

Health practitioner's knowledge level of Lassa fever in Esan West local government area of Edo State

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ABSTRACT

Background

Nosocomial transmission of Lassa fever in healthcare settings represents a significant burden on the healthcare system. Infection prevention and control (IPC) in healthcare settings has been documented as an important factor in controlling potential outbreaks of Lassa fever. In support of this, studies have shown that in hospitals with improved IPC practices, that transmission of Lassa virus was reduced. It is important for health care workers to be conversant with Lassa fever transmission mechanism and prevention methods.

Objectives

To assess healthcare practitioners' knowledge of Lassa fever in Esan West LGA of Edo State

Methods

This was a cross-sectional descriptive study done using an interviewer administered semi-structured questionnaire. Participants were selected using a random sampling technique by simple balloting, consecutively until the sample size was achieved and the data collected were analyzed using SPSS version 21.

Results

Majority 78 (49.4%) were married. Auxiliary nurses constituted most 71(44.9%) of the designations while Laboratory scientist 16 (10.1%) was least. Majority 110

(69.6%) of respondents worked in private hospitals while 48(30.4%) worked in General Hospitals. All (100%) the respondents have heard about Lassa fever. Majority (99.4%) knew the cause to be viral, 156 (98.7%) of the respondents knew the illness affects all age groups. 152 (96.2%) of respondents knew that it could be spread via infected body fluids, 143(90.5) said via contaminated equipment's.

Conclusion

Findings from this study revealed a high level of awareness and knowledge of Lassa fever among health workers and this is reassuring to us the researchers but this high knowledge has to be maintained and put into practice in prevention of this disease.

Keywords: Health practitioner's, knowledge, Lassa fever, Esan West

Introduction

Lassa fever is an acute viral hemorrhagic fever of significant public health importance responsible for recurrent epidemics of acute hemorrhagic fever in parts of West Africa as well as sporadic diseases in Europe, Asia and America.¹ It was first described in 1950's in Sierra Leone, but was not recognized until 1969 when the virus causing the disease was identified.² It was first identified following the death of two missionary nurses in Lassa town, Borno and since then, it has become endemic in many parts of West Africa including Sierra Leone, Guinea and Liberia.^{3,4} Nosocomial transmission of Lassa fever in healthcare facilities represent a significant burden on the healthcare system^{5,6}. Infection prevention and control (IPC) in healthcare

settings has been documented as an important factor in controlling potential outbreaks of Lassa fever⁷. In support of this, studies have shown that in hospitals with improved IPC practices, that transmission of Lassa virus was minimal^{8,9}. It is important for health care workers to be conversant with Lassa fever transmission mechanism and prevention methods. Lassa fever being endemic in parts of West Africa, is affecting about 100,000 to 300,000 people every year in this regions^{10,11}.

The World Health Organization (WHO), estimates the annual incidences of Lassa fever across this region as high as between 300,000 and 500,000 cases with about 5,000 deaths recorded yearly putting it at¹² About 14 deaths per day. ¹²Approximately 15%-20% of patients hospitalized for Lassa fever die from the illness. However, overall, only about 1% of infections with Lassa virus results in death. The death rates are particularly high for women in the third trimester of pregnancy and for fetuses, about 95% of which die in the uterus of infected pregnant mothers.¹³

In a study done during the 2nd world congress on infectious diseases in Pennysylvania, Philadelphia, USA, 2.8% have not heard about Lassa fever. Major source of information were media 87.1%, radio 86.5%, and television 84.9%. Most of them knew Lassa fever can affect all age groups 91.7%, can cause death 92.3%, is a communicable disease 93.8% and transmitted by rats 96.6%.¹⁴ In another study carried out to assess the knowledge of Lassa fever in Bong county, Liberia, it was reported that only 8% of the target population of one thousand, four hundred and ten residents have the knowledge of Lassa fever. The research further revealed that educational level of respondents was a significant determining factor for the limited knowledge of the disease. Of the highly educated people (college level) sampled in the research study, 42.70% were knowledgeable of the disease.² In a study done to assess the response preparedness to viral haemorrhagic fever in Nigeria: risk perception, attitude towards Lassa fever, it was revealed that almost all health care workers surveyed (98.8%) were aware of Lassa fever as an infectious disease; 81.8% of health care workers surveyed got their information about Lassa fever from the community. Most of the respondents (96.9%) knew that Lassa fever could be transmitted from one person to another, while 98% of surveyed respondents knew that a specie of rat was the animal that transmits Lassa fever; 96.9% knew that Lassa fever could be transmitted from animal to man through food contaminated with the virus; 97.5% acknowledged that Lassa fever could be transmitted via contact with the urine of *Mastomys natalensis*; 90.7% knew that raw and cooked food should be kept in closed containers.¹⁵

