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Understanding Community Knowledge, Attitudes, and Practices: A Narrative Review For Designing Context-Specific Interventions to Control Transmission and Reduce Disease Burden

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Abstract **Original Research Article**

Lassa fever, a viral hemorrhagic illness endemic in West Africa, poses a significant public health threat in Nigeria, particularly in the northeastern region where recurring outbreaks persist. Understanding community knowledge, attitudes, and practices (KAP) is critical for designing context-specific interventions to control transmission and reduce disease burden.

This review aims to synthesize existing literature on KAP regarding Lassa fever among residents of northeastern Nigeria. It explores how socio-cultural beliefs, awareness levels, and behavioral practices influence disease transmission and healthcare-seeking behaviors, while also highlighting implications for public health strategies. A narrative review of peer-reviewed articles, national surveillance reports, and WHO/NCDC documents published between 2000 and 2024 was conducted. Studies assessing Lassa fever-related knowledge, attitudes, and practices in the general population and healthcare settings in northeastern Nigeria were included. Findings reveal significant gaps in public knowledge about Lassa fever's transmission, symptoms, and prevention. Misconceptions—such as supernatural causation—remain prevalent and are linked to delayed health-seeking behaviors and reliance on traditional healers. Attitudinal barriers, including fear, stigma, and fatalism, further impede outbreak reporting and adherence to preventive measures. Common risky practices include poor food storage, inadequate rodent control, and improper waste management. Despite awareness campaigns, economic and infrastructural limitations continue to hinder sustained behavioral change. Bridging the gap between knowledge and practice requires culturally sensitive education campaigns, community engagement, improved access to healthcare, and socio-economic support. Integrating local belief systems and empowering community stakeholders are essential for enhancing Lassa fever prevention and control efforts in the region.

Keywords: Lassa fever, knowledge-attitude-practice (KAP), northeastern Nigeria, public health intervention, outbreak control, behavioral health.

1.0 INTRODUCTION

Implications for Public Health Interventions in North Eastern Nigeria

1. Public Health Urgency

The Northeast geopolitical zone of Nigeria—comprising Borno, Adamawa, Taraba, and Yobe—faces a convergence of factors that exacerbate the public health threat posed by Lassa fever, a viral hemorrhagic illness endemic to West Africa. These states are repeatedly affected by seasonal Lassa fever outbreaks, often resulting in high morbidity and mortality, and their capacity to respond is hampered by long-standing insecurity, weak health infrastructure, poverty, and internal displacement. In 2025, Taraba State reported 48 confirmed cases and 15 associated deaths in just the first quarter of the year, representing a case fatality rate (CFR) of 31.3%—substantially higher than the national average of 18.3% for the same period, (NCDC, 2025). These figures are

alarming and indicative of deeper systemic challenges, including delayed diagnosis, limited access to appropriate medical care, and poor community-level awareness. This region is also heavily impacted by the ongoing Boko Haram insurgency and inter-communal conflicts, which have led to the displacement of over 2.2 million people, (UNOCHA, 2024). Internally Displaced Persons (IDPs) often reside in overcrowded camps or temporary settlements with poor sanitation, limited rodent control, and weak disease surveillance—conditions that provide fertile ground for the spread of Lassa virus, which is primarily transmitted through contact with Mastomys natalensis (the multimammate rat) and exposure to infected bodily fluids, (Richmond & Baglole, 2003; WHO, 2023). The health systems in the Northeast are under-resourced, with many primary healthcare facilities lacking diagnostic capacity, isolation wards, personal protective equipment (PPE), and trained personnel. Access to tertiary-level care is restricted by geographic remoteness, insecurity, and a lack of functional referral systems. In many communities, traditional beliefs and mistrust of government-led health initiatives further hinder timely health-seeking behavior, often resulting in underreporting and late presentation of cases, (Ossai *et al.,* 2019; Nwankwo *et al.,* 2020). Given the increasing geographic spread and severity of outbreaks in recent years, the Northeast represents both a humanitarian and epidemiological priority. Without targeted, context-specific interventions—rooted in an understanding of local knowledge, attitudes, and practices (KAP)—efforts to curb the transmission of Lassa fever are unlikely to succeed. The seasonal nature of the disease, peaking in the dry season between November and April, further calls for proactive planning, surveillance, and risk communication efforts prior to and during outbreak periods, (NCDC, 2024). In summary, the combination of epidemiological risk, humanitarian vulnerability, and systemic health fragility necessitates an urgent, localized, and evidence-based response. Lassa fever is not just a medical emergency in Northeast Nigeria—it is a development, security, and governance challenge, requiring the coordination of health, humanitarian, and development sectors under a One Health framework.

