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Health Risk Practices Associated with Reoccurrence of Lassa Fever Outbreak among Households in Ebonyi State

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Abstract

This study determined health risk practices associated with reoccurrence of lassa fever outbreaks among households in Ebonyi State. The study was guided by three research questions and two hypotheses. This study adopted cross-sectional survey research design. The population of the study comprised 5041 head of households in Ebonyi State and 468 participated in the study. A multi stage sampling procedure was used to drawn the participants. The instrument for data collection was structured questionnaire titled: Health Risk Practices Associated with Lassa Fever Questionnaire (HRPALFQ). Overall reliability coefficient of the instrument was r=0.85. Data were analyzed using mean and standard deviation to answer research questions while Analysis of Variance (ANOVA) and t-test statistics were used to test the hypotheses at 0.05 level of significance. Results showed that households in Ebonyi State practice to high extent risk associated with reoccurrence of lassa fever in Ebonyi State (2.96 ±0.39). When ANOVA and t-test statistics were computed, significant differences in the health risk practices associated with reoccurrence of Lassa fever among household in Ebonyi State were observed based on age (f-val 4.557, p=0.004) and location (t-value 7.244, p=0.000). The study concluded that households in Ebonyi State practice to high extent health risk associated with reoccurrence of lassa fever. The study therefore, recommended among others that there is need for proper education of households in Ebonyi State through seminar, workshops and conferences on lassa fever by health educators and community health workers.

Keywords: Health risk practices, Lassa fever, Household

Introduction

There are recurrent outbreaks of lassa fever with varying levels of morbidity and mortality. For instance, World Health Organization (2018) reported an estimated 300, 000-500 000 case and 5000 death occurs each year worldwide. Faith et al. (2018) reported that in West Africa, about 300,000 - 400,000 cases of Lassa fever occur annually with approximately 5000 deaths. Lassa fever disease is estimated to affect 2 million people and cause an estimated 5000–10,000 death annually with outbreaks reported from Sierra Leone, Guinea, Liberia, Benin,

Ghana, Mali and Nigeria (Tambo, Adetunde, & Olalubi, 2018). It has also been reported in Europe and North America (Usuwa et al., 2020). In Nigeria, yearly outbreaks have been reported in several parts of the country including Adamawa, Ebonyi, Edo, Nassarawa, Gombe, Plateau and Taraba States, and more recently in some parts of Ondo State in south-west Nigeria (Fatiregun et al., 2019). Nigeria Centre of Disease and Control (NCDC) (2020) reports showed that in February, 89% of all confirmed cases is from Edo (38%), Ondo (38%) and Ebonyi (11%) States. The lassa outbreak in Nigeria keeps escalating with a cumulative 5,295 cases since week 1 of 2024, 150 deaths have been recorded so far, 806 confirmed cases including 32 healthcare workers affected in 27 States including the Federal Capital Territory, Abuja (FCT), (Nigeria Centre for Disease Control and Prevention, 2024) .

Lassa fever is a zoonotic disease caused by Lassa virus, which is a single-stranded RNA virus. Lassa fever is a severe hemorrhagic fever that presents with fever, general weakness, headache, sore throat, muscle pain, cough, chest pain, nausea, vomiting, and diarrheoa, abdominal pain with or without bleeding. It can cause deafness which has psychosocial impact on the victim as well as other multisystem complications (Ogbu, Ajuluchukwu, & Uneke, 2007). The disease is caused by the Lassa virus which is transmitted by Mastomys genus (a multi-mammate rat) to man. Transmission by infected rats occurs when man comes into contact with contaminated materials. For example, food, bedding and ingestion of contaminated rats (Negbenebor, Okosun, & Inegbenebor, 2010). The incubation period is 6-21days (Institute of Lassa Fever Research and Control [ILFRC], 2005). Operationally, Lassa fever is a severe hemorrhagic fever with devastating consequences that is transmitted through a virus from the Mastomys rat which breed around human residences to man. It is an emerging disease with devastating and life threatening potentials.

