



Responsible Stakeholders in Food Risks Communication and Informed Consumers in Surulere Area of Lagos State, Nigeria

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Abstract

In developing countries, the capacity to handle life-threatening health and nutritional risks is under great threat. Studies have emphasised effective communication of food risks as a measure for motivating behavioural patterns which would correct this imbalance. This study investigates the media used for publicity of food risks, level of awareness and sensitivity of consumers, as well as stakeholders' collaboration for effective prevention and control of food risks. The mixed-method design utilised involved the distribution of 110 copies of questionnaires among consumers within Surulere Local Government in Lagos and interview sessions with representatives of food manufacturing companies, mass media and regulatory bodies. Television, radio, social media, and public messages by the National Agency for Food and Drug Administration and Control (NAFDAC) were prominent media of food risks communication; the activities of the regulators led to increase in consumers' awareness and sensitivity to food risks and their benefits. Manufacturers were found to adhere to standards in food production, storage, and distribution. There was an effective collaboration among stakeholders and leading to food safety, trust and standard maintenance, and quick information provisioning.

Keywords: Consumers; Food risk; Media; Risks and benefits; Stakeholders

1. Introduction

The health and survival of food consumers are supported by factors such as manufacturers' quality of foods, and consumers' awareness and sensitivity, because food risks depend on the quality of information exchanged via various platforms between the two groups (Federal Ministry of Health, 2014). Since poor levels of awareness, and understanding and sensitivity to

food risks among food consumers in Nigeria exist in the 2014 report of the Federal Ministry of Health, this study investigates if there has been a change and if communication has contributed to the possible change among the stakeholders and consumers of food products. As a follow up to the meeting of the World Health Organization's (WHO) Study Group on Diet, Nutrition and Prevention of Non-Communicable Diseases in 1989, experts from the Food and Agricultural Organization (FAO) and WHO had another consultative meeting in 2002. Their focus was how to prevent, control the spread and drastically reduce the impact of non-communicable diseases globally. The 2002 meeting established a relationship between people's lifestyles, their feeding habits and incidences of chronic diseases. The meeting then called for practical strategies for cushioning the effects of lifestyle and dietary changes on human's health. Today, the situation is worse with intense mechanisms of market globalisation, global economic development, increased urbanisation and industrialisation that exert significant effects on people's diets, and by extension, their health and survival. The World Health Organization (2003) reports that 60% of 56.5 million deaths in 2001 were linked to non-communicable diseases. Then there was an expectation that it would be 57% in 2020. Diseases such as obesity, hypertension, stroke, some cases of cancer, diabetes mellitus and cardiovascular disease are rampant with attendant mortality and severe damage to national economies. As expected, because of their state of development and capacity to handle life-threatening health and nutritional risks associated with food consumption, the WHO (2003) affirm that developing countries share the greatest threats of this burden.

Jane Omojokun, an official of the National Agency for Food and Drug Administration and Control (NAFDAC) in Nigeria, observes that “Bacterial food-borne diseases caused the existence of species of *Salmonella*, *Clostridium*, *Campylobacter* and *Escherichia* as major health concerns in Nigeria and they contribute ...to the morbidity and mortality rates of the country” (Omojokun, 2013:251). Anecdotal accounts suggest the uncontrolled and excessive application of agrochemicals by farmers. These practices include the misuse of agrochemicals in processing and storage of food products, vegetables, grains and fishing. This has dangerous health implication for consumers. Manufacturers, middlemen, and retailers are also found to use contaminated and fairly-used plastics for packaging consumable food materials (Omojokun, 2013). To curb these practices, stakeholders in the food-safety chain need education, behaviour change communication and sanctions. This is inevitable because they are responsible for various poisoning cases and other degenerative health complications in hospitals and clinics around the country.

Among others, the Federal Ministry of Health's National Policy on Food Safety and its implementation strategy show that food safety is hampered by “lack of awareness of the socio-economic importance of food safety, paucity of data and information on incidence of food-borne disease outbreaks, lack of understanding of food safety and quality standards as outlined in international agreements, and inability to enforce compliance with international standards and global best practices” (Federal Ministry of Health, 2014:6). The low level of understanding and awareness, as well as paucity of data and information in the listed challenges, reflects communication gaps which stakeholders need to work on. Where there are gaps in communication and coordination between and among food manufacturers, government agencies, food scientists, and the media, the requisite to understanding and sensitivity to food risks and safety among consumers will be hampered (Tucker, Whaley, & Sharp, 2006). These stakeholders and the consumers, therefore, require constant communication and education for

consumers to have access to the right judgement on consumed food products. With it, they would effectively sustain quality and safety in food manufacturing, distribution, consumption and post-consumption evaluation. Therefore, this present study investigates the media used in communicating food risks and the attendant level of awareness and sensitivity of consumers to food risks communication.

