Assessment of Public Awareness and Risk Perception of Lassa Fever in Endemic Regions of Nigeria

Okechukwu Cajethan Madu [1, 2], **Chinaza Faith Patrick** [1], **Oluchukwu Jennifer Agufusi** [1, 3], **Chidera Ruth Agufusi** [1, 4], **Somtochukwu Genevieve Agufusi** [1]

[1] *Jennifer Oluchukwu Maternal & Childcare Foundation*
1 Jideofor St, Thinkers Corner, Enugu 400001, Enugu, Nigeria

[2] *Joseph Sarwuan Tarka University, Makurdi*
P. M. B. 2373, Makurdi, Nigeria

[3] *Godfrey Okoye University*
FGCG+CHC, Jideofor St, Thinkers Corner, Enugu 400001, Enugu, Nigeria

[4] *Enugu State University of Science & Technology*
P. M. B. 01660, Agbani, Enugu State, Nigeria

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Corresponding Author:
Okechukwu Cajethan Madu

Abstract. Lassa fever is a viral hemorrhagic illness that occurs widely in West Africa, with Nigeria bearing a significant burden. The renewed spread and patterns of LF in affected communities raised concern, as gaps in public awareness and accurate risk perception continued to limit effective preventive behaviours and outbreak control. This study assessed public awareness and risk perception of LF in Nigeria's endemic regions, examining awareness levels, perceptions of contraction risks, determinants of infection perception, barriers to preventive actions and deficiencies in health communication strategies. Rooted in the Theory of Planned Behaviour (TPB), a cross-sectional survey was conducted across five purposively selected endemic states: Nasarawa, Gombe, Taraba, Ondo and Ebonyi. The research team selected two Local Government Areas per state based on reported endemicity and accessibility. Using a stratified multistage sampling technique, 720 participants from urban and rural wards were identified, with households selected via systematic random sampling. Structured Likert-scale questionnaires were administered online between October and November 2025, yielding 657 valid responses (91.25% response rate). Statistical analysis was conducted in SPSS (v26) using descriptive measures. Findings indicate high general awareness of LF and strong risk perception regarding susceptibility, severity and transmission. Health education, media campaigns, economic conditions, cultural and religious beliefs and access to health services influenced perceptions. Despite this, structural, financial, environmental, cultural and communication barriers limited translation of awareness into preventive action. Risk communication and health education programs were inadequate, lacking accessibility, cultural relevance, coordination and effective engagement of health workers and community structures. The study concluded that social, cultural, and infrastructural realities more influenced health behaviours than awareness alone, and recommended culturally sensitive, community-oriented education and improved access to preventive resources.

Keywords: Lassa Fever; risk perception; awareness; preventive behaviours; health education.

INTRODUCTION

High-quality health information is vital for preventing and managing infectious diseases, especially during epidemics and pandemics. Mass media play a central role in linking the public with health authorities, promoting preventive practices, and countering misinformation [1]. Public awareness is particularly important for Lassa fever, a zoonotic viral hemorrhagic disease caused by the Lassa virus (LFV) of the Arenaviridae family [2]. The multimammate rat (Mastomys natalensis) serves as the primary reservoir, with incidence peaking between November and April. Symptoms often begin with fever and weakness but can progress to severe complications, including multi-organ failure and bleeding. Recent NCDC data show that young adults aged 21–30 are most affected, with slightly higher infection rates among males [3, 4].

Lassa fever remains endemic in Nigeria and several West African countries, with occasional reports outside the region [2, 5]. Case fatality rates vary widely, from 1% overall to as high as 80% in late pregnancy, with an estimated 300,000–500,000 infections and about 5,000 deaths annually in West Africa [6]. Nigeria has faced recurring outbreaks, with confirmed cases rising from 510 in 2021 to 1,067 in 2022 and 1,170 in 2023, alongside CFRs ranging from 6.5% to 18.7% [3, 4]. Most cases occur in Ondo, Bauchi, Edo, Taraba, and Ebonyi states.

