

Perception of senior resident doctors in Nigeria about lassa fever

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ABSTRACT

Aims and Objectives: The emergence of the Lassa fever (LF) epidemic in many states in Nigeria necessitates that health care providers should have comprehensive knowledge about LF. This study therefore aimed to find out the perception of senior resident doctors in Nigeria about LF.

Subjects and Methods: This descriptive cross-sectional study was carried out among Senior Registrars attending a mandatory health resources management course in Lagos, Nigeria. Data on knowledge and attitude were collected from 106 respondents using a self-administered, pre-tested semi-structured questionnaire and summarized by way of overall scores. Frequencies were compared between groups using chi-square test and $p < 0.05$ was accepted as statistically significant.

Results: All the Respondents were aware of LF, but only 56 (52.8%) had good comprehensive knowledge about it and only 72 (67.9%) had a positive attitude towards it. Personal readings on LF ($p < 0.001$) and attitude towards LF ($p = 0.039$) were significantly associated with comprehensive knowledge about LF.

Conclusion: The high level of awareness of LF among respondents was not matched by appropriate knowledge and attitude. Doctors, and indeed all health care workers, in Nigeria should be encouraged to update their knowledge on LF.

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Introduction

Lassa fever (LF) is a viral haemorrhagic fever, the pathogenic agent of which is an arena virus, the Lassa virus. It was first discovered in 1969 in Nigeria, but is endemic in many West African countries [1-2]. About 300,000 to 500,000 cases of Lassa fever and 5000 deaths occur yearly across West Africa [2-3]. In Nigeria, epidemics have been recorded in many states with attendant high mortality rates. There have been reported cases of suspected Lassa fever in Nasarawa, Edo, Ondo, Gombe, Taraba, Bauchi, Ebonyi, Anambra, Yobe, Rivers and Plateau States of Nigeria [3-4].

Lassa fever presents at its early stages with symptoms and signs indistinguishable from those of other viral, bacterial or parasitic infections common in the tropics such as malaria, typhoid and other viral haemorrhagic fevers [5]. When the

disease is in an advanced stage, even state-of-the-art intensive care may not prevent a fatal outcome. Late diagnosis and treatment also increases the likelihood of secondary transmission, including nosocomial transmission [6]. The contributing factors to hospital-acquired Lassa infection include poor knowledge of the disease and infection control techniques on the part of the health personnel, structural challenges like lack of isolation wards in hospitals, inadequate provision of personal protective equipment (PPE) and lack of screening and confirmatory tests among others [7-9]. It is therefore imperative that health care workers in endemic communities are adequately sensitized on the disease, its clinical features and diagnosis [5].

In the first quarter of 2012, 623 suspected cases, including 70 deaths were recorded from 19 of the 36 States of Nigeria. Laboratory analysis undertaken

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at the Irrua Specialist Teaching Hospital, Irrua Edo State, Nigeria confirmed the presence of Lassa virus infection in 108 patients; three doctors and four nurses were among the deaths [10]. LF in Nigeria has also been associated with nosocomial outbreaks with high mortality [6].

The emergence of LF in many more Local Government Areas and States in Nigeria necessitates that health care providers should have comprehensive knowledge and appropriate attitude about the virus and the disease it causes. Despite this scenario, however, reports are rare on the knowledge of LF among doctors in Nigeria.

Doctors in Nigeria generally have to undergo Continuing Medical Education (CME) and obtain up to 20 points from the CME before their licenses would be renewed every year. However, the CME points could be obtained for any form of Medical education, which means that a doctor could have the required CME points every year and not have the required knowledge about a disease like Lassa fever. In addition to this, resident doctors under training would have to read for and pass mandatory primary, Part 1 and Part II examinations before they would become specialists or consultants. These training and examinations are however directed mainly to the areas of specialization of the doctors.

This study therefore sought to find out the perception of Senior Registrars in Nigeria about Lassa fever, which could mirror the knowledge and attitude of doctors in Nigeria generally. The information could be useful in the prevention, early recognition and adequate management of Lassa fever in Nigeria.