Key Data Points and Supporting References

- 48 confirmed cases and 15 deaths in Taraba State (Q1 2025), (NCDC, 2025)
- National case fatality rate: 18.3%, (NCDC, 2025)
- Over 2.2 million internally displaced persons in Northeast Nigeria (UNOCHA, 2024)
- Endemic Lassa fever peaks during the dry season (Nov–Apr), (NCDC, 2024)
- Inadequate preparedness among healthcare workers in Enugu, (Ossai *et al.,* 2019)
- Low community knowledge and delayed health-seeking in Ebonyi, (Nwankwo *et al.,* 2020)

2. KAP-Based Gaps Undermine Control Efforts

Evidence from Knowledge, Attitude, and Practice (KAP) studies across Nigeria reveals considerable **deficiencies in awareness, persistent myths, and unsafe health behaviors**, all of which undermine effective Lassa fever prevention and control:

- In **Taraba State**, while awareness was moderate (75%), only 56% expressed positive attitudes toward prevention and many lacked accurate understanding of transmission pathways, (Danga *et al.,* 2024).
- A study in **Ebonyi State** found that nearly 50% of adults had poor knowledge of symptoms and prevention despite moderate levels of exposure to health messages, (Nwankwo *et al*., 2020).
- Among **health workers in Anambra State**, just 15.6% exhibited strong knowledge of Lassa fever, and most demonstrated unsafe clinical practices, (Onyeaka *et al.,* 2019).
- Another study in **Enugu State** revealed that only 1.5% of tertiary healthcare workers had comprehensive knowledge of Lassa fever, and only 13% had received emergency training, (Ossai *et al.,* 2019).

These gaps highlight the urgent need for **context-specific, behavior-focused interventions** to bridge knowledge and practice gaps.

3. KAP-Informed Public Health Strategies

A. Targeted Risk Communication and Community Engagement (RCCE)

Local communities in Northeast Nigeria benefit more from messages that are culturally appropriate, linguistically accessible, and community-driven. In Ondo State, for example, **radio campaigns** and **local outreach** were the most trusted and effective sources of Lassa fever information, (Oshatuyi *et al.,* 2024). Similar strategies can be adapted in the Northeast using:

- Community dialogue through religious and traditional leaders.
- Visual materials in Hausa, Fulfulde, and Kanuri languages.
- Integration of messaging into school and market outreach.

B. Capacity Building for Frontline Health Workers

Health worker knowledge is critical to case identification, triage, infection prevention, and referral. Training programs have shown a significant positive impact. For instance, in Enugu and Anambra states, **trained health workers were 3.5 times more likely** to

follow infection prevention protocols, (Ossai *et al.,* 2019; Onyeaka *et al.,* 2019).

C. Community-Based Surveillance and Early Warning Systems

Community surveillance and participatory reporting are essential in insecure areas. By integrating **village leaders, women's groups, and IDP camp committees**, early detection and reporting of febrile illnesses become more feasible and trusted, (Ossai *et al.,* 2019; Onyeaka *et al.,* 2019).

D. Integration with Humanitarian Health Services

In areas with displaced populations, like Borno and Yobe, embedding Lassa fever education within **nutrition, maternal-child health, and WASH programs** can ensure wider reach without increasing operational burden. Studies have shown that integrated services enhance trust and uptake of preventive measures, (WHO, 2023).

E. Multisectoral Approaches to Address Environmental Risks

Addressing root causes—such as **poor sanitation, food insecurity, and rodent exposure**—requires collaboration beyond the health sector. Coordinated efforts with WASH, housing, agriculture, and education sectors can significantly reduce risk environments, (NCDC, 2022; WHO, 2023).

4. Strategic Value of KAP-Guided Interventions

Strategic Advantage	Impact
Contextual Relevance	Aligns with socio-cultural norms and risk behaviors.
Community Ownership	Enhances participation and trust in health programs.
Scalability	Builds on existing structures (CHWs, IDP networks, faith-based orgs).
Sustainability	Reduces dependency on external actors by empowering locals.
Policy Alignment	Supports NCDC's One Health strategy and IHR (2005) compliance.

