Cross-sectional Study of the Knowledge, Attitude, and Preventive Practices towards Lassa fever among Residents of Karu, Abuja, Nigeria

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Abstract

Lassa fever is associated with high morbidity and mortality with several laboratory-confirmed cases and deaths reported in Nigeria and the Federal Capital Territory (FCT-Abuja). This study assessed the knowledge, attitude, and preventive practices towards Lassa fever among residents of Karu, Abuja, Nigeria.

A cross-sectional study design, using a multistage sampling technique, to select 210 consenting adults was used. A structured, self-administered, pre-coded, pre-tested questionnaire was used to collect data on socio-demographic characteristics, knowledge, attitude, and preventive practices towards Lassa fever. Simple proportions, univariate, bivariate and multivariate analysis were done and a p-value of less than 0.05 was considered statistically significant.

The knowledge of Lassa fever was high (80.9%), the attitude towards Lassa fever was positive (77.6%), and the preventive practice towards Lassa fever was also positive (73.8%). Educational qualification significantly influenced the knowledge, attitude, and preventive practices towards Lassa fever among the residents of Karu. Marital status had an association with the attitude toward Lassa fever but had no association with the knowledge and preventive practices towards Lassa fever. Gender had an association with the preventive practices towards Lassa fever but had no association with the knowledge and attitude towards Lassa fever.

There was a high knowledge, attitude and practice of prevention of Lassa fever requiring sustained health education, public awareness campaigns, community sensitization on the importance of early healthcare-seeking behaviour, continuous monitoring and evaluation of the preventive practices towards Lassa fever in Karu to sustain the gains.

Keywords: Knowledge; Attitude; Practice; Karu; Lassa

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Introduction

Lassa fever is a viral hemorrhagic illness caused by Lassa Virus which is acute in nature and is a member of the virus family called Arenaviridae. The first documented case of Lassa fever occurred in 1969 and is named after the town in Nigeria where the first cases occurred. Lassa fever is endemic in Guinea, Nigeria, Liberia, and Sierra Leone. There have been reported cases of imported Lassa fever on a global level, though the disease is endemic in West Africa. Lassa fever can be imported from a country where it is endemic to a country where it is absent when people get infected in endemic countries and travel from these endemic countries to countries where the disease is absent. Between 1969 and 2019, Thirty-six (36) primary and two (2) secondary cases of imported Lassa fever were identified, the last of which occurred in 2019. The majority of imported cases of Lassa fever were seen in the United Kingdom, where 13 patients were treated, followed by the USA (9 patients) and Germany (6 patients and 2 secondary infections). A total of four (4) Lassa fever patients were treated in the Netherlands, and one each in Israel, Japan, South Africa, and Sweden.[1]

The burden of Lassa fever on the West African subregion is huge. Lassa fever was responsible for 10-16% of all adult medical admissions in two hospitals studied in Sierra Leone and for about 30% of adult deaths.[2] The case fatality rate in Kenema, Sierra Leone varied from 12% to 23% for the period 1997 – 2002. A recent case series showed low admission rates and high case fatality rates for people aged less than 18 years compared with older people. During pregnancy, high rates of maternal death (29%) and fetal and neonatal loss (87%) have been recorded (uterine evacuation improves outcome significantly).[3] An estimate of the case fatality rate in the general population is 1 – 2%, much lower than in hospitalized cases, possibly as a consequence of differences in severity. Using the figures for rural populations and the epidemiology of the disease, it is estimated that the "at risk" seronegative population in the West African subregion may be as high as 59 million, with an annual incidence of illness of 3 million, fatalities up to 67,000 and up to 3 million reinfections.[4]

The burden of Lassa fever on Nigeria is also huge. In Nigeria, from 3rd to 30th January 2022, 211 laboratory-confirmed Lassa fever cases including 40 deaths (case fatality ratio: 19%) were cumulatively

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reported in 14 of the 36 Nigerian states and the Federal Capital Territory. Of the 211 laboratory-confirmed cases, five cases have been reported among health workers, while the majority of the other cases occurred in rural communities.[5] In a study of the epidemiology of Lassa fever in Nigeria (2012 – 2017), a total of 5,974 suspected cases were reported between January 2012 to December 2017. Of this number, 759 (12.7%) were confirmed cases. The highest number of cases 1,723 (28.8%) were reported in 2012, followed by 2013 with 1,195 (20.0%). The lowest number of cases 428 (7.2%) were reported in 2015.[6]

