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**The Fight against Lassa fever in Ebonyi State, Nigeria: A Clash of the People's Culture and Broadcast Media Campaign**

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**ABSTRACT**

Ebonyi State of Nigeria is among the states where the incidence of Lassa fever has become endemic; and has consequently led to the death of many people including health practitioners in the state. To mobilize the people against the disease, government and stakeholders in the health sector resorted to health literacy campaigns through Ebonyi Broadcasting Corporation (EBBC). The most popular and dramatic of these campaigns is the one that advocates for total stoppage in the consumption of all species of rats. It is titled: bu gunu be unu na ahu? Meaning what are you roasting. As rat consumption is age long habits of the majority of the Ebonyi people, particularly, those in the rural areas, it becomes incumbent that the effectiveness of the campaign notwithstanding its popularity should be empirically evaluated. Survey research method was adopted for the investigation. Consequently, 380 copies of structured questionnaire were administered on respondents systematically drawn from three rural communities, one each from three senatorial zones of the state. Using mean computation for the test of hypotheses, the study among others found that though the campaign created awareness of the disease among the people, majority of them do not agree that all rats are potential vectors of Lassa fever virus, and that, the people's knowledge and belief about the disease is significantly independent of their exposure to the EBBC campaign. Consequently, the study among others recommended that the framing of such radical health campaign message should be reflective of the people's culture, and that the campaign should highlight the reason(s) why all rats are considered to be potential vectors of Lassa fever virus.

**Key words:** Fight, Lassa fever, Broadcast Media, Campaign, Clash, Culture.

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## INTRODUCTION

The most successful and abundant mammals on earth apart from man according to WAHEB (1989) [1], are rats and mice. These rodents, they said live at the expense of man, invade his home, eat his food and damage his commodities. Benenson (1981) [2], describes this act of rats living together with man as “Synanthropic” habitation, and Laura, Bjorn, Imran and DeeAnn (2016) [3], opine that this relationship facilitates movement of pathogens between the rodents and humans. They maintain that the rodents are the known causative agent of most zoonotic diseases which constitutes upwards of 75% of Emerging Infectious Diseases (EIDS) in humans, which according to them, is believed to have caused thousands of deaths annually across the globe. In buttressing its stand, WAHEB (1989), links the most historically dangerous pandemics in Africa, which among others include: bubonic plague, salmonellosis, leptospirosis, Rat-bite Fever, Rickettsial pox, cutaneous leishmaniasis and Lassa fever to the lingering relationship between Africans and rats in the African environment.

In Nigeria today, Sheriff (2015) [4], contends that there is presence of rats in every house, some running from the kitchen to the bed rooms, others playing ‘hit and chase games’ in the kitchen to the ceiling. In support of this assertion, Tobin, Asogun, Isah and Ugege (2013) [5] submit that rats have found the living abode of the ordinary man as a habitat for themselves, where they live comfortably running their daily activities and also serve as food for man. Regrettably, rats which in the words of Durojaye, Amaechi and Jean - Paul (2015) [6], “readily colonize human homes” have been implicated as the vector of Lassa fever; a highly contagious and endemic human disease that has become a major threat to global health delivery efforts. Rats are currently believed to be the carrier of Lassa fever virus which has been classified as category ‘A’ pathogen meaning that it is rated as one of the most dangerous organisms and a potential bio weapon [7].

Lassa fever, whose trajectory in Nigeria according to Annie (2015) [7], is striking, has transitioned from a decade of neglected, albeit renowned tropical disease into a high priority pathogen of international importance. It was reportedly discovered in 1969, when the death of two missionary nurses at Lassa, a remote village in Borno State, Nigeria was traced to the disease, [8]. And since then, there have been sporadic outbreaks of the disease across West Africa.

Lassa fever is prevalent in such other West African countries like Sierra Leone, Liberia and Guinea [6]. The infection in the view of Olayinka, Omotoso,

Osaretin and Adewuji (2014) [9] is an acute viral hemorrhagic illness caused by Lassa virus, a bi-segmented ambience single stranded Ribonucleic acid (RNA) that belongs to the Arenaviridae virus family. Anuforo (2016) [8], posits that certain species of rats are the reservoir of the virus. In his submission, the soft-furred rat called *Mastomys natalensis* which lives in the bush is the most dangerous and is believed to be largely responsible for the existence of Lassa fever pathogen (virus). Adefisan (2014) [10] and Tobin (2013) [5] all agreed that rats thrive in overcrowded environments, slums and rural areas where there is poor Sanitation and where poverty prevails and standard of living are low.

