

## Mass Media Exposure and Lassa Fever Risk Perception in Rural Communities of South-south Nigeria

JOSHUA A. ERUBAMI

LUCKY O. OJOBH

*Delta State University, Abraka, Nigeria*

EDITH U. OHAJA

MARTINS N. EZUGWU

UKAMAKA C. AKATA

*University of Nigeria, Nsukka, Nigeria*

### ABSTRACT

Nigeria bears the highest burden of Lassa fever in Africa, accounting for about 60% of the 5,000 annual mortalities attributable to the haemorrhagic disease. In the absence of preventive vaccines, the mass media have been deployed as independent and complementary interventions against the spread of the infection. This study examines the influence of mass media exposure on Lassa fever risk perception and risk behaviours among residents of eight rural communities in South-south Nigeria. Anchored on the Health Belief Model and Social Influence Theory, the study used survey questionnaires to collect data from 384 respondents selected through multistage sampling. Findings show that media exposure is positively related to Lassa fever risk perception ( $\beta = .519$ , 95% CI: .432, .607), but negatively associated with risk behaviours towards the zoonotic disease ( $\beta = -.797$ , 95% CI: -.922, -.671). Nevertheless, media influence on respondents' risk perception and risk behaviours tends to vary significantly along sex, geographical region and employment status. Given the endemic nature of Lassa fever in Nigeria, the study recommends the sustenance of public sensitisation efforts aimed at preventing the spread of the disease, especially in rural areas. It also advocates the need for relevant health authorities to enforce healthier public environmental practices and initiate mastomys eradication programmes to reduce the presence of rats in residential areas.

**Keywords:** *Haemorrhagic fever, infectious disease, media sensitisation, public health, risk communication.*

### INTRODUCTION

The burden of communicable diseases constitutes a major public health challenge in Africa. Despite appreciable improvement in global health indices, communicable infections still account for the highest rate of morbidity and mortality in Sub-Sahara Africa (Udjo, 2017). Lassa fever is among the several communicable diseases that the African continent is grappling with (Fidelis & Olajolumo, 2018). The zoonotic disease is caused by Lassa virus, and it is markedly prevalent in Africa with about 100,000 to 300,000 infection rate and 5,000 deaths annually (World Health Organisation [WHO], 2017). Multimammate rats (of the genus *Mastomys Natalensis*) are the primary reservoirs of the Lassa virus which is transmissible during their contact with humans (Reuben & Gyar, 2016; Ben-Enukora et al., 2020).

Nigeria bears the highest burden of Lassa fever in the world, yet efforts aimed at curbing the spread of the disease have remained largely unsuccessful (Denué et al., 2017). The haemorrhagic disease is one of the major contributors to cases of admissions and deaths in Nigerian hospitals (Akpède et al., 2019). About 30% of the country's geographical area is

projected to be Lassa fever risk areas, and about 21% of its over 200 million population is seropositive (Tambo et al., 2018). Of the 5,000 annual deaths in West Africa that are attributable to Lassa fever complications, Nigeria accounts for 3,000 (60%) (Wogu, 2018; Erubami, 2022), and this figure may not be truly representative given that many incidences of Lassa fever-related deaths are unreported, especially in rural areas (Denué et al., 2017).

Since the first record of Lassa fever outbreak in Nigeria in 1969, there have been several outbreaks of the disease across the country with significant deaths. According to the Nigeria Centre for Disease Control (NCDC, 2017), the frequency of Lassa fever outbreak in Nigeria and the corollary case fatality ratio are sometimes strange and unclear as the infection rate of the disease continues to rise despite clinical efforts to curb its spread. For instance, from a paltry total of 25 confirmed cases as of 2015, the number rose to 109 in 2016, 308 in 2017, 633 in 2018, 833 in 2019 and 1,189 in 2020 (NCDC, 2017, 2018, 2019, 2020, 2021).

The unabated spread of the disease may not be unconnected with the preponderance of certain risk factors that predispose people to it. These factors are replete in unhygienic environmental conditions that encourage the unrestrained movement of Lassa fever vectors, especially in rural areas (Usuwa et al., 2020). In many Nigerian homes, mastomys are ubiquitous and even considered as edible, especially by children (Reuben & Gyar, 2016). This practice increases the probability of direct contact with rodents and the likelihood of primary infection of humans (Ben-Enukora et al., 2020). Similarly, the disease is rural communities prone, and over 50% of the Nigerian population resides in rural communities where there is persistence of poverty, ignorance and limited access to orthodox medicine (Wogu, 2018). The challenge is further exacerbated by the dearth of preventive vaccines which still remains elusive to the world (WHO, 2017).