Awareness and risk perception strongly influence preventive behaviours. Research [7] found that while many respondents knew of Lassa fever, fewer understood specific risks, such as drying grains on the ground, which parallels a recent maternal health study [8], in which high awareness of antenatal services did not consistently translate into utilisation due to socioeconomic and cultural barriers. Social context, such as education, media campaigns, and communication strategies, shapes how risk messages are received, while panic can distort understanding [9-11]. Human-to-human transmission has been documented [12, 13], and the NCDC [4] advises hygiene, safe food storage, and prompt reporting of symptoms. Strengthening community knowledge and risk communication remains key to reducing infection rates and controlling outbreaks.

Statement of the Problem. Despite the endemic presence of Lassa fever in Nigeria, current evidence suggests persistent gaps in public awareness and accurate risk perception that may hinder the adoption of effective preventive behaviours. For example, [14] found in Ebonyi State that although 99.1% of respondents were aware of Lassa fever, half had limited knowledge of its symptoms and risk factors, and 63.5% perceived little benefit from preventive practices. Similarly, [9] observed that despite adequate knowledge of transmission routes, public anxiety influenced understanding of risk-communication messages across different states. These findings indicate that although public awareness of Lassa fever is high, understanding is limited and protective behaviours are inadequate. Limited research has focused on public awareness and risk perception in different endemic regions of Nigeria. It is against this backdrop that this study aims to assess public awareness and risk perception of Lassa fever in Nigeria's endemic regions.

Research Objectives

1) Determine the level of awareness of Lassa fever among residents in Nigeria's endemic regions.

2) Assess residents' perceptions of the risk of contracting Lassa fever in Nigeria's endemic regions.

3) Identify the factors shaping perceptions of Lassa fever in Nigeria's endemic regions.

4) Examine the barriers preventing residents in endemic regions from turning awareness of Lassa fever contraction and risk perception into preventive action.

5) Identify the gaps in current risk communication and health education programs on Lassa fever in Nigeria's endemic regions.

Conceptual Clarification

Lassa Fever. Lassa fever is a viral hemorrhagic illness caused by the Lassa virus, a member of the Arenaviridae family with a single-stranded RNA genome. The virus is roughly spherical, about 120 nanometers in diameter, and its genome contains two segments that code for structural and replication proteins [15]. First identified in 1969 in Lassa, Borno State, Nigeria, after the deaths of two missionary nurses, the disease has since been reported across Nigeria and other West African countries, including Sierra Leone, Liberia, Guinea, Togo, and Benin [16]. Transmission occurs mainly from Mastomys rodents, though human-to-human spread, especially in healthcare settings, also contributes to out-

breaks. These typically peak between December and March, placing a burden on health and the economy. The multimammate rat (Mastomys natalensis) is the primary reservoir, with infection arising from contact with rodent excreta or contaminated medical tools. The incubation period ranges from one to three weeks, and while many infections are mild or asymptomatic, severe cases, particularly in pregnancy, can result in haemorrhage and multi-organ failure [17].

Clinically, Lassa fever presents with wide variation, from mild illness to severe multisystem disease. Early symptoms include fever, malaise, headache, sore throat, vomiting, and abdominal pain, while advanced cases may involve hypotension, kidney impairment, bleeding, facial swelling, respiratory distress, and coma [18].

Perception and Awareness. Perception refers to the psychological process of interpreting and making sense of stimuli, going beyond mere sensation to create meaningful understanding [19]. Awareness, in turn, involves conscious recognition and reflection on information, risks, or conditions, and in public health, it is often measured by familiarity with topics and perceived relevance [20]. Together, perception and awareness shape how individuals process health information, influencing knowledge, attitudes, and behaviours, with awareness increasing as people move from avoidance to active information seeking [21].

Theoretical Anchorage. The Theory of Planned Behaviour (TPB) was introduced by Icek Ajzen in 1991. As noted in recent studies [22], TPB holds that a person's intention to perform a particular action, such as starting or stopping gambling, can be inferred from their choice to perform that action. The model emphasises that perceived behavioural control, alongside behavioural intention, directly shapes whether individuals perform the behaviour. Scholars [23] further explain that three main elements—individual attitudes, social norms, and perceived control over the behaviour—guide intention itself.

