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COVERAGE AND FRAMING OF GENETICALLY MODIFIED FOODS AMONG SELECTED TELEVISION CHANNELS IN NIGERIA (2023 - 2025)

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Abstract

The media play an influential role in shaping public understanding and perception because the public largely depends on the media for information. Therefore, this study investigates the media framing of genetically modified foods among selected television channels in Nigeria between 2023 and 2025. To evaluate media framing, the study specifically examined the patterns of coverage, viewership, and patterns of framing regarding genetically modified foods. The study was anchored on the media framing theory. Through the use of content analysis, the study examined a total of 87 television reports across five different television channels between June 2023 and June 2025. Findings from the study showed news report as the most dominant pattern of coverage, the study also revealed low level of viewership as well as a lot of polarized and conflicting views regarding genetically modified foods, and proponents of both viewpoints are using the media to propagate their viewpoints. Against this backdrop, the study recommends the need for the media to remain accurate, objective and unbiased in its reportage of genetically modified foods, the study also strongly recommends more time and resources towards conducting extensive and longitudinal research on genetically modified organisms. This would avail them opportunity to come up with scientific based results, thereby enabling policy makers to make informed decisions.

Keywords: Food, Genetically Modified Foods, Media, Media Framing.

Introduction

Food alongside clothing and shelter is believed to be one of the most basic needs of man. As human population increases, the future projection of the world's population by the year 2050 is estimated to be around 9.8 billion (United Nations, 2017). As a result, there is a growing concern about food security for the world's teaming population, and this will eventually lead to a high demand of food globally; high level of malnutrition and also pose a threat of satisfying public demand of food (FAO, 2017). Current estimates indicate that more than 800 million individuals worldwide are experiencing persistent undernourishment (WFP, 2020). According to Animasaun, Azeez, Adubi, Durodola & Morakinyo (2020), farmers in third world nations, who consist of a bigger share of the global population, have restricted availability of water resources, financial resources, and necessary technology to efficiently stimulate food production. Therefore, it is evident that traditional methods of food production would be significantly inadequate in fulfilling the global food demand in the near future (Blancfield et al., 2008; Mottaleb and Mohanty, 2015), underscoring the urgent need for biotechnology implementation in food production.

That being said, the discussion around genetically modified (GM) foods is a contentious one in Nigeria, as it is in many other countries globally. Certain experts believe and argue that GM crops are not only hazardous to human health but also not environmentally viable due to potential disruptions to existing farming methods. However, advocates of the initiative see economic prospects in advocating for the adoption of genetically modified (GM) crops, which may lead to an increase in both revenue and agricultural production. The need for accurate information on genetically modified foods draw attention to the role of the media in shaping public perception. In the discourse surrounding genetically modified foods, it becomes apparent that both factions in the GMO debate are influenced by unseen forces that may possess vested interests in the outcome.

Consequently, the media hold a significant position in moulding public understanding and perception, as the populace predominantly relies on media sources for information. The portrayal of GM in the media has the potential to significantly shape public perception and inform policy development. Consequently, it is the fundamental responsibility of the media to maintain an open mind, enabling them to steer society towards making well-informed decisions. The need to examine how the media frames GMF is crucial towards how the public will perceive it. This is because it is believed that public perceptions may be either negative or positive, depending upon the specific elements that influence them at different times. It is therefore on this basis that this study seeks to investigate media framing of genetically modified foods in selected television channels.

Objectives of the Study

1. Find out the patterns of coverage used in reportage genetically modified foods among selected television channels in Nigeria.
2. Ascertain the extent of viewership of genetically modified foods in selected television channels.
3. Ascertain the patterns of frames used in reportage of genetically modified foods in selected television channels in Nigeria.

Genetically Modified Foods

In the context of human and animal use, genetically modified foods (GMFs) often denote agricultural plants that have undergone deliberate genome modifications utilising contemporary molecular methods (Taire, 2003). In order to confer resistance to pests and diseases, drought tolerance, herbicide resistance, and enhancement in nutritional qualities, among other purposes, the genome of a crop plant may be altered or modified (Paine et al., 2005; Fedoroff et al., 2010; Tester and Langridge, 2010). Ghimire (2014), defines GM foods or GMOs (genetically-modified organisms) as agricultural plants obtained by the use of cutting-edge molecular biology methods for

human or animal consumption. These plants have undergone laboratory modification to augment their desirable characteristics, such as heightened resistance to herbicides or enhanced nutritional composition. The augmentation of desirable characteristics has always been pursued via breeding, however traditional plant breeding techniques may be very time-consuming and often lack precision.