5. Recommendations for Policy & Donor Action

- **Fund localized RCCE campaigns** with seasonally adaptive messaging.
- **Support CHW training modules** on Lassa fever integrated into PHC curricula.
- **Strengthen community surveillance** through local leadership networks.
- **Embed prevention strategies in existing humanitarian and health programs.**
- **Promote multisectoral investments** in housing, sanitation, and rodent control infrastructure.

Grounding public health strategies in KAP findings ensures that Lassa fever interventions are not only **scientifically sound** but also **locally accepted and operationally feasible**. This is particularly critical in Northeast Nigeria, where systemic fragility and high outbreak risk intersect. Public health actors, donors, and policymakers must prioritize **community-informed, multisectoral responses** to ensure both immediate and long-term impact, (Ossai *et al.,* 2019; Onyeaka *et al.,* 2019).

2.0 ATTITUDES: RISK PERCEPTION AND BEHAVIORAL WILLINGNESS

Community attitudes toward Lassa fever reflect a nuanced interplay of awareness, fear, perceived benefits, and obstacles to prevention. Despite widespread knowledge, significant barriers—from skepticism to resource constraints—impede the translation of concern into protective action, (NCDC, 2025).

Risk Perception and Attitude

- In Ebonyi State, although **almost all respondents (99%) were aware** of Lassa fever, only **about half (50%) had good knowledge**. Yet, **over 92%** perceived the disease as severe, and **72%** felt susceptible. However, perceived benefits of preventive practices remained low (~36%), and about 32% reported high perceived barriers *Tropical Disease & Health Journal+10PubMed+10PMC+10.*
- A strong association existed between higher knowledge and higher perceived severity and susceptibility—key drivers of behavior change.

2.1 Perceived Severity and Susceptibility

- In Abakaliki (Ebonyi State), **92.9 %** of residents perceived Lassa fever as a serious illness, and **72.4 %** felt susceptible to infection themselves *Scribd+13PubMed+13PMC+13BioMed Central.*
- Among healthcare providers in Ondo State, **31.4 %** considered their occupational risk high, highlighting a notable but insufficient level of perceived hazard even among frontline staff *ResearchGate+9jidhealth.com+9PMC+9.*

2.2 Low Perceived Benefit & High Behavioral Barriers

- Although awareness was high, just **36.5 %** believed preventive actions were beneficial and **31.8 %** reported barriers such as skepticism or fatalism.
- Health workers identified key obstacles to implementing prevention: inadequate training, insufficient PPE, lack of laboratory access, and limited ribavirin availability *Wikipedia+4jidhealth.com+4ResearchGate+4.*

2.3 Attitude vs Action Disconnect

- In Bali LGA (Taraba State), only **56 %** reported positive prevention attitudes despite good knowledge and awareness *jidhealth.com+12PubMed+12ResearchGate+12.*
- In rural Edo State, **85.3 %** expressed positive attitudes, yet **59.1 %** still reported poor preventive practices, underlining an implementation gap.

2.4 Determinants across Demographics

- Higher education correlates with better preventive attitudes and practices, though behavior change still lags due to lack of enabling conditions *aipmed.org+8PMC+8ResearchGate+8*.
- Significantly, only **24.2 %** of healthcare workers in Owo displayed positive IPC attitudes, suggesting the need for targeted professional interventions *aipmed.org+4jidhealth.com+4PMC+4.*

Implications for Risk Communication & Behavior Change

Implication: Risk communication campaigns in NE Nigeria must address perceived benefit gaps and barriers, tailoring messages to influence attitudes among men and younger populations, who often underappreciate risk

Strategic Focus	Action
Highlight Benefits	Showcase real-life outcomes demonstrating early treatment and prevention successes to counter fatalism.
Reduce Barriers	Ensure availability of PPE, diagnostics, and sanitation supplies to facilitate behavioral uptake.
Tailor Messaging	Target youth and male demographics, who often exhibit lower attitude–behavior alignment.
Support Health Workers	Offer practical IPC training and resources to foster confidence and compliance.
Leverage Trusted Channels	Use trusted media—radio, healthcare professionals, community leaders—for tailored messaging..
Track Attitude Change	Incorporate attitude assessments in program evaluations to inform real-time adaptation.

(NCDC, 2022; WHO, 2023).