Lucas and Gilles (1990) [11], are of the view that Lassa fever is among the largest burden of viral hemorrhagic fevers in West Africa after yellow fever and the Ebola viral disease. Anuforo (2016) [8] lists the mode of transmission to among others include contamination of skin abrasions through contacts with rodent excreta, urine of the rat in human food and hunting/wrong of processing of rats for consumption, man to man transmission. Olayinka, Omotoso, Osaretin, and Adewuji (2014) [9] submit that the diagnosis of the infection is often difficult because it presents initial signs and symptoms associated with such other diseases as Typhoid and malaria. [11] agrees that the non-specificity and similarity of symptoms to those of other febrile illnesses at early stage of Lassa fever attack leads to misdiagnosis, increase in the risk of transmission and the frequency of occurrence in West African sub region.

Ogundipe (2016) [12], avers that fifty one (51) million Nigerians are currently estimated to be at risk of contracting the infection with 3 million illnesses and 58,330 deaths annually. The disease which its first episode was witnessed in Nigeria 47 years ago, according to Yunusa and Egenti (2015) [13], resurfaced in Nigeria in 2010 and claimed 17 lives in Kebbi State, 22 in Irrua Specialist Hospital, Edo State in 2012. Another outbreak, they continued was witnessed in 2012 with 1,723 cases, 112 deaths, 201 laboratory confirmed cases which were witnessed in 23 out of 36 States including FCT and 42 local Government Areas in Nigeria. Six Nigerian health workers (3 medical Doctors and 3 nurses) lost their lives while managing some of the cases, (Rine and Silas 2016). Two (2) medical doctors of Ebonyi State University Teaching Hospital (EBSUTH) Abakaliki were among the six health workers who died. Furthermore, Adefisan (2014) [10] discloses that there was reported outbreak in Makurdi, Benue State in January 2013, and that Lassa fever is said to be endemic in Edo, Nassarawa, Ondo, Taraba, Bauchi, Plateau and Ebonyi as at 4<sup>th</sup> April, 2014 with 350 suspected

cases, 46 laboratory confirmed cases and 19 deaths. According to Anuforo (2016) [8], the 2016 outbreak in Nigeria so far had the highest fatality in the past 5 years. According to him, it started in Niger State in late 2015 and spread to 17 states with a total record of 78 deaths and 212 suspected cases as at January 2016. Ebonyi State was not left out of the outbreak, as it recorded 3 deaths from 5 laboratory confirmed cases and 49 suspected cases according to Dr. Daniel Umezurike, the State commissioner for Health.

The Federal Government in response to the outbreak put up various measures to curtail and prevent the further spread of the dreaded diseases. One of the measures according to Anuforo (2016) [8] was the enhancement of surveillance and social health education through mass media oriented information and communication activities. Rine and Silas (2016) [14] adds that the Federal Government increased the number of Lassa fever diagnostic centres from 6 to 12 and also inaugurated a 15- member multi- sectoral Lassa fever Eradication Committee charged with fashioning and implementing the multi-faceted response strategies against the outbreak. Ebonyi State Government in her effort in the same direction also in 2016 built a new Lassa fever diagnostic centre in addition to the inauguration of a committee on eradication of Lassa fever in the State.

As neither the Federal nor the State Governments and their respective committees on Lassa fever can successfully engage and win this strategic war against the disease without appropriating the vast potentials of both national and local mass media channels for conscientising, educating, informing and mobilising Nigerians against the outbreak, Ebonyi State Government leaned heavily on the services of the Ebonyi State Broadcasting Corporation (EBBC) for the fight against the disease. Upon its inauguration, the Ebonyi State Lassa fever Eradication Committee swung into action and came up with various public service radio jingles and television commercials which are consistently on air. The targets of these jingles and commercials are to create awareness about the outbreak, educate the people on the early symptoms and management, the cause and the need to abstain from eating of all kinds of rats. However, rat consumption remains historically a cultural habit and a much cherished sources of meat to the majority of Ebonyi people, particularly, in the rural areas. It is this call on Ebonyi people to abstain from eating of all species of rats through the EBBC popular radio/tv jingle/commercial: 'Bu Gunu Bu Unu Na Ahu?' (meaning-what are you roasting?), that aroused the researchers' interest in this study. The

crux of the matter is that the consumption of some species of rats as sources of meat as pointed out above is cultural to the majority of the Ebonyi people, particularly, those in the rural areas. And culture is hard to change. Again, scientific investigations as pointed out earlier shows that it is only one of the species of rats that serves as vectors to Lassa fever virus. Unfortunately, the said popular 'Bu Gunu Be Unu Na Ahu' radio/tv jingle, and all the other similar commercials are all calling for total stoppage of the consumption of all forms of rats. These clarion call is further buttressed by the tv picture presentation of the most popular rat specie among the people as one of the vectors of Lassa fever virus contrary to the people's believe and scientific evidence about the specific specie of rats believed to be the vector of Lassa fever virus. Consequently, it becomes imperative that one should investigate the success or otherwise of the aforementioned running broadcast media campaign against Lassa fever in Ebonyi State, Nigeria.