This study also covers how stakeholders collaborate for effective prevention and control of food risks. By investigating food safety issues and food safety communication among stakeholders, the focus here aligns with the sustainable development goals on ending poverty and hunger, provision of good health and well-being, gender equality, and clean water and sanitation, sustainable cities and communities and promotion of responsible production and consumption. These goals are affected by food safety, which in turn influences the possibility of meeting the 2030 deadline for achieving the SDGs. To achieve the stated objectives, the opinions of some food manufacturers and consumers at Surulere in Lagos State were sought.

2. Literature Review

2.1 Food Security, Safety and Risks

Ipsos-Reid (2000) and Butler (2002), cited by Tucker, Whaley and Sharp (2006), expressed fear about food safety. This concern among people in 19 countries was a call on government and its agencies, the food manufacturing chain, food scientists, consumers, and the media to reflect on their responsibilities, achievements and challenges as stakeholders in the food safety system. Ojo and Adebayo (2012), citing Davies (2009), aver that food security is not just about food being available in the right quantity for the satisfaction of people's needs, but it is a scenario when there is a guarantee that the consumption of such food does not constitute health hazards to the people.

The study focused on Ohioans' perceptions of safety risks in food consumption and factors responsible for this. Findings showed a moderate level of perception. Among them, food contamination by pesticides and unsafe drinking water were mostly responsible for the perceptions. Also, the lowest level of perception of risk was recorded on mad cow disease and genetically modified foods, but their attitude to biotechnology and media system dependency strongly fuelled the perceptions of risk among the respondents (Tucker, Whaley & Sharp, 2006). As a matter of fact, Tucker et al., advised stakeholders in food safety to invest more in risk communication campaigns to educate consumers and other target audiences.

Risk analysis is a three-pronged procedure involving risk assessment, risk management and risk communication. Efforts at reducing or preventing risks associated with food consumption also involved the three strategic procedures. The process of assessing and managing the risks of consuming food needs to be communicated to appropriate audiences. The identification of different stakeholders shows that risk communication entails more than media's provision of information, product packages and other platforms of information publicity to consumers. Rather, risk assessors and managers (such as regulatory agencies) constantly regulate the industry and ensure that set standards in production, distribution and consumption are met. When there is a potential or active risk, they provide necessary safety information to the consumers. The industry ensures that quality and safety instructions and information on ingredients are available to consumers, while they also provide necessary information to relevant agencies that specialise in the maintenance of statutory standards.

Ideally, the consumers are expected to provide some feedback on product performance and their other experiences and/or perceptions about products consumed. They can also communicate such experiences (usually complaints) to risk assessors and managers who should investigate and exchange their findings with the manufacturers or industry. The academic community conducts research on food value chain and communicates its findings with relevant stakeholders for implementation. There are other groups such as the civil society, trade unions, socio-cultural and religious groups whose activities and interests warrant that they are involved in the risk communication loop.

Wall and Chen (2018) observe the poor state of food risk and safety in developing countries, in addition with their discovery of consumers' negative perception of food safety and food products in developed countries. The standpoint of Omojokun (2013) corroborates the scholars' position. Omojokun presents unhealthy cases of food processing, packaging, and distribution that lead to medical complications in Nigeria, and the level of “public ignorance, poor coordination of food safety protocols, poor technical expertise, poor enforcement of legislation and regulatory limits, and poorly equipped laboratories” as factors of unsafe food (p. 252). This calls to question the responsibilities of Nigeria's institutional framework such as the National Agency for Food and Drug Administration and Control (NAFDAC), the Standards Organisation of Nigeria (SON), Nigeria Agricultural Quarantine Service (NAQS), the ministries of trade and investment, education, environment, agriculture and rural development, and the Federal Department of Fisheries. Others are the Consumer Protection Council (CPC), local government areas, universities and research institutes, and the private sector. It is important to investigate the synergy in approaches and communication strategies of these stakeholders and their contributions to a better understanding of food risks and improvement in food safety in Nigeria.

2.2 Food Risks Communication and Management

The need for food risk communication arises from the differences in the understanding and interpretation of food risks between experts and the ordinary consumers. Experts rely on empirical items of evidence in assessing the level of risk involved in food consumption, but consumers' assessment and perception are governed by their practical experiences with food, together with their senses of 'taste, smell, and appearance' (McGloin et al., 2009, p. 137). McGloin et al. (2009) observe that the success of food risk communication is tied to many factors, such as the behaviour and disposition of the source of information, the transparency of the source and the message itself, how the source engages the public, and open and timely admission of risks involved in food consumption. Other factors include the language employed in communicating with the public, its style and pre-dissemination evaluation among the target audiences. Also in the category are the selection of the right medium for reaching the audiences, and others such as knowledge, attitudes, beliefs, past experiences, socio-demographic variables of the audiences, and their psychological frames which affect message reception, understanding, usage and effects.

