used for obtaining data for the analysis was a self-administered semi structured and pre tested questionnaires distributed and supervised by six research assistants. Questionnaires were distributed among people attending primary health care as the respondents for the research project.

Reliability and Validity of the Instrument

In order to ensure face and content validity of the instrument, a draft copy of the researcher-structured questionnaire was submitted to four professionals in the fields of Health Education and Community Medicine for vetting. Their comments and suggestions were taken into consideration and reflected in the final questionnaire that was administered on the respondents.

Data Collection

To collect data for this study, a total of one hundred (100) copies of the questionnaire were distributed to respondents at the health care centres. The researcher and few research assistants visited each of the centres and administered the questionnaire. With the assistance of the health workers of the respective hospitals, every respondent was given a copy of the questionnaire one after the other until the desired number of subjects had been served. All the subjects were oriented on the purpose of the study and instructed on how to complete the questionnaire. Completed copies of the questionnaire were retrieved after the time frame. The data analysis was based on responses of 98 respondents whose questionnaire were correctly completed and returned.

Data collection took place over 2 week’s period in order to meet up with the respondents, and to encourage high response rate. Study variables were essentially on socio-demographic characteristics, knowledge, perception and attitude as well as preventive practices against Lassa Fever infections.

III. Data Analysis

Data was analysed using the International Business Machines Corporation Statistical Package for Social Sciences (IBM SPSS Statistics) version 27.0.1.0(IBM Armonk, New York) after sorting out the questionnaires. Consistency of data entered was done by double entry and random checking. Data was presented in form of frequency tables and percentages. Composite mean knowledge and attitude scores were calculated. For knowledge, the ten-point knowledge questions were scored as +1 for a correct answer, while -1 was scored for an incorrect answer. Aggregate score of 5 and above were regarded as ‘good’ while less than five was regarded as ‘poor’.

Ethical Approval

Informed consent was also obtained from each respondent with utmost care taken to take care of privacy and confidentiality. They were made to understand that participation in the study is voluntary and there are no consequences for non-participation.

IV. Results

One hundred (100) structured questionnaires were distributed and ninety-six (96) retrieved in Ifedore LGA Ondo State of Nigeria. The following data were collected and interpreted:

Socio-demographic variables of the respondents

Table 1 shows the profiles of the 96 respondents from Ifedore LGA. Mean age of respondents was 35.0±6.4 years while majority of the respondents age groups included in the range 30-39 and 20-29 years. Twenty respondents were male (20.8%) 20(20.8%) had up to tertiary level education, 70(72.9%) were married, 136(45.3%) and 21(21.8%) were nurses and Community Health Extension Workers respectively while 191(63.7%) had spent 5-10 years in hospital practice.

Table 1: Socio-demographic data of respondents

Variables	Frequency	Percentage
Age (mean=35.0±6.4) years		
20-29	15	15.6
30-39	66	68.7
40-49	9	9.4
50-59	4	4.2
60-69	2	2.1
Sex		
male	20	20.8
female	76	79.2
Marital status		
Single	18	18.8
Married	70	72.9
Others(divorced/widowed/separated)	8	8.3
Educational status		
Primary	36	37.5
Secondary	30	31.3
Tertiary	20	20.8
Others e.g., Koranic	10	10.4
Religion		
Christianity	32	33.3
Islamic	39	40.6
Traditional	21	21.9
Others e.g., grail message, free thinkers	4	4.2

Source: Researcher's field survey

Knowledge, Attitude, Prevention practice of Lassa Fever

Table 2 showed that 76(79.2%) of the respondents are aware of Lassa fever. Major sources of information include the TV/radio 36(37.5%) and from health care workers 21(21.8%). 14 (48.0%) were aware that there was regular epidemics in Nigeria, 56(18.7%) of respondents saw a rodent in their household in the last 24 hours preceding the survey. Most of the respondents (79.7%) picked virus as the cause of the disease; 38.5% and 29.2% of the respondents picked long rats and Mastomys rats as the reservoir of Lassa fever virus. Majority of the respondents (39.5%) indicated that contact with urine/faeces of infected rats are the source of the transmission of the Lassa fever virus. Majority of respondents indicated the predisposing factors to Lassa fever as eating of rats (38.5%), traditional handling of corpses contacts with persons infected with the disease (27.1%), poor compliance to standard precaution (17.7%) and insanitary disposal of waste (12.5%). With regards to the attitude of the respondents towards people suspected to be infected with Lassa fever, 39.6% indicated that they will show some discriminatory attitude towards people suspected of having Lassa fever. In addition, majority of the respondents (96.0%) agreed that if a person has been diagnosed with Lassa fever, such a person must be admitted for the treatment of the disease while 93.8% of respondents accept to recommend and take an approved vaccine that could prevent Lassa fever.

