INFORMATION NEEDS ON LASSA FEVER SAFETY PRACTICES AMONG GARRI PROCESSORS AND MARKETERS IN ESAN WEST, ESAN CENTRAL, ESAN NORTH EAST, LOCAL GOVERNMENT AREA IN EDO STATE, NIGERIA.

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A PROJECT WORK SUBMITTED TO THE DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION SERVICES, FACULTY OF AGRICULTURE, UNIVERSITY OF BENIN, BENIN CITY, EDO STATE, NIGERIA. IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF A BACHELOR DEGREE (B.AGRIC) (OPTION; AGRICULTURAL ECONOMICS AND EXTENSION SERVICES).

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CERTIFICATION

This is to certify that this research work was carried out by **Ifedoyin Racheal OLADUNJOYE** (**Miss**) with Matriculation Number **(AGR1600098**) of the Department of Agricultural Economics and Extension Services, Faculty of Agriculture, University of Benin, Benin City, Edo State, Nigeria.

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DEDICATION

I dedicate this project work to God Almighty who in His boundless infinite love, goodness and guidance, gave me the strength to successfully complete this project work.

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ABSTRACT

The study analyzed the Information Needs On Lassa Fever Safety Practices Among Garri Processors And Marketers In Esan West, Esan Central And Esan North East, In Edo State, Nigeria. Specifically, it examined the social economic characteristics of garri processors and marketers in the study area; ascertained respondents awareness of Lassa fever and Lassa fever safety practices; examined respondents access and preferred information sources on Lassa fever safety practices; examined information needs on Lassa fever safety practices; identified the constraints on access to information needs on Lassa fever safety practices.

Data was was collected using random sampling method to will be used to select fifty (50) respondents from Esan West, Esan Central, Esan north East L.G.A making a total of one hundred and fifty (150) respondents. Data collected were analyzed by with Logit regression, multiple regression and pearson product moment correlation(PPMC) and Described with descriptive statistics such as frequency, percentage, mean, and standard deviation for appropriate variables.

Findings from this study showed that Majority (82.7 %) were females while (17.3%) 0f the respondents were males.

Majority (78 %) of the respondents were married. The garri processors and marketers mainly had secondary education (48.7%), majority of the respondents had 5-10 years experience in garri processing and marketing. The findings also

shows that large proportion of garri processors and marketers had household size between 7-9 persons. The major constraints such as High level of illiteracy (mean=3.38) insufficient power supply to charge phones and watch television (mean=3.58), High cost of data (mean=3.13), Non-available information material on Lassa fever (mean=3.6) were the serous constraints affecting the access and use of information on Lassa fever safety practices. The results also shows that Radio (mean=3.57), television (mean=3.62), friends and family (mean=3.28), internet (mean=2.81) and Healthcare providers (mean=2.86) were the preferred information sources for Lassa fever safety practices among garri processors and marketers.

CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Lassa fever is a zoonotic, acute viral hemorrhagic illness that is common in West Africa is caused by Lassa virus, a single stranded RNA virus belonging to the family Arennaviridae. (Bakare, Are, Abolarin, Osanyinlusi, Ngwu, and Obiaderi Ubaka, 2020) Lassa fever was first discovered in 1969 in Nigeria following the death of two missionary nurses in Lassa town, Borno State (Aromolaran, 2021). The disease is now endemic in many parts of West African countries including Nigeria, Sierra Leone, Liberia and Guinea. However, similar to the novel coronavirus and Ebola virus, the Lassa virus had been also imported into countries where it is not endemic, for example by travelers from Mali into UK, by travelers from Liberia into Ghana, and by travelers from Burkina Faso, Ghana and Cote D'Ivoire into Germany (Igetei, Okojie, Igetei, Okpara, 2020) The sporadic outbreaks of Lassa fever have been documented since 1969 as an endemic in several states in Nigeria including Edo, Ebonyi, Onitsha, Jos, Taraba, Nasarawa, Yobe, Rivers, Ondo, Oyo, Delta, Ekiti, Kogi, Lagos, Osun, FCT, Taraba, Kano, Plateau, Bauchi and Niger States.

Lassa fever is one of the health issue being tackle in Nigeria as an endemic health problem which needs urgent attention. Statistics show an estimated 100,000 to

300,000 infections of Lassa fever occur annually, all over the world, with approximately 5,000 deaths in West Africa (Aromolaran, 2021). Early signs of infection with the virus begins within 3 weeks post-infectionf or which travelers and pregnant women suffer the highest consequences of the disease. Symptoms of the viral infection are fever, muscle aches, sore throat, nausea, vomiting, chest pain, abdominal pain while complications include hemorrhage convulsions, adults respiration distress syndrome, anaemia, poor renal function, coma and death. The primary host of the disease is the multimammate (many-breasted) rat called Mastomys natalensis, they are naturally bush dwellers but consequently upon human activities such as loss of habitat through clearing or wildfires, the vector is left with no option that the invasion of human homes (Igetei *et, al*, 2020) people can get infected through exposure to urine or faeces of infected mastomys rats. Lassa virus may also be spread between humans through direct contact with the blood, urine, faeces, or other bodily secretions of a person infected with Lassa fever. Person-to-person transmission occurs in both community and health-care settings, Series of factors favouring the increase and spread of Lassa fever virus infections across Nigeria are the exponential growth of human population, household size, bush burning and urbanization are some predisposing factors. In Nigeria, the practice of drying agricultural products under the sun especially along roadsides encourages food contamination with urine and faeces of these rodents and hence aiding transmission of Lassa virus (uswa, *et al.,* 2020) all food products

are susceptible to this virus. The major contaminated food source is Garri as Garri is a popular byproduct of cassava.

Cassava (*Manihot esculenta*) is a popular crow grown mainly by arable small holder farmers in Nigeria. It remains a major staple food for many households in urban and rural area. Cassava contributes about 40% of the staple food calories consumed in Africa. It is now an essential part of the daily diet of over 70 million Nigerians (Anagah, Anayochukwu, Nwukor, 2020) As a food crop, cassava has some inherent characteristics which make it attractive, especially to the smallholder farmers in the south-west of Nigeria. First, it is rich in carbohydrates especially starch and consequently has a multiplicity of end uses. Secondly, it is available all year round, making is preferable to other, more seasonal crops such as grains, peas and beans and other crops for food security (Ogunyinka and Oguntuase 2020). Cassava is usually consumed in processed forms such as Garri, high quality cassava flour, fufu, fermented cassava flour, tapioca, and cassava chips, but the one generally consumed in Nigeria is Garri. Similarly, Isitor, Babalola and Abegunde (2019) opined that one of the most popular forms in which cassava is processed and marketed in Nigeria is garri. Garri is mostly taken more than once by most households in the producing area and over 5.8million tons are produced yearly (Ataramu, Akinbola, Omosehin and Oguntuase, 2020). Despite the increase demand for garri as the major stable food mainly consumed in Nigeria it has been reported that processed garri is usually subjected to

unhygienic handling and storage, thereby increasing the tendency to harbor food borne disease and vectors. The procession conditions, retailing containers, storage containers and condition could sever as veritable critical point of contamination of garri (Okolo and Makanjuola, 2021). Garri marketers play a major role in ensuring the availability of garri from cassava. There is need for garri-processers and Marketers to maintain stricter personal hygiene and food safety consciousness in terms of using clean covered transparent containers as garri retailing containers so as to reduce direct and indirect contaminations of Mastomys rats droplets in order to protect the health of their customers, protect the reputation of the business and also to protect the quality of garri available to consumers. Garri quality can be defined on the basis of its safety and fitness for use by the target consumers (IITA, 2012). In order for garri processors and marketers to take the adequate steps to ensuring the garri is safe, there is great need for safety practices information on the Lassa fever vector as well as ways in which to prevent contamination of the disease on garri. To understand information need, it is necessary to understand the context of human needs that created the need for information. The present age has been rightly called an Information Age because the information has become the most important element for progress in society (Kacharo, 2020). Progress in Agriculture is linked to several keys and often interrelated factors such as agricultural information provisions for modern scientific ways of farming for farmer's accessibility. In the agricultural production