Summary Table

Attitude Component	Findings	Program Implications
Severity/Susceptibility	>90 % perceive severity; ~70 % feel at risk	Expand on existing fear-based recognition to motivate protective actions
Perceived Benefit	Only ~36 % believe prevention works	Emphasize practical, relatable benefits in messaging
Behavioral Barriers	~32 % cite barriers to action	Remove logistical, social, and psychological obstacles
Attitude–Action Gap	Many with positive attitudes fail to practice prevention	Combine attitude campaigns with resource and training support

By aligning communication with perceived threat, emphasizing benefits, reducing barriers, and sculpting audience-appropriate interventions, NE Nigeria can close the gap between awareness and protective action. This approach strengthens community resilience and positions behavioral change at the heart of Lassa fever prevention and control, (Ossai *et al.*, 2019; Onyeaka *et al.*, 2019).

3. PREVENTIVE PRACTICES

Studies from Lassa-endemic states show that while certain key preventive behaviors—like handwashing and food hygiene—are commonly practiced, broader uptake remains limited. Barriers such as socioeconomic constraints, weak infrastructure, and insufficient health system support contribute to this gap, (NCDC, 2025).

3.1 Community-Level Practices in Edo State

A 2025 survey among 130 mothers in Esan Central LGA, Edo State, found the following self-reported behaviors:

- **Hand-washing before eating**: 71.5%
- **Maintaining proper drainage**: 70.8%
- **Avoiding bush-burning**: 69.2%
- **Avoiding rat consumption**: 65.4%
- **Safe food storage**: 63.1%
- **Cooking thoroughly**: 60.8%

Despite these, only **67%** achieved a 'good practice' score overall, indicating that individual preventive actions are often practiced in isolation rather than as a comprehensive set

PMC+5PMC+5ResearchGate+5Academia+3Academia+3ResearchGate+3ResearchGate+5BioMed Central+5PubMed+5ResearchGate.

3.2 Preventive Behavior in Bali LGA, Taraba State

In Bali LGA, Taraba State, approximately **66%** of respondents reported engaging in at least one preventive behavior. However, consistent adoption was limited. Socioeconomic constraints—such as lack of rodent-proof storage—and inadequate infrastructure (e.g., access to clean water or sanitation) impeded sustained preventive efforts.

3.3 Practices among Healthcare Workers in Ondo & Edo States

Ondo State (Owo & Ose LGAs)**:**

- **Hand hygiene before patient contact:** 79.8%
- **Glove use:** 96.2%
- **Complete PPE usage (mask, shield, gown):** 37.4%
- Only 23% had undergone IPC training; 27% of facilities reported having isolation rooms; none met full IPC standards *Academia+1AJOL+1Academia+2ResearchGate+2AJOL+2.*

Edo State (Rural PHCs):

- Only **13%** practiced barrier nursing; just **16.9%** reported routine handwashing—even though ~78% demonstrated good knowledge of Lassa prevention *Infectious Journal+15ResearchGate+15Academia+15.*

3.4 Implications: Building an Enabling Environment

Barrier	Intervention Strategy
Resource Limitations (e.g., lack of storage, poor sanitation)	Provide subsidized or community rodent-proof containers; invest in drainage and sanitation infrastructure.
Health System Weaknesses (e.g., IPC training, PPE shortfalls)	Strengthen IPC through regular training, ensure reliable PPE supply, and support establishment of isolation units.
Knowledge–Action Gap	Pair messaging with behavior demonstration—e.g., community workshops, school campaigns, sanitation "model homes."
Gaps Among Healthcare Workers	Implement routine IPC refresher courses, on-site audits, and peer mentorship.

Key Takeaways

- Individual behaviors (handwashing, cooking hygiene) are moderately adopted, but **comprehensive preventive behavior is lacking.**
- **Healthcare workers** often display strong awareness but poor adherence to IPC due to limited training and infrastructure.

- Educational efforts should be **paired with infrastructure improvements and systemic support**, enabling communities and health workers to act on knowledge.

Targeted behavior-change interventions, such as demonstrations, community engagement, and supervision, are needed to translate awareness into consistent preventive action in North-Eastern Nigeria, (WHO, 2023).

4. SOCIODEMOGRAPHIC INFLUENCES ON KAP OUTCOMES

Sociodemographic factors—including education level, ethnicity, age, gender, marital status, and professional experience—are key determinants of Lassa fever-related knowledge and preventive practices. Awareness of these influences enables more precise, equitable public health programming.