Given that public misconception about the disease can influence its related risk perception and hamper efforts aimed at preventing its spread (Usuwa et al., 2020), emphasis has been consistently placed on the creation of public awareness to reduce poor health attitudes and practices that predispose people to the ailment (Erubami, 2022). Accordingly, the mass media have been deployed to sensitise the public and create adequate awareness on the overall risk related to the disease. In this regard, the media have been used as independent and complementary interventions to create appropriate knowledge and encourage right attitudes and practices related to Lassa fever in Nigeria (Odionye et al., 2019; Wogu et al., 2020). However, the overall influence of media exposure on Lassa fever risk perception and risk behaviours among Nigerians has not been previously investigated; this study seeks to fill this gap in knowledge.

## LITERATURE REVIEW

### *Media Exposure and Lassa Fever Risk Perception*

All serious public health challenges have peculiar associated risks, and individuals naturally tend to perceive risk at the outbreak of serious infectious diseases (Pask & Rawlins, 2016). Within the scope of public health communication, 'risk' denotes the odds that a negative health occurrence will affect an individual and the world around him/her (Erubami, Bebenimbo & Ugwuoke, 2021). Health behavioural theorists assert that risk perception is critical to public health management, particularly in times of public health crisis (Wu & Li, 2017; Apuke & Tunca, 2021). This is because people's subjective assessment of the possibility or likelihood of suffering a harsh health consequence can significantly influence their overall response and behaviour towards such health occurrence (El-Toukhy, 2015; Choi et al., 2017). For instance, research has shown that people's decision to take protective actions, attend

clinical screenings and adhere to recommended medical guidelines may be significantly influenced by the way they perceive the risks that are associated with not taking such actions (Charya et al., 2015; Renner et al., 2015; Wiyane & Mansur, 2021).

In many health behaviour communication literatures, risk perception is generally constructed by the twin dimensions of perceived susceptibility and perceived severity (Pask & Rawlins, 2016) although these two dimensions tend to be distinct and inversely related (El-Toukhy, 2015). While perceived susceptibility generally refers to individuals' personal judgment on their extent of vulnerability to a given risky situation, perceived severity explains the extent of the seriousness of a given risky situation based on the subjective assessment of individuals (Choi et al., 2017; Al-Metwali et al., 2021).

The incessant outbreak of Lassa fever epidemic in Nigeria has attracted several researches which investigated the general knowledge, attitude and practices related to the disease among healthcare workers and the general public. For instance, Fidelis and Olajolumo (2018) found a low level of Lassa fever knowledge and very poor cross-infection control activities among healthcare professionals in Sokoto metropolis. Other studies have also found a poor overall knowledge of the disease among healthcare workers (Tobin et al., 2013) and marked disparity in health professionals' knowledge and practices regarding the efficient diagnosis and accurate reportage of the disease (Olowookere et al., 2014). In the general Nigerian population, studies also indicate a low level of knowledge of Lassa fever (Adegoke et al., 2017); hence, the prevalence of Lassa fever predisposing practices, such as rat consumption (Reuben & Gyar, 2016), clinical and epidemiological misconceptions (Adesoji et al., 2016), open air drying of foodstuff (Usuwa et al., 2020) and poor overall preventive practices (Awosanya, 2018).

Specifically, studies have also investigated the extent of Lassa fever risk perception among healthcare workers and the general Nigerian population. On the whole, there tends to be a good level of risk perception among healthcare workers as against the general population. For example, a study of healthcare workers in Enugu State showed that 84.2% of the respondents had a good level of risk perception towards the disease (Ndu et al., 2019). Another study found that 73.3% of respondents drawn from rural communities of Ebonyi State regarded Lassa fever as a very serious infection, 41.1% had a high perceived susceptibility towards the disease, and 82.5% had a high perceived self-efficacy towards its prevention (Usuwa et al., 2020).