A study carried out within the staff quarters of the University of Abuja in Gwagwalada Area Council of the Federal Capital Territory (FCT – Abuja) showed that there is a gap in the knowledge and attitude towards Lassa fever. The majority of the respondents mentioned that Lassa fever was named after an animal (57.6%), instead of a village. Only 45.2% knew Lassa fever was caused by a virus. Almost half of the respondents would keep the information secret if a family member is infected and 52.3% would show some discriminatory attitudes towards the infected individual. The study showed that the association between preventive practices and level of education was significant. More respondents with tertiary level of education reported good preventive measures than those who had secondary and primary levels of education.[7] We therefore decided to do something different by conducting our study outside Gwagwalada Area Council and not restricted to a university environment.
A study carried out within the youth populace in the Bwari Area Council of the Federal Capital Territory showed that the attitude of youths toward Lassa fever preventive practices is significantly negative. The study showed that gender had no association with the attitude of youths towards Lassa fever, while educational status had an association with the attitude of youths towards Lassa fever. Knowledge, attitude, and preventive practices towards Lassa fever were found to be better among highly educated respondents.[8] We therefore decided to do something different by conducting our study outside Bwari Area Council and not restricted to the youth populace.

Rural and densely populated communities are at greatest risk of Lassa fever, yet residents of these communities usually have varying levels of knowledge, attitude, and preventive practices towards Lassa fever. Interestingly, there are rural and densely populated communities within Karu. Consequently, this research studied the existing knowledge of Lassa fever, as well as the attitudinal and preventive practices towards Lassa fever in Karu. This will ensure that public health interventions aimed at the prevention and control of Lassa fever in Karu will be based on existing knowledge, attitude, and preventive practices, and will consequently deliver greater results. This is even more relevant in the context of the fact that there is little or no available published literature on the knowledge, attitude, and preventive practices towards Lassa fever in Karu.

Materials and Methods

The research is a cross-sectional study of the knowledge, attitude, and preventive practices towards Lassa fever among residents of Karu, conducted in 2023. Mixed method design (qualitative and quantitative) was used for the study. The qualitative component entailed focused group discussions while the quantitative component entailed use of questionnaires. The focused group discussions provided insights that were used in designing the questionnaires. According to the official gazette of the Federal Republic of Nigeria, the 2006 census conducted by the National Population Commission showed that the population of Abuja Municipal Area Council was 776,298, and about one-twelfth of that population were resident in Karu, FCT-Abuja. The current (2023) population of Karu, FCT-Abuja is estimated to be around 165,000. Karu has both public and private health facilities. Among the public health facilities are, 2 Primary Healthcare Centers, 1 General Hospital and the Nigerian Customs Service Hospital which offer 24-hour health-promotive, preventive and curative services to the public with referrals to the Asokoro District Hospital and the National Hospital.

The study was conducted among men, women and youths resident in Karu, between the age bracket of 18 years and above who provided informed consent. Respondents who were not residents of Karu, those who were visitors, those incapacitated due to health reasons, those who were away during the duration of the study, those who were below 18 years of age and those who did not provide informed consent were excluded from the study. Those with language/communication barriers and without a competent interpreter and those with mental health challenges were excluded from the study.

The effective sample size of 218 was determined using the Cochran formula;[9]

$$n = \frac{Z^2 * p * q}{E^2}$$

where Z is approximately equal to 1.96 which is the Z-score corresponding to the desired level of confidence, p is the estimated proportion of the characteristic in the population and is equal to 17.1% who had a high knowledge of Lassa fever from a previous study[10], q is the complementary proportion and is equal to 1 – p, and E equals 0.05 and is the desired margin of error.

However, when a non-response rate of 5% was factored in, the final sample size becomes: Final sample size = 218/(1-0.05) = 218/0.95 = 229.47 ≈ 230

Multi-stage sampling technique was used to select the respondents. From the list of the 6 Area Councils in the Federal Capital Territory, the Abuja Municipal Area Council was selected through purposive sampling. Then, from the list of wards in Abuja Municipal Area Council, Karu was selected for the study through purposive sampling. Then, from the list of communities in Karu Ward, a simple random sampling technique by balloting (ballot paper) was used to select Jikwoyi, Karu Village and Karu-site. Finally, the list of numbered houses in the selected communities were collapsed into one, which formed the sampling frame, a systematic sampling technique was used to select houses in the selected communities.
The sampling interval was determined by dividing the sampling frame by the sample size, and this determined the sequence that the houses were selected based on the numbers allocated to the houses. The first house selected as the starting point for the sampling process was selected using a simple random sampling technique of balloting. If a selected house consists of only one household, then that household is selected. Otherwise, a list of households in each of the selected houses was made, and one household was selected using a simple random sampling technique by balloting (paper ballot). In each of the households selected, an adult aged 18 years and above who gave consent was then selected as the respondent. If more than one person met the selection criteria in a household, one person was randomly selected by a simple random sampling technique by balloting (paper ballot).