Personal attitudes include all knowledge, attitudes, and biases related to a behaviour; subjective norms pertain to one's perception of others' attitudes toward the behaviour; and perceived behavioural control involves the belief in one's ability to influence one's behaviour. The theory asserts that a higher perception of control enhances intentions to act and directly influences actual behaviour, leading individuals to exert more effort when they feel in control [24, 25]. The theory is highly relevant to this study, as the way Nigerians resident in endemic regions perceive their susceptibility to Lassa fever and the severity of its consequences directly shapes their attitudes, subjective norms, and perceived behavioural control (PBC), which, in turn, influence their intentions to adopt preventive behaviours.

METHODS

A cross-sectional survey design was employed in this study. The study focused on five Lassa fever-endemic states in Nigeria, strategically representing the country's major geopolitical zones. Specifically, Nasarawa, Gombe, Taraba, Ondo, and Ebonyi were selected. Within each state, the researchers purposively selected two local government areas (LGAs) based on reported endemicity levels and accessibility. Accordingly, Keffi and Karu were selected in Nasarawa; Balanga and Yamaltu/Deba in Gombe; Jalingo and Karim-Lamido in Taraba; Owo and Akure South in Ondo; and Ezza North and Ohaozara in Ebonyi. A stratified multistage sampling technique was used to select 720 participants from urban and rural wards across LGAs. Systematic random sampling was employed to select households, with one adult respondent per household, yielding 60 participants per LGA and 120 per state. The research team collected data using a structured Likert-scale questionnaire administered through Google Forms by trained enumerators between October and November 2025. They distributed 720 questionnaires and retrieved 657 (91.25%). The researchers analysed the data using SPSS version 26 and applied descriptive statistics, including frequencies and simple percentages.

RESULTS AND DISCUSSION

Table 1 summarises the socio-demographic profile of respondents across the five Lassa fever endemic states.

The data show a fairly balanced gender distribution, with most participants falling within the economically active age range (26-45 years). A majority were married and had at least a secondary education, indicating a relatively well-educated population. Occupationally, respondents were spread across civil service, trading, farming, student, and artisan groups, reflecting diverse livelihoods within the study area.

Table 1 - Socio-Demographic Characteristics of Respondents

Variable	Category	F	%
Gender	Male	312	47.5
	Female	345	52.5
Age Group (years)	18–25	118	18.0
	26–35	182	27.7
	36–45	164	25.0
	46–55	117	17.8
	56 and above	76	11.6
Marital Status	Single	214	32.6
	Married	389	59.2
	Widowed / Divorced	54	8.2
Educational Attainment	No formal education	46	7.0
	Primary education	89	13.5
	Secondary education	211	32.1
	Tertiary education	311	47.4
Occupation	Civil servant	172	26.2
	Trader	141	21.5
	Farmer	112	17.0
	Student	118	18.0
	Artisan / Others	114	17.3

Overall, the sample represents a predominantly married, educated, and working-age population in endemic regions.

Table 2 captures respondents' awareness of Lassa fever across endemic regions. Overall, awareness was high, with most participants reporting familiarity with the disease (91.6%).

Table 2 – Level of Awareness of Lassa Fever Among Respondents.

Item	Response	F	%
Have you ever heard of Lassa Fever?	Yes	602	91.6
	No	55	8.4
Source of Information about Lassa Fever	Radio / Television	178	27.1
	Health Workers	131	19.9
	Social Media	242	36.8
	Friends / Relatives	16	2.4
	Community Meetings / Church / Mosque	90	13.7
Awareness of Transmission Routes	Aware	487	74.1
	Not Aware	170	25.9
Knowledge of Lassa Fever Symptoms	Aware	451	68.6
	Not Aware	206	31.4
Awareness of Preventive Measures	Aware	516	78.5
	Not Aware	141	21.5
Ever received public health education on Lassa Fever?	Yes	298	45.4
	No	359	54.6

Social media and broadcast media were the leading sources of information, followed by health workers and community gatherings. While many respondents recognised transmission routes, symptoms, and preventive measures, fewer than half had received formal public health education on Lassa fever; this mirrors similar findings from a recent study where awareness of antenatal services was high, but structured education and consistent utilisation remained limited [8].