However, despite recent improvements in overall public knowledge of Lassa fever (Odionye et al., 2019), there remains the prevalence of certain risk behaviours among Nigerians, especially residents of rural communities. A study showed that 83% of respondents selected from urban and rural areas of Lafia still have rodents in and around their residences, 24% eat rodents contaminated food, 33% eat rodents, and 28% regularly come in contact with the bodily secretions from rodents (Reuben & Gyar, 2016). Generally, contact with and/or consumption of rats constitutes a major risk factor for Lassa fever, and eating rats is essentially a predisposing factor to the disease (Ben-Enukora et al., 2020; Erubami, 2022).

The mass media are among the major determinants of public risk perception during the outbreak of serious health challenges (Chong & Choy, 2018; Yiwei, 2018; Erubami, Bebenimbo & Ugwuoke, 2021). This is because many people rely heavily on mass media messages to learn appropriate coping mechanisms in times of public health emergencies (Wu & Li, 2017). In the process of providing such information, the mass media tend to enhance

public understanding of serious risky situations and tweak how the risks associated with the crisis are perceived and responded to by the public (Chong & Choy, 2018).

Exposure to the mass media for risk information may either amplify or attenuate the perception of susceptibility and severity towards health crises (Erubami, Bebenimbo & Ugwuoke, 2021), and media deployment of certain communication frames and valence tends to influence how the public understands the salience of risk perception (Paek & Hove, 2017). Essentially, a repeated media coverage of a risky situation increases the extent of perceived severity among the public (Yiwei, 2018; Khosravi, 2020). For instance, a study of women in Nepal's rural communities' showed that mothers exposed to mass media campaigns tended to, on average, have a greater risk perception towards antenatal care services and were more likely to attend antenatal visits, take adequate rest, sleep during pregnancy and receive Tetanus Toxoid Immunisation than their non-exposed counterparts (Charya et al., 2015). A similar study conducted among the Nigerian population also showed that respondents who were frequently exposed to social media information on COVID-19 pandemic tend to, on average, perceive a higher measure of risks related to the infectious disease than their counterparts who were less exposed to such information (Erubami, Bebenimbo & Ugwuoke, 2021).

Thus, relying on previous empirical and theoretical findings, the current study proposed the following hypotheses;

H1: Mass media exposure will be positively related to Lassa fever risk perception among residents of South-south Nigeria.

H2: Mass media exposure will be negatively related to Lassa fever risk behaviours among residents of South-south Nigeria.

H3: Lassa fever risk behaviours will be negatively related to risk perception towards the disease among residents of South-south Nigeria.

H4: There will be significant differences in respondents' Lassa fever risk perception and risk behaviour on the basis of state, sex and employment status.

### *Theoretical Framework*

The study is anchored on the theoretical assumptions of the Health Belief Model (HBM) and the Social influence Theory (SIT).

#### *a. Health Belief Model*

The HBM was propounded in the 1950s by four social psychologists, Godfrey Hochbaum, Irvin Rosenstock, Howard Leventhal and Stephen Kegeles. The HBM is a socio-psychological model designed to predict health related behaviours (Imoh, 2008). It postulates that people's beliefs about health challenges, perceived benefits of actions and barriers to taking such actions determine their involvement (or lack of involvement) in health promoting behaviours (Deng et al., 2020). Thus, the HBM rests on the thinking that an individual will engage in health-related actions if he/she: (1) feels that a risky health situation is avoidable, (2) expects that he/she will avoid risky health conditions by engaging in recommended actions, and (3) believes that a recommended health action can be successfully taken by him/her (Imoh, 2008). The HBM is relevant to the current study in the sense that people who feel that they

are at a serious threat of Lassa fever infection are likely to adopt recommended preventive and control measures that can lower their risk of vulnerability, provided that there are no major hindrances to their engagement in such actions.

*b. Social Influence Theory*

The SIT is a framework proposed by Herbert Kerman in 1958 to explain the influence of certain social factors on people's health behaviour. Its central postulation is that an individual's attitudes, beliefs and subsequent actions or behaviours are influenced by referent others through the three different levels of compliance, identification and internalisation (Imoh, 2008). In his initial research, Kerman hypothesised that compliance, identification and internalisation are dependent on means-control, attractiveness and credibility of the influencing agent, and the probability of accepting a social influence (such as media campaigns) is a combined function of (a) the relative importance of the anticipated effect, (b) the relative power of the influencing agent, and (c) the pre-potency of the induced response. According to McQuail (2010), compliance refers to the acceptance of influence in expectation of some rewards or to avoid punishment; identification occurs when an individual wishes to be more like the source and imitates or adopts behaviour accordingly; while internalisation denotes the influence that is guided by the receiver's own pre-existing needs and values.