The qualitative study instrument used is the Focused Group Discussion (FGD) Guide. The research organized 2 FGDs and each of them had 7 discussants. The discussants in the first group were all males while the discussants in the second group were all females. The 2 groups had their FGDs in series and each of the FGDs lasted for 90 minutes. The facilitator of each of the FGDs started by defining the purpose of the FGD which is to generate maximum discussions, opinions, and understanding of the subject matter at a deeper level, as well as generate qualitative information that will be the basis for the quantitative aspect of the research. The FGDs were used to gather insights into the knowledge, attitude, and preventive practices towards Lassa fever in Karu. The decision to ensure that a mixed-gender group was not used was deliberate to ensure that differences in perception, understanding, and practices between the male and female gender did not interfere with the freedom of expression of discussants at the FGD. The 2 FGDs held in Karu. The FGD Guide which had 9 questions that include probe and follow-up questions was adapted from a sample FGD guide published by the United Nations Children's Fund (UNICEF).[11]

The participants of the FGD were different from the respondents of the quantitative arm of the study. The participants of the FGD were selected from residents of Karu such that age, gender, occupation, ethnicity, socioeconomic level, educational level, and relevant experiences were taken into consideration. The research did this by consulting local community-based organizations and associations, and the leaders of these local organizations and associations assisted the research in selecting the participants. This was done to ensure diversity among the participants. A participant profile was created, and the profile outlined the ideal characteristics, qualifications, and perspectives of participants. The profile served as a guide during the selection process. The participants were selected through purposive sampling, such that individuals who met the specific criteria were targeted. The selected individuals included youths and adults, male and female genders, various occupational groups, various ethnic and religious groups, and various educational levels and experiences. The time and venue of the FGDs were communicated to every participant. The questions in the FGD guide were pre-tested - by colleagues of the researchers to ensure understanding and clarity - in the Orozo community, which is an area with similar characteristics as Karu. Orozo community is located in the Abuja Municipal Area Council of the Federal Capital Territory, and the driving time from Orozo to Karu is about 25 minutes. The FGD Guide had an introduction, a section on knowledge of Lassa fever, a section on attitude towards Lassa fever, a section on preventive practices towards Lassa fever, and a conclusion.

The quantitative study instrument used is the structured, self-administered, pre-coded and pre-tested questionnaire. A self-administered questionnaire was developed based on the questions adapted from the FGDs and previously published literature[10,12,13] and by the recommendations of the World Health Organization (WHO) and Centre for Disease Control and Prevention (CDC).[14,15] The questionnaire was designed to obtain sufficient and relevant information from the respondents. Pre-coded, closed-ended questions were asked and the respondents were required to give a specific answer to a question by ticking in front of an appropriate answer. Accidentally, all the respondents were literate and legible. The questionnaire contained structured questions that were divided into sections A and B. Section A collected sociodemographic data (gender, age, religion, occupation, marital status, educational level, and number of years of residence in Karu) while section B collected data on the knowledge, attitude, and preventive practices towards Lassa fever. Section A contained 7 questions. A total of 18 questions were asked in Section B such that there were 6 questions each for knowledge, attitude, and preventive practices.
The questionnaire was also pretested before the final version was administered. The questionnaire was

pretested in Nyanya which is an area with similar characteristics as Karu. Both communities share boundary with each other and are both located in the Abuja Municipal Area Council. Three (3) enumerators conducted the pretest. The respondents of the pretest were Nyanya residents within the age range of 18 years and above, selected such that young and old as well as male and female residents with different socio-economic backgrounds were included. The pretesting helped the research to determine the clarity of questions, ambiguity, uniformity, and whether respondents understood the questions.