Table 3 shows respondents' perceptions of Lassa fever risks in endemic regions.

Table 3 – Perception of Lassa Fever Contraction Risks among Respondents

Item	Response	F	%
Lassa fever can affect anyone, anywhere	Agree	532	81.0
	Disagree	125	19.0
I think that Lassa fever is life-threatening	Agree	598	91.0
	Disagree	59	9.0
I feel at risk of Lassa fever in my community.	Agree	487	74.1
	Disagree	170	25.9
Poor hygiene and rodent exposure increase Lassa fever risk	Agree	541	82.3
	Disagree	116	17.7
Lassa fever can easily spread in my area.	Agree	476	72.5
	Disagree	181	27.5

Most participants recognised that anyone could contract the disease, acknowledged its severity, and identified poor hygiene and rodent exposure as major risk factors. A majority also perceived themselves at risk within their communities and believed person-to-person transmission was possible. Overall, the findings indicate high levels of risk perception across susceptibility, severity, and transmission dimensions. The researchers observed comparable patterns in antenatal care, where perceptions of susceptibility and severity shaped utilisation but did not always lead to consistent action [8].

Table 4 outlines the factors shaping perceptions of Lassa fever in endemic states.

Respondents' views were influenced by health education and personal experience, as well as community programs, trust in health authorities, and access to facilities. Economic pressures, cultural beliefs, and religious teachings also played a role, alongside participation in sanitation activities. Overall, perceptions of Lassa fever emerged

as multifactorial, shaped by both structural and socio-cultural influences.

Table 4 – Factors Shaping Perception of Lassa Fever Infection among Respondents

Item	Response	F	%
My exposure to health education on Lassa fever	Yes	418	63.6
	No	239	36.4
My personal or family experience with Lassa fever infection	Yes	162	24.7
	No	495	75.3
Influence of community health programs on my understanding	High	276	42.0
	Moderate	238	36.2
	Low	143	21.8
My trust in government health authorities regarding Lassa fever control	High	181	27.5
	Moderate	254	38.7
	Low	222	33.8
Accessibility of health facilities	Easily	196	29.8
	Moderately	281	42.8
	Not easily	180	27.4
Economic burden of preventive measures that people around me face	High	312	47.5
	Moderate	225	34.2
	Low	120	18.3
The fear of witchcraft and curses affects my beliefs about the cause of Lassa fever	Strong influence	204	31.1
	Some influence	289	44.0
	No influence	164	24.9
Teachings from my church or mosque regarding the cause or cure of Lassa fever	Strong influence	189	28.8
	Some influence	287	43.7
	No influence	181	27.5
My level of participation in community environmental sanitation activities	Regular	285	43.4
	Occasional	248	37.7
	Rare	124	18.9

Table 5 highlights the barriers that hinder translating Lassa fever awareness into preventive action.

Table 5 – Barriers Preventing Residents in Endemic Regions from Translating Awareness and Risk Perception of Lassa Fever into Preventive Action

Item	Response Category	F	%
Lack of access to healthcare facilities limits my ability to seek early medical attention for suspected Lassa fever.	Agree	487	74.1
	Disagree	170	25.9
Poverty and financial constraints make it difficult to purchase preventive materials	Agree	514	78.2
	Disagree	143	21.8
Poor environmental sanitation and waste management increase rodent infestation in my area.	Agree	539	82.0
	Disagree	118	18.0
Inadequate government interventions and public health campaigns discourage consistent preventive practices.	Agree	476	72.5
	Disagree	181	27.5
Cultural beliefs and misconceptions about Lassa fever hinder my community's preventive response.	Agree	451	68.6
	Disagree	206	31.4
I find it difficult to store food properly due to inadequate housing and storage facilities.	Agree	498	75.8
	Disagree	159	24.2
Limited risk communication and misinformation reduce my motivation to take preventive measures.	Agree	468	71.2
	Disagree	189	28.8
Fear of stigmatisation discourages me from reporting symptoms or seeking a diagnosis.	Agree	387	58.9
	Disagree	270	41.1
Lack of community sensitisation limits my ability to act on Lassa fever information.	Agree	523	79.6
	Disagree	134	20.4