environment, relevant and timely information helps farming communities to make the right decision (Acheampong, Nsiah Frimpong, Adu-Appiah, Asante, and Asante, 2017). Information is a vital resources in human activities and also in agriculture and researches carried out in places around the country have revealed that knowledge of the lassa fever virus is deficient among many and inadequate among quite a large population making it hard for people to prevent the incident of an outbreak (Umoke, Umoke, Nwaliaji, Nwafor, Agbaje, 2021). Garri Processors and Marketers who are adequately informed about the disease, its signs and symptoms, mode of transmission, and prevention can protect themselves and curb the spread of the illness. The significance of this is that poor knowledge of symptoms may lead to delays in seeking medical attention, wrongful use of alternative medicine and increased mortality (Tobin, Asogun, Ehidiamen, Elugbe, Osiemi, 2015). Therefore in a country like Nigeria ranking as one of the leading producers of garri in the world and with the increased demand for garri as the major stable food mainly consumed in Nigeria. The need for an assessment of the lassa fever safety practice information needs of garri Processors and Marketers become relevant.

1.2 Problem Statement

Report by WHO in 2019 revealed that Nigeria is endemic for Lassa fever with peak seasons between December till June, 21. In 2019, 86 local government areas (LGAs) located in 23 of the 36 states in Nigeria recorded outbreaks resulting in

167 deaths. Also, between 1st January and 3rd May 2020, 991 cases have been confirmed in Nigeria which have culminated in 191 deaths (Igetei *et al.,*, 2020). Public health reports have indicated that poor knowledge/awareness of the Lassa virus is a key factor responsible for continuous disease outbreaks which could culminate in loss of many lives within weeks if not curtailed in a timely manner (Igetei *et al.,.,* 2020). This may be due to poor infrastructural and communication facilities in some areas as many of such areas lack electricity and most often have no access to electronic and mass media through which information about Lassa fever in Nigeria is disseminated (Kabiru, 2014). This is further intensified in instances where the required information concerned with a vector is not regarded as a serious subject, as observed in a developing country like Nigeria. The multimammate rat is the natural host of the Lassa virus and it is ubiquitous in most parts of Nigeria (Ekuma and Akpa, 2017). It thrives in dirty drainages, stores, etc. some poor food safety practices among market food stuff sellers, enhances contamination of Lassa virus vector. For example, three quarter of food handlers displayed and exposed their food stuffs such as, meat, garri (processed cassava), meat, cassava chips to dust, sand, flies and splashes of dirty water even though unintentionally and Drying of cassava chips and garri outside exposed them to multi risk of contamination of rats, dust, and dirt (Uchendu, 2018). Food safety is one of the most significant public health issues worldwide, particularly in emerging and developing countries. It has also become one of the most

challenging social issues that needs to be addressed in most low- to middle-income countries, including Nigeria. In Nigeria, more than 200,000 persons die of food poison annual, caused by food contamination through improper farming, processing, preservation and services (Ezirigwe, 2018. Also, not all food handlers and consumers understand their roles in food safety (WHO, 2019) Approximate food safety information ensure safety of foods and production of consumers from food poisoning especitially from Lasa virus. Awareness campaign is important because poor food safety has been linked to low food safety information, knowledge, educational level and knowledge of food pathogen and poor hygienic condition among food vendors (Pepple, 2017). Hence the following questions have been prompted in this study.

1. What are the socio-economic characteristics of respondents in the study area?
2. What is the awareness of respondents and safety practices respondents engaged in, to prevent Lassa fever contamination in the study area?
3. What are the respondents sources of information and preferred sources of information on Lassa virus and food safety in the study area?
4. Identify the safety practice information needs of Garri processors and marketers in the study area.
5. What are the challenges faced by the respondents regarding the epidemic of Lassa fever on their food products in the study area?

1.3 Objective of this study

The main objective of this study is to examine the Information needs on Lassa Fever safety practices among Garri Processors and marketers in Edo Central district in Edo State, Nigeria. However, in order to achieve this, the specific objectives would be to:

1. Identify socio-economic characteristics of respondents in the study area.
2. Ascertain the awareness of respondents and safety practices respondents engaged in, to prevent Lassa fever contamination in the study area.
3. Identify the sources of information on food safety and Lassa virus among respondents in the study area.
4. Identify the safety practice information needs of Garri processors and marketers in the study area.
5. Identify the challenges faced by the Garri Processors and Marketers regarding the epidemic of Lassa fever in their food products in the study area.

1.4 Justification of the Study

In Nigeria the current mode of sale of garri in local markets may pose potential risks for public health especially or vulnerable people and thus, it becomes inevitable for all to be health conscious as well as imbibe hygiene practices that

will not only help control the spread of Lassa virus but other infectious diseases as well. Thus, there is need to intensify efforts on public health education to make basic information on lassa virus readily available in the country. Several studies like efficiency of garri marketing in Kwara State Nigeria (Isitor *et al.,* 2019). Analysis of Profitability and Market Outlets of Smallholder of Garri Producers in Ondo State, Nigeria (Aturamu *et al.,* 2021) and others of the kind have all focused on cost and returns as well as the profitability of marketing garri. Other studies such as knowledge and hygiene practice of the traders towards eradication of the Lassa virus in the Lapai local government, Niger State. (Salomi, 2021) and Knowledge attitude and practices of foodstuff sellers on Lassa fever in major Markets in Ibadan. (Adegoke, Ajibola and Ogundairo, 2017) also focus on knowledge of hygiene practices on lassa virus among general foodstall traders and also focused on food poisoning. Hence this study will focus on information needs on Lassa fever safety practices among Garri Processors and Marketers in Edo Central, Nigeria. This study seeks to full the knowledge gap that exists by providing information awareness that will help enhance knowledge of hygiene practices of the garri traders and processor in daily markets and handling of quality garri. It will help Garri Processors and Marketers adopt hygienic and precautionary practices that will help control food poisoning among consumers which will be beneficial to consumers by making sure that disease free garri is readily available for consumption and prevent future outbreaks of Lassa virus.

1.5 Research Hypotheses

The following hypotheses stated in the null form will be tested for this study.

Ho: There is significant relationship between Lassa fever safety practices by respondents and their information need.

H_2: There is no significant relationship between the socioeconomic characteristics of garri processors and marketers and their information needs in the study area.