Where a good system of risk information exchange among stakeholders does not exist or there are gaps in engagement or risk information provision, risk management procedures falter with consequential effects on risk prevention and reduction, food consumption and eventual safety and health of consumers. In Nigeria, discourse on food inadequacy exists with concerns on good nutrition, food safety and quality control mechanisms. The consumers rely on regulating agencies such as the National Agency for Food and Drug Administration and Control

(NAFDAC), the Standards Organisation of Nigeria (SON), the Federal Ministry of Health, the Federal Ministry of Agriculture, states and local governments and the National Codex Committee for monitoring safety standards in food production, packaging, distribution and consumption. However, Ojinnaka (2011) submits that there is constant anxiety over the safety of foods that get to the final consumers. Factors responsible for this include persistent challenges arising from expiry dates and spoilage, circulation of fake or substandard products, poor processing and warehousing mechanisms, failure to indicate production and expiry dates, high prices and supply of deceitful information on product packages to deliberately manipulate consumers. In this age of massive online communication with a labyrinth of sources and fast-paced content-sharing, opportunities for disinformation or misinformation, rumour, unnecessary fear, distortion and misrepresentation exist with the beneficial affordances of the digital space for sharing information on food risks and benefits.

Researchers (Infanti, Sixsmith, Barry, Núñez-Córdoba, Oroviogicoechea-Ortega, & Guillén-Grima, 2013; McGloin, Delaney, Hudson & Wall, 2009; Health Protection Network, 2008) and other stakeholders have recognised that efforts at communicating the risks involved in food consumption require a constant exchange or transaction between and among the communicators (stakeholders) and their audiences. It is an exchange of information about the “health risks caused by environmental, industrial, or agricultural processes, policies, or products among individuals, groups and institutions” (Infanti et al., 2013, p. 5). This removes the inactivity of the target audiences who were once passive receivers of risk messages, and makes risk communication a participatory endeavour. Food consumers are expected to receive and supply information on food products consumed. This makes food risks communication a complex phenomenon since factors such as source credibility, message characteristics, mode of delivery, the kind of food product and the attributes of the receiver greatly determine the success of the communication encounter. The implication, as noted by Infanti et al. (2013) is that, risk assessment, decision making, risk management and communication must be conducted by or have the inputs of all stakeholders. The objective is to involve the public (target audience) in the process of protecting them from risks associated with food consumption. Thus, in the food risk communication cycle in Nigeria, government agencies (regulators), the industries (manufacturers), the public and other stakeholders in the food chain should be in constant communication.

Though there were government agencies safeguarding food safety and quality for consumption, the Standards Organisation of Nigeria (SON) and the National Agency for Food and Drug Administration and Control (NAFDAC) are two major regulators. According to Nyor (2014), the bodies have been empowered by the National Health Policy to “promote health, control food-borne diseases, minimise and finally eliminate the risk of diseases related to poor food hygiene and safety” (p. 2). Their mandates extend beyond safeguarding standards in production, storage and processing. The obligations include overseeing maintenance of standards in buying and selling, transportation and marketing of foods. It is expected that with these obligations and real-time support for these agencies, issues in food production, distribution and consumption would not exist. However, Nyor (2014) notes that the aforementioned agencies and the Consumer Protection Council are inundated with complaints on the existence and consumption of unsafe and unhygienic food in the nation. This shows that regulators have to intensify efforts in favour of safe foods and effectively monitor manufacturers, middlemen and other stakeholders in the food chain.

Processes of monitoring, proper education, collaboration, inspection, culling and regulators' restriction of stakeholders in the food chain are also essential. Without neglecting the pricelessness of consumer education and sensitisation, provision of information on the quality of food products is also a suggestion for improvement. This means regulators, manufacturers and other agents for quality control and measurement of product performance can rely and utilise such feedback from the consumers.

2.3 Linking Food Safety, Urbanisation, and Sustainable Development Goals

To Pona, Xiaoli, Ayantobo, and Tetteh (2021), rural development challenges are parts of the factors that reinforce migration of people to urban areas in Nigeria. The same challenges also trigger observable environmental problems in forms of food risks and insecurity, water and air pollution, urban poverty, deforestation, and mismanagement solid waste. The scholars also identify heavy industrial production, in addition to water, sanitation and hygiene challenges as issues that promote urban vulnerabilities which consequently affect the nation's capacity to fulfil the sustainable development goals.