Table 3 showed that preventive recommendations by respondents for households and communities include protection of all food items from contacts with rodents 64(66.7%); keeping pets (like cats) in the house 53(54.7%); proper storage of food items 81(84.0%); proper disposal of food items and other refuse 28 (29.3%); destruction of rats 91(94.7%); proper waste disposal 85(88.0%); avoidance of overcrowding 74 (77.3%) and personal and environmental hygiene 92(96.0%). Preventive recommendations for health care facilities include regular use of personal protective devices (such as hand gloves, gowns etc.) and 83 (86.7%) respondents use these for proper disposal of hospital wastes; proper case management 56 (58.7%); disease notification 20 (20.3%); and improved public health education about Lassa fever 85(88.0%). Only 20(20.8%) of the health care workers had reported a suspected case of Lassa fever to the relevant health authority or officer before, 68(71.0%) would like to notify such cases when discovered, 20 (21.0%) regularly use personal protective devices at work while 90(94.0%) would like to be using personal protective devices at work regularly.

Table 2: Knowledge of Lassa fever prevalence, transmission and predisposing factors amongst respondents

Variables	Frequency	Percentage
Aware of Lassa fever		
Yes	76	79.2
No	20	20.8
*Sources of information (n=96)		
TV/radio	36	37.5
Newspaper	15	15.6
Medical books	18	18.8
Health care workers	21	21.8

Others	6	6.3
Aware that there used to be a regular epidemic in Nigeria	14	48.0
Respondents saw a rat in their household in the last 24 hours	56	18.7
Knowledge of Lassa fever prevalence		
Heard of Lassa fever	94	96.0
What causes Lassa fever		
virus	77	79.7
animal	4	4.0
Witches/wizard	1	1.0
Reservoir of Lassa fever virus		
All rats	23	24.0
Long nose rat	37	38.5
House rat	8	8.3
Mastomys rat	28	29.2
Knowledge of transmission of Lassa fever		
Lassa fever can be transmitted through contact with blood/secretions of infected rat	12	12.5
Contact with urine/faeces of infected rats	38	39.5
Eating bush meat	2	2.1
Eating rat meat	12	12.5
Exposure to infectious body fluid and secretion curses spells	9	9.4
Sexual intercourse	3	3.1
Caring for Lassa fever patient	12	12.5
Inhalation of viral particles	3	3.1
Handling of corpses	5	5.2
Knowledge of respondents on the predisposing factors to Lassa fever		
What factors predispose to Lassa fever?		
Residence or visit to rural areas poor compliance to standard precautions	17	17.7
Traditional handling of corpses contacts with persons infected with the disease	26	27.1
Eating of rats	37	38.5
Insanitary disposal of waste	12	12.5
Age group is at risk		
All age group	4	4.2

Table 3: Attitude and Prevention practice toward Lassa Fever

Variables	Frequency	Percentage
Attitudes towards people suspected to be infected with Lassa fever		
Would keep the information secret if a patient contact Lassa Fever	13	13.5
Would show some discriminatory attitude towards patients suspected of having Lassa Fever	38	39.6
Attitudes towards treatment of patients infected with Lassa fever		
Agree that if a person has been diagnosed with Lassa Fever h/she must be admitted for treatment	92	96.0
Agree that patients with contact with a person who has been diagnosed with Lassa fever must be quarantined	84	87.5
Attitudes towards vaccines against Lassa fever		
Accept to recommend/or use an approved vaccine that could prevent Lassa fever to patients	90	93.8
Preventive recommendations to households		
Protect all food items from contacts by rodents	64	66.7