Imoh (2008) observes that compliance with a given health message causes lasting changes in attitude only if persons who control means that are important to the respondents observe the respondents' expression of attitude, making the respondents to believe that their compliance with such powerful source (the mass media in this case) will bring certain rewards to them. On the other hand, identification causes persistence of attitude only if a respondent's relationship or interaction with an attractive message source remains salient and allows the respondent to define himself or herself on the basis of the message. Internalisation occurs when respondents are concerned with the congruence between their values and the behaviours being advocated. This happens when the information from a credible source leads respondents to reorganise their social behaviour and see their acceptance of the message as helping to realise important values.

Hence, the SIT is appropriate to the current study in that it presupposes that individuals would likely comply with mass media Lassa fever risk messages if they perceive that such messages will attract some forms of gratifications or prevent some punishments; identify with media messages if such messages enable them to conform with societal expectations; and, internalise the messages if such message contents are in congruence with popular opinion and their previously held views/values. Arguably, the mass media have become some of the major social influences in our contemporary world. In public health management particularly, the mass media have been documented to play the crucial roles of health promotion (education role), reinforcement of recommended health messages (supporting role), familiarising audience members with recommended health behavioural changes (promotion role) and can be integrated into face-to-face health programmes or other forms of intervention (supplementing role) (Wogu et al., 2020). By consistently doing so over the years, the mass media have come to be reckoned with as a powerful social institution (means-control) that gives relevant information with public appeal (attractiveness) and trustworthiness (credibility).

## METHODOLOGY

### *Design and Participants*

The study adopted the survey research method which allows researchers to understand the peculiar factors that motivate human behaviour (Ugwuoke & Erubami, 2021). All six states in Nigeria's South-south geopolitical zone comprised the population of study. The states are Akwa-Ibom, Bayelsa, Cross River, Delta, Edo and Rivers, with a combined population of 28,829,288 residents occupying a total land mass of approximately 85,303<sup>2</sup>km (National Bureau of Statistics [NBS], 2018; Oji & Erubami, 2020). A sample size of 384 respondents was drawn for the study using the sample determination formula advanced by Cochran in 1963. A multistage sampling technique was adopted in the study. We used purposive sampling in the first stage to select Edo and Delta States as study areas out of the six states comprising the South-south geopolitical zone. Edo State was selected because of high Lassa fever prevalence in the state, while Delta State was selected because of its low Lassa fever prevalence level (NCDC, 2017, 2021). Their selection could, therefore, permit a cross-state analysis of how mass media exposure influences risk perception and risk behaviours towards Lassa fever.

The second stage involved the use of simple random sampling to select one Local Government Area (LGA) to represent each state; hence, Etsako West LGA was selected in Edo State, while Udu LGA was sampled in Delta State. In the third stage, we also used simple random sampling to select four rural communities in each of the selected LGAs. Thus, in Etsako West LGA, we selected Auchi, Ughiole, Elele, and Jakpe; while Aladja, Ovwian, Oto-Udu, and Enerhen communities were sampled in Udu LGA. A total of 48 copies of the questionnaire were equally distributed in each of the selected communities. The fourth stage involved the selection of individual respondents from the selected communities through systematic random sampling. At this stage, the research instrument was distributed to the heads of every tenth household or their representatives within the studied communities.