Increased urbanisation has implications for food safety and security, as well as the peculiar area of food quality, health effects of diets and changing lifestyle complications associated with nutritional values of available and consumed food products (Ekpenyong, 2015). Consequently, Ekpenyong (2015) emphasises the link between increased urbanisation and variables such as food security and safety, employment, water supply and living standard of citizens. The scholar notes that problems in the areas of housing, education, health, food and water are characteristics of rising urban complexities and such issues impede the actualisation of sustainable development in a developing economy such as Nigeria. The quality of available food in a developing economy directly determines variations in health problems therein, especially the rate of infections from food consumption in urban centres (Ekpenyong, 2015). Unfortunately, the analysis of food safety investments in Nigeria in the Global Alliance for Improved Nutrition's report in 2020 shows that investment in food safety in Nigeria is very low, when compared to its grave consequences on the nation's economy and public health. The study also shows that the nation lacks risk-based interventions for correcting the challenges in the food production and consumption chains.

The Global Alliance for Improved Nutrition (2020) highlights the global public health issues associated with food safety; statistics show that 600 million people got sick and 420,000 died globally in 2015 as a result of food-borne diseases. In developing economies, \$110 billion was lost to unsafe food in 2015 and 56,000 deaths were also recorded (World Bank, cited by the Global Alliance for Improved Nutrition, 2020). In Nigeria, Onyeaka, Ekwebelem, Eze, Onwuka, Aleke, Nwaiwu, and Chionuma (2021) reports that 200,000 deaths are associated with foodborne diseases annually. Elimination of poverty, ending of hunger, actualisation of good health and well-being, establishment of gender equality, and availability of clean water and sanitation, creation of sustainable cities and communities and attainment of responsible production and consumption are all SDG goals that are affected by food safety, the possibility of meeting the 2030 deadline is minimal in most developing countries (Global Alliance for Improved Nutrition, 2020). GAIN also observes that in Nigeria, the control mechanism and policy formulation and implementation on food safety have been labelled 'poor', with predominant safety concerns noted in fresh animal sources and vegetables.

2.4 The Health Belief Model

Possibly, all rational humans want self-protection against real and potential risks if they have the awareness. When target audiences are, therefore, apathetic to preventive and control reasoning during a dangerous situation, social psychologists would be interested in understanding why. The health belief model (HBM) provides explanations on factors that account for lethargy among target audiences. Schiavo (2007) observes that individuals must gain awareness and be well informed that severe and life-threatening risks exist and the benefits of experiencing food safety outweigh any negligence. In fact, Champion and Skinner (2008) note that psychologists have identified the mental/cognitive processes of thinking, reasoning, hypothesising and or expecting as factors precluding a particular behaviour.

This observation means perception is critical to behaviour modification in risk communication because under the health belief model, it determines whether people see themselves as susceptible to danger/risk or not and whether they will take actions or not to prevent or control the danger (Champion and Skinner, 2008). The scholars observe that in the study conducted to reinforce the constructs of HBM, the greater the perception of susceptibility, the greater the number of those who went for testing. People are likely to take recommended actions, if they perceive their susceptibility to risks; if they think that the risks could lead to dangerous consequences; if they perceive that there is a beneficial remedy to reduce or prevent the level of severity of the risks and if they accept that the benefits their knowledge will accrue are greater than the costs of ignorance.

In the HBM, perceived susceptibility, severity, and benefits of taking recommended positive actions cannot be successful unless self-efficacy, and cue to action are activated. Where people perceive that there are habits they need to jettison, suffer for or take recommended steps against, the levels of susceptibility and severity are reinforcements that risk communication could utilize to convince potential target audiences to act as envisaged. Cues to action are other external factors that trigger the target audiences to act. Environmental events and media campaigns are among the predominant practices listed as cues to action in HBM literature. Finally, individuals must build requisite conviction or confidence in their capacity to practise recommended actions and sustain such with little or no stress (Champion & Skinner, 2008).

The adopted framework for this study is therefore the health belief model. It is considered sufficient because of its applicability in audience-related research, especially when responses of target individuals to risks should be given recommended strategies in form of media campaigns and messages (risk communication) for tackling the risky events. In food risk communication, the ability to communicate food consumption risks (susceptibility, severity and benefits), recommend steps for preventing and/or controlling the risks, rely on cues to actions. They also depend on actions to build the self-efficacy of the consumers. All these make the model an important aspect of this study.