Subjects and Methods

The subjects were Senior Registrars attending the mandatory Health Resources Management course organized by the National Postgraduate Medical College of Nigeria, at the Lagos University Teaching Hospital (LUTH), Lagos. One hundred and fifty participants attended the course, and all those who consented were included in the study.

The study was cross sectional. Data were collected with a pre-tested, semi-structured self-administered questionnaire. Of the 150 attendees at the course, only 125 (83.3%) consented to filling the questionnaires, while the remaining 25 declined. A total of 125 questionnaires were administered, but only 106 were properly filled and returned giving a response rate of 84.8%. The others either returned improperly filled questionnaires or did not return

the questionnaires at all.

Data will be entered into computer and analyzed using Statistical Package for Social Sciences (SPSS) software, version 21.0. The categorical variables were summarized using simple proportions while mean and standard deviation were used to summarize continuous variables. At bivariate level, Chi-square test was used to test for association between categorical variables (Fisher's exact test was used for variables with an estimated value of less than 5). Multi-variate analysis was also carried out to identify the predictors of the respondents' knowledge about Lassa fever. The level of significance was set at $p < 0.05$.

Composite knowledge scores were computed by scoring 1 for each correct answer, 0 for an incorrect answer. For attitude, those that correctly agreed or disagreed scored 2, those who did so incorrectly scored 0, and those who were indifferent scored 1. The scores were then summed and divided by the total number of test items to arrive at an average knowledge and attitude scores. Respondents who scored below the mean were regarded as having a poor knowledge or negative attitude, while those who scored up to or above the mean were regarded as having a good knowledge or positive attitude, as the case may be.

Results

The socio-demographic characteristics of the Respondents are shown in Table 1. Eighty one (76.4%) were between 30–39 years of age, with a mean age of 36.95 ± 5.27 years. Majority of the respondents were males (63, 59.4%), Christians (73, 68.9%), Yorubas (43, 40.6%) and were training in teaching hospitals (89, 84.3%). The mean number of years since leaving medical school for respondents was 10.75 ± 4.6 years. The doctors were from 19 States and the Federal Capital Territory, including almost all of the States with frequent epidemics of Lassa fever (Figure 1).

In the six months preceding the survey, four (3.8%) of the respondents had attended a training workshop on Lassa fever, while 102 (96.2%) had not. Forty (37.7%) had done personal readings on Lassa fever in the 6 months preceding the study, while 66 (62.3%) had not. Twenty (18.9%) were from training institutions that had a protocol for Lassa fever prevention and/or management.

The knowledge of the respondents about LF is shown in Table 2. All the respondents had heard about Lassa fever. The major sources of the most current information were the mass media (43,

Table 1. Socio-Demographic Characteristics of Respondents (N = 106).

VARIABLE	FREQUENCY	PERCENTAGE
AGE GROUP (in years)		
Less than 30	2	1.9
30–39	81	76.4
40 and above	23	21.7
Mean age	37.0 ± 5.3	
GENDER		
Male	63	59.4
Female	43	40.6
RELIGION		
Christianity	73	68.9
Islam	31	29.2
Traditionalist	2	1.9
TRIBE		
Yoruba	43	40.6
Igbo	24	22.6
Hausa/Fulani	14	13.2
Others	25	23.6
TRAINING INSTITUTION		
Teaching Hospitals	89	84.0
State Hospitals	13	12.3
Federal Medical Centres	4	3.8
SPECIALTY		
Surgery	23	21.7
Internal medicine	14	13.2
Paediatrics	24	22.6
Obstetrics and Gynaecology	10	9.4
Public Health	7	6.6
Family Medicine	17	16.0
Pathology	11	10.4
YEARS OF PRACTICE		
Less than 10	51	48.1
10 or more	55	51.9