### *Measurement*

#### *a. Mass Media Exposure*

This measure was adapted from previous studies on general media exposure with appropriate modifications (Donaldson et al., 2017; Wu & Li, 2017; Lompo & Bago, 2018; Erubami, 2022). The measure consisted of three items on a five-point Likert scale, ranging from 1 (Never) to 5 (Daily). Participants were asked to value their frequency of exposure to Lassa fever risk information on (1) Radio, (2) Television, and (3) Newspaper. (Reliability of  $\alpha = 0.89$ )

#### *b. Lassa Fever Risk Behaviour*

This variable was measured using a six-item self-report scale adapted from previous studies (Suleiman et al., 2015; Reuben & Gyar, 2016; Usuwa et al., 2020). Respondents were required to value their extent of involvement in certain Lassa fever risk activities in the last six months with possible responses ranging from Strongly disagree (1) to Strongly agree (5). The scale asked if respondents had in the last six months (1) had physical contact with rats or other rodents, (2) eaten rats or other rodents, (3) seen rat openings in their residence, (4) practised open air drying of food items, (5) practised bush burning, and (6) attended to someone with Lassa fever infection. (Reliability of  $\alpha = 0.83$ ).

#### *c. Lassa Fever Risk Perception*

Previous studies on general risk perception provided appropriate guidance in the measurement of this variable (Choi et al., 2017; Suleiman et al., 2015; Erubami, Bebenimbo

& Ugwuoke, 2021). Respondents were required to value their extent of disagreement or agreement with six items on a five-point Likert scale. The items were: (1) I am worried about the risk of contracting Lassa fever infection, (2) People who do not follow recommended preventive measures are at the risk of contracting Lassa fever disease, (3) Lassa fever disease is a serious health challenge in Nigeria, (4) I believe Lassa fever infection comes with dangerous consequences, (5) It is necessary to carry out preventive measures against Lassa fever, and (6) In my environment, it is difficult to keep rats and other rodents away from residential areas. (Reliability of  $\alpha = 0.87$ ).

#### *d. Demographic Variables*

Based on previous research suggesting a relationship between demographic variables and public health behaviour (Choi et al., 2017; Broche-Pérez et al., 2020; Erubami, Bebenimbo & Ugwuoke, 2021), we also explored the following variables: state (1 = Delta; 2 = Edo), sex (1 = male; 2 = female), education (1 = no formal education; 2 = primary education; 3 = secondary education; 4 = technical/vocational education; 5 = tertiary education), employment status (1 = Unemployed; 2 = Employed).

#### *Ethical Considerations*

Before the commencement of actual data collection, the researchers sought the informed consent of the potential participants through an appropriate brief on the main objectives of the research. Only those who indicated willingness to participate in the study were included in the final sample and given a copy of the research questionnaire. The collected information was kept confidential. Also, the Faculty of the Social Sciences research Ethics Committee at Delta State University, Abraka approved the study with approval number DELSU/FSS/FSSREC/01022021

#### *Data Analysis*

The data were analysed using descriptive and inferential statistics. For the preliminary analysis, SPSS version 23 was used to ascertain the extent of correlation between key variables, while the formulated hypotheses were tested using simple linear regression and independent sample t-test. Our prediction equation for the regression analysis was designed using the formula,  $Y' = a + bX$ , where  $Y'$  denotes the dependent variable,  $X$  represents the independent variable, while  $a$  and  $b$  denote the values of the unstandardised coefficients ( $\beta$ ) (Cronk, 2008). A free online statistical calculator (available at [www.socscistatistics.com/effectsize/default3.aspx](http://www.socscistatistics.com/effectsize/default3.aspx)) was explored in calculating the effect size (Cohen's  $d$ ) for the independent sample t-test.

## RESULTS

Out of the 384 questionnaires administered, 381 were retrieved and found usable, representing a 99.2% response rate. According to the data, 50.4% of the respondents were from Edo State, 52.2% were males, the modal age range was 25-34 years and about 76.1% of the study participants had various forms of active employment. On education, 11.3% of the respondents had no formal education, 12.9% had primary education, 32.3% had secondary education, 24.4% had technical/vocational education, while 19.2% had tertiary education. In comparison with the general Nigerian population, there are 1.04 males for every female in

Nigeria and the modal age range is 15-35 years (NBS, 2018; Ugwuoke & Erubami, 2021). Table 1 presents a descriptive and correlation analysis of the key variables.