3. Materials and Methods

A mixed method design is adopted for this study. This involves questionnaire administration (quantitative) and interview sessions (qualitative) in Lagos State, Nigeria. According to the 2006 National Population Census (NPC), Lagos State has a population of 9,113,605. That is 4,394,480 females and 4,719,125 males, and Surulere Local Government Area has a population of 502,865. In Lagos, there are over 42 registered food manufacturing companies, including bakeries and food processing businesses and over 25 mass media organisations (television and radio stations and newspapers).

As the commercial nerve-centre of Nigeria, Lagos hosts the famous Murtala Muhammed International Airport and headquarters of most banks and major international companies. There is a notable seaport in the state and the daily influx of people makes Lagos the nucleus of the country's economy. The survey aspect of the study was conducted at Surulere Local Government Area, one of the densely populated areas in the state, which has the presence of industries and other amenities supporting socio-economic and cultural activities. Recognition is given to the National Agency for Food and Drug Administration and Control (NAFDAC), Standards Organisation of Nigeria (SON), Consumer Protection Council (CPC), food manufacturing companies, and mass media organisations as stakeholders in communicating the risks and benefits in food consumption. Besides, representatives of some of these stakeholders participated in the interview section of this study. The stratified sampling technique was selected in the division of the local government into its ten wards and quota sampling was used in picking eleven respondents from each ward. The purposive sampling techniques were adopted for administering the questionnaire on 110 food consumers in the area.

It is important to note that only 105 out of 110 respondents returned their copies of the questionnaire and the analysis of survey data was based on this. For the qualitative aspect of data collection, six experts were interviewed. These are one representative of the food manufacturing companies, two persons from the mass media (one each from television and radio) and three experts from regulatory agencies (one each from NAFDAC, SON and CPC). The purposive sampling method was adopted for selection of interviewees, while the available sampling method was adopted for getting survey respondents. Collected survey data were analysed with frequency count and percentage; thematic and pattern matching were employed for qualitative data analysis.

3.1 Analysis and Findings

Table 1: Demographic Data of Survey Respondents

Variables		Frequency	Percentage
Gender	Male	50	47.6%
	Female	55	52.4%
		105	100%
Age	18-25	37	35.2%
	26-35	24	22.9%
	36-45	16	15.2%
	46-55	19	18.1%
	56 and above	9	8.6%
		105	100%
Religion	Christianity	80	76.2%
	Islam	25	23.8%
		105	100%
Marital status	Single	64	61.0%
	Married	40	38.1%
	Divorced	1	0.9%
		105	100%
Academic qualifications	SSCE	39	37.1%
	Undergraduate	32	30.5%
	B.Sc./B.A.	21	20%
	M.Sc.	6	5.7%
	Ph.D.	7	6.7%
		105	100%

In the study, there were more female (52.4%) respondents than male (47.6%). In age, most of the respondents were below 46 years and 76.2% among them were Christians. The consumers were mostly single (61.0%) and they were all educated. Data show that 12.4% of the respondents had postgraduate education, 20% had attained only the first degree, and the rest were undergraduates and high school students. In summary, this group of respondents was made up of youthful people, and are consumers who possibly understand risk communication and sensitivity to food risks based on their knowledge and exposure in the society. This might not be unconnected to the socio-economic, educational and cultural fabrics of Lagos which make it a destination of the youths and upwardly mobile Nigerians.

Table 2: Significant Media for Communicating Food Risks and Benefits to Consumers

	TV	Radio	Newspaper	NAFDAC	Hospital	Posters/ Flyers	Internet	Billboards
From which medium do you get information about the danger in consuming some foods?	32 (30%)	19 (18%)	5 (5%)	16 (15%)	8 (7%)	-	27 (25%)	3 (1%)
Which medium gives the best information on food poisoning?	22 (20%)	17 (16%)	2 (2%)	22 (20%)	10 (9%)	-	34 (32%)	-
Which medium gives the best information on benefits of consuming some food products?	24 (22%)	8 (7%)	5 (5%)	18 (17%)	16 (15%)	1 (1%)	36 (33%)	-
Which medium quickly alerts you when there is a dangerous food product in circulation?	17 (16%)	17 (16%)	7 (7%)	26 (24%)	7 (7%)	1 (1%)	24 (22%)	2 (2%)
Which media do you trust to give you correct information?	31 (29%)	12 (11%)	4 (4%)	27 (25%)	13 (12%)	1 (1%)	18 (17%)	-

*****Respondents were allowed to pick more than one option in each case for all the questions

Television, the Internet and radio were notable media from which consumers receive information about the danger in consuming some foods. The Internet ranked highest as the best medium for getting information on food poisoning with 32%. Next to it are NAFDAC and the television, both with 20%, and then the radio with 16%. Newspapers, hospitals, billboards and posters and flyers were not common media for information reception on danger in consuming some foods and food poisoning. However, the Internet, television, NAFDAC and hospitals with 33%, 22%, 17%, and 15% respectively were mostly relied on by the consumers when they needed information on benefits of consuming some food products.