CHAPTER TWO

LITERATURE REVIEW

2.1 Cassava (*Manihot esculenta*)

Cassava (*Manihot esculenta*) is a perennial woody shrub with an edible root, which grows in tropical and subtropical areas of the world Cassava plays a particularly important role in agriculture in developing countries, especially in sub-Saharan Africa, because it does well on poor soils and with low rainfall, and because it is a perennial crop that can be harvested as required (Onyenwoke and Simonyan, 2014) The tuberous root and its products feed more than 500 million African households with an average annual consumption of 100 kg of roots per person, with Nigeria being the world's leading producer and consumer, with an annual production of 59.47 million metric tons, 65% of which is consumed locally (FAO, 2018a) In Cameroon, although cassava production (5million tons) is ten times less than that of Nigeria (Ndjouenkeu,2021) There is no doubt that cassava output has increased tremendously from 9 million tonnes in 1970 to 60 million tonnes in 2018 making Nigeria the highest producer of cassava in the world (FAO, 2018).Cassava products are increasingly popular in Nigerian as Cassava is very rich in carbohydrates and is also a rich source of dietary energy. Its energy yield per hectare is often very high, and potentially much higher than that of cereals, it is the cheapest source of calories available. In addition, the roots

contain significant amounts of vitamin C, thiamine, riboflavin and niacin. Those attributes have made cassava one of the world's most reliable food security crops. (FAO, 2013).According to FAO (2018), cassava is a choice crop for rural development, poverty alleviation, economic growth and ultimately, food security. Experts have argued that the cassava production is one of the well-developed agricultural crops in Nigeria because of its relatively well established and processing techniques. Cassava can be processed into varieties of products – e.g food and starch for industrial uses (Ikuemonisan, Mafimisebi, Ajibefun, Aadenegan, 2020) Nigeria is populated with about 200 million people, and 7 in every 10 Nigerians consume, at least, a product of cassava once in a day (Njoku and Muoneke, 2008).These products include: cassava flakes (gari), cassava flour (pupuru and lafun), cassava paste (fufu) which are derived from cassava roots as Cassava is very versatile and its derivatives and starch are applicable in many types of products such as foods, confectionery, sweeteners, glues, plywood, textiles, paper, biodegradable products, monosodium glutamate, and drugs. Cassava chips and pellets are used in animal feed and alcohol production. Animal feed and starch production are only minor uses of the crop in Nigeria. Cassava, in its processed form, is a reliable and convenient source of food for tens of millions of rural and urban dwellers in Nigeria (IITA, 2010). Fresh cassava roots cannot be stored for long because they rot within 24 to 48 hours of

harvest. Therefore, cassava must be processed into various forms in order to increase the shelf life of the products, facilitate transportation and marketing, reduce cyanide content and improve palatability. The nutritional status of cassava can also be improved through fortification with other protein-rich crops. The processing methods include peeling, boiling, steaming, slicing, grating, soaking or seeping, fermenting, pounding, roasting, pressing, drying, and milling (Onyenwoke and Simonyan, 2014). It is also important that the introduction of cassava into new regions is accompanied by efforts to educate the people in correct methods of processing of cassava to remove cyanogens, rather than simply ignoring the dangerous aspects of this crop (Madamombe, 2006).

2.2 Garri production

Garri is an affordable substitute for most of the carbohydrate food in Nigeria, Garri is one of many different kinds of food products that can be produced from fresh cassava roots. Garri is dry, crispy, creamy-white and granular. It is made from cassava roots that have been crushed into a mash, fermented and sieved into small pieces (known as grits the grits are then roasted or fried to make the crispy product. Gari is a popular food in West Africa and is fast becoming a marketable product. (IITA, 2012) gari is the most common and forms the main meal of the day for majority of people in most of the West African countries, with Nigeria and Brazil taking the lead. The growing

popularity of garri as convenience food is mainly due to its affordability, easy storage and ease of preparation for consumption (Oluwafemi and Udeh, 2016). In Cameroon, consumption of garri is most common among people from the forest regions bordering Nigeria (Njukwe *et al.,* 2013) In Africa about 600 million people are dependent on cassava for their food (IFAD, 2013), of which gari is the major cassava product eaten by them on a daily basis. Only in Nigeria, gari is consumed by almost 148 million people (Ozigbo Bamgboye, Adunoye, and Kayode, 2020). To ensure its circulation, there is a need for massive production, processing, utilization, and storage. Garri is the most developed, convenient staple food and storable commodity been produced from cassava in West Africa. It is consumed as Gari added with cold water, sugar and/or other ingredients consumed as a snack, mainly by young people or students between meals, while gari cooked into a paste, popularly called eba in Nigeria and gari fufu/couscous tapioca/couscous gari in Cameroon (Ndjouenkeu *et al.,* 2021). To select the best method, garri production technology has been manufactured at different levels, which include root grating, fermentation, and dewatering (Adedeji, 2012) To obtain the final product, six traditional processing steps that's will be involved are peeling, washing, grating, drying, sifting, and frying and Garri is characterized by faintly flavour, sour taste, which is due to the fermentation of new cassava tubers (Samuel, Akinlabi, Okokpujie, Fayomi, 2020). During processing Gari

frying is a simultaneous cooking and dehydrating operation; the product is first cooked with the moisture in it and then dehydrated. The moisture content of dewatered and sieved cassava mash is between 50 to 65 percent that has to be reduced to about 12% after the frying (Samuel and Adetifa, 2012). The heat concentration during frying operation affects the quality of the final product. In the village technique, the initial frying temperature is relatively low to avoid the formation of many lumps or caking. Most of the small lumps developed, as the moisture content gradually becomes and these lumps are broken down by constant pressing and agitation, then the temperature is increased to further roast and dehydrate the product (Ozigbo, Bamgboye, Adunoyea, and Murphy, 2020)

2.3 Steps of Processing Garri

The production of gari involves the following component operations such as peeling which is the first operation and it is done immediately or 2 to 3 days maximum when the roots are received by the processor (Onyenwoke and Simonyan, 2014). According to International Institute of Tropical Agriculture (IITA, 2012). The steps of processing Garri include;

Step 1:

Peeling and washing cassava roots

Freshly harvested cassava roots are covered with soil and dirt and some may be damaged or rotten. Only healthy roots (without rot or other damage)

should be transported to the factory. At the factory, the roots are peeled to remove the outer brown skin and inner thick cream layer and washed to remove stains and dirt.

Step 2:

Grating cassava roots into mash Cassava roots are traditionally grated into a mash or pulp as part of the process to remove cyanide and make the roots safe to eat. Traditional cassava graters are usually made from perforated metal sheets. These rust quickly and are difficult to keep clean. They are also very slow and labour intensive to use. Mechanized graters are needed to produce a sufficient quantity of cassava mash to meet market demands and standards.

Step 3:

De-watering and fermenting mash into wet cake

De-watering and fermenting complete the process of removing cyanide from the cassava mash. This is done traditionally by using stones or logs as weights to press excess water out of the bags of cassava mash. The bags are then left to drain and ferment for a few days. As with traditional graters, these methods are slow and unhygienic, and are therefore not suitable for a cassava processing business.

Step 4:

Sieving wet cake into grits and roasting grits into garri

Garri is made by sieving the wet cake into small pieces – known as grits – and then roasting or frying the grits in a hot frying tray or pan to form the final dry and crispy product. Garri is normally white or cream.

Step 5:

Bagging and storing the garri

Remove the garri from the roasting tray and spread it thinly on a raised platform in the open air to cool and dry. Several batches can be put on the cooling ray. Sieve the garri with a standard size sieve to produce fine granules, which are collected in a plastic bowl. Use a grinder to break the large granules into smaller ones. When the garri granules are all the same size, pour the garri into a plastic lining inside a woven polythene sack.