Table 1: Descriptive and Correlation analysis

		Mean	SD	1	2	3	4	5	6
1	State	1.53	.50						
2	Sex	1.48	.50	.329**					
3	Education	3.90	1.23	-.241**	-.549**				
4	Employment status	2.15	1.21	-.016	.212**	-.031			
5	Media exposure	3.23	1.15	-.538**	-.614**	.356**	-.102*		
	RP	3.21	1.16	-.590**	-.498**	.607**	-.125*	.514**	
	RB	2.31	.28	.194**	.415**	-.325**	-.012	-.540**	-.244**

\*\* . Correlation is significant at <0.01 level (2-tailed); \* . Correlation is significant at <0.05 level (2-tailed); RP = Risk Perception; RB = Risk Behaviour

### Mass Media Exposure and Lassa Fever Risk Perception

The calculated regression equation presented in Table 2 shows that exposure to mass media messages on Lassa fever prevention is positively related to the extent of risk perception towards the disease, ( $F(1,379) = 136.315, p < .001$ ), with an  $R^2$  of .265. Based on the prediction equation and the corresponding regression coefficient ( $\beta = .519, 95\% CI [.432, .607]$ ), respondents' perceived risk towards Lassa fever tends to increase by .519, on average, for every unit rise in their frequency of exposure to mass media sensitisation messages on the disease. Thus, we accepted H1 which stated that mass media exposure will be positively related to respondents' risk perception towards Lassa fever.

### Mass Media Exposure and Lassa Fever Risk Behaviour

H2 tested whether respondents' risk behaviour would be negatively related to their exposure to media messages on Lassa fever prevention. The data in Table 2 suggest that exposure to mass media messages on Lassa fever prevention was negatively associated with respondents' engagement in behaviours that predispose them to Lassa fever risk, ( $F(1, 379) = 155.797, p < .001$ ), with an  $R^2$  of .291. Accordingly, the regression coefficient ( $\beta = -.797, 95\% CI [-.922, -.671]$ ) shows that the respondents' chances of engagement in Lassa fever risk behaviours tends to, on average, decrease by .797 for every unit increase in their exposure to mass media sensitisation messages on the prevention of the spread of the infection. Hence, the assumption of H2 was supported.

### Lassa Fever Risk Perception and Risk Behaviours

H3 tested whether respondents' extent of risk perception would be negatively related to their engagement in Lassa fever risk behaviours. According to the regression data presented in Table 2, risk perception towards Lassa fever was negatively associated with respondents' engagement in behaviours that predispose them to the disease, ( $F(1, 379) = 24.003, p < .001$ ), with an  $R^2$  of .060. Accordingly, the regression coefficient ( $\beta = -.357, 95\% CI [-.500, -.214]$ ) shows that the respondents' chances of engaging in Lassa fever risk behaviours tend to, on average, decrease by .357 for each unit increase in their level of risk perception towards the infectious disease. The results, thus, supported the assumption of H3.



Table 2: Regression analyses predicting the relationships between variables

Ha	R <sup>2</sup>	SE of E	F Change	df1	df2	B		P-Value	95% CI for B	
						A	b		Lower	Upper
H1	.265	.999	136.315	1	379	1.532	.519	<0.001	.432	.607
H2	.291	1.433	155.797	1	379	10.426	-.797	<0.001	-.922	-.671
H3	.060	1.651	24.003	1	379	8.996	-.357	<0.001	-.500	-.214

H<sub>a</sub> = Hypotheses; R<sup>2</sup> = Coefficient of regression; SE of E = Standard Error of the Estimate; F = Variance; df = degree of freedom; B = unstandardised beta; p = probability value; CI = Confidence Interval

#### Risk Perception, Risk Behaviours and Socio-Demographic Characteristics

H4 explored if there are significant differences in respondents' risk perception and engagement in Lassa fever risk behaviours on the basis of sex, state of residence and employment status. The independent sample t-test results presented in Table 3 indicate that, on average, actively employed female respondents from Edo State tend to perceive greater Lassa fever risk than their unemployed male counterparts from Delta State. However, employed male respondents from Delta State tend to, on average, engage in more Lassa fever risk behaviours than their unemployed female counterparts from Edo State. Among others, the results in Table 3 show that female respondents tend to perceive greater risk towards Lassa fever ( $\bar{x}$  = 3.76,  $SD$  = 1.10) than their male counterparts ( $\bar{x}$  = 2.61,  $SD$  = .91). This difference (mean difference = 1.55, 95% CI: -.95, -1.36) was large (Cohen's  $d$  = 1.14) and statistically significant,  $t(379)$  = -11.17,  $p$  < .001. Accordingly, male respondents tend to engage in a greater measure of risk behaviours ( $\bar{x}$  = 1.43,  $SD$  = .33) than their female counterparts ( $\bar{x}$  = 1.20,  $SD$  = .17). This difference (mean difference = .23, 95% CI: .29, 1.8) was large (Cohen's  $d$  = .88) and statistically significant,  $t(379)$  = 8.67,  $p$  < .001.