The case-fatality rate of this disease has been reported. For example, WHO (2005) reported the case fatality rate of 1%-15% among hospitalized patients within 14 days of onset in fatal cases. The prevalence of antibodies to the virus in the population is 8-52% in Sierra Leone, 6.4-55% in Guinea, and 7-21% in Nigeria (Richmond & Baglole, 2004). Empirical evidence has also shown that Lassa fever is endemic in Nigeria, especially in geographical areas with a relatively large number of Lassa virus seropositive rodents and the outbreaks of the disease commonly occur during the dry season and equally some cases have been recorded during the rainy season (WHO, 2018). Beside the abundance of the Lassa virus vector in these areas, health risk practices of household members might contribute to the reoccurrence of the disease (World Health Organization, 2005).

Health risk practices are variables which increased risk of disease or infection (Hocking, Tabriz, & Bradshaw, 2012). Health risk practice is an indulgence in any action or activity that can cause potential harm to the individual as a consequence of what he chooses to do (Femi, 2021). Health risk practice deals with how people behave before, during and after a given risk occur. In the etiology and development of lassa fever, in humans, certain behavioural patterns are considered to put an individual at the risks of infection with and possibly facilitate the spread of the disease to other humans. These behaviours create opportunities for contact with mammoth rat, the disease vendor. In this study, health risk practices are those practices members of households in Ebonyi State engaged into that increases the chances of reoccurrence of lassa fever. The health risk practices include open waste dumps, dirty drainages, food stuff stores, slums, and rural dwellings with poor housing facilities (Adegoke, Ajibola, & Ogundairo, 2017). Burki (2018) affirmed that Lassa virus from its rodent hosts to humans occur through close contact with infected rodents during hunting, handling butchering, and consumption of rodents as bush meat, rodent bite or contact with cuts, sores or bruised human skin. Anuforo (2016) noted that routes of Lassa fever infections are linked to exposed food items, consumption of uncooked, poorly cooked, and inadequately reheated

foods that could has been easily contaminated by rodents' excreta as they scavenge on human food remains or poorly stored food. Humans become infected from contact with the urine and faeces of infected rats and it can also occur in the process of hunting and processing rats for consumption (Bonwitt, 2018). The virus is spread between humans through direct contact with blood, urine, faeces or other secretions from the infected person. It has also been reported to have been transmitted through sexual intercourse (United Nations,2013). This spread between humans can occur either in the community or during the care of infected people in healthcare settings. The disease affects humans of all ages and both sexes, even though 80% of infected people are asymptomatic (United Nations, 2013).

Health risk practices exhibit by the households may depend significantly by their demographic variables such as age and location of residence. Empirically, several studies have been conducted on health risk practices associated with lassa fever. For instance, Alenoghena, Ehighalua, Awunor, and Yerumoh (2021) revealed that students of Federal Polytechnic Auchi, Edo State, Nigeria had high risk factors of Lassa fever. Furthermore, the study indicated differences in the risk factors of Lassa fever among the study by age. Households in Sierra Leonean refugee camps had high health risk practices associated with Lassa fever and that there was significant difference in the extent of health risk practices by age and location (McCormick , Webb , Krebs , Johnson & Smith, 2017). Femi (2021) studied households' heads in Akoko Region of Ondo State Nigeria and found that dropped wastes in the following outlets; dumpsites, burnt in open air, disposed in the open river and deposited in the waste collector bin were health risk practices associated with occurrence of Lassa fever. The author stated that the closeness of the dumpsites to the residential apartment is one of the secondary major determinants of the appearance of rats in homes, since most of these rats feed on the food remnants dumped on the refuse sites. Dumpsites are located in the bushy land space in the environment that is not far from the residential apartments. Bonwitt, Kelly and Ansumana (2016) reported that consumption of rats in the family, engage in game hunting, eating ruminant of food touched by rate in the house, killing of rat in the house are the health risk practices of households which associated with remerging of Lassa fever.