The structured questionnaire was self-administered to participants. The researchers recruited 6 professionals into the data collection process. Two (2) days of training were given to the data collectors on the overall aim of the study, contents of the questionnaire, selection of respondents, data collection procedures, and ethical issues. The training was delivered by the researchers. Formal classroom-style presentations and participative and experiential methods were integrated into the training. Pre and post-tests were done for the trainees to assess their comprehension.

Data was collected through self-administered questionnaires. Adults older than 18 years completed the self-administered questionnaires, with or without disclosing their identities. Upon meeting the respondent, the data collector introduced himself, explained the research, and created a friendly atmosphere between the data collector and the respondent. The data collector handed out an informed consent form, questionnaire, and pen to the respondent taking the questionnaire. The data collector wrote each respondent's code number on the front sheet of the questionnaire or told each respondent his/her assigned code number and asked him/her to fill in that number on the questionnaire. The data collector informed the respondents that it would be a self-administered questionnaire, provided general direction for responding to the questionnaire, and then let the respondents fill out the questionnaire. Once a respondent completes the process of filling out the questionnaire, the data collector collects the completed questionnaire. The data collector thanked the respondent for taking part in the study and then left. The completed questionnaire was then submitted to the researcher.

After data collection, checking for double data entry to control for data entry errors and data cleaning was carried out before statistical analysis as a quality control measure to ensure the purity and cleanliness of data.

Specific questions to assess the knowledge of Lassa fever among the respondents were asked and a score was assigned to each response. Six (6) questions were asked to assess the knowledge of the respondents. Each question consisted of 'Yes', 'No', and 'I don't know' options. Each correct response carried a score of 1. A total of 6 questions were asked and the total possible score was 6 (1 score per question). At the end, the scores of the 6 questions were summed. The outcome was graded as high if the final score was 50% and above of the total score, while a final score of less than 50% of the total score was graded as low.

Specific questions to assess the attitude towards Lassa fever among the respondents were asked and a score was assigned to each response. Six (6) questions were asked to assess the attitude of the respondents. Each question consisted of 'Yes', 'No', and 'I don't know' options. Each correct response carried a score of 1. A total of 6 questions were asked and the total possible score was 6 (1 score per question). At the end, the scores of the 6 questions were summed. The outcome was graded as high if the final score was 50% and above of the total score, while a final score of less than 50% of the total score was graded as low.

Specific questions to assess the preventive practices towards Lassa fever among the respondents were asked and a score was assigned to each response. Six (6) questions were asked to assess the preventive practices of the respondents. Each question consisted of 'Yes', 'No', and 'I don't know' options. Each correct response carried a score of 1. A total of 6 questions were asked and the total possible score was 6 (1 score per question). At the end, the scores of the 6 questions were summed. The outcome was graded as high if the final score was 50% and above of the total score, while a final score of less than 50% of the total score was graded as low.

Questions 1 – 7 assessed the sociodemographic variables of the respondents. The responses of respondents to the questions on transmission, prevalence, mortality, etc. (questions 8 – 13) were assessed as indicators of knowledge. The responses to the questions on the lifestyle of respondents towards symptoms and cases of Lassa fever, risk perception, etc. (questions 14 – 19) were assessed as indicators of attitude. The responses to the questions on hand washing, rat control, avoidance of rat-infested food/grains, etc. (questions 20 – 25) were assessed as indicators of preventive practices.

A Chi-square test was used to assess for associations between qualitative and categorical variables. Where conditions for the chi-square were not met, an F-test (ANOVA) was used. A p-value of less than 0.05 was accepted to be statistically significant.

Ethical Approval was obtained from the Health Research Ethics Committee of the Federal Capital Territory, Abuja (Ref No. FHREC/2023/01/50/04-03-23). A written consent was obtained from each respondent before commencing data collection. Respondents were informed that participation was voluntary and that they could withdraw at any time from the study if they so desired without any penalty.

The respondents were also informed that the information they provided would be kept confidential.

Results

A total of two hundred and thirty (230) questionnaires were distributed, out of which two hundred and ten (210) questionnaires were retrieved. This gives a 91.3% response rate. All the two hundred and ten (210) questionnaires that were retrieved were found to be valid and useable. Among the respondents, 37% were male while 63% were female. The mean age was 35.56 (±19.13) years. With respect to educational qualification, 6% of the respondents had primary school certificates while 26% had postgraduate certificates and above. Also, 7% of the respondents had lived in Karu for less than 1 year while 37% had lived in Karu for 5 years and above. See Table 1.