2.2.2 Limitation on production of garri from cassava:

Lack of steady supply of cassava throughout the year and drudgery in traditional processing of peeling, grating and dewatering due to inadequate processing equipment. Inadequate infrastructural and storage facilities for both the raw and finished products(Taiwo and Fasoyiro, 2015) as well as Uncontrolled fermentation which often leads to products of different batches that are not consistent in taste and flavor. Smaller roots require more labor for peeling. The drudgery associated with traditional processing is enormous and

the products from traditional processing methods are often contaminated with undesirable extraneous matters. Some of the products are therefore not hygienic and have poor market value (Davies *et al.,* 2008, Taiwo and Fasoyiro, 2015) High transportation cost of cassava from the farms is another constraint. Fresh cassava roots are bulky due to the high moisture content, of about 70% and therefore transportation of the tubers to urban markets is difficult and expensive. Transporting of roots from the farm to the homestead and subsequent processing are mainly done by women. Processing are carried out manually using simple and inexpensive tools and equipment that are available to small farmers. Transport of products to markets is made difficult by the poor condition of rural roads and some of these operations such as peeling are tedious and time consuming. Some operations take place over several days e.g. fermentation. The traditional processing of cassava into many local foods (garri, fufu, lafun, etc.) requires at least 3-5 days of processing. In the traditional processing centres in many countries like Nigeria and Ghana, the frying process such as in gari processing is still done using firewood. The women suffer from the effect of the smoke (Davies *et al.,* 2008)

2.4 Garri Marketer

Garri processing and marketing has the potential to contribute immensely to economic empowerment and the development of the downstream component

of the agribusiness sector in Nigeria. However, inadequate marketing system for garri and other food commodities has been identified as a constraint to agricultural development in Nigeria, particularly in rural communities (AfDB, 2015, andIsitor, Babalola,. and Abegunde, 2019) Although garri processors and marketers sell their garri in their market stalls, some garri processors and marketers rely on contract arrangement in distributing their garri. constraints in marketing is that the majority of garrison marketers reported as most severe was price fluctuations, the price received by garri entrepreneurs in Nigeria varies throughout the year.

Garri is usually cheapest in the months of July to September and becomes expensive as from December to April (Ezedinma, Okechukwu and Sanni, 2005) this, coupled with its perishable nature, often discourage stocking in large volume. This increases income risks not just to marketers of garri but to the producers of cassava (Isitor, Babalola and Abegunde, 2019).

2.5 Safety practice information need among garri processors and marketers

Using 2010 data, the World Health Organization (WHO) analyzed 31 food borne disease hazards and found the disease burden of 33 million disability-adjusted life years (DALYs) to be similar to that of major diseases including malaria and tuberculosis. It is estimated that annually 600 million people became sick and 420,000 die from food borne hazard. Nigeria, over 200,000

people die from food borne illness annually. The economic burden associated with food borne illnesses is around US$ 3.6 billion per aannum (Ezirigwe, 2018). As in most developing countries, meeting the WHO's five key requirements for achieving safer food has been a struggle in Nigeria where basic amenities, particularly running water and robust sanitary units, are lacking (Onyeaka *et al.,* 2021). Sadly, unhygienic food handling practices have become common among these informal food-selling vendors, as foods are either cooked, baked, or processed in extremely unsanitary environments. While several consumers and food businesses are keen to improve their food safety practices, the appropriate facilities that would help to promote safe food handling practices have been deficient (Gali and Umaru *et al.,* 2020). For instance, many communities and food businesses lack: adequate means of hygienically washing and drying utensils and equipment; lavatories of appropriate hygienic design; adequate facilities for food storage, ingredients, and non-food chemicals; and adequate drainage and waste disposal systems (Onyeaka *et al.,*2021).Therefore It is recommended that food consumed without further processing by heating before consumption should be discarded entirely if contaminated with any secretions, excretions or nibbled at by rat (Usifoh , Ighedosa, Aighewi, Asemota, Odigie, Faboya, 2018). Nevertheless, garri should be safe and suitable for human consumption, and free from abnormal flavors, odors, and living insects. Garri must be free from filth

(impurities of animal origin, including dead insects) in amounts which may represent a hazard to human health (IITA, 2012). In Nigeria, the sale and distribution of garri in local markets is associated with practices such as display of product in open sacs, bowls and mats at points of sale and the use of bare hands during handling and sales. These unhygienic practices which may lead to microbial contamination due to deposition of bio aerosols on exposed products, transfer of microbes from dirty hands and utensils and frequent visits by animals and fomites (which may carry infectious agents), can contribute to the post – process problems of this product (Mulade, 2015). Rational consumers would not knowingly consume unsafe food, though in the absence of credible food quality and safety signals, consumers face uncertainty and incur specific information search costs (Hobbs, 2004) Information is most likely to be efficient and effective when it manages to meet specific needs of the target audience (Verbeke 2005). According to Verbeke (2005). Despite the fact that food has never before been as safe and healthy as it is today, it seems that consumers are uncertain and increasingly critical about the quality and safety of their food. Consumers seem to want information to help them achieve a balanced diet, to avoid certain allergens or ingredients that have proved not to agree with them, or to know the origin and environmental, ethical and technological conditions under which the food was produced.

2.6 Lassa Fever

Lassa fever is an acute viral illness that occurs in West Africa. Bakare, Are, Abolarin, Osayinlusi, Ngwu and Ubaka (2020) and Salomi (2021) reported. The illness was discovered in 1969 when two missionary nurses died in Nigeria. The virus is named after the town in Nigeria where the first cases occurred. The virus, a member of the virus family Arenaviridae, is a single stranded RNA virus and is zoonotic or animal borne. Lassa fever is endemic in parts of west Africa including Sierra Leone including Liberia, Guinea and Nigeria; however, other neighboring countries are also at risk, as the animal vector for Lassa virus, the“ multi-mammaterat" (Mastomysnatalensis) is distributed throughout the region. In 2009, the first case from Mali was reported in a traveler living in Southern Mali; Ghana reported its first cases in late 2011. Isolated cases have also been reported in Côte d’Ivoire and Burkina Faso and there is serologic evidence of Lassa virus infection in Togo and Benin. The number of Lassa virus infections per year in West Africa is estimated at 100,000 to 300,000 with approximately 5,000 deaths (Usuwa *et al.* 2020,) Recent data from Nigeria reveal that there were 1061 confirmed cases and 222 deaths between January to 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; Alenoghena, Ehighalua, Awunor And Yerumoh, 2021). According to NCDC there were 10 new cases, Edo state had reported 4 cases of Lassa fever in 2016, of which 3 were confirmed. It is reported that Lassa fever is endemic in 13 out of the 18 Local Government Areas in Edo State. (Usifoh, Ighedosa, Aighewi, Asemota, Odigie, Faboya, 2018) The incidence of Lassa fever is usually highest during the dry season with outbreaks occurring during the period, but recent studies also reveal an all-year-round occurrence; especially in sub-Saharan Africa (WHO, 2018, Alenoghena, Ehighalua, Awunor and Yerumoh, 2021) it is known that 10%-16% of people Admitted to hospitals every year have Lassa fever, which indicates the serious impact of the disease on the population of this region. The incubation period for Lassa fever varies from 6-21 days. It is symptomatic and usually characterized by fever, myalgia, nausea, vomiting, sore throat, abdominal and chest pains. Illness may progress to more serious symptoms including hemorrhaging, neurological problems, hearing loss, tremors and encephalitis Lassa virus is zoonotic and infected rodents in the Mastomys natalensis species complex are reservoirs capable of Excreting the virus through urine, saliva, excreta and other body fluid to man Secondary human to human spread within a community may occur through inhalation and injection Nosocomial

transmission is also not uncommon.(WHO, 2016, Bilewu, Nusirat, Adejumo, Ige and Yusuf, 2021) Risk factors for Lassa fever includes hunting, cooking and eating rats, poor environmental sanitation, poor housing structure, bush burning, deforestation, urbanization and having one's house infested with rodents.Lassa fever is an epidemic prone disease; hence it is classified under immediate notification by the Integrated Disease Surveillance and Response (IDSR) in Nigeria (Usuwa *et al.,* 2020, Alenoghena, Omuemu, 2021).

2.7 Lassa Fever prevention and vaccination:

Ribavirin is the drug of choice for the treatment of Lassa Fever and should be initiated before day 7 of the disease to reduce mortality. No vaccine is available for the disease (Olise, 2016; WHO, 2017).