On location, Ochei, Abejegah, Okoh and Abah (2014) opined that rural area of South-South Nigeria indicated had housing factors associated with Lassa fever outbreaks. The author found significant difference in the housing factors associated with Lassa fever outbreak among rural area of South- South Nigeria based on age. Izah, Ovuru, and Ogwu (2022) found that rural households had high ecological risk factors exacerbating transmission of lassa fever among Yenagoa, Bayelsa State, Nigeria and USA. Furthermore, there were significant difference in the ecological risk factors exacerbating transmission of Lassa fever among Yenagoa, Bayelsa State Nigeria and USA based on age and location.

Due to these practices, WHO (2018) reported that Lassa fever is endemic in Nigeria. However, Nigeria had an outbreak of Lassa fever in the year 2012 with 1,723 cases, 112 deaths and had 201 laboratory-confirmed outbreak in the year and a case fatality rate of 6.50 (Nigeria Center for Disease Control (NCDC), 2018). Within January 1 and April 15, 2018, 1,849 suspected cases have been reported from 21 States namely Abia, Adamawa, Anambra, Bauchi, Benue, Delta, Ebonyi, Edo, Ekiti, Federal Capital Territory, Gombe, Imo, Kaduna, Kogi, Lagos, Nassarawa, Ondo, Osun, Plateau, Rivers, and Taraba). Out of these, 413 patients were confirmed with lassa fever, nine were classified as suspected, 1,422 tested negative and the remaining five laboratory results were pending. Of the 413 confirmed and the nine probable lassa fever cases, 114 deaths (25.4% case fatality rate for confirmed cases and probable cases combined is 27%). As of April, 27 health care workers in seven states (Abia, Benue, Ebonyi, Edo, Kogi, Nasarawa, and Ondo) have been infected since January 1, 2018, eight of whom have died (WHO, 2018). NCDC (2024) reported that from 1 January

2024 through 14 April 2024, there were 5669 suspected cases, including 832 confirmed and 152 deaths among the confirmed cases.

Reports showed that Ebonyi State is one of the three high burdened states with frequent occurrences of lassa fever outbreaks (NCDC, 2019b). For example, Usuwa et al., (2020) reported that Abakaliki Local Government Area (LGA) of Ebonyi State had the highest proportion of confirmed lassa fever cases during the 2018 and 2019 outbreaks in the State. Despite the rate, most of the studies conducted in relations to lassa fever in Ebonyi State focused on assessment of knowledge and sources of information (Umoke, Umoke, Nwalieji, Onwe, Nwafor, Agbaje and Nwimo, 2021) and knowledge and preventive practices against lassa fever among heads of households in Abakaliki metropolis (Ossai, Onwe, Okeagu, Ugwuoru, Eze & Nwede, 2020). These studies failed to look into the health risk practices that could bring about the reoccurrence of the disease. Therefore, the study of this nature would lend a hand for identifying this unhealthy behaviour incriminated with the reoccurrence of lassa fever in Ebonyi State. Based on that, it will help Ministry of health, health educators, and community health worker to mountain aggressive campaign to change the risk practices of people in the state which could reduce the rate and spread of lassa virus infection. Hence, this study determines health risk practices associated with reoccurrence of Lassa fever among household in Ebonyi State.

Statement of the Problem

The reoccurrence of lassa fever is on the increase. For example, an estimated 300,000 to 500,000 infections of lassa fever occur annually, with approximately 5000 deaths in Nigeria and other endemic countries in West Africa (Usuwa et al., 2020). Recent data from Nigeria revealed that there were 1061 confirmed cases and 222 deaths between Januarys through August 2020 (Nigeria Center for Disease Control, 2020). This was reported from 27 states and 129 LGAs across Nigeria, which included Edo, Ondo, Gombe, Taraba, Bauchi, Ebonyi, Anambra, Yobe, Rivers and Plateau States (Nigeria Centre for Disease Control, 2020). The incidence of lassa fever is usually highest during the dry season with outbreaks occurring during the period, but recent studies also revealed an all-year-round occurrence is on the increase especially in sub-Saharan Africa (WHO, 2018).