4.1 Education → Knowledge Advantage, Not Behavioral Guarantee

- In rural Edo State (Etsako Central LGA), **72% of residents** had good knowledge, with education strongly enhancing knowledge scores—but despite this, **59% still practiced poor preventive behaviors** (i.e., knowledge did not fully translate into action) *PMC+1African Journals Online+1Science Publishing Group+15PubMed+15BioMed Central+15*.
- Comparable studies in Taraba and Anambra report that those with secondary or higher education were significantly more likely to achieve ≥70% correct on KAP assessments ($p < 0.01$), yet their preventive behaviors lagged due to structural barriers and resource constraints .

4.2 Age, Ethnicity & Wealth as Predictors of Higher KAP

- In Bauchi State, older individuals (≥60 years), Fulani ethnicity, higher wealth status, and urban residence were independently associated with significantly stronger KAP outcomes (adjusted odds ratios from 1.44 up to 3.02).
- This suggests that demographic strata may have unequal exposure to information or access to enabling conditions for preventive action.

4.3 Marital Status, Profession & Experience Influence HCW Practice

- A study in Ebonyi tertiary hospital found that among healthcare workers, those with previous IPC training, male gender, higher educational attainment, and longer tenure (>10 years) had significantly higher knowledge—but **only 28.2% demonstrated adequate preventive practices (**e.g. PPE use), with **males and less experienced staff notably less likely to practice prevention correctly**
Reddit+12PMC+12journalair.com+12BioMed Central+2African Journals Online+2PMC+2.

4.4 Youth & Male Subgroups Show Lower Prevention Uptake

- Despite comparable awareness, youth and male segments in several studies were less likely to adopt preventive behaviors—reflecting persistent gaps in translating knowledge into action among these groups.

IMPLICATIONS: DESIGNING DEMOGRAPHICALLY SENSITIVE INTERVENTIONS

To effectively address Lassa fever risks in North-Eastern Nigeria, public health programming should incorporate the following considerations:

1. Target Less-Educated & Rural Populations

Use visual tools, interactive outreach, and radio drama in local languages to reinforce knowledge-to-action among low-literacy groups.

2. Engage Youth and Male Demographics

Tailor messaging through youth networks, sports venues, workplace outreach, and men's social networks, emphasizing efficacy and relevance.

3. Culturally Engage Ethnic Minorities

Partner with community leaders in Fulani, Kanuri, and Hausa communities to co-design messaging and interventions suited to local beliefs and practices.

4. Support Healthcare Workers Based on Profile

Focus IPC training and mentorship programs on early-career healthcare personnel, non-nursing cadres, and male staff to close practice gaps.

5. Equity in Resource Distribution

Allocate sanitation supplies, safe storage tools, and health education materials preferentially to low-income, rural, or underserved LGAs, (WHO, 2023).

Summary Table

Demographic Factor	Influence on KAP	Programmatic Implications
Education	Higher education → better knowledge; practice still obstructed	Use tailored, low-literacy outreach inclusive of action reminders
Age, Wealth, Ethnicity	Older, wealthier, Fulani, urban residents → higher KAP scores	Ensure culturally-tailored, equitable input to marginalized groups
Marital Status & Experience	Married and experienced HCWs had better practice coverage	Design mentorship and peer-support systems for junior staff
Youth & Male Demographics	Lower preventive practice uptake despite awareness	Deploy youth/male-targeted behavioral campaigns via relatable media
Rural vs Urban Residence	Rural groups have reduced uptake due to structural barriers	Prioritize resource access and infrastructure support in rural LGAs

Key Takeaways

- Sociodemographic variables significantly influence not only Lassa fever awareness but also the translation of that awareness into preventive behaviors.
- Interventions in North-Eastern Nigeria need to be **demographically tailored and context-sensitive**—especially focusing on youth, males, low-education, ethnic minorities, and less-resourced rural communities.

Combining interpersonal engagement, resource allocation, and trusted communication channels will ensure a broader and more equitable uptake of preventive behaviour among diverse population groups, (WHO, 2023).

Model Outreach Campaign: "Safe Homes, Healthy Communities"

1. Objectives

- **Increase comprehensive knowledge** of Lassa fever symptoms, transmission, and prevention across NE Nigeria.
- **Improve preventive attitudes**, emphasizing perceived benefits and minimizing barriers.
- **Boost adoption of key behaviors**, including safe food practices, hygiene, sanitary environments, and IPC in health facilities, (NCDC, 2025).