Table 3: Independent sample t-test comparing differences in Lassa fever risk perception and risk behaviours

	$\bar{x}$ (SD)		T	P	D	95% CI	
	Male	Female				Lower	Upper
<b>Gender</b>	<b>Male</b>	<b>Female</b>					
	(n = 199)	(n = 182)					
RP	2.61 (.91)	3.76 (1.10)	-11.17	.000	1.14	-.95	-1.36
RB	1.43 (.33)	1.20 (.17)	8.67	.000	.88	.29	.18
<b>State</b>	<b>Delta</b>	<b>Edo</b>					
	(n = 189)	(n = 192)					
RP	<b>3.90 (.82)</b>	<b>2.53 (1.05)</b>	14.26	.000	1.45	1.18	1.56
RB	<b>1.25 (.25)</b>	<b>1.36 (.31)</b>	-3.86	.000	.39	-.17	-.05
<b>Employment</b>	<b>Employed</b>	<b>Unemployed</b>					
	(n = 290)	(n = 91)					
RP	3.26 (1.13)	3.04 (1.24)	1.55	.000	.19	-.06	.52
RB	1.31 (.31)	1.30 (.20)	.65	.000	.03	-.04	.072

$\bar{x}$  = Mean; SD = Standard Deviation; CI = Confidence Interval; t = t-statistics; p = probability value; d = Cohen's effect size; RP = Risk Perception; RB = Risk Behaviour

## DISCUSSION

This study aimed to provide a nuanced understanding of how exposure to mass media sensitisation messages influences Lassa fever risk perception and risk behaviours among people in rural communities of South-south Nigeria. The results showed that increased exposure to the mass media for Lassa fever risk information is significantly associated with

increased risk perception related to the disease. This is consistent with previous studies which found that receiving public health information from mass media outlets can influence the extent of perceived risk towards public health crises (Charya et al., 2015; Wu & Li, 2017; Erubami, 2022). Usually, the media deploy certain frames and valences in the design of health messages (Paek & Hove, 2017; Erubami, Oziwele, Ohaja, Ezugwu & Anorue, 2021), and by repeatedly covering emerging public health crises, media messages tend to significantly influence public's construction of risk (Khosravi, 2020; Ben-Enukora et al., 2020).

Among many rural communities' dwellers in Nigeria, there seems to be the prevalence of certain Lassa fever risk predisposing behaviours, such as rat consumption, open air drying of food items and poor environmental hygiene practices (Reuben & Gyar, 2016), and this challenge is further exacerbated by certain environmental difficulties that negate the adoption of appropriate Lassa fever preventive practices by rural dwellers (Adegoke et al., 2017). Our study indicates that increased exposure to the mass media for Lassa fever risk information tends to significantly reduce individuals' engagement in risk behaviours that predispose them to the infection. The findings align with previous studies (Odionye et al., 2019; Erubami, 2022) which found that exposure to mass media messages on Lassa fever was significantly associated with reduced rat consumption, better environmental hygiene practices and proper storage of food items among residents of South-east Nigeria.

Essentially, media messages may either amplify or attenuate perceived risk related to infectious diseases (Erubami, Bebenimbo & Ugwuoke, 2021), and when the extent of susceptibility and severity of a disease is perceived to be high, there is a higher likelihood that individuals will abstain from engaging in risk behaviours (Apuke & Tunca, 2021). Consistent with the assumptions of the HBM (Oyeoku et al., 2021), our study shows that the respondents' likelihood of engaging in Lassa fever risk behaviours was negatively associated with their risk perception towards the disease, suggesting that individuals with high subjective assessment of being at the risk of an infection are more likely to avoid practices that will predispose them to such risky situation. A previous study has demonstrated that individuals with high risk perception towards COVID-19 are more likely to adopt recommended health actions, including vaccine uptake than those with low risk perception (Al-Metwali et al., 2021).