In the last few years, Ebonyi State has witnessed frequent outbreaks of Lassa fever, some of which have claimed the lives of households and health-care professionals (Nigerian Centre for Disease Control, 2018). Perhaps based on the lessons learnt in containing the Lassa epidemic in 2012, the government of Ebonyi State built a virology centre with a reference laboratory for the diagnosis of lassa fever in the state. Despite this, NCDC, (2019b) reported that Ebonyi State is one of the three high burdened states with frequent occurrences of lassa fever outbreaks. Usuwa et al., (2020) reported that Abakaliki Local Government Area (LGA) of Ebonyi State had the highest proportion of confirmed Lassa fever cases during the 2018 and 2019 outbreaks in the State. Moreso, it has observed in many cases the death toll that ravages many families in the state which normally attributed to the outbreak of Lassa fever in the state. In February 18, Ebonyi State Ministry of Health (2024) disclosed that Lassa fever killed 10 persons in the State, the affected areas include Onicha, Ikwo, Ezza North, Ebonyi, Izzi Ohaukwu and Abakaliki with Hausa quarters and Nkaliki areas in Abakaliki recording the highest numbers of cases. The Ministry further reported that Ebonyi State recorded 29 confirmed cases of Lassa fever, 14 deaths as of February 20, 2024. However, most of studies conducted on lassa fever in Ebonyi State could not look into the health risk practices of people of Ebonyians that may result into the reoccurrence of the disease. Therefore, this study fills the gap, hence, determine the health risk practices associated with reoccurrence of lassa fever among household in Ebonyi State.

Purpose of the Study

The main purpose of this study was to determine health risk practices associated with reoccurrence of Lassa fever among households in Ebonyi State. Specifically, the study determined extent of:

1. health risk practices associated with reoccurrence of lassa fever among households in
2. Ebonyi State.
3. health risk practices associated with reoccurrence of lassa fever among household in
4. Ebonyi State by age
5. health risk practices associated with reoccurrence of lassa fever among households in
6. Ebonyi State by location.

Research Questions

The following research questions guided this study

1. What is the extent of health risk practices associated with reoccurrence of Lassa fever among households in Ebonyi State?
2. What is the extent of health risk practices associated with reoccurrence of Lassa fever
3. among households in Ebonyi State by age?
4. What is the extent of health risk practices associated with reoccurrence of Lassa fever among household in Ebonyi State by location?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance.

1. There is no significance difference in the extent of health risk practices associated with reoccurrence of Lassa fever among household in Ebonyi State by age.
2. There is no significance difference in the extent of health risk practices associated with reoccurrence of Lassa fever among household in Ebonyi State by location.

Methods

This study adopted cross-sectional survey design. The study was conducted in Ebonyi State using members of households. The population of this study comprised 5041 heads of household in Ebonyi State. The sample size for this study was 468 heads of household in Ebonyi State. This sample size was arrived using Taro Yamane formula. Thus, a multi-stage sampling procedure was applied in drawing the participants. In the first stage, the researchers identified the already existing clusters of three senatorial zones in the Ebonyi State, namely: Ebonyi North, Ebonyi South, and Ebonyi Central. In the second stage, simple random sampling technique was adopted to choose two local government areas (LGAs) from each zone. The convenience sampling technique was used in the third stage to select 78 participants from one community in each LGA. This procedure yielded a total of 468 participants used in the study. Out of 468 copies of questionnaire distributed 462 representing 98 per cent return rate.