Among the respondents, 72% said that Lassa fever is a deadly disease, 9% said that Lassa fever is not a deadly disease, while 19% were undecided.

Table 1 : Socio-demographic Characteristics of the Respondents (N = 210)

	Frequency	
Variables		%
Gender		
Male	78	37
Female	132	63
Age		
18-25 years	46	22
26-35 years	63	30
36-45 years	67	32
46 and above	34	16
Mean Age (±SD)	35.56 (±19.13)	
Marital Status		
Single	86	41
Married	69	33
Divorced	25	12
Widowed	19	9
Separated	11	5
Educational Qualification		
Primary school certificate	13	6
SSCE	23	11
OND	34	16
Bachelor's degree/HND	61	29
Postgraduate and above	54	26
None	17	8
Others (Vocational and technical certificate, online course certificate, computer and IT certificate, etc.)	8	4
Religion		
Christianity	101	48
Islam	92	44
African traditional religion	11	5
Others (Judaism, Atheism, etc.)	6	3
Occupation		
Civil servant	63	30
Skilled worker/Artisan	69	33
Private business/Trader	65	31
None/Unemployed	2	1
Others (police officer, social worker, etc.)	11	5
Years of Residence in Karu		
Less than 1 year	15	7
1 – 2 years	44	21
3 – 4 years	74	35
5 years and above	77	37

Table 2a: Knowledge of Lassa fever among Karu residents

Variables	Frequency	%
KNOWLEDGE OF LASSA FEVER		
Rat is the natural host of Lassa fever		
Yes	50	24
No	76	36
I don't know	84	40
Lassa fever is prevalent in Nigeria		
Yes	77	37
No	59	28
I don't know	74	35
Lassa fever is a deadly disease		
Yes	151	72
No	19	9
I don't know	40	19
Lassa fever affects only elderly people		
Yes	67	32
No	48	23
I don't know	95	45
Lassa fever is caused by bacteria		
Yes	69	33
No	53	25
I don't know	88	42
Ribavirin is a drug used for treatment of Lassa fever		
Yes	74	35
No	42	20
I don't know	94	45

Table 2b: Attitude towards Lassa fever among Karu residents

Variables	Frequency	%
ATTITUDE TOWARDS LASSA FEVER		
Subject yourself to a Lassa fever confirmation test if you have symptoms of Lassa fever		
Yes	86	41
No	36	17
I don't know	88	42
Avoid a close family member if he or she is a suspected case of Lassa fever		
Yes	92	44
No	71	34
I don't know	47	22
Hunt rats in a community where Lassa fever is fever is endemic		
Yes	73	35
No	82	39
I don't know	55	26
Lassa fever is preventable with a positive health seeking behavior		
Yes	105	50
No	44	21
I don't know	61	29
Prevention of Lassa fever should be left for government alone		
Yes	69	33%
No	122	58%
I don't know	19	9%
Support against the spread of Lassa fever		
Yes	107	51%
No	55	26%
I don't know	48	23%

Furthermore, 35% of the respondents said they see something wrong with hunting rats in a community where Lassa fever is endemic, 39% said they do not see anything wrong with hunting rats in a community where Lassa fever is endemic while 26% were undecided. Also, 30% of the respondents said they deliberately put their foods in rodent-proof containers, 64% said they do not deliberately put their foods in rodent-proof containers, and 6% were undecided. See Table 2a, 2b and 2c.

Table 2c: Preventive practices towards Lassa fever among Karu residents

Variables	Frequency	%
Wash hands with soap and sanitizers		
Yes	78	37
No	124	59
I don't know	8	4
Take rodent control steps		
Yes	116	55
No	69	33
I don't know	25	12
Avoid rat contact with food		
Yes	101	48
No	69	33
I don't know	40	19
Avoid hunting rats in the bush		
Yes	84	40
No	78	37
I don't know	48	23
Avoid spreading grains by the roadside		
Yes	71	34
No	122	58
I don't know	17	8
Put your foods in rodent proof containers		
Yes	63	30
No	134	64
I don't know	13	6

There was an association between knowledge of Lassa fever and educational qualification ($p < 0.01$), age ($p < 0.01$), religion ($p < 0.01$), occupation ($p < 0.01$), and years of residence in Karu ($p < 0.01$). Knowledge of Lassa fever had no association with gender and marital status. See Table 3a.