40.6%) and medical school (24, 22.6%). Seventy-six (71.7%) of the Respondents knew that Lassa fever was first described from Nigeria, 100 (94.3%) that it is caused by a virus and 99 (93.4%) that the reservoir is a specie of rats. Seventy-six (71.7%) described person-to-person transmission as the most frequent mode, 102 (96.2%) knew mucosal bleeding to be a clinical feature of Lassa fever and 63 (54.4%) knew that ELISA is the most effective method of diagnosis. After the scoring of outcome variables for knowledge, the mean score for knowledge was 11.36 ± 2.7. Overall, 56 (52.8%)

Table 2. The knowledge of Respondents about Lassa Fever (N = 106).

VARIABLE	FREQUENCY	PERCENTAGE
EVER HEARD OF LF		
Yes	106	100.0
No	0	0.0
SOURCE OF MOST CURRENT INFORMATION		
Medical school	24	22.6
Seminar/Workshop	15	14.2
Journals	5	4.7
Medical books	7	6.6
Colleagues	12	11.3
Mass media	43	40.6
COUNTRY WHERE LF WAS FIRST DESCRIBED		
Nigeria	76	71.7
Others	3	2.8
Don't know	27	25.5
CAUSATIVE ORGANISM FOR LF		
Bacteria	4	3.8
Virus	100	94.3
Don't know	2	1.9
RESERVOIR		
Rats	99	93.4
Others	2	1.9
Don't know	5	4.7
MODE OF TRANSMISSION*		
Direct contact	69	65.1
Foeco-oral	71	67.0
Air borne	28	26.4
Person-to-person	76	71.7
Nosocomial	58	54.7
CLINICAL FEATURES*		
Cough	63	59.4
Mucosal bleeding	102	96.2
Deafness	18	17.0
Retrosternal pain	43	40.6
Conjunctivitis	76	71.7
Facial swelling	58	54.7
MOST EFFECTIVE METHOD OF DIAGNOSIS		
History taking	12	11.3
Clinical examination	9	8.5
ELISA	63	59.4
Don't know	22	20.8
CATEGORIZED KNOWLEDGE		
Poor	50	47.2
Good	56	52.8

*Multiple responses allowed.

Table 3. The Attitude of Respondents towards LF (N = 106).

VARIABLE	FREQUENCY (%)		
	AGREE	INDIFF-ERENT	DISAGREE
I am at risk of LF	78 (73.6)	7 (6.6)	21 (19.8)
My specialty has nothing to do with LF	8 (7.5)	0 (0.0)	98 (92.5)
LF affects only people with poor living conditions	5 (4.7)	4 (3.8)	97 (91.5)
LF can be prevented	101 (95.3)	1 (0.9)	4 (3.8)
LF, though preventable, has no cure	32 (30.2)	21 (19.8)	53 (50.0)
I will like more training on LF	99 (93.4)	3 (2.8)	4 (3.8)
What I know about LF is enough for my practice	10 (9.4)	5 (4.7)	91 (85.8)
CATEGORIZED ATTITUDE			
Negative	34 (32.1)		
Positive	72 (67.9)		

Table 4. Factors Associated with the Knowledge of Respondents about LF (N = 106).