The instrument for data collection was structured questionnaire entitled: Health Risk Practice of Associated with Reoccurrence of Lassa Fever Questionnaire (HRPARLFQ). The questionnaire consisted of 14 items and has two sections, A and B. Section A contained 2 items on demographic variables of the respondents. Section B contained 12 items (1-12) which elicited information on the health risk practices associated with recurrence of lassa fever. However, respondents were required to indicate on four point rating scale of Always (AL) =4, Often (OF) =3, Sometimes (ST) =2, and Never (NE)=1, on each of the items. Face validity of the instrument was obtained through the decree of five experts from the Department of Human Kinetics and Health Education and Public Health Science, Madonna University. This helps to ensure the clarity of instruction to the respondents, proper wording of items in addressing the objectives of the study. The corrections and suggestions made by the experts were incorporated in the final draft of the instrument and used for the study. In order to determine the reliability of the instrument, HRPRLFQ was administered on 30 households in Enugu State. The internal consistency of the instrument was computed using Cronbach's alpha procedure. However, overall reliability coefficient was r=0.85 indicating that the instrument is reliable . This was based on Ogbazi and Okpala (2014) if the correlation coefficient obtained in an instrument is up to 0.60 and above, the instrument should be considered good enough to be used for a study.

In order to facilitate easy access to the households and subsequently the respondents, consent note with the explanation for the research purpose, method of response and assurance of anonymity was attached to each copy of the HRPARLFQ. The researchers administered the questionnaire with the help of four research assistants. The questionnaire was distributed during August meeting of 2022 with the help of research assistants in the areas. The completed copies of the questionnaire were collected from the respondents immediately. This procedure yielded 98 returned rate. Data were analyzed using mean and standard deviation to answer research questions. A criterion mean of 2.50 was set for this study. The criterion mean was derived by adding up the scale values and dividing the sum by the number of scale options thus: 4 + 3 + 2 + 1 = 10/4=2.50. A scale of mean 1.0-140 indicate very low health risk practices, 1.50-2.40 indicated low health risk practices, 2.50-3.40 high health risk practices while 3.50 and above showed a very high health risk practices .On the other hand, Analysis of Variance (ANOVA) was used to test hypothesis 1 while t-test statistic was used to test hypothesis 2. The entire hypotheses were tested at 0.05 alpha level..

Results

Table 1: Mean and Standard Deviation of Extent of Health Risk Practices Associated with Recurrence of Lassa fever among Households in Ebonyi State (n=462)

S/N	Items	$\bar{x}$	SD	Decision
1	Consumption of rats in the family	3.05	0.95	High
2	Engage in game hunting	3.02	0.89	High
3	Eat bush meat	3.01	0.85	High
4	Allowing rat to eat from remnant of food in the house	2.91	0.90	High
5	Killed rat in the house	2.90	0.93	High
6	Eat ruminant of food touched by rate in the house	3.03	0.85	High
7	Allowing multimammate rats in and	2.99	0.89	High

	around the house			
8	Bush burning	2.97	0.88	High
9	Absence of rat-proof containers for food storage	3.07	0.83	High
10	Presence of bush around the house	2.83	0.91	High
11	Recent contact with anyone who had fever or died of unknown cause	2.89	0.94	High
12	Spreading of food items on the ground	2.84	0.90	High
	Overall	**2.96**	**0.39**	**High**

Data on Table 1 showed that all the items score 2.50 and above criteria set for this study with overall 2.96 ±0.39. This indicated that households in Ebonyi State practice to high extent health risk associated with reoccurrence of Lassa fever in Ebonyi State (2.96 ±0.39)

Table 2: Mean and Analysis of Variance of Extent of Risk Practices Associated with Recurrence of Lassa Fever among Household in Ebonyi State by Age