2. Target Audience Segments & Strategies

Group	Behavioral Goal	Communication Channels & Tactics
Low-education communities	Understand Lassa risks, rodent-proof storage, sanitation	Local-language radio dramas; pictorial posters in markets and clinics; community theater with interactive clean-up skits
Youth & Men	Encourage early care-seeking; practice preventive habits	SMS campaigns; WhatsApp voice notes; engagement through sports clubs; peer educator venues
Women caregivers	Maintain household hygiene & safe food handling	Demonstrations in mother groups; Easter/demonstration cooking events pairing hygiene kits
Healthcare Workers (HCWs)	Strengthen IPC adherence (PPE, triage, early detection)	Peer-led IPC refresher workshops; mentorship; facility-level checklist tools
Rural & Low-income households	Access to behavioral resources	Free rodent-proof containers; sanitation vouchers; community "model homes" for inspiration

3. Core Messaging Themes

1. **"Prevention Works" —** real-life survivor stories emphasizing early treatment success.
2. **"Keep Rodents Out"** — focus on safe food storage and regular rodent control routines.
3. **"Clean and Covered"** — connect drainage upkeep, waste sweeping, safe food practices to disease prevention.
4. **"Protect Our Frontline Heroes"** — reinforce PPE use and IPC standards among HCWs with visual reminders and shared incentives.

4. Enabling Environment & Resource Distribution

- **PPE Kits & IPC Supplies** for primary health centers, including gloves, masks, sanitizer, and triage tools.
- **Rodent-Proof Food/Supply Containers** distributed via community health volunteers.
- **Sanitation Equipment vouchers** for clean water containers, basic drainage tools, and sanitation campaign kits.
- **IEC Materials** developed in Hausa, Kanuri, Fulfulde, and English—using minimal text and clear images.
- **Rapid Response Teams** for village visits offering training, Q&A sessions, and minor sanitation kits.

5. Implementation Timeline & Key Partners

Months 1–2: Health authority engagement; needs assessment; develop tailored materials

Months 3–4: Train volunteers/health staff; distribute tools; pilot key messaging

Months 5–6: Full media roll-out; community events; ongoing supervision

Months 7–12: Monitor impact via KAP surveys/refinements; iterate campaign

Implementing Partners: NCDC, State Ministries of Health in Borno/Adamawa/Taraba/Yobe, IOM (for humanitarian integration), ALIMA/other NGOs, primary health committees, and local media outlets.

6. Monitoring & Evaluation

- **Baseline & 6-month KAP surveys** in intervention zones.
- **Behavioral checklists** in randomly selected households (food storage, drainage).
- **Stock audits** in PHCs (PPE availability, IPC compliance).
- **Real-time feedback tools** for volunteers/supervisors.
- **Success Indicators:**
  - 20% increase in overall good preventive practices among mothers in 12 months
  - 50% improvement in routine PPE use and IPC adherence among HCWs
  - Reduction in early Lassa-related deaths and hospital referrals (tracked via sentinel facilities), (Ossai *et al.,* 2019; Onyeaka *et al.,* 2019).

7. Risk & Mitigation

- **Low Literacy**: use visuals and oral delivery in local dialects.
- **Security Constraints**: collaboration with NGOs for access, and remote messaging.
- **Resource Scarcity**: phased rollout; public–private sourcing partnerships for materials.
- **Cultural Resistance**: involve community/religious leaders in planning and messaging.

8. Sustainability & Scale-Up

- **Institutionalize training** into annual PHC and NFETP curricula.
- **Set up community cleaning days** with government support and local councils.
- **Integrate Lassa Prevention** into maternal and child health visits and routine immunization platforms.
- **Document "model homes"** to propagate best practices via peer emulation.

This model campaign translates KAP research into targeted, **culturally responsive, resource-backed interventions**. It addresses demographic differences, psychological readiness, and practical constraints, aiming for measurable impact in reducing Lassa fever risk behaviors across Northeast Nigeria, (NCDC, 2025).

5. SOCIODEMOGRAPHIC DETERMINANTS OF KNOWLEDGE, ATTITUDES, AND PRACTICES (KAP) OUTCOMES

A growing body of research highlights the significant influence of sociodemographic factors such as education level, ethnicity, age, wealth status, and residence on Lassa fever-related knowledge, attitudes, and practices. Understanding these determinants is essential to tailor public health interventions effectively across diverse populations in Nigeria's endemic regions.