The study was conducted in Esan West, Edo state, Nigeria. Its administrative headquarter, Ekpoma It is on Latitude 6° 44' 34.80" N and Longitude 6° 08' 25.04" E. It occupies a land mass of 502km² and has a population of 125,842 of which 63,785 are males and 62,057 are females and a density of 250.7 inhabitants per km² according to 2006 census figures.¹⁴ The people are Esan speaking, traditional and Christian religion is predominant with only a few Muslims.

There is a tertiary health institution and 20 private clinics and 2 general hospitals and in the Local Government Area. There are also several private laboratories and patent medicine dealers.

The study is a descriptive cross-sectional study that was done amongst health care workers in public and private health care providers in Esan West, LGA from June 2017 to February 2018. The health workers studied included Doctors, Nurses (trained and auxiliary) and Laboratory personnel.

The minimum sample size was calculated using the prevalence of 10.4%¹⁶. It was estimated using the formula for sample size determination for cross sectional study i.e. the Cochran formula.

$$n = Z^2 pq / d^2$$

where:

n = Minimum sample size

z = Standard normal deviate at 1.96 corresponding to 95% confidence interval

p = expected prevalence of study = 10.4% or 0.104

q = 1- p = 1-0.104 = 0.896

d = degree of precision at the confidence of 5% = 0.05

Substituting into the formula above

$n = (1.96)^2 \times 0.104 \times 0.896 / (0.05)^2$

$n = 3.8416 \times 0.104 \times 0.896 / 0.025 = 143.19$

10% attrition was added for non-responses

10% of 143.19 = 14.316

Total sample size = 143.19 + 14.316 = 157.506 = 158

Health care workers were selected using a random sampling technique by simple balloting, consecutively until the sample size was achieved from both general and private hospitals during the period of data collection.

Data was collected using a structured interviewer administered questionnaire focusing on demographic characteristics and transmission prevention of Lassa fever. Data collected was entered into a spread sheet and analyzed using the Statistical Package for Social Sciences (SPSS) version 21.0. Analysis was also done using the SPSS software using both descriptive and inferential statistics. Frequency tables, bar chart and pie chart were used to show results. Chi square test was used to test the association between socio-demographic variables and safety practices towards Lassa fever. Significance level was set at $p < 0.05$.

Written and verbal consent was gotten from participants who were assured of strict confidentiality as regards their responses.

Results

TABLE 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

VARIABLE	FREQUENCY (n=158)	PERCENT (%)
Age group(year)		
21-30	40	25.3
31-40	79	50.0
41-50	32	20.3
51-60	7	4.4
Mean \pm SD =	2.04 \pm 0.797	
Sex		
Male	39	24.7
Female	119	75.3
Ethnicity		
Esan	99	62.7
Yoruba	24	15.2
Hausa	10	6.3
Igbo	25	15.8
Marital status		
Married	78	49.4
Single	63	39.9
Widowed	17	10.8
Designation		
medical doctors	20	12.7
Nurse	51	32.3
Auxiliary nurse	71	44.9
Laboratory scientist	16	10.1
Years of clinical practice		
less than 10 years	107	67.7
10-20yrs	47	29.7
more than 20 years	4	2.5
Type of facility		
private hospital/facility	110	69.6
general hospital	48	30.4

Table 1 show that half of the respondents (50.0%) were between the ages of 31-40 years. A total of 39 (24.7%) males and 119 (75.3%) females participated in the survey. More than half 99 (62.7%) were Esan, while Hausa was the least 10 (6.2%). Majority 78 (49.4%) were married, while 63 (39.9%) were single. Auxiliary nurses constituted most 71(44.9%) of the designations while Laboratory scientist 16 (10.1%) was least. 107 (67.7%) had less than 10-years working experience while 4(2.5%) had more than 20-years working experience. Majority 110 (69.6%) of

respondents worked in private hospitals while 48(30.4%) worked in General Hospitals.