#### **Statement of the Problem**

Ebonyi State is one of the states officially gazetted as Lassa fever endemic Areas in Nigeria. Hundreds of Ebonyians have been infected with the virus and many of them have died of it. In year (2016) alone, the State's Honourable Commissioner for Health, Dr. Daniel Umezurike revealed that the State recorded about 49 suspected cases confirmed out of which three later died of the dreaded disease. As a result of the preponderance of the infection, the state government adopted various measures to fight the outbreak and further spread of the disease in the state.

In such circumstances as the one under discussion, the mass media have always made a huge contribution. They are involved in spreading educative information about the sporadic outbreak of the Lassa fever disease in the state.

One of the media campaigns, "Bu gunu be unu na ahu?" is now a nursery rhyme in the nooks and cranny of the state, an indication that many of the Ebonyi people might have been exposed to the radio/tv campaigns. However, the problem of the study lies in the need to verify the effectiveness of the campaign in convincing the people to abstain from the eating of all kinds of rats as a one of the major means of preventing the spread of Lassa fever in the State. The consumption of rats has been age long habit of the majority of the Ebonyi people, particularly among those who live the rural parts of the State. And contrary to scientific belief that a certain soft-furred species of rat called *mastomy natalensis* is largely suspected to be victor of the dreaded Lassa fever,

the EBBC campaign under study is calling for abstinence in the eating of all kinds of rats among the people. The determination of the acceptance or otherwise of the campaign message inspite the popularity of the campaign is the major problem that the study seeks to resolve.

### **Research Objectives**

The objectives of the study are:

- To determine the people's level of awareness about the EBBC Lassa fever campaign in Ebonyi State.
- To determine the people's level of interest on the EBBC Lassa fever campaign in the State.
- To verify people's level of agreement with the EBBC Lassa fever campaign message that the consumption of rats is a risky behaviour capable of making one contract the Lassa fever virus.
- To ascertain if there are major factors hindering the effectiveness of the Lassa fever campaign in Ebonyi State.

### **Research Questions**

- What is the people's level of awareness about the EBBC Lassa fever campaign in Ebonyi State?
- What is the people's level of interest on the EBBC Lassa fever campaign message?
- To what extent do the people agree with the EBBC Lassa fever campaign message that the consumption of rats is a risky behavior capable of making one to contract Lassa fever virus?
- Are there major factors hindering the effectiveness of the EBBC Lassa fever campaign in Ebonyi State?

### **Research Hypotheses**

The hypotheses of the study are as follow:

#### **Hypothesis 1**

H0 People's awareness about Lassa fever is independent of their level of exposure to the EBBC campaign about the disease.

#### **Hypothesis 2**

H1 People's rejection of the EBBC Lassa fever campaign is significantly related to their disbelief about the credibility of the campaign message which claims that all rats are vectors of the virus.

### **Hypothesis 3**

H0 People's attitude and belief about Lassa fever disease is significantly independent of their exposure to the EBBC campaign.

### **Significance of the Study**

The study will add to existing body of knowledge on health communication, particularly, with regards to the effectiveness or otherwise of health promotional campaign in Nigeria. Again, stakeholders in the health sector, such as health ministries and agencies, WHO, government at different levels, and indeed, the Nigerian population stand to benefit significantly from the study.

### **Scope of the Study**

Three rural communities, one from each of the three senatorial zones of Ebonyi State were chosen for the study. These communities are: Ndiegu- Ishieke in Ebonyi LGA- Ebonyi North zone, Nkomoro in Ezza-North LGA- Ebonyi Central zone and Ukaghu in Onicha LGA- Ebonyi South zone. The basis for choosing these communities is that each had produced victims of Lassa fever in Ebonyi State. Each of these communities was made up of a number of villages which were systematically covered during the process of sampling. The study is also limited to only EBBC campaign titled *bu gunu be unu na ahu?* This is because of its popularity in the state.

### **Review of Literature**

Health communication according to Anatsui (2014) [15], involves the study and use of communication strategies to inform and influence individual and community decisions on health matters. According to him, this evolving area of communication cardinaly links the domains of communication and health; and it is increasingly being recognised as a necessary platform for improving personal and public health. Making his own contribution Odorume (2015) [16], cited in Akinfeleye (1987), says that health communication is the study and practice of communicating promotional health information such as in public health campaigns, health education and communication between doctors and patients. Odorume further asserts that health communication may also be conceived as the dissemination of health information by the mass media in to order to influence people's health choices and improve their health literacy for sustainable health care delivery and development. He therefore summarises media health communication thus:

- It seeks to increase audience knowledge and awareness of health issues as outbreak of diseases such as Ebola virus, Lassa fever, HIV/AIDS and Zika virus.
- It aims at influencing behaviours and attitude of people towards health related issues.
- It ensures the consistent demonstration of healthy practices
- It focuses on the demonstration of the benefits of positive behavioural change to health care campaign
- Advocates a position on a health issue policy.
- It seeks to raise demand or support for health services
- It fights misconceptions about health issues

Health communication by implication believes that the people when well educated and conscientised on health related matters have critical role to play in the entire process of health care delivery and society public health wellness. This is because the collective and individual health wellness is not only achieved through drug administration and medications by any of the levels of the healthcare institutions, but also through individual efforts on promotion and maintenance of personal health care. For instance such health threats as HIV/AIDS, Lassa fever, Ebola Virus, cardiovascular diseases among others, require the active involvement and participation of the masses in their prevention, management and control. This is why Odorume (2015, p. 3) [16] notes that the “mass media are key component and veritable tool in the campaign towards sustainable health development in Nigeria”. He applauded the key role played by mass media during the poliomyelitis vaccine controversy of 2003 in the North of Nigeria, the lingering challenge of convincing significant number of Nigerian particularly those in the rural areas to accept family planning strategies, the conviction of Nigeria to key into use of mosquito treated net for prevention of malaria, the call on Nigerians to accept the periodic immunization of their children against many of the child killer diseases and the campaigns against HIV/AIDS.

Available literatures are never at variance when it comes to the inextricable link between communication and the people’s health matters. Though, such researchers as Anatsui (2014) [15] strongly believes that though both television and radio are good channels for reaching the people with health communication, he notes that radio in Nigeria is responsible for quick

dissemination of information as it is easily accessed and reaches people at the grassroots level. Tsegaye (2015) [17] agrees that mass communication channels as radio play major role in enlightenment and education of the populace to accept or reject any new government initiative including that of health matters. He recalls through Agudosi (2007) that mass media campaign increased people's awareness about HIV/AIDS, corrected misconceptions and caused the expected change in people's behavior.

The expected role of the mass media particularly the radio and TV is much critical in developing society where greater percentage of the population is barely or not educated. Many incidences of diseases outbreak are made more challenging by the attendant rumours and misconceptions about such outbreak.

### **Review of Empirical Studies**

Empirical studies on health communication and the fight against some of the aforementioned disease outbreaks show that a number of factors such as the people's culture, religion, level of education, socio-economic status among others play vital role in the packaging of health communication campaign messages. For instance, Omoera (2010) [18] in a study titled, "broadcast media in family planning matters in rural Nigeria: The Ebele scenario", reports that though the respondents admitted awareness of the campaign and understood the campaign message, there is a sharp fall in the number of respondents who adopted the advocated new strategies. According to him, the attitude of most rural Nigerians on issues that border on family planning is responsible for this. He says that most Nigerians in the rural areas see it as a taboo to count the number of their children and their culture does not support open discussion of issues relating to sex and other related family issues.

The implication of the above finding is that there exist a gap between awareness and knowledge when it comes to getting expected results in health communication campaigns. Ezinwa and Onyike (2014) [19] in a studies on mass media campaign against HIV/AIDS also found that there exists a wide gap between knowing and doing in the fight against the pandemic. In their words through McQuail (2001, p. 42), "information acquisition could occur without related attitude change and change could also occur without behavior change". In conclusion therefore, they advised that health campaigns handlers should be meticulous with the framing of the campaign messages as inappropriate language and message structure could ruin the campaign effort.

Ezeah and Apeh (2014) [20] in a study titled “breast cancer campaigns among women in Benue state. When knowledge does not translate to practice,” found that though the respondents have the awareness about media breast cancer campaigns in Benue state, the practice of checking for signs or symptom of the disease among them is low and that Benue women have negative attitude towards breast cancer early detection campaigns. Consequently, they assert that:

*Structuring of the campaign message is one of the most important factors in breast cancer campaign. The message largely determines the knowledge level attitude and acceptance of the campaign by the audience. Therefore, campaign messages must be structured to detect obstacles to effective health campaigns, (p. 165).*

It is in the light of the above findings and observations that the researchers in this study are seeking to determine if the Ebonyi people of Nigeria particularly those in the rural areas have accepted to forgo the eating of rats as advocated for by the Ebonyi Broadcasting Corporation (EBBC) campaign against Lassa fever in the state. As noted earlier, the study becomes necessary since the eating or consumption of different species of rats (both the ones that live in the man’s house and the one that live in the bush) has been an age long practice. And further to the challenge is the fact that the said campaign does not specify the very type or specie of rate that serves as vector to Lassa fever virus. This is inspite the fact that scientists have identified a species of rat called soft-furred mastomy Natalensis as the major vector of the virus, [8].