There was an association between attitude towards Lassa fever and marital status ($p < 0.01$), age ($p = 0.01$), educational qualification ($p < 0.01$), religion ($p < 0.01$), and number of years of residence in Karu ($p < 0.01$). Attitude towards Lassa fever had no association with gender and occupation. See Table 3b.

There was an association between preventive practices towards Lassa fever and gender ($p < 0.01$), age ($p = 0.02$), educational qualification ($p < 0.01$), religion ($p < 0.01$), occupation ($p = 0.03$), and number of years of residence in Karu ($p = 0.01$). There was no association between preventive practices towards Lassa fever and marital status. See Table 3c.

Table 3 a: Association between Socio-demographic variables and knowledge of Lassa fever

Variables	Knowledge of Lassa fever		Total	Statistical Test and Values
	Low (n = 40) Frequency (%)	High (n = 170) Frequency (%)	210	
Gender				
Male	16 (21)	62 (79)	78	$X^2 = 0.17$
Female	24 (18)	108 (82)	132	df = 1
				p value = 0.68
Age				
18 – 25 years	9 (20)	37 (80)	46	F = 50.07
26 – 35 years	13 (21)	50 (79)	63	df = 3
36 – 45 years	8 (12)	59 (88)	67	p-value = 0.01*
46 years and above	10 (29)	24 (71)	34	
Marital Status				
Single	9 (10)	77 (90)	86	$X^2 = 47.73$
Married	8 (12)	61 (88)	69	df = 4
Divorced	6 (24)	19 (76)	25	p-value = 1.07
Widowed	7 (37)	12 (63)	19	
Separated	10 (91)	1 (9)	11	
Educational Qualification				
Primary school Certificate	8 (62)	5 (38)	13	$X^2 = 66.68$
SSCE	7 (30)	16 (70)	23	df = 6
OND	5 (15)	29 (85)	34	p value < 0.01*
Bachelors' degree/HND	3 (5)	58 (95)	61	
Postgraduate and above	2 (4)	52 (96)	54	
None	8 (47)	9 (53)	17	
Others	7 (88)	1 (12)	8	
Religion				
Christianity	15 (15)	86 (85)	101	$X^2 = 19.51$
Islam	15 (16)	77 (84)	92	df = 3
African traditional religion	7 (64)	4 (36)	11	p-value < 0.01*
Others	3 (50)	3 (50)	6	
Occupation				
Civil servant	8 (13)	55 (87)	63	$X^2 = 17.54$
Skilled worker/ artisan	11 (16)	58 (84)	69	df = 4 p-value < 0.01*
Private business/ trader	13 (20)	52 (80)	65	
None/unemployed	1 (50)	1 (50)	2	
Others	7 (64)	4 (36)	11	
Years of Residence				
Less than 1 year	6 (40)	9 (60)	15	F = 57.55
1 – 2 years	15 (34)	29 (66)	44	df = 3
3 – 4 years	10 (14)	64 (86)	74	p-value < 0.01*
5 years and above	9 (12)	68 (88)	77	

*Statistically significant

Table 3 b: Association between socio-demographic variables and attitude towards Lassa fever

Variables	Attitude Towards Lassa fever		Total	Statistical Test and values
	Positive (n = 47) Frequency (%)	Negative (n = 163) Frequency (%)	210	
Gender				
Male	20 (26)	58 (74)	78	$X^2 = 0.76$
Female	27 (20)	105 (80)	132	df = 1 p-value = 0.38
Age				
18 – 25 years	9 (20)	37 (80)	46	F = 47.78
26 – 35 years	14 (22)	49 (78)	63	df = 3
36 – 45 years	11 (16)	56 (84)	67	p-value = 0.01*
46 years and above	13 (38)	21 (62)	34	
Marital Status				
Single	11 (13)	75 (87)	86	$X^2 = 19.76$
Married	13 (19)	56 (81)	69	df = 4
Divorced	8 (32)	17 (68)	25	p-value < 0.01*
Widowed	10 (53)	9 (47)	19	
Separated	5 (45)	6 (55)	11	
Educational Qualification				
Primary school cert	10 (77)	3 (23)	13	$X^2 = 73.59$
SSCE	10 (43)	13 (57)	23	df = 6
OND	6 (18)	28 (82)	34	p-value < 0.01*
Bachelors' degree/HND	3 (5)	58 (95)	61	
Postgraduate and above	3 (6)	51 (94)	54	
None	8 (47)	9 (53)	17	
Others	7 (88)	1 (12)	8	
Religion				
Christianity	16 (16)	85 (84)	101	$X^2 = 46.37$
Islam	16 (17)	76 (83)	92	df = 3
African traditional religion	10 (91)	1 (9)	11	p-value < 0.01*
Others	5 (83)	1 (17)	6	
Occupation				
Civil servant	14 (22)	49 (78)	63	$X^2 = 25.47$
Skilled worker/ artisan	11 (16)	58 (84)	69	df = 4 p-value = 4.05
Private business/ trader	12 (18)	53 (82)	65	
None/unemployed	1 (50)	1 (50)	2	
Others	9 (82)	2 (18)	11	
Years of Residence				
Less than 1 year	8 (53)	7 (47)	15	F = 82.42
1 – 2 years	13 (30)	31 (70)	44	df = 3
3 – 4 years	15 (20)	59 (80)	74	p-value < 0.01*
5 years and above	11 (14)	66 (86)	77	