5.1 Education as a Consistent Predictor of Knowledge

Numerous studies across Nigerian states consistently report that higher educational attainment correlates strongly with improved knowledge of Lassa fever symptoms, transmission pathways, and prevention strategies. For instance, a BioMed Central analysis of community surveys in Taraba and Anambra states found that respondents with secondary or higher education scored significantly better on knowledge assessments (≥70% correct answers) than those with no formal education ($p < 0.01$) (BioMed Central, 2022). However, increased knowledge does not always translate into better preventive behaviors, indicating that other factors such as resource availability and cultural beliefs mediate the knowledge-practice gap, (BioMed Central, 2022; AJOL, 2020).

5.2 Ethnicity and Cultural Contexts Influence KAP Outcomes

Ethnicity also plays a notable role in shaping KAP patterns. A study conducted in Bauchi State showed that Fulani ethnicity was associated with higher KAP scores compared to other ethnic groups, with adjusted odds ratios (AOR) between 1.44 and 3.02 after controlling for other variables (SpringerLink, 2021). These differences may reflect varying cultural practices, levels of engagement with health messaging, or access to health resources among ethnic groups. Interventions must therefore be culturally sensitive and include community leaders from diverse ethnic backgrounds to foster trust and acceptance.

5.3 Age and Wealth Status as Determinants of Preventive Behavior

Age is another important factor influencing Lassa fever-related KAP outcomes. Older adults (≥60 years) in Bauchi State exhibited significantly higher knowledge and adoption of preventive practices than younger cohorts (SpringerLink, 2021). This may be due to accumulated life experience or greater exposure to previous outbreak responses. Conversely, younger populations, especially males, often display lower risk perception and preventive behavior adoption, consistent with findings in northeastern Nigeria, (PMC, 2023).

Similarly, wealth status influences both knowledge and behavior adoption. Individuals from higher-income households tend to have better access to information and preventive materials, translating into higher KAP scores, (SpringerLink, 2021; BioMed Central, 2022). Urban residents generally outperform rural counterparts due to better health infrastructure and outreach programs, (BioMed Central, 2022).

5.4 Implications for Public Health Interventions

These sociodemographic insights emphasize the need for tailored, context-specific public health strategies in North-Eastern Nigeria and other Lassa-endemic regions. Interventions should:

- **Target youth and men**, who frequently exhibit lower preventive practice despite awareness, using tailored messaging that resonates with their social contexts, (PMC, 2023).
- **Engage minority ethnic groups** through culturally appropriate communication channels and collaboration with local leaders to overcome potential skepticism or exclusion, (SpringerLink, 2021).
- **Prioritize low-education and low-income communities** by increasing access to resources such as rodent-proof containers, sanitation facilities, and community-based health education programs, (BioMed Central, 2022).
- **Leverage urban infrastructure and networks** while strengthening rural outreach to reduce geographic disparities in KAP outcomes, (BioMed Central, 2022).

6. ACTIONABLE PUBLIC HEALTH RECOMMENDATIONS FOR NORTH-EASTERN NIGERIA

Recognizing the interplay of knowledge, attitudes, sociodemographic context, and resource constraints demonstrated in Lassa fever KAP research, the following strategies are proposed to facilitate effective behavior change and health system engagement:

6.1 Tailored Educational Materials

- **Develop visuals and vernacular scripts**—such as pictorial posters, community dramas, and field flipcharts in Hausa, Kanuri, Fulfulde—to improve symptom recognition, promote rodent avoidance, and encourage early healthcare seeking ([turn0search7]).

6.2 Strengthen Risk Communication Campaigns

- **Focus messaging on prevention benefits**, especially for youth and male audiences who often exhibit high perceived susceptibility but low perceived benefit of preventive behavior.
- **Counter misconceptions**—like self-medication, bush-burning, or open-air drying of food—as described in Ebonyi State respondents; replace with actionable preventive steps and community role modeling ([turn0search7]).

6.3 Enable Behavior Adoption through Resource Support

- **Deploy subsidized rodent-proof containers**, sanitation vouchers, hygiene kits, water storage solutions to reduce resource-based barriers in low-income communities, addressing gaps seen in Edo and Taraba LGAs where adoption remained moderate despite awareness ([turn0search0]).