Respondents pointed to restricted access to healthcare, poverty, poor sanitation, and inadequate public health campaigns as major obstacles. Cultural and religious beliefs, difficulties with food storage, and fear of stigmatisation further constrained proactive responses. Limited risk communication, misinformation, and the absence of community-based sensitisation programs also weakened motivation to act. Overall, preventive practices were hindered by structural, financial, environmental, cultural, and communication challenges. Similarly, comparable barriers also constrained antenatal care attendance in Nigeria, despite high awareness of services [8].

Table 6 highlights major gaps in risk communication and health education on Lassa fever in endemic regions. Respondents reported that campaigns are insufficient in rural areas, health workers lack adequate training, and media dissemination is irregular.

Table 6 – Gaps in Current Risk Communication and Health Education Programs on Lassa Fever in Nigeria's Endemic Regions

Item	Response Category	F	%
I believe existing health education campaigns on Lassa fever are insufficient in rural areas.	Agree	498	75.8
	Disagree	159	24.2
Health workers do not receive adequate training to communicate the risks of Lassa fever effectively.	Agree	472	71.8
	Disagree	185	28.2
The media do not regularly disseminate information on Lassa fever prevention	Agree	436	66.3
	Disagree	221	33.7
Health authorities and campaign organisers rarely use local languages in Lassa fever awareness campaigns.	Agree	514	78.2
	Disagree	143	21.8
Health authorities do not culturally tailor risk communication materials to local communities.	Agree	489	74.4
	Disagree	168	25.6
Local health authorities and stakeholders poorly coordinate community engagement on Lassa fever prevention.	Agree	458	69.7
	Disagree	199	30.3
Government and NGOs provide inconsistent health education about Lassa fever.	Agree	471	71.7
	Disagree	186	28.3
Most residents lack access to reliable sources of information about Lassa fever.	Agree	493	75.0
	Disagree	164	25.0
There is a communication gap between health officials and community leaders on outbreak response.	Agree	478	72.8
	Disagree	179	27.2
Schools and religious institutions are not adequately involved in Lassa fever sensitisation.	Agree	517	78.7
	Disagree	140	21.3

Local languages and culturally tailored materials are rarely used, while community engagement and coordination remain weak. Inconsistent provision by government and NGOs, limited access to reliable information, poor linkage between officials and community leaders, and minimal involvement of schools and religious institutions further undermine outreach. These align with the call for collective action and political mobilisation by the masses through various forms of mass media [10, 26]. Overall, risk communication is inadequately accessible, culturally insensitive, and poorly integrated into community structures, underscoring the need for public health experts to begin designing culturally sensitive and ethnocentric health messages to improve health outcomes [11].

Lassa fever is extremely contagious, and if it is not identified or treated promptly, afflicted people will probably die. The study's findings provide insight into how residents of Nigerian regions where Lassa fever is endemic see and respond to the disease. The high level of awareness and familiarity with Lassa fever in Table 2, in particular, indicates that Nigerians have a fundamental knowledge of the virus. This knowledge is imperative because it is the first step in modifying health-related habits, and people cannot take preventative measures without recognising the existence and severity of a health risk. This means that public health campaigns and efforts have effectively reached sizable audiences in these places, most likely through the media; this is in line with recent findings in Edo State, where all mothers reported being aware of Lassa fever, although there were gaps in preventive behaviours [27, 28].

