



Determinants of the 2025 Lassa Fever Outbreak among residents in Taraba State Nigeria. A Mixed Methods Epidemiological Investigation

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Background

- Lassa fever is an infection of viral haemorrhagic fever primarily transmitted to humans by mammalian rats (*Mastomy natalensis*).
- Outbreak of Lassa fever (LF) in Nigeria has continued to be on an increase in Nigeria
- The 2025 Lassa fever (LF) outbreak in Taraba State, Nigeria, was exponential with high fatalities.
- A mixed method epidemiological investigation was conducted to determine the factors that contributed to the LF outbreak among residents in Taraba State Nigeria

Methods

Study Area

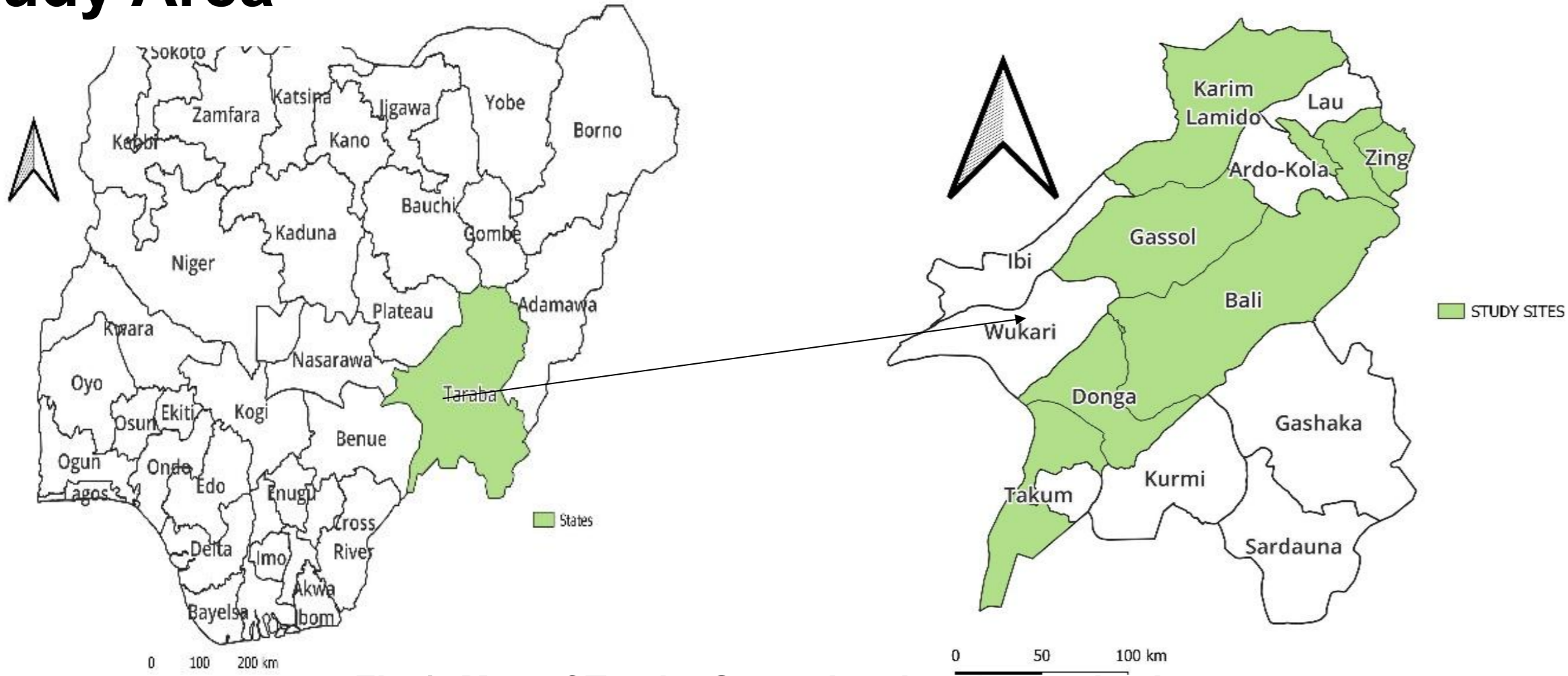


Fig 1: Map of Taraba State showing the study sites

Sample size

$$n = \frac{t^2 \times p(1-p)}{m^2}$$

- p=Based on 14% prevalence of Lassa fever (Al-Mustapha et al., 2024),
- m=Marginal error of 5%
- t=Confidence level of 95%