VARIABLE	KNOWLEDGE (%)		χ^2	p-VALUE
	POOR	GOOD		
AGE GROUP (in years)				
Less than 30	1 (50.0)	1 (50.0)	1.055	0.590
30–39	36 (44.4)	45 (55.6)		
40 and above	13 (56.5)	10 (43.5)		
GENDER				
Male	28 (44.4)	35 (55.6)	0.463	0.496
Female	22 (51.2)	21 (48.8)		
TRAINING INSTITUTION				
Federal Medical Centre	1 (25.0)	3 (75.0)	1.021	0.600
State Hospital	7 (53.8)	6 (58.8)		
Teaching Hospital	42 (47.2)	47 (52.8)		
YEARS SINCE GRADUATION				
<10	23 (45.1)	28 (54.9)	0.169	0.681
10 or more	27 (49.1)	28 (50.9)		
ATTENDED TRAINING/WORKSHOP ON LF IN THE LAST 6 MONTHS				
Yes	1 (25.0)	3 (75.0)	0.82	0.62
No	49 (48.0)	53 (52.0)		
HAS DONE PERSONAL READING ON LF IN THE LAST 6 MONTHS				
Yes	10 (25.0)	30 (75.0)	12.67	<0.001*
No	40 (60.6)	26 (39.4)		
TRAINING INSTITUTE HAS A PROTOCOL FOR LF				
Yes	5 (25.0)	15 (75.0)	5.441	0.066
No	32 (55.2)	26 (44.8)		
Don't know	13 (46.4)	15 (53.6)		
ATTITUDE TOWARDS LF				
Negative	21 (61.8)	13 (38.2)	4.279	0.039*
Positive	29 (40.3)	43 (59.7)		

*Statistically significant.

Table 5. Factors Associated with the Attitude of Respondents towards LF (N = 106).

VARIABLE	ATTITUDE (%)		χ^2	p-VALUE
	NEGATIVE	POSITIVE		
AGE GROUP (in years)				
Less than 30	1 (50.0)	1 (50.0)	1.654	0.437
30–39	28 (34.6)	53 (65.4)		
40 and above	5 (21.7)	18 (78.3)		
GENDER				
Male	22 (34.9)	41 (65.1)	0.577	0.447
Female	12 (27.9)	31 (72.1)		
TRAINING INSTITUTION				
Federal Medical Centre	2 (50.0)	2 (50.0)	0.615	0.735
State Hospital	4 (30.8)	9 (69.2)		
Teaching Hospital	28 (31.5)	61 (68.5)		
YEARS SINCE GRADUATION				
<10	17 (33.3)	34 (66.7)	0.071	0.789
10 or more	17 (30.9)	38 (69.1)		
ATTENDED TRAINING/WORKSHOP ON LF IN THE LAST 6 MONTHS				
Yes	2 (50.0)	2 (50.0)	0.613	0.434
No	32 (31.4)	70 (68.6)		
HAS DONE PERSONAL READING ON LF IN THE LAST 6 MONTHS				
Yes	10 (25.0)	30 (75.0)	1.476	0.224
No	24 (36.3)	42 (63.6)		
TRAINING INSTITUTE HAS A PROTOCOL FOR LF				
Yes	5 (25.0)	15 (75.0)	0.614	0.736
No	20 (34.5)	38 (65.5)		
Don't know	9 (32.1)	19 (67.9)		

respondents had a good comprehensive knowledge of LF.

For the respondents attitude towards Lassa fever (Table 3), 78 (73.6%) agreed that they were at risk of LF, 21 (19.8%) disagreed and 7 (6.6%) were indifferent. Eight (7.5%) of the respondents felt their specialty had nothing to do with LF, while 98 (92.5%) disagreed. Ninety-nine (93.4%) of the respondents were willing to receive more training on LF. Those considered to have positive attitude were those who agreed that doctors were an at risk group for Lassa fever and were willing to receive more training about Lassa fever, irrespective of their specialties. After scoring of the questions on attitude, the mean attitude score was 18.6 ± 1.8 . After categorization, 72 (67.9%) had positive attitude, while 34 (32.1%) had negative attitude towards LF.

There was a statistically significant association between knowledge and personal reading about Lassa fever ($p < 0.001$) and attitude towards LF (p

$= 0.39$). At multivariate level, logistic regression revealed a significant relationship between knowledge and personal reading with odds ratio of 2.4 and confidence interval of 0.96 to 6.04. Similarly, the relationship between knowledge and attitude was significant with logistic regression with odds ratio of 4.62 and confidence interval of 1.79 to 12.14.