Furthermore, due to the nature of spread of Lassa fever in an outbreak setting, there is the need for garri processors and marketers and health-care workers to be familiar with the emerging epidemic management framework that has worked in other settings for effective preparedness and response. According to Bilewu, Nusirat, Adejumo, Ige and Yusuf (2021)Primary transmission of Lassa virus from its host to human can be prevented by;

• Avoid contact mastomys rodents, especially in the geographic regions where outbreaks occur.

- putting food away in rodent-proof (Rat-proof) containers and always cook all foods thoroughly before eating

- Food manufacturers and handlers should not spread food where rats can have access to it.
- Keeping the home clean always to discourage rodents (rats) from entering homes.
- Do not eat or stop eating rat, hunting expenditure and bush burning should be discouraged.
- Observe good personal hygiene e. g. Regular hand washing with soap and running water.
- Isolate infected or suspected person.
- Wearing protective clothing, masks, gloves, gowns and goggles when caring for infected or suspected person.
- Proper and regular sterilization of equipment.
- Increasing the availability of the only known drug treatment, provision of Ribavirin (Drug) for prompt treatment.
- Efforts should be geared towards provision of effective vaccine.
- Report any cases of symptoms or persistence fever not responding to standard treatment for malaria and typhoid to the nearest authority.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 STUDY AREA AND SCOPE

This study will be carried out in Edo State, Nigeria. The core Edo area, about 10,400 square kilometers, is located on a rolling coastal plain crossed by rivers, in an area of tropical rain forest. About 40 percent of the region is forest reserves. Benin City, the capital, is located at 6°26'N and 5°41'E. The annual rainfall can be as much as 175 to 200 centimeters. The average daily temperature is about 27°C. There is seasonal variation, with a wet season from April to November and a dry one from November to February. It has 3 senatorial zones (Edo North, Edo central and Edo South), 18 Local Government Areas and 192 wards. The 2018 projected human population for Edo State from the 2006 national population census was 4,600,000. Agriculture is the main occupation of the people, Edo State has 472 health facilities with 55 private health facilities (Amifofum *et al.,* 2021).

Edo Central Senatorial District in Edo State covers five local governments' areas which include Esan South-East, Igueben, Esan North East, Esan West and Esan Central. These areas are endemic for Lassa fever with the highest number of reported cases in these districts according to recent reports as garri is a popular food choice in Edo central district and it is generally consumed soaked in water along with dried fish or groundnut or coconut or beans cake/pudding ('akara'/moimoi') or soaked in hot water to make 'eba' and taken with soup. The

occupations of the inhabitants are mainly farmers, civil servants, students, artisans and traders. Basic amenities, such as pipe-borne water, electricity and good roads, are inadequate or nonexistent. The target population for the study will be garri marketers in the study area.

3.2 Sampling Procedure and Size

A multi-stage sampling technique will be used for the selection of respondents in the study area.

Stage 1: This will involve a purposive selection of Edo Central due to the increase in number of cases of Lassa fever outbreak in the zone.

Stage 2: This will involve the purpose selection of the three LGAs in Edo Central due to their involvement in garri processing and Marketing.

Stage 3: The use of simple Random Sampling will be used to select fifty (50) Garri Processors and Marketers out of three (3) LGAs in the Edo Central, making a total of one hundred and fifty (150) respondents.

3.3 Data collection

The data will be sourced from a combination of primary and secondary sources. The primary data will be generated through the administration of a well-structured questionnaire designed in line with the objective of study to garri marketers in the study area. Secondary data will be obtained from relevant literature, agricultural journals, periodicals, texts, bulletins and the internet.

3.4 Validation of Instrument

The questionnaire which will be used for collection of data will be thoroughly scrutinized and validated by lecturers in the Department of Agricultural Economics and Extension Services to ensure accurate capture of required variables, as well as to prevent errors in the data collection process.

3.5 Measurement of variables

a. Socioeconomic characteristics

Age: The age of the respondents will be measured in years.

Sex: This will be measured at nominal level using option of male (1) and female (2)

Marital status: This will be measured at nominal level using the options of single (1), married (2), and divorced (3), widowed (4) and others (5).

Household size: Respondents will be asked to indicate their household size using numerical values

Level of experience: This will be measure at interval in years.

Level of education: Respondents will be asked to indicate their level of education. This will be measured with the options of Non-formal (1) Primary education (2) Secondary education (3) Tertiary education (4) and other (5).

Primary livelihood: The respondent will have to indicate if Garri Processing and Marketing is their primary livelihood by indicating yes (2) or no (1).

Awareness and Safety Practices carried out: Respondents will be required to indicate “yes” (2) if they are aware, and “no”(1) if they are not aware. Respondents will be required to indicate “yes” to safety practices which they perform, and indicate “no” to safety practices which they do not perform. A three point likert type rating scale will be used with options, very often, scored 3, often scored 2, rarely scored 1, a mean of 2.0 has been taken to mean that respondents effectively taken to mean that respondents effectively carried out safety practices while mean score below 2.0 is taken to mean that respondents do not carry out safety practices.

Sources of information and preferred information sources: Respondents will be required to indicate their sources of information. A list of various information sources will be used to solicit respondent’s responses on the information sources availability by indicating “yes” if they are available and “no” if they are not available. Furthermore, the accessibility of these information sources were also assessed using a four point likert type scale as follows very accessible scored 4, accessible scored 3, somewhat accessible scored 2, not accessible scored 1. A mean score of 2.50 and above was taken to mean that information sources is accessible while a mean score of 2.50 to mean that information source is not accessible. The preference of these information and the preferences for these information sources will also be assessed using a four point likert type scale where highly preferred will be scored. 4 preferred will be scored, 3 slightly

preferred will be scored, 2 and not preferred will be scored 1, A mean score 2.50 and above will be taken to mean that information sources is preferred while a mean score of less than 2.50 will mean that information is not preferred.

Safety practice information need: this will be measured using a list of possible information needs. A three point likert type rating scale will be used without options of highly needed scored, 3 needed scored, 2 not needed scored. 1, A mean of 2.0 and above will be taken to mean that respondents have high need for a particular information while mean score below 2.0 will be taken to mean that respondents do not have a need for the list information.

Challenges faced by Marketers in assessing food safety practice information:

This will be measured using a list of various possible challenges with a 4 point Likert type rating scale of very serious scored 4, serious score 3, not serious scored 2, not a problem scored 1. A mean score of 2.50 and above will be taken to mean that respondents encounter serious constraint in assessing safety practice information, and a mean score of less than 2.50 will be taken to mean that less constraints occur in assessing safety practice information.

3.5 Analytical Techniques

Objective one: The socioeconomic characteristics of the respondents will be analyzed using descriptive statistics such as frequency count, percentages, standard errors and tables.

Objective two: To ascertain the marketers awareness and safety practices carried out to prevent Lessa fever contamination. This will be achieved using mean scores.

Objective three: To identify the Marketers sources of information and preferred information sources on food safety practices in the study area. This will be achieved using mean scores.

Objectives four: Identify the safety practice information needs of marketers in the study area. This will be achieve using mean scores.

Objective five: Identify the Challenges faced by the marketers in accessing food safety practices information in the study area. This will be achieve using mean scores.

3.6 Test of hypotheses

H_o: There is no significant relationship between the socioeconomic characteristics of garri marketers and their information needs in the study area. This will be achieved using Logit regression of the socioeconomic variables and the information needs of the garri marketers.

The mathematical expression of the model is explicicified as:

$Yi=b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + U$…….(1)

Where:

Yi = information need (high = 1, low = 0)

X_1 = Age (number of years)

X_2 = Household size (number of persons living and feeding from same pot)

X_3 = Education (primary education = 1, secondary education = 2, tertiary education = 3)

X_4 = Years of experience in processing garri (years)

X_5 = Sex (male = 1 and female = 2)

X_6 = Marital status (single = 1, married = 2, divorced = 3, widowed = 4)

H_2: There is no significant relationship between Lassa fever safety practice by respondents and their information need. This will be achieved using Pearson Product Moment Correlation (PPMC).