The study also identifies an information gap in structured health education and interpersonal risk communication, contradicting the notion that high knowledge will immediately lead to successful structured prevention efforts. While high knowledge is certainly positive, protective behaviours are not always the outcome, particularly when access-related, cultural, structural, and economic barriers persist; this is consistent with the findings of [7], who found that while 66.7% of respondents in a rural Kaduna community were aware of Lassa fever, they did not fully comprehend the risk factors. Although awareness is high, it appears shallow and of low quality, particularly in interpersonal risk communication and organised messaging.

Data in Table 3 shows that residents in endemic areas perceive risk at high levels. Perceptions of severity (a potentially fatal illness), susceptibility (anyone can get Lassa fever) and transmission factors (rodent exposure, person-to-person transmission) are all included in this. This high perception is imperative for influencing the intention to adopt preventive behaviours, accord-

ing to the Theory of Planned Behaviour. Perception alone, however, does not guarantee action; this aligns with [6], who submit that many Nigerians had heard of the Lassa virus and had a positive assessment of their chances of contracting it. Their findings align with this conclusion.

The data in Table 4 indicate that Nigerians living in endemic areas' opinions about Lassa fever are complex and influenced by a range of factors, including exposure to health education and media campaigns, cultural beliefs, religious teachings, economic considerations, and the availability of health services; this shows how practical realities, culture, and knowledge interact to shape health-related behaviours, which has been particularly evident in the context of vaccine hesitancy over the years [29]. When deciding how to respond to health threats, people often consider traditional beliefs, financial limitations and personal experiences with disease; this is consistent with everyday life experiences and corroborates the findings of [30], who found that media efforts in Ebonyi State reached rural areas but had little to no effect on preventive health habits. The perception of Lassa virus danger is embedded in a broader social, cultural, and infrastructural environment, suggesting that while educational activities may raise awareness, contextual limitations prevent this awareness from translating into meaningful behavioural change.

The data in Table 5 show that the capacity to convert awareness and risk perception into preventive action is hampered by structural defects (such as inadequate community-level interventions), financial limitations, environmental problems, cultural norms, and communication gaps; this is consistent with the findings of [31], who reported that only 13% of healthcare workers at a Nigerian tertiary institution had received emergency preparedness training, despite over 84% having a favourable risk perception. The lack of infection control equipment was one of their challenges. Practical constraints significantly impede the behavioural uptake of preventive therapies, even when awareness and perception profiles are favourable.

According to data in Table 6, there are gaps in risk communication and health education in Nigeria's endemic areas; the interventions are perceived as culturally inappropriate, difficult to access, and poorly coordinated by health professionals and community structures; this confirms earlier results that risk communication remains inadequate in terms of scope, applicability, and localisation despite the availability of information. For instance, [32] observed a high level of knowledge in Enugu but suggested that gender and educational gaps remained significant, having long existed in educational training and across many spheres of life [33]. The harsh truth is that although there is a high level of public awareness and risk perception regarding the Lassa virus, it is imperative to translate this knowledge into workable preventive strategies.

CONCLUSIONS

The results of this study show that although residents in Nigeria's endemic regions have a comparatively high level of awareness and knowledge about Lassa fever, this knowledge has not been translated into effective protective practices. Due to public health efforts, Nigerians have a rudimentary understanding of the virus and how it spreads, but cultural, structural, and financial hurdles prevent them from adopting preventive measures. The shift from awareness to action is hampered by contextual factors such as cultural norms, financial constraints, and insufficient community interventions, even if elevated risk perception might inspire behaviour change. This shows that health behaviours are shaped more by the interaction of social, cultural, and infrastructure realities than by awareness or risk perception alone, and this result highlights the glaring needs of the people in the study geography and its demography.

Based on the foregoing, the study recommends that:

1) Health authorities and stakeholders should prioritise developing and implementing culturally sensitive, regionally tailored health education and risk communication strategies to increase Lassa fever prevention in endemic areas.

2) Interventions should focus on community involvement, improved access to preventive resources, and behavioural frameworks that address structural, cultural, and economic barriers.

3) To ensure a more organised and efficient response, healthcare personnel should also receive more training in infection control and emergency preparedness.

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