#### **Theoretical framework**

Framing theory and Health Belief Model (HBM) are considered to be of critical relevance to this study. Framing theory is believed by some literature to have been popularised by Gottman E. in 1974 as contained in his book titled, “Frame Analysis,” [21]. Frame theory is said to be an expansion of the agenda setting theory of the press. The theory besides accepting that the media focuses attention on certain issue they consider topical and thereby drawing the attention of the masses to it, also posits that the way, manner and language with which such issue is presented to the masses largely influences the masses perception of it. In essence, framing theory opined that how a matter is presented to the audience influences the choices they make about such a subject matter, [22].

The theory suggests that people interpret what is going on around their world through their primary framework. According to Gottman (1974), this primary frames are made up of natural and social frames through which man is able to interpret the communication stimuli coming his way on daily basis. The theory, according to Scheufele (1999) [21], makes four major assumptions:

1. Journalists elect the topics they will present and still bear the professional responsibility of deciding how the selected topics would be presented to the audience. This means that framing theory believes that the media not only determine the issues audience think about but also work to ensure that they determine how the audience think about the issue.
2. Audience interpret information through their own frame. Audience frames may overlap or contradict the media frames.
3. Media frames are reinforced every time they are evoked, whether positively or negatively.
4. Frame building is a systematic process that occurs over time.

Therefore, frame is simply the way a communication source defines and constructs any piece of communicated information. The theory is relevant to this study because, the framing of the EBBC Lassa fever campaign message in which the people are being urged to adopt total abstinence from eating of rats is capable of contradicting the age long frame of the people about rat meat. The need to empirically verify the acceptance or otherwise of the campaign is the essence of this study.

Again, health belief theory is also considered to be relevance to the study. It is the most commonly used theory in health education, promotion and studies, [23]. According to National Cancer Institute (NCI, 2003), the theory was developed in the 1950s as a means of explaining why medical screening programmes offered by the United States Public Health Service, particularly for tuberculosis, were not very successful. The underlying assumption of the theory is that health behaviour is determined by personal beliefs or perception about the disease and the strategies available to decrease its occurrence.

The theory postulates that man's response to health communication is informed by four major reasons: perceived seriousness of the disease or situation, perceived susceptibility to the disease or situation, perceived benefits from the health promotion/campaign and perceived barriers to accepting the health campaign, ([www.jblearning.com/samples/0763743836/Chapter/204.pdf](http://www.jblearning.com/samples/0763743836/Chapter/204.pdf)).

Situating the assumptions of this theory to this study, one would find that there is urgent need to determine how the Ebonyi people in the rural areas perceive Lassa Fever disease. This is because such perception is critical to their acceptance of the “bu gunu be unu na ahu?” campaign.

### **Research Methodology**

Survey research method was adopted for the study. Structured questionnaire was used to generate quantitative data which were analysed to arrive at the findings of the study. Survey research method was adopted because the nature of the study which requires the researchers to elicit audiences’ responses in order to determine their level of understanding, knowledge, acceptance or otherwise of the campaign message.

### **Research Population**

The population of study is limited to the selected three communities of Enyigba , Nkomoro and Ukaghu of Ebonyi state. According to National Population Commission (NPC) 2006 the total population of the study area is 31,662. The breakdown is as follow: Ndiegu - Ishieke community - 10,153; Nkomoro - 5,000; Ukaghu - 16,509. These three communities were selected through a lucky dip that involved all the communities in the three senatorial zones which had produced either dead or survived victims of Lassa fever.

### **Sample Size**

Australian sample size calculator was used to compute the required sample size of 380 respondents. The calculation is as presented below:

### **Sampling Technique**

Although purposive sampling approach was adopted in choosing the three communities which were studied for the reason earlier stated, probabilistic sampling approach was however used to draw the 380 respondents used for the study. To enable the researchers get the required number of respondents from each of the sampled three communities since they have differing population sizes, they adopted the use of proportional sampling strategy using simple arithmetic proportion:

$$\frac{nhn}{N}$$

N

Where

n = segment of the population

hn = sample size

N = total population

$$\text{Ndiegu -Ishieke} = \frac{10153 \times 380}{31662} = 122$$

$$\text{Ukaghu} = \frac{16509 \times 389}{31662} = 198$$

$$\text{Nkumoro} = \frac{5000 \times 380}{31662} = 60$$

The computation above means that a total of 122, 198 and 60 respondents were proportionally drawn from Ndiegu - Ishieke, Ukaghu and Nkumoro communities respectively. The researchers further shared each of the above figures to cover the number of villages comprising each community. To actually get to the respondents who are living in home stead scattered across each of the villages, the researchers resorted to the use of accidental sampling technique in which those met in different places across the villages were persuaded and guided to respond to the questionnaire, (though, some were educated to a level that they required no assistance in responding to the questionnaire). The second reason which led to the use of accidental sampling was the fact that majority of the people of these communities could hardly stay at home in the day time. They leave for their farm and other businesses very early in the morning and return home very late in the evening.