People need quick and up-to-date information when a dangerous food product is in circulation and NAFDAC, the Internet, radio and television rated 24%, 22%, 16%, and 16% respectively were mentioned as important media in this case. These same media were trusted by the consumers when they needed correct information. The prominence recorded by the Internet, television, radio and NAFDAC as media trusted and used by the consumers for getting information on food risks and benefits affirms what was established in Table 1 that the respondents were mainly youths. Again, radio, television and the social media are prominent platforms of development communication in Nigeria. Farmers and others in rural communities rely on radio, while the elitist society and the youthful generation prefer social media and television for information (Oyedele, 2017). This affirmation agrees with the standpoint of Rutsaert, et al. (2014) and Van Rijswijk and Frewer (2013), who noted the preference for and significant contribution of social media to food risk and benefit of communication in Europe and the world in general.

Table 3: Awareness of and Sensitivity to Food Risk Communication by Consumers

	Strongly Agree (%)	Agree (%)	Disagree (%)	Strongly Disagree (%)
The product package gives enough information about risks of consuming the food products.	27	32	28	13
The product package gives enough information about benefits of consuming the food product.	33	45	16	6
Food manufacturers always alert us when there is a danger in their food.	5	17	49	29
NAFDAC always alerts us when there is a danger in certain foods in circulation.	26	58	9	7
When I do not see NAFDAC number and expiry date, I do not buy food products.	45	28	14	13
Manufacturers use the media to adequately disseminate information on food risks	8	37	36	19
Manufacturers adequately communicate the benefits of consuming their food products.	32	48	16	4
My knowledge of food risks is low because of the language used in disseminating information about it.	12	32	39	17
My knowledge of food risks is high because of the language used in disseminating information about it.	22	32	31	15
Media messages have helped me in knowing and understanding the risks/dangers of consuming some food products.	48	41	7	4
Media messages have helped me in knowing and understanding the benefits of consuming some food products.	38	50	8	4

Here, the objective was to determine the sensitivity of the consumer-respondents to food risks based on their exposure to risk communication messages from the media available to them. It was found that product packages provide enough information on risks of food consumption to more than half of the respondents (59%). The same medium also provided needed information on benefits of products consumption to 78% of the respondents. However, 84% and 22% of the respondents identified NAFDAC and non-food manufacturers as providers of alert to consumers when dangerous foods were in circulation. This responsibility of NAFDAC might account for consumers' reliance on NAFDAC number and expiry date which 73% of the respondents seek before buying food products. 45% opined that most manufacturers do not provide adequate information on food risks but 80% agree that manufacturers do provide benefits of consuming such products.

In all, the respondents agreed that the language used and media messages on food risks and benefits did help their understanding of the risks and benefits, and their sensitivity to risks involved in food consumption. The target audiences' awareness, knowledge, understanding and response to information on risks and benefits might be linkable to a fact that knowledge could be derived from educational approach that primarily focuses on messages, channels, and spokespeople as espoused under the health belief model. Champion and Skinner (2008) note that since the objective of HBM is provision of new information, risks and activities that reduce unavailable information, consumers are encouraged to believe media messages and act on them. Nyor (2014) observes that NAFDAC and SON are nationally recognized, empowered and perceived as major regulators in the food industry. They, therefore, regulate the activities of manufacturers, protect the interests of consumers and ensure that accurate information get to the consumers.

3.2 Collaboration among Stakeholders for Effective Control and Prevention of Food Risks

To build understanding on risks and make informed decisions on food consumption, stakeholders such as government, food industry, scientists, regulatory bodies, people-centric NGOs, media, consumer groups and the general public need to work on their food risk communication. The Consumer Protection Council (CPC), the National Agency for Food and Drug Administration and Control (NAFDAC), the Standards Organisation of Nigeria (SON), researchers, the mass media, food manufacturers, and consumers are the stakeholders in the food business pyramid. The Standards Organisation of Nigeria is responsible for ensuring that adequate and quality standards are safeguarded in the food production and distribution sector. SON cannot work alone; it is the secretariat for coordinating the development of the standards stipulated by NAFDAC and the CPC. These two agencies produce a document containing the standards (consensus agreed on as minimum requirements for every product) expected in the food sector. What SON does is to ensure that everywhere in the nation, the mandatory certification for all locally manufactured products is conducted before food manufacturers can sell their products. The agency also ensures that regulations on labelling, certification and 5 yearly reviews laid down by NAFDAC and CPC are followed before a mark of approval is placed on a product.