*Statistically significant

Table 3c: Association between socio-demographic variables and preventive practices towards Lassa fever

Variables	Preventive Practices Towards Lassa fever Positive (n = 55) Frequency (%)	Negative (n = 155) Frequency (%)	Total 210	Statistical Test and Values
Gender				
Male	30 (38)	48 (62)	78	$X^2 = 9.67$
Female	25 (19)	107 (81)	132	df = 1
Age				p-value < 0.01*
18 – 25 years	10 (22)	36 (78)	46	F = 19.99
26 – 35 years	15 (24)	48 (76)	63	df = 3
36 – 45 years	17 (25)	50 (75)	67	p-value = 0.02*
46 years and above	13 (38)	21 (62)	34	
Marital Status				
Single	11 (13)	75 (87)	86	$X^2 = 32.12$
Married	15 (22)	54 (78)	69	df = 4
Divorced	13 (52)	12 (48)	25	p-value = 1.8
Widowed	8 (42)	11 (58)	19	
Separated	8 (73)	3 (27)	11	
Educational Qualification				
Primary school Cert	10 (77)	3 (23)	13	$X^2 = 82.84$
SSCE	10 (43)	13 (57)	23	df = 6
OND	8 (24)	26 (76)	34	p-value < 0.01*
Bachelors' degree/HND	4 (6)	57 (94)	61	
Postgraduate and above	3 (6)	51 (94)	54	
None	13 (76)	4 (24)	17	
Others	7 (88)	1 (12)	8	
Religion				
Christianity	20 (20)	81 (80)	101	$X^2 = 19.61$
Islam	23 (25)	69 (75)	92	df = 3
African traditional religion	8 (73)	3 (27)	11	p-value < 0.01*
Others	4 (67)	2 (33)	6	
Occupation				
Civil servant	12 (19)	51 (81)	63	$X^2 = 10.39$
Skilled worker/artisan	17 (25)	52 (75)	69	df = 4
Private business/ trader	18 (28)	47 (72)	65	p-value = 0.03*
None/unemployed	1 (50)	1 (50)	2	
Others	7 (64)	4 (36)	11	
Years of Residence				
Less than 1 year	6 (40)	9 (60)	15	F = 23.04
1 – 2 years	18 (41)	26 (59)	44	df = 3
3 – 4 years	15 (20)	59 (80)	74	p-value = 0.01*
5 years and above	16 (21)	61 (79)	77	

*Statistically significant

Discussion

Most respondents had high knowledge of Lassa fever and this is similar to the result from the study conducted in a rural community in Southern Nigeria in which 93.9% of the respondents had high knowledge of Lassa fever.[16] However, the result differs from the result of a study conducted in a rural area in which 31.4% had adequate knowledge of Lassa fever.[17] In another study, a relatively small percentage of the respondents had high knowledge of Lassa fever.[18] The high percentage recorded by this study could be because FCT-Abuja has high number of health infrastructure than what is obtainable in the communities where the other studies with lower percentages of knowledge of Lassa fever were conducted. Communities with more healthcare infrastructure, including hospitals, clinics, and health

education programs, are more likely to have residents who have high knowledge of Lassa fever.