Emmanuel (2021), asserts that genetically modified foods (GMF) are alternatively referred to as bioengineered or genetically processed foods. Genetically modified food products are food items that are typically manufactured for public consumption that have been modified using genetic material from another organism. Biological entities that contribute their genetic material might include animals, plants, or microorganisms. GMOs, as defined by the World Health Organisation (WHO), refer to species (such as plants, animals, or microbes) in which the genetic material (DNA) has been modified in a manner that is not typical via mating and/or natural recombination. Furthermore, the Food and Agriculture Organisation (FAO) of the United Nations has provided a definition of GMOs as goods that are not derived from natural mating and/or natural recombination (Hudson, 2017; Zhang et al., 2016a). Genetically modified (GM) crops have the ability to withstand harsh environmental circumstances, unlike natural cultivars which would need many generations of evolution to get the same degree of resistance (Eneh et al., 2016). Among these characteristics are resistance to illnesses and environmental conditions, prevention or postponement of spoiling, resistance to chemical treatments, and enhancement of nutritional composition. Genetically modified (GM) crops have the capacity to enhance agricultural production, as shown in regions where they have been implemented. The first genetically modified (GM) crop received approval in 1994, and after that, the number of authorised GM crops has steadily risen and remained rather stable for the last twenty years. Currently, more than 357 genetically modified (GM) features have received approval in different

crops. The most often seen traits are evident in canola, maize, cotton, papaya, cassava, soybean, and potato.

Framing Theory

The Framing Theory developed by Erving Goffman suggests that media outlets carefully select and interpret events or issues, attaching meaning to them, which can significantly influence how the audience perceives the problem and their choices when processing the information. This interpretation can significantly impact how a case is perceived and can influence the opinions and actions of the audience. The theory explains the media's ability to persuade audience to accept one meaning more than the other (McQuail, 2005). According to Asemah, Nwammuo and Nkwam-Uwaoma (2022), framing a communication text or message is to promote certain facets of a perceived reality and make them more salient in such a way that endorses a specific problem definition, causal interpretation, moral evaluation, and or a treatment recommendation. This implies that the manner in which information is presented influences audience perception, reception and interpretation. Littlejohn and Foss (2008), view framing as a second level agenda setting, as it does not only tell the audience what to think about (agenda setting), but also how to think about an issue (second level agenda setting, framing theory). According to Wandati (2024), understanding the Framing Theory can help us become more critical consumers of news and media and better understand how our opinions and beliefs can be influenced by how information is presented. The theory also highlights the dynamic nature of communication and how frames are dependent on various factors such as the communicator, the message, and the audience (Arowolo, 2017). Media outlets create frames during the news-gathering process, and these frames become prominent when the news story is presented with a predetermined context. Communication is a dynamic process that involves building and setting frames (Vreese, 2005). However, these frames depend

on the person communicating, the information being communicated, and the public receiving the report (Entman, 1993). Previous research on framing in the news shows how the presentation of a story in the report is selective and only shows part of the reality but helps the audience break down and interpret information faster. How stories are framed is determined by news values. Although there are 12 news values (Galtung, 1965) Entman says five fundamental values are the most popular when framing stories: conflict, human interest, consequence, morality and responsibility (Kennedy, 2021).

This understanding of framing theory was crucial in this study because it helped assess how media outlets in Nigeria, have presented GMO-related news stories, the language used, sources of information, and the overall narrative in the stories through the natural and social frameworks. These frames played a pivotal role in shaping citizens perception and interpretation of GMOs, influencing whether they perceived them as beneficial solutions to agricultural challenges or as risky and potentially harmful innovations.