TABLE 2: KNOWLEDGE OF LASSA FEVER AMONG RESPONDENTS

VARIABLES	FREQUENCY (n=158)	PERCENT (%)
Have heard of Lassa fever		
Yes	158	100.0
No	0	0.0
Knows the cause		
Yes	157	99.4
No	1	0.6
Knows the vector of transmission		
Rats	158	100.0
Knows health care workers are at risk		
True	158	100.0
False	0	0.0
Knows it affects all age groups		
True	156	98.7
False	2	1.3
Knows the medium of spread*		
infected body fluids	152	96.2
contaminated equipments	143	90.5
aerosol transmission	137	86.7
Knows the common symptoms*		
weakness	140	88.6
headache	98	62.0
Malaise	143	90.5
Fever	143	90.5
sore throat	141	89.2
vomiting	136	86.1
Diarrhoea	155	98.1
Knows Possible complications of Lassa*		
abnormal bleeding	143	90.5
respiratory distress	131	82.9
chest pain	147	93.0
abdominal pain	135	85.4

hearing loss	121	76.6
tremors	113	71.5
Encephalitis	124	78.5

Multiple responses

All (100%) the respondents have heard about Lassa fever. Of the 158 respondents, majority (99.4%) knew the cause to be viral, while only 0.6% did not know the causative agent. 156 (98.7%) of the respondents knew the illness affects all age groups as opposed to 2 (1.3%) that did not know. On the mode of spread, 152 (96.2%) of respondents knew that it could be spread via infected body fluids, 143(90.5) said via contaminated equipment's, while 137(86.7%) ticked aerosol transmission as the medium of spread.

SCORING	
Good Knowledge	>15 points (76.6%)
Fair Knowledge	9-15 points (17.7%)
Poor Knowledge	< 9 points (5.7%)

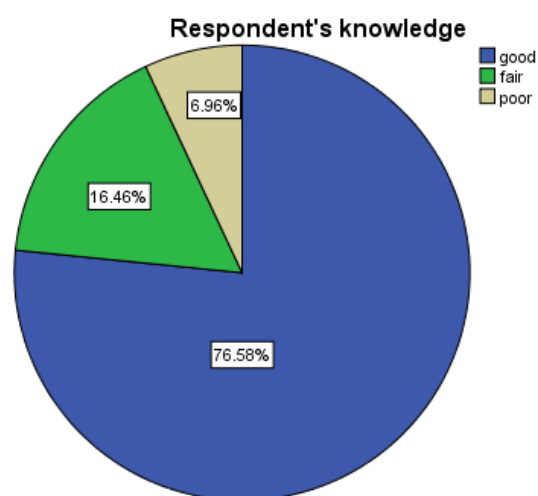


FIGURE 1: KNOWLEDGE OF LASSA FEVER AMONG RESPONDENTS

TABLE 3: RELATIONSHIP BETWEEN SOCIODEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS AND KNOWLEDGE ON LASSA FEVER.

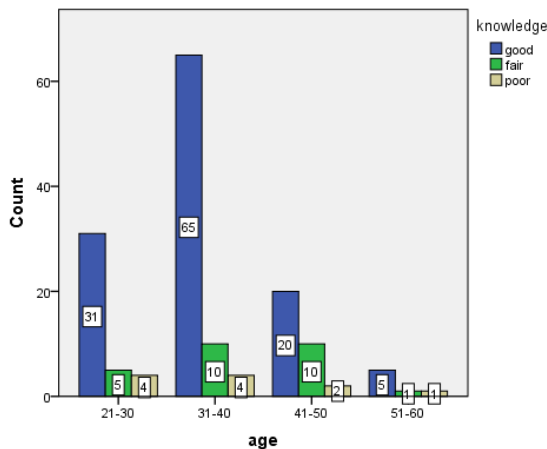
DEMOGRAPHIC VARIABLE	KNOWLEDGE OF RESPONDENT			
	GOOD (%)	FAIR (%)	POOR (%)	TOTAL (%)
Age Group				
21-30	31(77.5)	5(12.5)	4(10.0)	40(100)
31-40	65(82.3)	10(12.7)	4(5.0)	79(100)
41-50	20(62.5)	10(31.3)	2(6.2)	32(100)
51-60	5(71.4)	1(14.3)	1(14.3)	7(100)