Discussion

The awareness of LF was universal among the Respondents. This is similar to the findings of other similar studies in Nigeria [5,11] and other developing countries [8-9]. The level of awareness in this study was however higher than what was reported by other studies carried out in Nigeria [12-13]. A study carried out among primary health care workers in Osogbo reported a level of awareness of 79.3% [12]. This may be due to the fact that the respondents in this study were all doctors, and were also Senior Registrars in active training, therefore

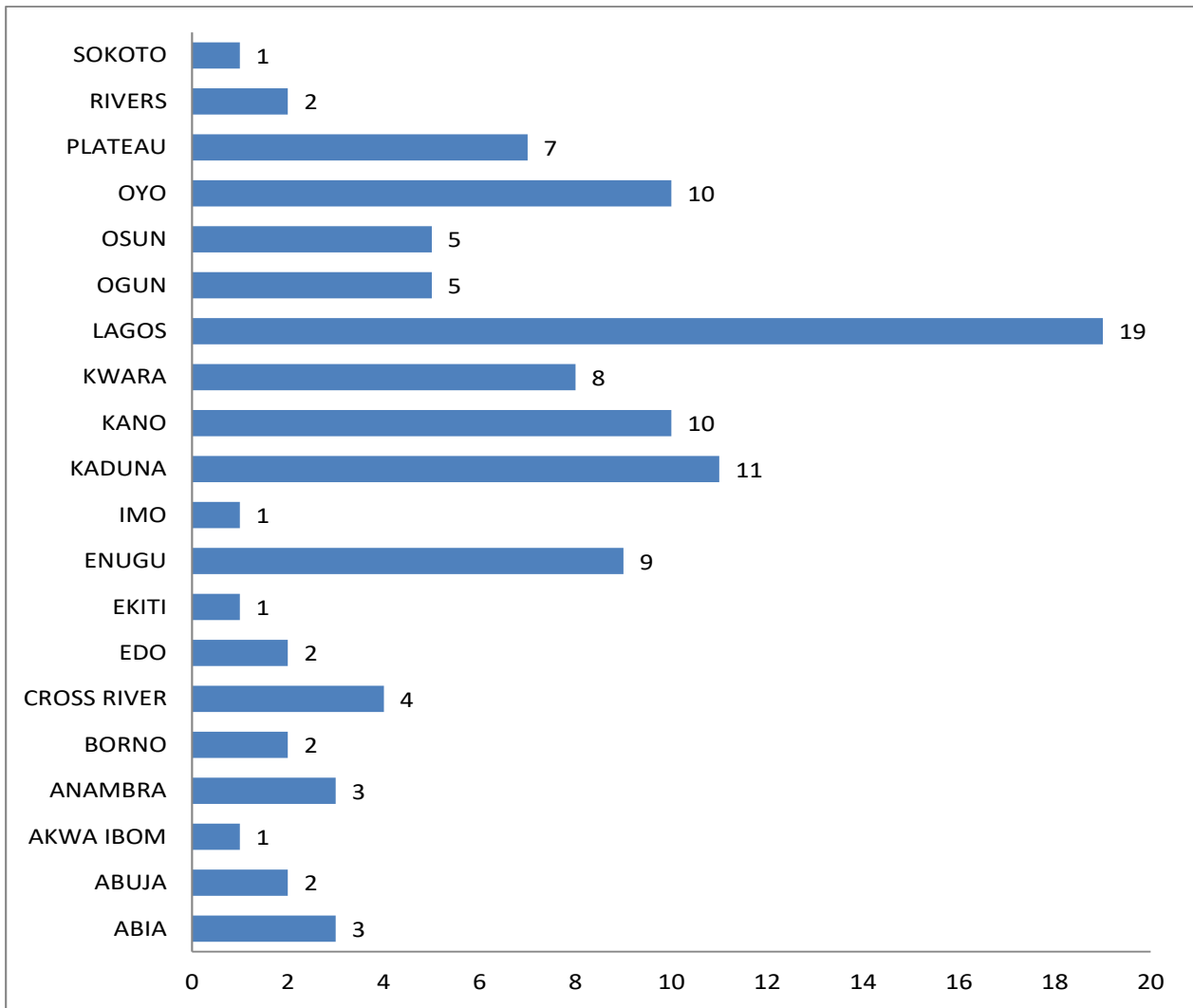


Figure 1. State of Practice of the Respondents.

this high level of awareness may not be unexpected among them.