S/N	Items	Age								F-val	p-Val
		>25 yrs (n-54)		25-39yrs (n=151)		40-59yr(n=160)		60yrs&above(n=117)			
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD		
1	Consumption of rats in the family	2.68	1.11	3.35	0.91	3.09	0.88	2.84	0.90	9.388*	0.000
2	Engage in game hunting	3.11	0.94	3.12	0.81	3.06	0.88	2.82	0.93	2.857*	0.037
3	Eat bush meat	2.64	0.95	2.91	0.87	3.26	0.76	2.95	0.70	9.297*	0.000
4	Allowing rat to eat from ruminant of food in the house	2.75	0.88	3.07	0.85	2.90	0.76	2.83	1.09	2.295	0.077
5	Killed rat in the house	2.68	1.09	3.16	0.95	2.95	0.76	2.66	0.98	7.086*	0.000
6	Eat ruminant of food touched by rate in the house	2.72	0.91	3.08	0.92	3.03	0.75	3.13	0.82	3.160*	0.024
7	Allowing multimammate rats in and around the house	2.94	0.94	3.13	0.89	2.88	0.86	3.00	0.88	1.975	0.117
8	Bush burning	3.18	0.87	2.88	0.91	3.01	0.85	2.90	0.89	1.830	0.141
9	Absence of rat-proof containers for food storage	3.03	0.75	2.96	0.94	3.16	0.77	3.08	0.83	1.314	0.269
10	Presence of bush around tl house	2.70	1.03	2.83	0.82	2.85	0.86	2.87	1.02	0.465	0.707
11	Recent contact with anyone who had fever or died of unknown cause	3.00	0.82	2.86	0.99	2.85	0.98	2.92	0.88	0.396	0.756
12	Spreading of food items on the ground	2.75	1.19	2.93	0.79	2.95	0.81	2.67	0.96	3.320*	0.020
	Overall	**2.85**	**0.43**	**3.02**	**0.44**	**3.00**	**0.35**	**2.89**	**0.35**	**4.557***	**0.004**

Result on Table 2 showed that households within age bracket > 25years, 25-39years and 40-59years and 60 years and above practiced to high extent health risk associated with reoccurrence of lassa fever in Ebonyi State. Furthermore, the overall 2.85±0.43 for >25 years, 25-39yeras (3.02±0.44), 40-59years (3.00±0.35) and 60 years and above (2.89±0.35) equally indicated that households in Ebonyi State practice to high extent health risk associated with lassa fever but age bracket 25-39years((3.02±0.35) had higher practice. When ANOVA statistic was computed, overall f-val 4.557, p=0.004 was significant at p<0.05. This means that there was significant difference in the extent health risk practices associated with recurrence of lassa fever among household in Ebonyi State based on age (f-val 4.557, p=0.004).

Table 3: Mean and t-test Analysis on Extent of Risk Practices Associated with Reoccurrence of Lassa Fever among Household in Ebonyi State by Location

S/N	Items	Location					
		Urban (n=176)		Rural (n-286)			
		$\bar{x}$	SD	$\bar{x}$	SD	F-val	p-val
1	Consumption of rats in the family	2.77	0.93	3.22	0.92	0.046*	0.000
2	Engage in game hunting	2.89	0.90	3.10	0.87	2.467*	0.014
3	Eat bush meat	2.80	0.84	3.15	0.83	4.286*	0.000
4	Allowing rat to eat from ruminant of food in the house	2.84	0.96	2.96	0.86	4.286	0.185
5	Killed rat in the house	2.65	0.96	3.06	0.89	1.328*	0.000
6	Eat ruminant of food touched by rate in the house	2.80	0.80	3.18	0.84	4.587*	0.000
7	Allowing multimammate rats in and around the house	2.84	0.88	3.09	0.87	4.775*	0.002
8	Bush burning	2.96	0.88	2.97	0.89	3.054	0.825
9	Absence of rat-proof containers for food storage	2.76	0.87	3.26	0.74	0.221*	0.000
10	Presence of bush around the hous	2.59	0.98	2.98	0.83	6.560*	0.000
11	Recent contact with anyone who had fever or died of unknown cause	2.99	0.96	2.83	0.92	4.561	0.073
12	Spreading of food items on the ground	2.72	1.00	2.91	0.84	1.795*	0.023
	Overall	**2.80**	**0.37**	**3.06**	**0.36**	**7.244***	0.000