- Sampling Technique**
- A cross-sectional study was conducted in eight randomly selected local government areas (LGAs)
- A validated structured questionnaire was used to gather quantitative data from consented 238 respondents, 26 of whom were LF patients chosen by simple random sampling.
- Two focused group discussions of randomly selected 6 persons each for LF cases and non-cases were conveniently scheduled.
- Inclusion and Exclusion Criteria**
- Any individual residing in the selected LGAs of study with 7 days and above of residence and with or without history of Lassa fever infection.
- Any individual without the above inclusion criteria was excluded from the study
- Ethical Consent**
- Ethical approval was obtained from the Taraba State Research and Ethics committee

Results

Table 1: Socio Demographic Characteristics of Residents for Lassa Fever in Taraba State

Variable	No of Respondents	Frequency (%)
Gender		
Female	111	47
Male	127	53
Age Group		
10-19	7	3
20-29	48	20
30-39	80	34
40-49	44	18
50-59	34	14
60-69	20	8
70-80	5	2
LGA of Study		
Bali	38	16
Donga	33	14
Gassol	27	11
Jalingo	40	17
Karim Lamido	25	11
Takum	25	11
Yorro	25	11
Zing	25	11
Total	N=238	n=100

Table 2: Environmental Factors in relation to Lassa Fever infection among Residents in Taraba State

Variables	LF Cases (%)	No of Respondents (%)	p-value
Do you see rats in the House?			
Yes	24 (92)	212 (89)	0.748
No	2 (8)	26 (11)	
Do you have Refuse Bin in the House?			
Yes	26 (100)	185 (78)	*0.005
No	0(0)	53 (22)	
How do you dispose refuse in the surroundings?			
Open Disposal	21(81)	144 (61)	0.084
Self-disposal	5 (19)	94 (39)	
Do you sun-dry food product outside the house?			
Yes	22 (85)	214 (90)	0.311
No	4 (15)	24 (10)	

Table 3: Behavioral Factors in relation to Lassa Fever infection among Residents in Taraba State

Variables	LF Cases (%)	No of Respondents (%)	p-value
Do You leave food Uncovered in the House?			
Yes	18 (69)	127 (53)	*0.021
No	8 (31)	111 (47)	
Do you always wash your Hand before eating food?			
Yes	26 (100)	224 (94)	0.375
No	0(0)	14 (6)	
Do you store food in the House to avoid contamination			
Yes	25 (96)	223 (94)	0.379
No	1 (4)	15 (6)	
How Do you Store Food in the House?			
Sack Bags	14 (54)	159 (67)	*0.017
Sealed leak-proof container	12 (46)	66 (28)	
Never	0(0)	13 (5)	

Qualitative Response in relation to Lassa fever infection among residents in Taraba State

“ We do see rats in our homes. All efforts to prevent them from coming into the house with the use of rat poison proved abortive. Sometimes, they do enter the house through opened holes from the wall of the house” -Male;30; Jalingo..

“The practice of drying food in the open space is a long-standing tradition among our people. The food preserved under the sun is better than any other method known to us for preserving food-Female, 45, Bali.

“The grains in the house like Garri are mostly stored in sack bags. The food is mostly gathered during the harvest season, but the rats do find their way to the sack bags, and we do not have any other means of storing food in containers because of the large quantity of the grains-Female, 36, Bali.

Conclusions and Recommendations

- Findings from this study showed that factors associated with Lassa fever transmission in Taraba Sate Nigeria includes
 - In-house refuse bins,
 - uncovered food in the house
 - In-house food storage methodologies
- This study calls for improved environmental sanitation and good food storage practices to stem the tide of the infection in Taraba State, Nigeria.
- Concerted efforts should be made to understand more drivers and barriers to the infection in Nigeria.

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