Review of Empirical Studies

Genetically Modified Foods is a subject that has attracted the attention of scholars, educators, the media and other relevant stakeholders in recent times. Extensive research has been conducted on various aspects of Genetically Modified Foods, and this section aims to analyze the empirical findings pertaining to Media framing and audience perception of Genetically Modified Foods in Nigeria. Bello & Owoicho (2021), in their study examined select newspaper's coverage of Agricultural Biotechnology issues in Nigeria. The study relied on quantitative content analysis of the news stories of 2 Nigerian newspapers (Daily Trust and The Nation newspapers). Findings from the study showed that the two newspapers (Daily Trust and The Nation) have not given adequate coverage to the issues of Agricultural Biotechnology as they were episodic in their reportage of the issue. The newspapers were unable to do this because most of the reports on

Agricultural Biotechnology are in the form of news writing, paying little attention to the analysis of risks or benefits that lies therein. It was also found that the selected newspapers accorded low prominence to the issues on Agricultural Biotechnology with the placement of a majority of such stories on the inside pages and far less on the front and back pages.

Ilo & Ngozi (2023), in their study examined the reportage of modern biotechnology issues by two online media in Nigeria. Questionnaire was administered to a reporter each in both Enviro News and Premium Times in a bid to finding out the level of reportage of biotechnology issues in these online media. Findings from the study showed that the online media in Nigeria is not paying close attention to biotechnology issues in terms of coverage and reportage. Biotechnology reports appear in the surveyed media once in a while and there have not been conscious efforts to investigate the health and environmental impact of this technology believed by sections of the public to be harmful. The online media has not also made efforts to consciously publicize the new technology believed to have potentials to address hunger and starvation. Its benefits are unknown because the public who patronize the online media have not been adequately informed about it. The survey also indicated that both pro and anti-GMO groups have not effectively deployed the potentials of the online media in communicating their ideas and concepts to the public.

Gakpo & Baffour-Awuah (2024), examined how the media in Ghana, a country where efforts are ongoing to commercialize GMOs, is covering the technology. This is because the key role the media plays in influencing consumer attitude and public policy about food, and GMOs in particular, makes it imperative for those involved in the agricultural biotechnology sector to pay attention to what the media reports on the technology. The study by way of mixed method identified 3 of the country's most vibrant digital news outlets and did a content analysis of all GMO stories reported 18 months pre-and post-approval to assess whether the approval changed the

focus of GMO issues the media reports on. 91 articles were identified. The results show media reports on the likely impact of GMOs on the country's food security shot up after the approval. However, media reports on the possible health, socio-cultural, and environmental impact of GMOs declined. We observe the media and the public appear interested in deliberations on how the technology could address or worsen food insecurity and urge agricultural biotechnology actors in Ghana to focus on that in their sensitization activities.

Omeje (2019), examined the media coverage and framing of Genetically Modified (GM) crops in Nigeria in view of the controversy surrounding the deployment of agricultural biotechnology. The objective was to examine the quality of media reporting on this contested science and the state of science journalism in the country. The main findings were that the frequency of reporting on GM crops was low; the tone of the headlines and articles was more negative; there were more articles with perceived risks of GM crops than perceived benefits; and the articles were mostly news stories about the comments of government officials and anti-GM activists. GM crops were framed in four prominent ways: agriculture, controversy, regulation, and safety with the regulation and safety frames dominating the media coverage. The media framing of GM crops was greatly influenced by the sources, predominated by government officials and anti-GM groups. Overall, the quality of media coverage of GM crops was very poor because of the poor state of science journalism in Nigeria. The journalists lacked the capacity and resources to cover science accurately, especially controversial science like GMO. The study however failed to establish how the media framing of GM crops influence audience perception, leaving a gap in knowledge. Similarly, Monyenye, Muchunku & Njeru (2023), examined how the mass media, particularly Citizen Television, one of Kenya's most-watched channels in the country, framed GMO-related stories in October 2022 (when the government lifted a one-decade ban on GMOs) to raise

public awareness. Findings from the study showed power dynamics within the GMO debate, emphasizing the importance of inclusive decision-making processes as well as checks and balances within democracy. The study concluded that Citizen Television's coverage of GMO-related news stories in October 2022 employed diverse natural and social framing themes to raise public awareness among Kenyans. These themes encompassed political perspectives, expert insights, civil society concerns, international comparisons, government assurances, power dynamics, opposition viewpoints, advocacy, multinational implications, regulatory roles, health and environmental considerations, and economic factors.