The Standards Organisation of Nigeria (SON) also works with the media, manufacturers and the consumers because all over the nation through its state offices, it has various enlightenment programmes, workshops, seminars with different stakeholder groups. Every week on the network of the Nigerian Television Authority (NTA) on every Monday from 6:30 p.m. to 7:00 p.m. and also on NTA International, the station broadcasts educative talks to consumers and the Nigerian populace about its activities. An expert in SON observes that “The role of SON is in ensuring that the standards for those products are adequate, in the sense that it reaches the consensus of the stakeholders. Standards are usually consensus documents that reflect international best practices.” He further states that

The standards are actually developed by the stakeholders and the stakeholders that form the technical committee for the development of the standards include the manufacturers of the products, regulatory institutions, research institutions like universities, consumer associations, even the media are involved in the development of standards. If we are developing any standard for food for example, mandatorily NAFDAC must be part of that technical committee, organizations like Federal Institute of Industrial Research, Universities, manufacturers of the products Consumer Protection Council they all form part of the technical committee for the development or review of the standard.

The Consumer Protection Council works essentially to protect the interests of food consumers against poor services and ensure that they get value for their money by monitoring the operations of food manufacturers. To do this, it collaborates with NAFDAC, food manufacturers and SON. It also ensures that certain minimum standards in products are attained. It checks and enforces minimum labelling, contents and expiry date requirements. It inspects factories of manufacturers and operates consumers' rights programmes using the media. When there is a meeting with NAFDAC, manufacturers and SON, the agency represents the consumers. It also partners with the media by raising awareness, giving advice, and sensitising and alerting consumers on food safety. Here is the position of a representative of the agency on their collaboration with other stakeholders:

If any standard is going to be set concerning any product in the country, all the stakeholders will be called by SON, NAFDAC, and CPC. All these are taken into consideration. Once it has been agreed and signed into standards, we work with that so when we go out and find something that is

outside that we know it is hazardous to the consumers, we will clear them from the market. The Director General will give a press release from time to time; it is one of our functions to do a kind of advisory press to the public. There are certain things that have come up in the market; the Director General gives a press release advising the consumers on what to do if you ever come in contact with it. We have consumer rights programmes on NTA; we have radio programmes to enlighten people, and we have social media platforms: Twitter and Facebook. We relate with consumers, advise them and let them know things we are doing both inside and outside the market.

NAFDAC regulates and controls how drugs, foods, chemicals and other products are imported into and exported from the country. It does laboratory analysis, labelling and other activities before a product is issued a 'NAFDAC' number. The focus of NAFDAC is essentially on food manufacturers as the agency that scrutinizes manufacturers' products by exposing them to proper laboratory analysis and ensures that they conform to what the manufacturers claim they have. The agency collaborates with SON, the Nigerian Ports Authority, the Nigeria Customs Service, CPC, WHO, the National Drug Law Enforcement Agency and similar agencies in other countries and continents to inspect products and ensure that all products below standards are seized for destruction. It collaborates with the media by having programmes on private and public radio and television stations (African Independent Television, NTA, Federal Radio Corporation of Nigeria) to disseminate information to other stakeholders and ensure that consumers get quality foods. A representative of NAFDAC affirms this position in this excerpt:

For example, the Standards Organisation of Nigeria sets standards. We do have meetings with them where such standards are discussed and even WHO, UNICEF, they give us some technical support and training. And the media too, without the media, it will be impossible to work well because the NAFDAC we know today is about the media. When Dora Akunyili came, she deplored the media to make people know what NAFDAC is and what it does. If people don't know what you're doing, how will you penetrate them? If you are protecting people and they don't know what you're doing, you may be wasting your time. People should know that you are there to safeguard them; we need the media to help sensitise people, when you give information to people, they feel safe.

In this study, the representative of food manufacturing companies is Cadbury Nigeria Plc. The company observes that food manufacturers use labels to communicate product information and quality (expiry date, ingredients, health/nutrition information, etc.) to consumers. Regulatory bodies, during visitations to production plants, do assess facilities, check the recipes used in the production line to ensure that they conform to specifications given. When there are complaints from consumers, assigned departments are expected to log them to the Corrective Action Preventive Action (CAPA). Consequently, a root cause analysis would be done to know the source of the issue. From there, execution of preventive action would follow to ensure that it does not occur again.