#### **Validity of the Instrument**

The researchers took a number of measures to ensure the validity of the instrument. First, the instrument was given to reputed scholars in the field of mass communication for vetting. Later, statisticians were consulted to check the testability of the research hypotheses and to ensure that the instrument could actually be used to generate data for the testing the hypotheses.

#### **Reliability of the Research Instrument**

A pre-test of 50 copies of the questionnaire were designed and administered to sampled 50 respondents in the rural community of Igbeagu, Abakaliki LGA of Ebonyi State. After four weeks interval, a re-test of the same copies of the questionnaire was carried out on the same respondents, where three errors or inconsistencies were noted. The Guttman scale of coefficient of reproducibility was used to test the reliability of the instrument. According to

Akpoghiran and Okoro (2014 p.960), and Asika (1991, p.65), the formula is as follows:

Coefficient of reproducibility =

$$C \text{ of } R = \frac{\text{Total Error}}{\text{Total Responses}} = 1 - \frac{3}{50} = 1 - (1 \div 50)$$

$$= 1 - 0.05 = 0.94 \text{ (94\%)}$$

The computation above shows that the instrument yielded reliability coefficient value of 94%, which is an indication that the instrument is reliable.

### Data Presentation and Analysis

The researcher distributed a total of 380 copies of questionnaire, and none was lost copies in the course of administration. All the copies were properly filled. The questionnaire contains 5-point linkert scaled questions which response code values ranged from 5 to 1 in descending order for items whose questions were posed as positive statements and 1 to 5 for items whose questions are in negative statements.

The statistical tool of mean computation was used to test the research hypotheses. This decision was informed by the fact that the mean can be used to interpret the performance, agreement or behaviours of a group of respondents (Uzoagulu 2011, p. 30). The formula is as follows:

$$\text{Mean} = \bar{X} = \frac{\sum fX}{N} = \frac{\sum X}{N}$$

The decision point (dp) for accepting or rejecting the research hypotheses was determined using a coding template that encompassed the five levels of responses as follows:

$$DP = \frac{SA + A + U + D + SD}{\text{Number of Responses (NR)}} \quad \text{or} \quad \frac{VT + T + CS + N + NA}{NR}$$

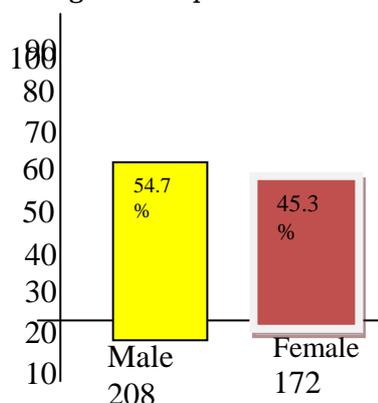
Where SA = Strongly Agree - 5 or VT = Very True - 5; A= Agree - 4 or T = True - 4; U= Undecided - 3 or CS = Can't Say - 3; D= Disagree - 2 or N = No - 2; or SD = Strongly Disagrees - 1 or NA = Not at All- 1. (However, as mentioned earlier, the scoring can be in the reverse order depending on the nature of the question item. The decision point value used in this study, therefore was calculated thus:

$$DP = \frac{5 + 4 + 3 + 2 + 1}{5} = 3 \quad \text{or} \quad \frac{1 + 2 + 3 + 4 + 5}{5} = \frac{15}{5} = 3$$

This means that 3 served as the decision point (dp) for the study. Where calculated mean value is less than the decision point value of 3, the null hypothesis is accepted, but where it is higher than 3, the null hypothesis is rejected and alternate hypothesis accepted.

Data on all other question items not used for test of hypotheses, but were relevant in the analysis of the research results were presented in bar-charts and percentage tables

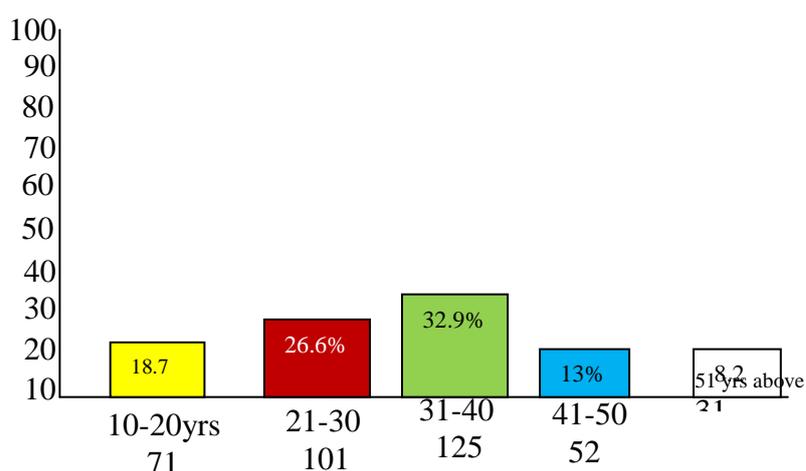
Figure 1: Age of Respondents



Source: Nwankwo & Orji Egwu, (2017)

The chart shows that out of 380 respondents, 208 representing 54.7% were males while 45.3% were females (i.e, 172 respondents).