Research Methodology

This study adopted a quantitative method by way of content analysis for the study. This research design was selected because it allows the systematic evaluation of diverse media contents, including written and audio-visual materials. Five television stations namely Channels, Arise TV, TVC, NTA and News Central Television were selected for this study. These stations were selected based on their popularity as leading television stations in Nigeria and richness in terms of news coverage. To analyse the media content from the selected television stations, 87 YouTube videos on genetically modified foods were purposively selected from all the media reports available on the subject, which were retrieved from the YouTube channels of the aforementioned television stations between June 2023 and June 2025. Using a quantitative content analysis, the coding sheet research instrument was used to analyse the videos.

Data Presentation and Analysis

Research Objective 1: Find out the pattern of coverage of genetically modified foods among selected television channels in Nigeria (N=87).

Pattern of Coverage	Channels	TVC	Arise	NTA	News Central TV	Total	(%
News Report	5	13	5	10	9	**42**	**48.**
Interview	4	2	2	0	9	**17**	**19.**
Narrative	2	4	0	0	3	**9**	**10.**
News Analysis	0	0	3	2	0	**5**	**5.7**
News Commentary	2	0	2	0	0	**4**	**4.7**
Discussion	2	0	2	1	1	**6**	**6.9**
Documentary	2	0	0	0	2	**4**	**4.7**
Total	**17**	**19**	**14**	**13**	**24**	**87**	**10(**

Source: Field Survey, 2025

As illustrated for each television channel with their respective patterns of coverage, news reports has the highest pattern of coverage, with a percentage of 48.2%, followed by interviews with 19.5% while documentaries has the lowest pattern of coverage.

Research Objective 2: To ascertain the extent of viewership of genetically modified foods among selected television channels in Nigeria (N=87)

Extent of Viewership	Channels	TVC	Arise	NTA	News Central TV	Cumulative frequency	(%)
1-500	7	17	6	13	22	**65**	**74.7**
501 – 1000	5	2	2	0	2	**11**	**12.6**
1001 – 10,000	4	0	5	0	0	**9**	**10.3**
Above 10,000	1	0	1	0	0	**2**	**2.3**
Total	**17**	**19**	**14**	**13**	**24**	**87**	**100**

Source: Field Survey, 2025

As illustrated for each television channel with their respective extent of viewership, 1- 500 has the highest number of viewers, with a percentage of 74.7%, followed by 501 – 1000 views with 12.6% while views above 10,000 has the lowest frequency.

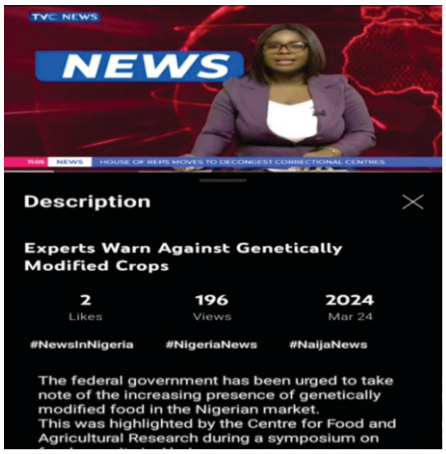
Research Objective 3: Find out the patterns of frames used in reportage of genetically modified foods in selected television channels in Nigeria (N=87).

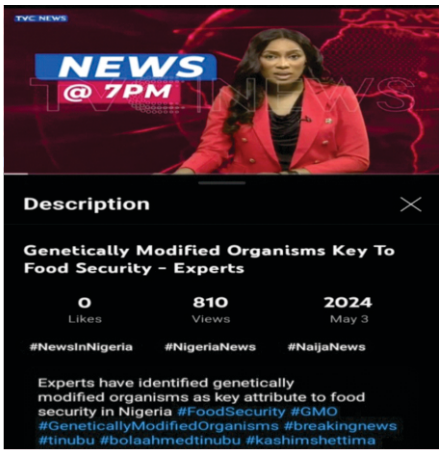
Pattern of Frames	Channels	TVC	Arise	NTA	News Central TV	Total	(%)
Scientific Progress	7	6	3	7	4	**27**	**31**
Economic Frame	6	4	5	5	2	**22**	**25.3**
Risk/ Uncertainty	2	9	1	0	13	**25**	**28.7**
Ethical/ Moral	0	0	1	0	1	**2**	**2.3**
Consumer Rights	0	0	0	1	0	**1**	**1.1**
Political/ Regulatory	2	0	4	0	4	**10**	**11.5**
Public Opinion	0	0	0	0	0	**0**	**0**
Total	**17**	**19**	**14**	**13**	**24**	**87**	**100**