Nevertheless, respondents' extent of risk perception and engagement in Lassa fever risk behaviours varied significantly according to sex, geographical location and employment status. The results showed that female respondents tended to have a higher subjective assessment of being susceptible to the disease than their male counterparts; hence, their lower likelihood of engagement in Lassa fever predisposing behaviours. Similarly, respondents from Edo state, where there is a preponderance of Lassa fever infection, tended to perceive a lower risk of the disease, resulting in their increased engagement in practices that predispose them to the infection. It is likely that this low perceived risk among people in Lassa fever infected communities may have encouraged their engagement in behaviours that predispose them to the disease and ultimately increase their level of vulnerability to the ailment. Previous studies have shown that women tend to perceive significantly greater risk than men when exposed to the same risky situations (Choi et al., 2017; Yiwei, 2018; Khosravi, 2020; Broche-Pérez et al., 2020); therefore, their higher tendency to avoid risk practices given that perceived risks tend to be negatively associated with risk behaviours (Charya et al., 2015; Renner et al., 2015; Al-Metwali et al., 2021; Oyeoku et al., 2021). Other studies have also shown significant geographical variations in individuals' risk perception and engagement in risk behaviours. For instance, Awosanya's (2018) study showed that respondents from a

community without Lassa fever infection tended to have better Lassa fever preventive measures than those from an affected area.

#### CONCLUSIONS AND RECOMMENDATIONS

Media messages are crucial to the cognitive and affective processes of risk perception towards severe public health challenges. This study shows that exposure to media sensitisation messages on Lassa fever can significantly influence the formation of perceived risk towards the disease, and this may ultimately determine public behaviours towards recommended preventive actions. The study also affirms that increased exposure to Lassa fever media messages can significantly influence individuals' engagement in risk activities that predispose them to the disease, and the decision to engage in such risk activities is shaped by individuals' level of subjective assessment of their extent of perceived risk related to the infection.

The findings underscore the need for media sensitisation messages to be appropriately designed to motivate greater risk perception and discourage risk behaviours related to Lassa fever. It is also recommended that considering the influence of opinion leaders in the chain of communication, health policy formulators should devise veritable means to incorporate the use of such sources like churches, mosques, markets and community leaders in risk communication efforts targeted at rural dwellers in Nigeria. Additionally, given the endemic nature of Lassa fever in Nigeria, government and public-spirited organisations should sustain public sensitisation efforts and provide free rodent repellents to people, especially those in rural areas to continuously ward off the outbreak and spread of the disease. It is also imperative for relevant health authorities to enforce healthier public environmental practices and initiate *mastomys* eradication programmes to tackle all environmental conditions that promote the heavy presence of rats in residential areas.

Finally, considering the likely methodological limitation of our study, we recommend that future research should adopt a larger sample size and utilise both qualitative and quantitative approaches to investigate the Lassa fever-related risk behaviours of rural communities' dwellers in Nigeria.

#### BIODATA

*Joshua Aghogho Erubami* is a lecturer in the Department of Mass Communication, Faculty of the Social Sciences, Delta State University, Abraka, Nigeria. His research interest cuts across multimedia journalism, health communication and the deployment of new media technologies for development purposes in Africa. Email: jaerubami@delsu.edu.ng

*Lucky Ogheneruemu Ojoboh* is a lecturer in the Department of Mass Communication, Faculty of the Social Sciences, Delta State University, Abraka, Nigeria. His research interest covers public relations, advertising and health communication. Email: ojobohlo@delsu.edu.ng

*Edith Ugochi Ohaja* is a Senior Lecturer and former Head of the Department of Mass Communication, Faculty of Arts, University of Nigeria, Nsukka, Nigeria. Her research interest is in the field of communication advocacy, journalism and health communication. Corresponding Email: ohaja.edithu@gmail.com

*Martins Ndubisi Ezugwu* is a Lecturer in the Department of Mass Communication, Faculty of Arts, University of Nigeria, Nsukka, Nigeria. His research interest is in the field of advertising, public relations and health communication. Email: martins.ezugwu@unn.edu.ng

*Ukamaka Cecilia Akata* is a Lecturer in the Department of Mass Communication, Faculty of Arts, University of Nigeria, Nsukka, Nigeria. Her research interest covers broadcasting, journalism and health communication. Email: ukamaka.akata@unn.edu.ng

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