CHAPTER FOUR

4.0 RESULT AND DISCUSSION

The result presented and discussed in this chapter is based on the analysis of 150 sampled Garri Processors and Marketers in Edo central in Edo state.

4.1 Socio-economic characteristics of Garri Processors and Marketers

Age

The results from table 1 showed the frequency distribuction of Garri processors and marketers according to age, The results shows that 30.7% of Garri processors and marketers fell within the age bracket, 41-50 This result aligned with Babalola, (2019) whose study started the age range of garri processors and marketers to be between 41-50 years, The age of the respondents is an important factor that can affect their level of efficiency and overall coping ability. Oputa, (2005). This implies that older garri markers develop better management skills over time The result also indicate that 23.3% fell within age bracket of 31-40 year. Also those of age below 30 years (12%) were engaged in garri processing and marketing as a trade learnt from their parents and as a means of earning their livelihood and the older garri processors and marketers above 60 years (8%) were few as a result of lagging strength.

Sex

The results from table 1 showed that 17.3% of the respondents were male and 82.7% of respondents were females. This implies that females are more involve in Garri Processing and Marketing compare to their male counterpart.

Marital Status

The result from table 1 showed that majority (78%), of Processors and Marketers were married, This result aligned with Abasilim and Balogun, (2019) whose study showed that majority of garri processors were married. This implies that majority of the processors in the study area were responsible as marital status has been attributed to the condition of being committed. It also showed that Bachelor's and spinsters were few (10%) in the field, while 5.3% were divorces and 10% are widows.

Household Size

The results from table 1 showed the distribution of household, it indicated that 48.6% of the processors and marketers had family size of 4-6 persons, which is in agreement with Babalola, (2019) whose study had a household size of 4-6 persons (64.2%) as the majority. On the other hand it has been observed that large family size may imply more supply of labour, hence reducing money spent to hire labour (Nwaru, 2006,; Okolo 2007). This showed that these garri processors and marketers can depend less on hired laborers. It was also indicated that 42.0% of the respondents had family size of 7-10 persons. Families whose numbers exceeded 10 were few (4.7%) .

Level of Education

The results from table 1 showed the educational attainment of the respondents. Higher proportion of these processors and marketers had secondary education, (48.7), 9.3% did not have formal education, 31.3% had primary education, while 10.7% had tertiary education. This showed that the highest percentage of Garri processors and marketers had at least the basic education to understand the information needs and use of Lassa Fever safety practices. Level of formal education plays an important role in business management because it determines the degree of adoption of innovation and new technologies (FAO, 2006).

Years of Experience

The result from table 1 showed the frequency distribution of Garri processors and marketers according to years of experience. it indicates that 8.7% had less than 5years of experience, 6.2% had between 5-9years of experience, and only 6.0% had between 15 and more than 15years of experience. The result shows that the mean of the years of experience in Garri Processors and Marketers was appropriately 8 years where 23.3% had between 10-14years of experience,This indicates specialization of tasks, leading to improved efficiency and effectiveness of the processors, which is invariably expected to have a positive impact on garri processing (Abasilim and Balogun, 2019)

Primary Livelihood

The results from table 1 showed that 56.7% of the respondents took Garri Processing and Marketing as the primary source of livelihood while Garri Processing and Marketing was not a primary livelihood for 43.3% of the respondents. This result aligned with Abasilim and Balogun (2019) whose study showed garri processing was the major occupation of 55.5% of the respondents and 44.5% of the respondents undertook garri processing as a secondary occupation.

Table 1: Socio-economic characteristics of Garri Processors and Marketers

Characteristics	Frequency	Percentage (%)	Mean
Age			
30years and below	18	12	
31-40	35	23.3	
41-50	46	30.7	46
51- 60	39	26.0	
60years and above	12	8.0	
Sex:			
Male	26	17.3	
Female	124	82.7	
Marital Status:			
Single	15	10	
Married	117	78	
Divorced	8	5.3	
Widowed	10	6.7	
Household size(persons):			
Below 4	7	4.7	
4 – 6	73	48.6	6
7 – 9	63	42.0	
Above 10	7	4.7	
Level of Education:			
Non-formal	14	9.3	
Primary Education	47	31.3	
Secondary Education	73	48.7	
Tertiary Education	16	10.7	
Years of Experience:			
Less than 5 years	13	8.7	
5 – 9 years	93	62.0	8
10 – 14 years	35	23.3	
More than 15 years	9	6.0	
Primary Livelihood:			
Yes	85	56.7	
No	65	43.3	

Source : Field Survey, 2022

4.2 Awareness and Safety Practices of Lassa Fever (n=150)

The results in table 2 shows that 45.3% of the respondent were aware that infected Rodents cause Lassa Fever while 54.7% of the respondents were not aware that infected Rodents causes Lassa Fever. This implies that there is poor knowledge of Lassa fever among Garri processors and marketers in the study area. For safety practices the result shows that the respondents participated in most of the safety practices such as do you cover food to avoid contact with urine and feaces of infected rat(mean = 2.73) and do you clean up and disinfect your environment (mean = 2.7), do you wash your hand with soap and running water (mean=2.59), do you kill rats within your home and market area (mean=2.62) were part of the safety practices higher than the Grand mean which is 2.0.

Table 2: Awareness and Safety Practices of Lassa Fever (n=150)

Awareness of Lassa Fever **Do infected rodent cause Lassa Fever?**	**Frequency**	**Percentage (%)**
Yes	68	45.3
No	82	54.7
Safety Practices	**Mean**	**Std. Dev**
Do you cover food to avoid contact with urine and feeaces of infected rat	2.73	0.47
Do you dry agricultural products under the sun along road side	2.63	0.56
Do you clean up and disinfect your environment	2.65	0.53
Do you seed medical care in suspected case of laser fever	2.56	0.63
Do you monitor your daily health	2.56	0.67
Do your promote good community hygiene to prevent rodents from entering home	2.64	0.59
Do you cover your mouth why coughing and sneezing	2.57	0.65
Do you avoid rodents as source of meat	2.48	0.71
Do you wash your hand with soap and running water	2.59	0.65
Do you dispose of your waste properly and clean your environment	2.63	0.54
Do you kill rats within home and market store	2.62	0.55
Do you report any case of high fever (persistent high fever) not responding to standard treatments for malaria and typhoid fever to the nearest health center	2.18	0.94
Do you block holes in roof and floor to avoid rodents entry	2.55	0.59
Do you regularly eat garrri soaked in water	2.49	0.67
Do you buy garri from those frying on the fire	2.58	0.58

Source: Field Survey, 2022

Mean $\geq$ 2.0= safety practices carried out

4.3 Accessible and preferred information sources of lassa fever

The result showed that broadcast from radio (mean =3.34), broadcast from television (mean=3.2), friends and family (mean=3.53), internet (Mean=2.6) is above the grand mean (2.50) which means that these information sources of lasser fever are easily accessible by the respondents why newspaper (mean=1.8), state ministry of agriculture, (mean=1.38) journals (mean=1.20), government accredited center (mean=1.19) is below the grand mean 2.50 which means that these information sources of Lassa fever are not easily accessible by the respondents. The result also showed that broadcast from radio (Mean=3.57), broadcast from television (mean=3.62), internet (mean=2.82) and friends and family (mean=3.28) is above the mean score 2.50 which means that these sources of information of Lassa fever is preferred among the respondents. This study is in agreement with Olajide, et al,(2021) and Tobin et all,(2015) In another study, Drafor (2016) referred to radio as one of the best sources of diffusing agricultural, technical and scientific information to farmers. In another study it is stated obviously, an agricultural information targeting the rural farmers will not achieve its purpose if put in magazines or publications. Thus, to enhance the production and productivity of agriculture, farmers should have access to well organize and relevant information and proper and sufficient utilization of agricultural information requires good facilitation(Olajide, Adeniyi and Ladigbolu, 2015).