Figure 2: Age of Respondents.



Source: Nwankwo & Oriji-Egwu, (2017)

The figure 2 above shows that those who aged 31-40 years had the highest population among the sampled respondents accounting for 32.9% (125) of the 380 respondents. This is followed by those who aged 21-30 years (26.6%) that is

101 respondents. 71 of them (18.7%) were aged 10-20yrs. Those who aged 41-50 were 52 translating to 13.6% of the 380 respondents and 8.2% of aged 51 and above years.

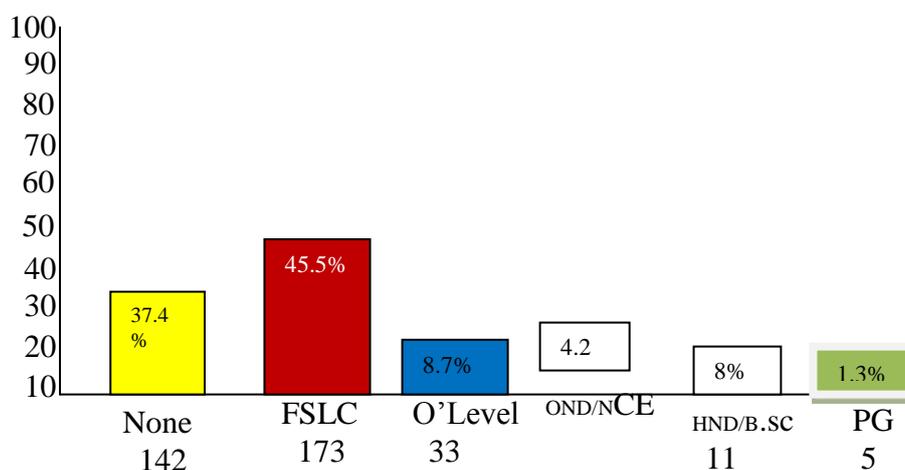
**Table 1: Occupation of Respondents**

S/N	Options	Freq.	%
1.	Student	45	11.8
2	Civil/public servant	16	4.2
3	Private sector employ	8	2
4	Trading	66	17.4
5	Farming	167	44
6	Artisan /other self employments	78	20.5
<b>Total</b>		<b>380</b>	<b>100</b>

Source: Nwankwo &Orji-Egwu ,( 2017)

The table above shows that 167 representing 44% of 380 respondents are engaged in farming, the second largest group are the artisans/other self employments who were 78 (20.5%), and traders constituted 66 (17.4%). Students constituted only 11.8% of the respondents. Those in private sector employ accounted for 2% of them and 16 (4.2%) were civil/public servants.

**Figure 3: Educational qualifications**



Source: Nwankwo & Orji-Egwu, (2017)

The above figure shows that 45.5% accounting for 173 out of 380 respondents have first school leaving certificate (FSLC). 37.4% (142 respondents) had no formal education 8.7% (33 respondents) had O' level qualification 4.2% (16 respondents) admitted having OND/NCE certificates while 11 (3% and 5 (1.3% respondents HND/B.Sc and postgraduate certificates respectively.

**Table 2: Test of hypothesis one**

**H0: People’s awareness about Lassa fever is independent of their level of exposure to the EBBC campaign on the disease.**

Questionnaire item	Response	Total	Mean Value = $\bar{X}$
<b>Your awareness about Lassa fever is independent of your level of exposure to the EBBC campaign on the disease.</b>	Code	SA=1 A=2 U=3 D=4 SD=5	15
	Frequency	25 18 9 135 193	380
	Code value	25 36 27 540 965	1593
	result		$\bar{X} = 4.1 >$
	Percentage	6.6 4.7 2.4 35.5 50.7	100
			3.0

The computation above shows the determined mean value,  $\bar{X}$  of 4.1 is more or greater than the decision point value of 3. Thus,  $\bar{X} = 4.1 > 3.0$  by a difference of 1.1, thus, rejecting the null hypothesis that the people’s awareness about Lassa fever is independent of their exposure to the EBBC campaign on the disease. This therefore means that the majority of the respondents admitted that they became aware about Lassa fever through the “bu gunu be unu na ahu” campaign of the EBBC.