Source: Field Survey, 2025

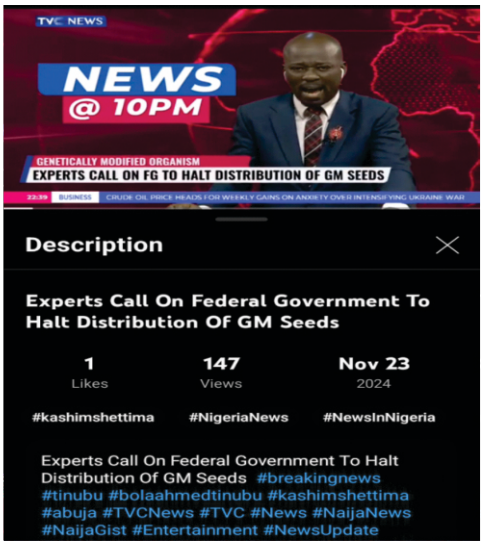
As illustrated for each television channel with their respective patterns of framing, scientific progress has the highest pattern of framing, with a percentage of 31%, closely followed by risk/uncertainty frame with 28.7%, while economic frame has 25.3%. The study also reveals a lot of conflicting reports particularly from experts on genetically modified foods, both of which are using the media to propagate their ideologies. For example in one of the television reports that was selected for the study dated 24th of March 2024 had a headline with the caption "Experts Warn against Genetically Modified Crops". Another report that was done on the on the same television

channel dated May 3rd 2024 had another headline with the caption "Genetically Modified Organisms Key to Food Security - Experts".





Another report done on the 30th of June 2024 had another caption titled "Experts points to GMOs as Key Solution to Food Inflation" and right on the same Television station, another report done on the 23rd of November 2024 had another caption titled "Experts Call on Federal Government to Halt Distribution of GM Seeds".



Discussion of Findings

The first objective was to find out the patterns of coverage used in reportage genetically modified foods among selected television channels in Nigeria. According to data that was gotten from the coding, news reports has the highest pattern of coverage. By definition, a news report basically refers to news stories presented just by a newscaster with the sole aim of informing the audience with the latest information about genetically modified foods. While this in itself is not bad as it shows the media performing its information function to the society, it inevitably shows that majority of media content regarding genetically modified foods in the television channels selected for this study were presented in form of news reports, while very few television channels have done documentaries or more in-depth media content like news analysis, extensive interview, discussion or even dedicated programs specifically on coverage of genetically modified foods in Nigeria. This is in line with the findings of Omeje (2019), who affirmed that the quality of media coverage of GM crops was very poor because of the poor state of science journalism in Nigeria. According to his study, journalists lacked the capacity and resources to cover science accurately, especially controversial science like genetically modified foods.

The second objective was to find out the extent of viewership of genetically modified foods in selected television channels, data that was gotten from the coding shows that majority of media content regarding genetically modified foods in the television channels selected for this study has a very low amount of viewership, despite the fact that all the five selected television channels for the study has a large amount of followers. This shows that despite the fact that genetically modified foods is a subject that has attracted media coverage and attention, many Nigerians may be unaware of the subject, as vividly depicted in the low number of views. According to Omoyajowo et. al (2024), awareness of GM foods was significantly

associated with socio-demographic factors such as marital status and education.