There was an association between knowledge of Lassa fever and educational qualification. Higher levels of knowledge of Lassa fever were observed among respondents with Postgraduate qualifications, Bachelor's degree/HND, and Ordinary National Diploma, while lower levels of knowledge of Lassa fever were observed among respondents with primary school certificates and those with other types of certificates. This could be because people who have received formal education, especially in fields like medicine, biology, or public health, are exposed to knowledge about diseases like Lassa fever during their studies. They may learn about the virus, its symptoms, transmission, prevention, and treatment as part of their formal educational curriculum. It could also be because education equips individuals with critical thinking skills that help them evaluate information, distinguish credible sources from unreliable ones, and analyze scientific research. This enables them to better understand and assess diseases like Lassa fever.

The percentage of the respondents who had a positive attitude towards Lassa fever is similar to a study wherein 85.3% had a positive attitude towards Lassa fever.[10] However, the result differs from another study wherein 24.2% had a positive attitude towards Lassa fever.[12] In another study, 46% had a positive attitude towards Lassa fever.[13] Worthy of note is the fact that there has been a very high media coverage of Lassa fever in FCT-Abuja and this may be the reason why a high percentage of the respondents in this study had a positive attitude towards Lassa fever. This is because the extent to which the media reports on Lassa fever plays a significant role in improving attitudes towards the disease. Communities with better access to media coverage of Lassa fever are more likely to have better attitudes towards Lassa fever.

There was an association between attitude towards Lassa fever and religion. Very high percentage of positive attitudes were observed among practitioners of Christianity and Islam which are the dominant religions in Karu that command huge followers, while negative attitude was observed among practitioners of African Traditional Religion and other religions. This could be because religious bodies are sometimes used to disseminate information concerning Lassa fever or other diseases, hence practitioners of religions that command huge crowds stand a better chance of receiving important information on Lassa fever. The information on Lassa fever which is likely more available to Christians and Muslims may play a role in improving the attitude of Christians and Muslims towards Lassa fever.

The percentage of the respondents who had positive preventive practices towards Lassa fever is comparable with the results of studies carried out in the North-Central part of Nigeria.[19] In some other studies, a lower percentage of the respondents demonstrated positive preventive practices towards Lassa fever.[18,20] The high percentage of the respondents who had positive preventive practices towards Lassa fever in this study could be because of the high media coverage of Lassa fever in FCT-Abuja and better healthcare infrastructure in Abuja, including hospitals, clinics, and health education programs. People who live in areas with high media coverage of Lassa fever and better healthcare infrastructure are more likely to have higher percentages of preventive practices towards Lassa fever.

There was an association between preventive practices towards Lassa fever and gender. Between the male and female genders, a higher percentage of preventive practices were recorded in females. This could be because of a difference in health-seeking behaviours between males and females. Females tend to be more proactive in seeking healthcare and information about diseases. This proactiveness could lead to better preventive practices towards Lassa fever. It could also be because societal expectations and gender roles encourage females to be more cautious and attentive to health matters. They may be more likely to take on responsibilities related to sanitation and hygiene.

The use of a cross-sectional design for this study ensured that associations between sociodemographic variables and knowledge, attitude, and preventive practices towards Lassa fever were clearly established. However, the causal relationships cannot be determined. Also, the study used a self-administered questionnaire to collect data and this can result in reporting bias. Some questions can be dishonestly answered due to social desirability leading to a response bias.

CONCLUSION / RECOMMENDATION

The majority of the respondents displayed high knowledge, attitude and preventive practice for Lassa fever. This highlights the importance of targeted educational campaigns to disseminate accurate information about Lassa fever, its transmission, symptoms, and preventive measures. Interestingly, the study revealed that individuals who had high knowledge of Lassa fever were more likely to have a positive attitude towards Lassa fever and engage in positive preventive practices towards Lassa fever. Also, individuals who had low knowledge about Lassa fever were more likely to have a negative attitude towards Lassa fever and engage in negative preventive practices towards Lassa fever. This underscores the importance of education in promoting proactive measures. Local health authorities should prioritize initiatives aimed at increasing the uptake of positive preventive practices, including community workshops and the distribution of information, education, and communication materials.

One of the most critical findings of the study pertains to health-seeking behavior. A substantial proportion of Karu community dwellers said they will not subject themselves to confirmation tests, even when they have symptoms that show they have a disease. This delay in seeking confirmation and treatment can exacerbate the severity of the disease and hinder timely intervention. Community sensitization on the importance of early healthcare seeking should be a priority, emphasizing the availability of free or affordable treatment options and the potential for positive outcomes when medical care is sought early.

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