The media agencies interviewed submitted that the regulatory agencies sponsor programmes aimed at reaching out to food consumers. Sometimes, these agencies appear in news bulletin and structured interviews as situations demand. The mass media are platforms for informing, educating, mobilising, and sensitising all stakeholders on food safety. Here is their contribution on collaboration:

The collaboration will be in the perspective of going to these food companies to find out whether they have known or heard about a particular news item of how their product has affected members of the public negatively. We go to them, bring them on air, interview them and let them talk about

what has happened and what steps they are going to take to ensure that certain things are prevented in the foreseeable future; that is collaboration. We also encourage them to come on air regularly and sponsor programs. If it is radio for instance or TV, we ask them to talk about what they are doing and get members of the public aware of their activities.

4. Discussion of Findings

The study identifies the media used in communicating food risks, the level of awareness and sensitivity of food consumers to food risks communication and how stakeholders in food risks collaborate for effective prevention and control of food risks in Nigeria. Findings show that television and radio stations, the internet and social media and NAFDAC were prominent media used by risk communicators and cherished by consumers (target audiences). Experts listed product labels and packages, TV, radio, newspapers, social media and face-to-face campaigns as effective media employed in reaching the manufacturers and consumers. They, however, mentioned online media, radio and TV as the most effective media for doing this because of their relevance nowadays, reach and combination of sight and sound. This was closely followed by radio and social media because of the level of literacy in the country and the ease of reaching the audience.

The success recorded with food risk communication in this study could be attributed to the ability of stakeholders to address the mental/cognitive processes of thinking, reasoning, hypothesising and/or expectation, which are critical factors noted in the health belief model (Schiavo, 2007; Champion & Skinner, 2008) precluding a particular behaviour. The respondents linked their awareness of and sensitivity to food risks and benefits communication to the activities of NAFDAC and other regulators. This development implies that product manufacturers adhere to standards in food production, storage and distribution. Findings from the interview sessions conducted with the stakeholders show the cordial collaboration among them which resulted in safety maintenance and quick information provisioning. Findings agree with the position of Champion and Skinner (2008) on HBM as a “risk learning model because the goal is to teach new information about health risks and the behaviours that minimise those risks” because the stakeholders were able to work together to offer information and knowledge to their target audiences through the media, particularly on risks and benefits involved in food consumption (p. 49).

The effectiveness of the regulating agencies stems from the collaboration they maintain. Constant assurance of the public is the target of the coordinated efforts of these agencies. The agencies are active in the production of standard regulations, enforcement, monitoring, testing, validation and review of production certificates, arrest of offenders, prosecution, maintenance of right standards, protection of consumers' rights, and sensitisation of the public through the media. Although Nyor (2014) notes that these agencies are inundated with complaints on unsafe and unhygienic state of food consumed in the nation, it attests to the fact that consumers have been rightly empowered and sensitised by these agencies to know their rights, identify lapses in product quality and bring up complaints for redress. If complaints are many, it shows that the consumers are active. Such serves as helpful feedback to the agencies, intensifying efforts on how to work with local and international manufacturers and dealers on maintenance of appropriate standards. Even the manufacturers and consumers agreed with the regulators that their collaboration has improved the monitoring, education, inspection, culling and restriction process. This shows that where stakeholders use the right media and work together, food risk communication and safety of food can be guaranteed.

However, challenges and gaps such as poor technical expertise, poor enforcement of legislation and poorly equipped laboratories which Omojokun (2013) identifies as factors of unsafe food have not been addressed. Although consumers in the study area agreed that stakeholders on food risk communication raise awareness and sensitise consumers regularly, it has not largely transformed into crystallisation of perceptions and ideas, understanding of real risks involved in food consumption and factors predisposing them to the risks, and real strategies for managing them when they arise (Verbeke, Vanhonacker, Frewer, Sioen, De-Henauw, & Van-Camp, 2008). Therefore, new studies on specific food risks communicated, critical understanding of the risks, and strategic application of recommended methods for preventing and controlling food risks by consumers are needed. The pathway through which perceived susceptibility, severity, benefits and self-efficacy of the health belief model combine to reinforce food risk communication campaigns and their adoption among consumers in Nigeria should be empirically determined.

5. Conclusion

The study concludes that the synergy between food manufacturers and food regulating agencies contributes to current efforts at ensuring food safety in Nigeria. However, information on packages of food products have not been well used by consumers. The existing regulatory agencies have mandated food manufacturers to provide health information and strategies for disposing of product packages to prevent pollution. Also, consumers have not fully utilised the opportunities provided for immediate feedback via social and digital media platforms. It is recommended that serious awareness should continue on various media platforms to sensitise consumers on product safety and healthy consumption. Regulating agencies are strongly advised to conduct open investigation, random visit to food centres and markets, mass awareness, and training for food manufacturers for improved hygienic food production, distribution and consumption, specifically in Lagos and generally in Nigeria.

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