However, unlike the high level of awareness, only about half of the Respondents had good comprehensive knowledge about LF. Nearly half did not know about the nosocomial route of transmission and nearly two-fifths did not know about the direct contact route of transmission of LF. Apart from mucosal bleeding and conjunctivitis that were known as clinical features of LF, majority of the respondents did not know other clinical features such as cough and facial swelling. Overall, about half of the respondents had good comprehensive knowledge about LF. These findings are similar to those reported from health workers in other developing countries [8] and Nigeria. In the study by Tobin et al [5] among primary care providers in Edo State, 19.8% had good knowledge, 41.2% had fair knowledge and 38.9% had poor knowledge about LF.

In another study carried out among physicians in Osun State [12], 62% had good/appropriate knowledge while 38% had poor knowledge about LF. The poor comprehensive knowledge of LF among this category of doctors should be a source of concern to stakeholders, especially because these are the future specialists that will lead the health system in Nigeria.

Another issue of concern is the respondents' source of information about LF. It was surprising to know that the major source of most current information for the respondents was the mass media and medical school. It is disturbing to know that these doctors whose mean age since leaving medical school is 10.75 years are still depending on the information received in medical school for diagnosing and managing LF. This finding is similar to the finding of another study on the knowledge and preventive practices against Lassa fever among

primary health care workers in Osogbo, where the major source of information was also the mass media [12]. It is disappointing that despite the publicly accessible information for surveillance of infectious diseases, doctors still rely primarily on mass media and/or medical school knowledge.

The poor knowledge about LF may therefore not be unconnected with the respondents' source of information about LF. This was corroborated by the significant association between knowledge and recent personal reading about LF. The relationship was such that those that had personal reading on LF within 6 months before the survey were nearly 5 times more likely to have good knowledge about LF than those who did not. This is very instructive, and a wake-up call for doctors, and indeed all health workers to take advantage of available information on LF and update their knowledge from time to time. It also underscores the need for training and re-training of doctors and other health workers on infectious diseases like LF. Although there is the mandatory CME for doctors in Nigeria, it may be important for the Medical and Dental Council of Nigeria to regulate that some of the points for the CME should be from topical and endemic/epidemic diseases so as to increase learning in these aspects of medicine. Only about a fifth of the respondents were from training institutes that had protocols for LF management. This is disturbing because institutions for manpower training for healthcare delivery should have protocols in place for LF management.

More than 3 out of 10 Respondents had a negative attitude towards LF. This is another point of concern especially when this is taken against the background of the reports that nosocomial LF is a very important problem in Nigeria [3,8,10]. It was encouraging however, to note that most of the respondents desired more training on LF. The attitude of the respondents was significantly associated with their knowledge about LF, such that those who had good knowledge about LF were more than 2 times more likely to have a positive attitude towards LF than others who had poor knowledge about LF.

That the respondents in this study, Senior Registrars and soon-to-be Consultants, had poor knowledge of and attitude towards LF is of serious concern. This could mirror the knowledge and attitude of doctors in general in Nigeria, especially because the respondents are from 19 of the 36 States in Nigeria and the Federal Capital Territory. This needs to be addressed through personal study and

organization of training workshops on the prevention and management of LF.

Conclusion and Recommendation

The level of awareness of LF among Senior Registrars was very high with all of them being aware, however this was not matched by a corresponding level of knowledge and attitude, with only about half having good knowledge and about two-thirds having positive attitude. The knowledge of the respondents about LF was significantly associated with personal reading about LF and attitude towards LF. Doctors, and indeed all health care workers in Nigeria, should be encouraged to update their knowledge of LF and training on LF should be incorporated into existing post-graduation courses.

Conflict of Interest

None.

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