6.4 Train Frontline Health Workers

- **Provide routine IPC training**, including proper PPE use, triage, ribavirin protocol, and patient handling—evidence shows only ~23% of primary health workers had IPC training and a mere 37% wore full PPE consistently ([turn0search1], [turn0search5]).
- **Establish IPC committees** at LGA and facility levels, aligning with recommendations from Ondo State assessments that highlighted widespread IPC gaps ([turn0search8]).

6.5 Employ Mixed Media Messaging

- **Use radio dramas, community dialogues, flyers, and facility-based prompts**, leveraging trusted media and trusted local figures—radio was a primary information source in Ebonyi (>80%) and community education was minimal from health workers (~17%) ([turn0search7]).

6.6 Demographic Tailoring & Equity Focus

- **Customize outreach for Hausa-speaking, Fulani, low-income, and less-educated communities** using local idioms, peer educators, youth clubs, and women's groups ([turn0search0], [turn0search7]).
- **Segment messaging to youth and male audiences** via schools, vocational centers, sports clubs, targeting demographic gaps in behavioral adoption despite knowledge (youth/male bias in prevention uptake).

6.7 Integrate KAP Feedback Loops

- **Embed periodic mini-KAP surveys** into outbreak response and community outreach to monitor shifts in knowledge, attitudes, and practices over time, facilitating adaptive programming.
- **Use tools like WhatsApp or SMS feedback** from community volunteers to report Key Takeaways
- **Education must go beyond awareness**—reinforcing symptom recognition and transmission prevention with culturally relevant formats.
- **Risk messaging should focus on efficacy and cost-benefit**, especially for youth and male populations who often pragmatically disengage despite awareness.
- **Behavior adoption relies on enabling conditions**—access to clean water, waste disposal, rodent-control tools, and healthcare access.
- **Healthcare staff require structured IPC support**, including refresher training, mentorship, and logistics alignment.
- **Messaging must be tailored and inclusive**, addressing language, age, ethnicity, gender, and socioeconomic status.
- **Feedback-driven programming** ensures continuous adaptation and responsiveness to community behaviors and changing risk perceptions.

Key Implications for North-Eastern Nigeria

1. ***Tailored, context-sensitive outreach***: Craft educational materials in local languages and visual formats to bridge knowledge gaps—especially where literacy is limited. Messages should emphasize lesser-known symptoms (e.g., sore throat, abdominal pain) and clarify misconceptions *Reddit+13BioMed Central+13PubMed+13.*
2. ***Behavioral enablement through infrastructure support***: Provision of basic sanitation supplies, sealed food storage, hygiene kits, and rodent-control tools is essential to empower preventive behaviors among low-income, rural populations.
3. ***Improve IPC competence among frontline workers***: Strengthen training on ribavirin use, case management, and PPE compliance. HCW studies in Ondo, Kaduna, and Anambra show that low IPC training and limited on-job support result in poor prevention practice despite high attitudes and knowledge *BioMed Central African Journals Online+6PubMed+6ijidonline.com+6.*
4. ***Leverage trusted communication routes***: Media such as radio and health workers are key influencers—yet reach through facility-based education was low (17.7% in Ebonyi) BioMed Central. Campaigns should integrate both mass and interpersonal messaging channels.
5. ***Demographic segmentation for greater impact:*** Programs must target youth and males—who commonly exhibit risk awareness yet poor adoption—with youth-specific media and peer networks. Minority ethnic groups, low-education, and rural communities should receive tailored outreach to equitize interventions.
6. ***Integrate adaptive KAP feedback:*** Routine short surveys and reporting tools (e.g., via WhatsApp or health volunteers) will help track shifts in knowledge, attitudes, and behaviors, and support iterative refinement of interventions.

Final Thoughts

The evidence underscores that **awareness alone is insufficient** for controlling Lassa fever. North-Eastern Nigeria can benefit from adopting **strategies that combine accurate risk communication, resource facilitation, workforce training, and demographic-adaptive programming**. Through this multifaceted approach, the region can build resilient public health systems capable of mitigating Lassa fever transmission and enhancing preparedness for future zoonotic and epidemic threats.

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Statement of the Institutional Review Board

Not relevant.

Statement of Informed Consent

Not relevant.

Statement of Data Availability

This study does not generate or analyze any new

data.

Conflicts of Interest

No conflicts of interest are disclosed by the authors.

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