**Table 3: Test of hypothesis two**

**H1: People’s rejection of EBBC Lassa fever campaign is significantly related to their disbelief about the veracity of the message that all species of rats serve as vectors to Lassa fever virus**

Questionnaire item	Response	Total	Mean Value = $\bar{X}$
<b>Your rejection of EBBC Lassa fever campaign is related to your disbelief about the credibility of the message which claims that all rats are vectors to Lassa fever virus.</b>	Code	SA=5 A=4 U=3 D=2 SD=1	15
	Frequency	187 150 7 26 10	380
	Code value	935 600 21 52 10	1618
	result		$\bar{X} = 4.3 >$
	Percentage	49 39.5 1.8 6.8 2.6	100
			3.0

The test of hypothesis two above shows that the determined Mean value X of 4.3 is greater than the decision point value of 3.0. That is,  $X = 4.3 > 3.0$ , by a significant difference of 1.2. This shows an acceptance of the alternate hypothesis as stated above.

**Table 4: Test of hypothesis three**

**H1: People’s attitude and belief about Lassa fever epidemic is significantly dependent on their exposure to the EBBC campaign message.**

Questionnaire item	Response	Total	Mean Value = $\bar{X}$
<b>Your attitude and belief about Lassa fever epidemic is informed by your exposure to the EBBC campaign on the disease.</b>	Code	SA=5 A=4 U=3 D=2 SD=1	15
	Frequency	22 39 30 160 129	380
	Code value result	110 156 90 320 129	813
	Percentage	5.9 10.3 8 42 34	100
			$\bar{X} = 2.1 < 3.0$

The computed mean value of 2.1 is less than the decision point value of 3.0. This shows that the test of hypothesis three rejects the alternate hypothesis which states that people’s attitude and belief about Lassa fever epidemic is significantly dependent on their exposure to the EBBC campaign message. This means that the people have their existing frames and belief about the sporadic outbreaks of such diseases as Lassa fever. This therefore, implies that notwithstanding the EBBC campaign message, people have their individual opinion about the disease.

**Discussion of Findings**

The three major findings of the study are: that the EBBC’s “bu gunu be unu ahu” Lassa fever campaign has created massive awareness about the disease among the people, that the People’s rejection of EBBC Lassa fever campaign is significantly related to their disbelief about the credibility of the message that all species of rats serve as vectors to Lassa fever virus and that the people’s attitude and belief about Lassa fever is independent of their exposure to the EBBC’s campaign. These findings are in consonance with the results of earlier studies in the area. For instance, as cited earlier in the review of empirical studies, Omoera,

(2010), had found that media championed awareness did lead to adoption of family planning strategy among Nigerians. The same situation has re-echoed in this study where overwhelmingly admitted awareness about the EBBC Lassa fever campaign but have rejected the campaign message by their continued consumption of rats. Ezeah and Apeh (2014) made the same discovery and consequently advised that health communication campaign should be structured to overcome possible obstacles such as the people's culture and value system. Since consumption of rats is largely the way of life the majority of the Ebonyi people, particularly, those who reside in the rural areas, it should have been more proper and of better efficacy if their culture is taken into cognizance in framing the campaign message.

The campaign message should have reminded the people that though the consumption of rat meat is age long practice, yet modernity and cotemporary trends in public health management calls for a stoppage of the habit. As such, the campaign should have noted that though, not all species of rats are vectors to Lassa fever, it is hard to determine/ know when the free/good ones have related with the ones that play host to the virus. This effort ought to be made considering the fact that perceived obstacles is the most challenging of the Health Belief Model's four reasons which determine man's responses to health communication campaign, (NCI, 2003). Among these obstacles most often are the people's culture, belief, value, attitude, level of education and socio-economic status. People in the rural part of Ebonyi state of Nigeria are largely economic poor as afford regular purchase of meat from the the market, and as such needs to be convinced beyond reasonable doubt that the consumption rats have suddenly become a risky behavior.

### **CONCLUSION**

Though the EBBC's Lassa fever campaign has successfully created awareness about the sporadic Lassa fever epidemic in Ebonyi State, it is yet to convince the people, particularly those in the rural areas to stop the consumption of rats contrary to the advocacy of the campaign. There is indeed, a palpable clash of the people's culture with the message of the EBBC Lassa fever campaign in Ebonyi State of Nigeria.

### **RECOMMENDATIONS**

Based on the findings of this study, we recommend that:

- Government and stakeholders in the health sector of Ebonyi state and in Nigeria at large should always frame health communication campaign to address possible cultural and other obstacles to ensure the effectiveness of such campaign.
- Synergistic communication approach should be adopted in the fight against Lassa fever in Ebonyi State. This implies that such mass media oriented campaign should be consolidated with interpersonal communications which among others include the organization of town hall meeting with opinion leaders in the rural communities to give room for addressing misconceptions and ignorance among them.

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