Table 3: Accessible and preferred information sources of Lassa fever

Sources of information	Access		Preferred	
	Mean	Std. dev.	Mean	Std. dev.
Broadcast from radio	3.34	0.98	3.57	0.75
Broadcast from television	3.2	0.043	3.62	0.67
Newspaper	1.8	1.06	2.16	1.03
Friends and family	3.53	0.72	3.28	1.01
State ministry of agriculture	1.38	0.87	2.84	1.02
Internet	2.6	1.30	2.18	0.90
Phone calls	1.20	0.67	1.60	0.88
Journals	1.20	0.67	1.67	0.99
Health care providers	2.37	1.16	2.86	0.95
Town criers	1.25	0.82	2.05	1.04
Government accredited center	1.19	0.67	1.86	0.80
Non government organization	1.18	0.52	2.0	0.86
Academic research	1.55	0.96	2.0	0.86

Source: Field Survey, 2022

Mean ≥ 2.50= high access and preference

4.4 Information needs for Lassa fever safety practices

The result shows that information on Lassa fever prevention (mean score =2.9), information on Lassa fever spread in Nigeria (mean =2.81), general Lassa fever emerging news (mean=2.77), information on measures to curb the spread of the disease (mean=2.82), information on government policy on Lassa fever (mean=2.64), information on symptoms on Lassa fever (mean=2.74), information on suitable diet to boost immune system (mean=2.7), information on progress in the Lassa fever vaccine experimentation (mean=2.32), information on cause of infection and mode of transmission of Lassa fever (mean=2.68). These lassa fever information needs has means score above 2.0 taking to mean this information needs are needed by the respondents.

The general results showed that there is need for more information on most of the above listed needs by the respondents in the study area which aligned with the findings, finding the right information within the context in which information is required in a timely manner is still being a challenge in developing world agriculture (Walisadeera et al., 2015).Okumu and Obora (2013) emphasized that, now more than ever, information dissemination is crucial in enhancing and developing the adaptive capacities of all economies especially in rural areas to adopt new agricultural concepts. Information was categorized as one of the chief determinants of the progress of nations, communities and individual (Sanap, 2015).

Table 6

Table 4: Information needs for Lassa fever safety practices

Information needs	Mean	Std. deviation
Information on Lassa fever prevention	2.90	0.30
Information on Lassa fever spread in Nigeria	2.81	0.40
General Lassa fever emerging news	2.77	0.46
Information on measures to curb the spread of the disease	2.82	0.37
Information on government policy on Lassa fever	2.64	0.70
Information on symptoms on Lassa fever	2.74	0.49
Information on ways of seeking medical help in the pandemic era	2.71	0.53
Information on suitable diet to boost immune system	2.70	0.55
Information on statistics of active cases, discharged cases as well as fatalities brought about by Lassa fever	1.84	0.88
Information on progress in the Lassa fever vaccine experimentation	2.32	0.80
Information on cause of infection and mode of transmission of Lassa fever	2.68	0.60

Source: Field survey, 2022
Mean ≥2.0 = high information need

4.5 Challenges to Lassa fever access and the use of information

It was observed that too many fake news about Lassa fever (mean=3.0), non available information materials on Lassa fever (mean=3.7), too many contradicting information on Lassa fever (mean=3.54), communication/language barrier (mean=3.53), insufficient power supply to charge phones and watch television (mean=3.58), high level of illiteracy (mean=3.38), high cost of data subscription (mean=3.13), information over load on Lassa fever pandemic (mean=3.07), government policies on Lassa fever are not publicized (mean=3.48), all challenges to Lassa fever access and use of information has means score above 2.50 which is taken to mean respondents face serious constraints to Lassa fever access and use of information.

Table 5: Challenges to Lassa fever access and use of information

Constraint	Mean	Std. Deviation
Too many fake news about Lassa fever	3.0	1.08
Non available information material on Lassa fever	3.6	0.58
Too many contradicting on Lassa fever	3.54	0.65
Communication/language barrier	3.53	0.68
Insufficient power supply to charge phone and watch television	3.58	0.65
High level of illiteracy	3.38	0.84
High cost of data subscription	3.13	0.95
Information over load on Lassa fever pandemic	3.07	0.99
Government polices on Lassa fever are not publicized	3.48	0.70
Information on Lassa fever are very cumbersome	2.61	1.29
Keeping abreast with statistics of Lassa fever	2.68	1.30

Source: Field survey, 2022
Mean ≥2.50= serious constraints

4.6 Results of the Hypothesis

Hypothesis 1: There is no significant relationship between the socio-economic characteristics of garri processors and marketers and their information needs in the study area.

The results in table 6 using logistic regression model showed that the socio-economic characteristics regressed on information needs,household size, education, years of experience were statistically significant at p(0.01), age was statiscally significant at p(0.05) This implies that as age increases information needs also increases. This result disagrees with Olajide *et al.* (2021) who found that age among others had no significant relationship with garri processors information needs. The R squared value of 0.518 indicates that about 51% variation in respondents requirements or need for information needs could be explained by significant variables combined.

Results of Binary Logistic Regression

	Coeff	St. Err	Wald	Sig	Odd ratio
Age (number of years)	0.378	0.131	3.813*	0.05	1.459
Household size (number of persons living and feeding from same pot)	0.154	0.189	6.28**	0.000	1.166
Education (primary education = 1, secondary education = 2, tertiary	0.519	0.418	4.16**	0.000	1.680
Years of experience in processing garri (years)	0.362	0.335	5.553**	0.000	1.436
Sex (male = 1 and female = 2)	0.97	0.128	0.431	0.145	2.638
Marital status (single = 1, married = 2, divorced = 3, widowed = 4)	0.371	0.351	0.387	0.361	1.449
Error term	0.431	0.332	4.162**	0.000	1.539

Source: Field survey, 2022
Loglikehood ratio = 221.769
R squared = 0.518
*Sign at 0.05, **Sign at 0.01

4.7 Hypothesis 2 : There is no significant relationship between Lassa fever safety practices by respondent and their information needs. The result in table 7 using Pearson product correlation safety practices was significant at p(0.01).

Table 7: Correlation analysis showing relationship between safety practices and information needs

	Coeff (r)	Std. err.	Sign	Decision
Safety practices	0.518**	0.12	0.000	S

Source: Field survey, 2022

*Sign at 0.05, **Sign at 0.01

CHAPTER FIVE

SUMMARY, CONCLUSION, RECOMMENDATION AND LIMITATION

5.1 SUMMARY

Lassa fever is a zoonotic, acute viral hemorrhagic illness that is common in West Africa is caused by Lassa virus, a single stranded RNA virus belonging to the family Arennaviridae. Lassa fever was first discovered in 1969 in Nigeria following the death of two missionary nurses in Lassa town, Borno State. The disease is now endemic in many parts of West African countries including Nigeria, Sierra Leone, Liberia and Guinea. However, similar to the novel coronavirus and Ebola virus, the Lassa virus had been also imported into countries where it is not endemic, for example by travelers from Mali into UK, by travelers from Liberia into Ghana, and by travelers from Burkina Faso, Ghana and Cote D'Ivoire into Germany. The sporadic outbreaks of Lassa fever have been documented since 1969 as an endemic in several states in Nigeria including Edo, Ebonyi, Onitsha, Jos, Taraba, Nasarawa, Yobe, Rivers, Ondo, Oyo, Delta, Ekiti, Kogi, Lagos, Osun, FCT, Taraba, Kano, Plateau, Bauchi and Niger States.