Keep pets in the house	53	54.7
Proper storage of food items	81	84.0
Proper disposal of food items and other refuse	28	29.3
Rats destruction methods	91	94.7
Proper waste disposal	85	88.0
Avoid overcrowding in homes	74	77.3
Personal and environmental hygiene	92	96.0
Preventive recommendations to health facilities		
Use personal protection at work - gloves, gowns for proper disposal of hospital wastes	83	86.7
Proper case management	56	58.7
Disease notification	20	20.3
Improve public health education on	85	88.0
Lassa fever	85	88.0
Had reported a suspected Lassa fever / similar case before	6	20.8
Would like to notify such cases when discovered	68	71.0
Always or regularly use protective gadgets at work	20	21.0
Would like to now regularly use protective gadgets at work, most especially during outbreaks	90	94.0

Source: Researcher's field survey

V. Discussion of Findings

This study was conducted with 96 respondents in one local government area (LGA) of Ondo State and this can be compared to 122 respondents in a similar study to assess Lassa fever awareness in one endemic communities in the State (11). Hence, this study therefore might be more reliable and representative. The findings on the sociodemographic distributions of the respondents by age, sex, marital status, religion and education were consistent with findings in a similar study on Lassa fever awareness and knowledge among community residents in Ondo State (12).

This study took place in PHC environments which is mostly regarded as a more likely to be the first source of contact for persons seeking orthodox medical care in low income country like Nigeria. Findings from the study showed 79.2% of respondents were aware of LF and this higher levels of knowledge from this study may be due to the attention given to this disease in the State and Nigeria especially with the recent outbreak in Benue and Nasarawa State. In addition, the media (TV/radio and newspaper) and health care workers are the main sources of information. This is in accord with previous studies (11, 13). This shows the critical role of media, health care workers and peers as an authentic source of providing latest information to the general population (14). However, the choice of the media as the primary source of information in this study might be because of the awareness and the channel of communication of the respondents (15).

Also, most of the respondents believed that rats are the reservoir for Lassa fever virus while 39.5% of the respondents believed that contact with urine/faeces of infected rats are the main mode of transmission of Lassa fever. This is in agreement with the study of Reuben and Gyar (1). With respects to attitudes of the respondents towards people suspected to be infected with Lassa fever, 39.6% of respondents would show some discriminatory attitudes towards the patients while 13.5% will keep the information secret if a patient is infected. In addition, 96% of respondents agreed that patients diagnosed with Lassa fever must be admitted for treatment while 93.8% respondents agreed to recommend and use an approved vaccine that can prevent the disease. From the study, respondents were not aware of the non-availability of vaccine for the disease as documented in a previous study (16).

86.7% of respondents said they would like to regularly use personal protective devices or equipment at work while majority (94%) of them said they would like to regularly use protective gadgets at work most especially during outbreaks. This attitude towards LF prevention is in agreement with from previous studies (13,17,18). 71% of respondents also agreed to notify higher authority once the case of Lassa fever is presented in their facility.

The high virulence, mortality and morbidity of Lassa fever in the country where some Medical Doctors and a Lawyer died as a result of this disease made it now a great threat to public health. It is hence very critical to continuous dissemination of accurate information on Lassa fever disease is advised to be adopted to improve preventive practices and reduce risk of Lassa fever disease amongst the population. In addition, there is a need for sustained education, training and re-training of all cadres of health workers at the primary care level to create further awareness among people attending Primary health care. Furthermore, there is need for an improve basic knowledge to curtail nosocomial transmission of LF as well as disease prevention and control.

VI. Limitations

This study has limitation in that it only took place in only one of the Local Government Areas in the State and it only focused on assessing the knowledge, attitude and perception of Lassa fever toward healthcare workers in primary health care facilities. However, further research could be extended to other LGAs especially where the disease is very rampant.

VII. Conclusion

Health care workers are faced with the daunting task of attending to suspected cases of Lassa fever and similar cases even when they are at great risk of being infected themselves. There is good awareness and knowledge of the disease with very fair attitude of healthcare workers toward Lassa fever infected patients. In addition, respondents indicated a fair infection control measures with most of them ready to now regularly use protective gadgets at work most especially during outbreaks. However, there is a need for sustained education, training and re-training of all cadres of health workers at the primary care level to create further awareness, improve basic knowledge to curtail nosocomial transmission of LF as well as disease prevention and control.

Acknowledgment

The author sincerely acknowledges the support of the staff of Ifedore LGA Ondo State Primary Health Care facilities. Other contributors that ensure smooth data collection are highly appreciated and acknowledged.

Conflict of interest

The author declares that there is no conflict of interest.

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