The third objective was to find out the patterns of frames used in reportage genetically modified foods among selected television channels in Nigeria. Information gathered from the study shows that majority of media content regarding genetically modified foods in the television channels selected for this study were more focused on its scientific progress, economic importance as well as risks and uncertainties surrounding it. However, other important aspects of media framing such as ethical/moral frame, consumer rights, political/regulatory and even public opinion have not been sufficiently framed by the media in Nigeria. The media's coverage of the application of genetically modified organism (GMO) technology in food production significantly influences consumer perceptions, attitudes, and behaviors toward it (McCluskey, 2016). Effective framing can influence the interpretations of life events and the public opinion and perception of a topic, especially when framing is tied to a person's identity such as national origin or socioeconomic status (Goffman, 1974: Velardi & Salifa, 2021). The frames significantly influence citizens' perceptions and interpretations of GMOs, determining whether they view them as advantageous solutions to agricultural challenges or as risky and potentially detrimental innovations. According to Asemah, Nwammuo and Nkwam-Uwaoma (2022), the manner in which the issue is framed can significantly affect whether discussions surrounding GMOs are primarily marked by respect for scientific consensus and authority or by an emphasis on democratic discourse and the examination of diverse perspectives. This perspective, consequently, enriches the wider societal dialogue surrounding GMOs and their ramifications. Misinformation campaigns and weak science communication infrastructures further complicate public understanding, leading to low trust in government and biotech regulations (Lynas, Adams, & Conrow, 2025).

Conclusion

The findings of this study underscore the significant role the media play in shaping public understanding and perception because the public largely depends on the media for information. The way GM is framed in the media can directly influence public opinion and policy formulation. It is therefore the prime duty of the media to always keep an open mind in order to be able to guide society into making informed decisions. The need to examine how the media frames GMF is crucial towards how the public will perceive it. This is because it is believed that public perceptions may be either negative or positive, depending upon the specific elements that influence them at different times.

While the findings from the study shows that genetically modified foods is a subject that has attracted appreciable amount of media coverage and attention in recent times, the depth of coverage remains relatively on the surface level, going by the limited amount of time used in producing and disseminating news reports. The study findings also show that despite the fact that genetically modified foods is a subject that has attracted media coverage and attention, many Nigerians may be unaware of the subject. Another key finding that was made in the study is that there were a lot of conflicting reports done at different times on genetically modified foods, and this was vividly depicted judging from the tone of headline presentations.

In light of these findings, it is evident that the subject of genetically modified foods is an emerging subject of discuss that has attracted media attention and coverage. It is one that has also garnered public interest and has generated a lot of controversies and polarized views among experts and various stakeholders. This is evident from the way both sides of the GMO divide are dancing to the drumbeats of invisible players who might have vested interests in the matter and are using the media to propagate their

ideologies. The findings from this study also suggest that there might be a lot of misinformation and knowledge gap in public domain about genetically modified foods in Nigeria. This is evident in the predominant pattern of coverage, low level of viewership and predominant frames identified in the media coverage and framing of the subject, this gap in knowledge has opened the door for a plethora of misconceptions regarding genetically modified foods in Nigeria, all of these ultimately resulting in the negative perception on it.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Even though the relevant stakeholders are all trying to address the big problem of food insecurity in Nigeria, there is need for policy makers to provide more time and resources towards conducting extensive and longitudinal research on genetically modified organisms. This would avail them opportunity to come up with scientific based results, thereby enabling policy makers to make informed decisions.
2. Findings from the study have also shown that genetically modified foods are a subject that has visible parallel and polarized viewpoints, and proponents of both sides of the divide are evidently using the media to propagate their ideology. Therefore, there is need for the media not to remain very open and neutral in its coverage and framing of issues relating to genetically modified foods.
3. Findings from the study also shows that even though genetically modified foods is one that is gradually attracting media attention, there appears to be a lack of depth in media coverage of the subject as findings from the study shows that many of the media content on genetically modified foods are news reports. There is therefore need

for more in-depth coverage on the subject matter, this can be done by way of organizing more of interview programs, discussions, news commentary, news analysis and even documentaries on genetically modified foods.

4. Findings from the study also shows that as far as the subject of genetically modified foods is concerned, there is insufficient awareness coupled misinformation and even conspiracy theories. Therefore, there is need for relevant stakeholders such as educators, policy makers and even the media to raise more awareness on genetically modified foods. This can be achieved in so many ways, for example, genetic modification can be introduced as a subject right from secondary level, while more media programs can be done across all media spheres to educate more people. A lot of media literacy should also be encouraged.

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