This study is to identify is to analyze the Information Needs on Lassa Fever Safety Practices Among Garri Processors And Marketers in Esan West, Esan Central, Esan North East in Edo State Nigeria.

Five objectives were developed for the study in accordance to the structured Questionnaire which are to Identify socio-economic characteristics of respondents in the study area, Ascertain the awareness of respondents and safety practices respondents engaged in, to prevent Lassa fever contamination in the study area, Identify the sources of information on food safety and Lassa virus among respondents in the study area, Identify the safety practice information needs of Garri processors and marketers in the study area, Identify the challenges faced by the Garri Processors and Marketers regarding the epidemic of Lassa fever in their food products in the study area. Data was collected through the use of Simple Random Sampling to select Fifty Garri Processors and Marketers out of 3 LGA's' in Edo Central district in Edo State, Nigeria making a total of one hundred and fifty(150) respondents.

Data collected was analyzed by Logit regression, multiple regression and Pearson Product Correlation (PPMC).

The study found out that majority of the respondents 45.3% were aware that rats cause Lassa Fever while 54.7% of the respondents were not aware that rat cause Lassa Fever. Some findings showed that the mean age of garri processors and marketers was about 45.52 years. While only 9.3% of them did not have formal education, while 56.7% took garri processing and marketing as their primary livelihood. It was observed that the major sources of accessible information among the respondents were Radio (mean=3.34) television (mean=3.2) friends

and family (mean=3.53) internet (mean=2.6) and Results also showed that information needs on presentation of Lassa fever (mean=2.90) emerging news about Lassa fever (mean=2.77) and information on the cause of the infection and mode of transmission (mean=2.68) were the identified information needs identified as needed in the study area.

5.2 CONCLUSION

Based on the result of this research it can concluded that Garri processors and marketers need concise and accurate information on Lassa fever safety practices, therefore extension workers and researchers should play a key role in bridging the information gap.

Also the study established that a high proportion of respondents were not aware that infected rats causes Lassa fever while a small proportion were aware that infected rats causes Lassa fever. Almost all respondents carried out the Lassa fever safety practices majority of respondents preferred accessible information such as information from radio, television, friends and family, internet, phone calls and health care providers. Safety practice information needs were needed and among other constraints communication or language barrier, high illiteracy, insufficient power supply to charge phones and watch television, and high cost of data was seen as serious constraints in assessing safety practices information encountered by the respondents.

5.3 RECOMMENDATIONS

In the view of the findings of this research the following recommendations are made:

1. Government should strengthen the Agricultural Extension Agency to effectively carry out their functions to disseminate useful information on Lassa fever safety practices to garri processors and marketers in the study area.
2. Government should make affordable and accessible information technologies easily available e.g. working Internet, electricity supply etc, that will be easy to use and adopt for garri processors and marketers.
3. Garri processors and marketers should be encourage to always store their food stuff in rodent proof containers.

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DEPARTMENT OF AGRICULTURAL ECONOMICS
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FACULTY OF AGRICULTURE,
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BENIN CITY

Dear Sir/Madam,

I am a final year student of the above named Department. I am conducting research on "**Information needs on Lassa Fever Safety Practices among Garri Processors and Marketers in Edo Central in Edo State, Nigeria**". I would like you to kindly answer the following questions as correctly as possible, as your honest and sincere response will aid the validity of this study. This research is strictly for Academic purposes only and will be treated that way.

Thanks for your anticipated cooperation.

Ifedoyin Racheal OLADUNJOYE

Researcher

SECTION A: SOCIO-ECONOMIC CHARACTERISTICS

1. Age: _____years
2. Sex: Male ( ) Female ( )
3. Marital status: Single ( ), Married ( ), Divorced ( ), Widowed ( ), Others ( )
4. Household size:_____ [in numbers]

5. Level of Education: Non-formal ( ), Primary( ), Secondary ( ), Tertiary ( )

6. Is garri processing and marketing your primary livelihood activity? Yes ( ), No ( )

7. How long have you been engaged in garri processing and marketing?___ years.

SSECTION B: AWARENESS AND SAFETY PRACTICES OF LASSA FEVER

Lassa Fever Awareness	**Awareness**	
	Yes	**No**
Does the infect rodents(rats) cause Lassa Fever?		

LASSA FEVER SAFETY PRACTICE

Lassa Fever Safety Practice	**Practice**		**Extent of Practice**		
	Yes	**No**	**Very often**	**Often**	**Rarely**
Do you cover food to avoid contact with urine and faecel of infected rats?					
Do you dry agricultural product under the sun along road side?					
Do you clean up and disinfect your environment?					
Do you seek medical care in suspected case of Lasse Fever					

Do you monitor your daily health?						
Do you promote good community hygiene to prevent rodents from entering home						
Do you cover your mouth while coughing and sneezing						
Do you avoid rodents as source of meat?						
Do you wash your hand with soap and running water?						
Do you dispose of your waste properly and clean the environment?						
Do kill rats within you home and market store?						
Do you report any case of high fever(persistent high fever)? Not responding to standard treatment for Malaria and typhoid fever to the nearest heath center?						
Do you blocks holes in roof and floor to avoid rodent entering?						
Do you regularly eat garri soaked in water?						
Do you buy garri from those frying on the fire?						

SECTION C: Sources of information available, Accesiblity and preferences among Garri marketers

What are your available sources, accessibility and preferred Lassa fever information sources?

S/N	Sources of information	Availability		Accessibility				Preference			
		No	Yes	NA	SA	A	VA	HP	P	SP	NP
1.	Broadcast from radio										
2.	Broadcast from television										
3.	Newspaper										
4.	Friends and family										

5.	State Ministry of Agriculture										
6.	Internet										
7.	Phone calls										
8.	Journals										
9.	Healthcare provider										
10.	Town criers										
11.	Government Accredited health Agency (NCDC)										
12.	Non-Governmental Organisation										
13.	Academic Research										
14.	Others										

Note: NA = Not accessible, SA = Somewhat accessible, A = Accessible VA = Very accessible, HP = Highly preferred, P = Preferred, SP = Slightly preferred NP = Not preferred

SECTION D: Safety practices information needs of Garri marketers

Lassa Fever Information needs	**Highly needed 3**	**Needed 2**	**Not Needed 1**
Information on Lassa fever prevention			
Information on Lassa Fever spread in Nigeria			
General Lassa Fever Emerging news			
Information on government politics on Lassa Fever			
Information on symptoms of Lassa Fever			
Information on ways of seeking medical help in the pandemic era			
Information on suitable diet to boost immune system			
Information on statistics of active cases, discharged cases as well as fatalities brought about by Lassa Fever			
Information on progress in the Lassa Fever			

vaccine Experimentation			
Information on cause of infection and made of Transmission of Lassa Fever			

SECTION E: CONSTRAINTS

Challenges to Information needs on Lassa Fever safety practice	**Very serious**	**Serious**	**Not serious**	**Not a problem**
Too many fake news about Lassa Fever				
Non available information material on Lassa Fever				
Too many contradicting information on Lassa Fever				
Communication/language barrier				
Insufficient power supply to charge phones and watch television				
High level of illiteracy				
High cost of Data subscription				
Information overloads on Lassa Fever pandemic				
Government policies on Lassa Fever are not publicized				
Information on Lassa Fever are very cumbersome				
Keeping abreast with statistics of Lassa Fever				
Other (specify)				