Data on Table 3 indicated that both household in rural and urban areas of Ebonyi State practice to high extent health risk associated with reoccurrence of Lassa fever but rural had higher practice (3.06±0.36). When t-test was ran, it was observed that t-value 7.244, p=0.000 was significant. This suggested that there was significant difference in the extent of health risk practices associated with recurrence of lassa fever among household in Ebonyi State by location (t-value 7.244, p=0.000)

Discussion

The present study focused on health risk practices associated with recurrence of lassa fever among households in Ebonyi State. Result on Table 1 showed that households in Ebonyi State practice to high extent health risk associated with reoccurrence of Lassa fever. This practice could be the reason why there are reoccurrence of lassa fever in Ebonyi State. For example, Nigeria Center for Disease Control (NCDC, 2019b) reported that Ebonyi State is one of the three high burdened states with frequent occurrences of lassa fever outbreaks. Usuwa et al. (2020) reported that Abakaliki Local Government Area (LGA) of Ebonyi State had the highest proportion of confirmed Lassa fever cases during the 2018 and 2019 outbreaks in the State. This finding collaborate the finding of Alenoghena, Ehighalua, Awunor and Yerumoh (2021) which revealed that students of Federal Polytechnic Auchi, Edo State, Nigeria had high risk factors of Lassa fever. The finding is in agreement with McCormick, Webb, Krebs, Johnson and Smith (2017) study which found that households in Sierra Leonean refugee camps had high health risk practices associated with Lassa fever.

Result on Table 2 indicated that household in Ebonyi State within age >25 years, 25-39yeras, 40- 59years and 60 years and above practice to high extent health risk associated with Lassa fever but age bracket 25-39years had higher practices. Moreso, significant difference in the extent of practice of health risk associated with reoccurrence of Lassa fever among households in Ebonyi State by age ($p<0.05$) was observed. This finding is in line with Izah, Ovuru, and Ogwu (2022) study which reported that significant difference in the ecological risk factors exacerbating transmission of lassa fever among Yenagoa, Bayelsa State Nigeria and USA based on age. The finding equally agree with Ochei, Abejegah, Okoh, and Abah (2014) whose study found that rural area of South-south Nigeria had high housing factors of Lassa fever and that there is significant difference among rural area of South-south Nigeria based on age.

Data on Table 3 showed that rural and urban households of Ebonyi State practice to high extent health risk associated with recurrence of Lassa fever but rural had higher practice. This finding affirmed the result of Ochei, Abejegah, Okoh, and Abah (2014) whose study reported that rural area of South-South Nigeria had high housing factors associated with Lassa fever. When t-test was ran, significant difference in the extent of health risk practices associated with reoccurrence of Lassa fever among household in Ebonyi State by location ($p<0.05$). The finding supported the study of Izah, Ovuru, and Ogwu (2022) which found that rural households had high ecological risk factors exacerbating transmission of Lassa fever among Yenagoa, Bayelsa State, Nigeria and USA.

Conclusion and Recommendations

The study concluded that households in Ebonyi State practice to high extent health risk associated with reoccurrence of lassa fever. However, significant differences were observed in the level of health risk practices associated with reoccurrence of lassa fever among household in Ebonyi State based on age and location. The implication is that there is still possibility of more outbreaks of lassa fever if the households continue to practice these risk. The study therefore, recommended among others that there is need for health educators and community health workers to serve as agents of change to engage household heads on proper education about lassa fever. Also, Ministry of Health should collaborate with HEPRAN to sensitize members of households on the risk practices in order to curtail this anomaly. .

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