Total	121(76.6)	26(16.5)	11(6.9)	158(100)
X ² = 8.043 p=0.235				
Sex				
Male	27(69.2)	8(20.5)	4(10.3)	39(100)
Female	94(79.0)	18(15.1)	7(5.9)	119(100)
Total	121(76.6)	26(16.5)	11(6.9)	158(100)
X ² = 1.691 P=0.429				
Marital Status				
Married	62(79.5)	10(12.8)	6(7.7)	78(100)
Single	46(73.0)	13(20.6)	4(6.4)	63(100)
Widowed	13(76.5)	3(17.6)	1(5.9)	17(100)
Total	121(76.6)	26(16.5)	11(6.9)	158(100)
X ² = 1.623 p=0.805				
Designation				
Medical Doctors	19(95.0)	1(5.0)	0(0.0)	20(100)
Nurse	27(52.9)	17(33.3)	7(13.7)	51(100)
Auxiliary Nurse	59(83.1)	8(11.3)	4(5.6)	71(100)
Lab Scientist	16(100)	0(0.0)	0(0.0)	16(100)
Total	121(76.6)	26(16.5)	11(6.9)	158(100)
X ² = 26.402 P=0.000				
Type of Facility				
Private Hospital/ Facility	86(78.1)	19(17.3)	5(4.6)	110(100)
General Hospital	35(72.9)	7(14.6)	6(12.5)	48(100)
Total	121(76.6)	26(16.5)	11(6.9)	158(100)
X ² = 3.305; P=0.192				

The association between sociodemographic characteristics of the respondents and knowledge showed that there was a statistical significance between respondents designation and knowledge of lassa fever ($\chi^2=26.402$ $P=0.0000$). All other

variables were not statistically significant.

Sociodemographic and Knowledge



Discussion

A total number of 158 health workers were recruited in the survey, 39(24.7%) were males and 119(75.3%) were females. The greater number of females to males' workers is a reflection of gender in the health profession in Nigeria, where females are more likely to be nurses than males. The mean age is 20.4 years with the highest proportion 79(50%) of respondents consisted of those in the age group 31-40 years while the smallest proportion 7(4.4%) were those of age group 51-60 years. Majority of the respondents were married 78(49.4%). There were more nurses 121(77.2%) than doctors 20(12.7%). Respondents from Esan ethnic group were the highest in number 99(62.7%) and lowest were those from Hausa ethnic group 10(6.3%) Majority of the respondents 107 (67.7%) had less than 10 years of clinical experience with only 4(2.5%) having more than 20 years of practice. There were more respondents from private hospitals 110(69.6%) than general hospitals 48(30.4%). This is so because there are more private hospitals and only two government hospitals in Esan west.

Seventy-six-point six percent (76.6%) had good knowledge of Lassa fever. The high level of good knowledge observed in this study can be attributed to the fact that Edo- state in general and Esan west specifically is a known Lassa fever endemic zone, thus it is expected that this study will find a high level of knowledge among study participants. Secondly, this study was done amongst health care workers, who by their training and practice may have become aware of Lassa fever. All (100%) the respondents have heard about Lassa fever (table 2), this is not unexpected and can be explained by the fact that, most of the respondents were residents of Ekpoma, a community which is endemic to Lassa fever, thus making Lassa fever popular and also the fact that respondents are health care workers as explained earlier. This is similar to a study done to investigate the knowledge and practice of Lassa fever control among primary care health workers in Esan West and Esan Central Local Government Areas, where 100% of respondents were aware of Lassa fever.¹⁶ This also similar to a study done by Asogun et al to assess the KAP of Lassa fever among primary care providers in

Edo State where 86% of the respondents had good knowledge.¹⁷

The high levels of knowledge in this study may also be due to the greater attention given to the disease both by government and the media. As regards the medium of spread, most respondents knew that the disease could spread via infected body fluids, followed by contaminated equipment and work gadgets. This is important because health workers have a good knowledge on infection control techniques and so take precautionary methods when handling patients which limits the spread within hospital settings. The respondents had good knowledge of the signs and symptoms of Lassa fever and so early treatment of the patients could be commenced. This study thus concluded that most (76.6%) had good knowledge about Lassa fever infection, while a small proportion (7.0%) had poor knowledge. There was a statistical significance between designation of respondents and knowledge of Lassa fever as nurses tend to have better knowledge this is due to the fact that nurses made up a higher proportion of the respondents. However, there was no statistical significance between other socio-demographic variables and knowledge of Lassa fever.

Conclusion

Health care workers are faced with the task of attending to suspected cases of Lassa fever even when they are at risk of being infected themselves. Findings from this study revealed a high level of awareness and knowledge of Lassa fever among health workers and this is reassuring to us the researchers but this high knowledge has to be maintained and put into practice in prevention of this disease.

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