

Sustainable marketing strategies to increase food consumption and support food security

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Abstract

This study aims to examine sustainable marketing strategies that can increase food consumption and support food security. Using descriptive analytical methods through observation and literature review, this study analyzed various sources, including interviews, journals, books, and related articles, to identify best practices in sustainable marketing in the food sector. The results indicate that marketing strategies that prioritize desires and needs, such as the use of local raw materials, transparency in the supply chain, and consumer education campaigns, have great potential to increase awareness and interest in sustainable food products. This study also identifies challenges faced by food industry players in implementing sustainable marketing strategies, such as high initial costs and consumer resistance to changes in food ingredients. The results of this study are expected to provide useful insights for industry players and policymakers in designing effective sustainable marketing strategies to achieve sustainable consumption and food security.

Keywords

Sustainable marketing strategy, Food consumption, Food security

Introduction

Agricultural production is vital for raising nutritional levels and serves as a major source of income for many individuals. Increasing food crop production is essential for eradicating hunger and fostering economic and social growth. The world's food crop output has undergone significant changes in recent decades. Due to two main causes, the quantity of food we produce has increased dramatically: the expansion of land used for agriculture, but the biggest driver has been the rapid increase in crop yields.

Food security is a global issue that is increasingly pressing to address, particularly amidst the challenges of climate change, population growth, and economic crises that can

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impact food availability and access. Climate change significantly impacts agricultural productivity through rising temperatures, extreme weather, and shifting rainfall patterns, leading to reduced crop yields and increased vulnerability to pests and diseases [1]. Both natural causes and human actions contribute to climate change, which has a profound effect on biodiversity, food security, and agricultural production. In particular, species that are endemic and narrowly adapted are at risk of extinction. Therefore, concern over species extinction is warranted, considering that these species provide food sources for all life forms and serve as primary healthcare for 60–80% of the world's population. Despite the acknowledged effects of climate change on biodiversity and food security, research on these topics is still lacking in comparison to the size of the global problem [2].

Consistent with previous years' indexes, six of the ten lowest-scoring countries in 2022 are in Sub-Saharan Africa. The Middle East and North Africa and Latin America are the three worst-performing countries. Syria is at the bottom with a score of 36.3, followed by Haiti with a score of 38.5, and Yemen with a score of 40.1. The gap between the highest and lowest-scoring countries is significant; Syria's score is less than half that of Finland. This gap between the best-performing and lowest-ranking countries has widened since 2019, highlighting the inequalities that exist in the global food system.

Figure 1 present Food Security Index in several regions around the world.

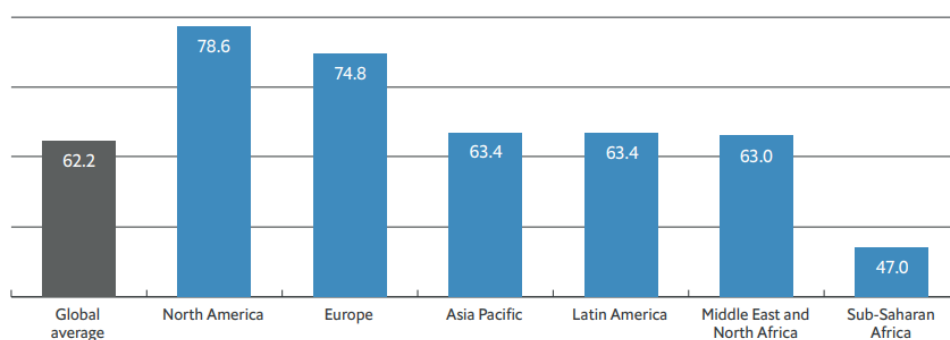


Figure 1. Food Security Index

Between 2019 and 2022, the affordability score on the index decreased by 4%, from 71.9 to 69. This decrease was influenced by various shocks, including the COVID-19 pandemic, high input costs, and the conflict in Ukraine, all of which contributed to rising food costs.

Climate change and land degradation pose serious threats to global food security. Land degradation makes agroecological systems more vulnerable to climate change and less able to adapt effectively. However, this interaction is largely overlooked in evaluations of climate impact and planning for adaptation. We investigate how land degradation may affect the impacts adaptive capacity of crop and livestock producers in various agroecological systems in the face of climate change [3].

The world population is predicted to reach nine billion by 2050, which will increase the need for food and strain current food production systems. By 2050, agricultural production must double in order to satisfy the demands of a growing global population,

but climate change makes this challenge even more difficult. Environmental stress, high temperatures, and drought are major elements that affect food security and have a significant impact on crop productivity. In addition, global warming poses a threat to the extinction of numerous species, including those that are essential to food production, forcing the migration of agricultural land, accompanied by environmental degradation and genetic variability of crop species, negatively impacting food security [4].

Economic instability, such as that seen during the COVID-19 epidemic, disrupts food supply networks and endangers food security. Food security is a very complicated problem that is directly tied to the world's food production and distribution systems. One of the main issues is ensuring that everyone has access to enough, safe, and nutritious food. Numerous factors, including population increase, poverty, economic stability, and environmental issues, are related to food security. Currently, the rate of global population expansion is unparalleled, putting a lot of strain on food production systems. Therefore, the agricultural industry and the current global food system face significant challenges in meeting the rising demand for food [5]. The expanding food demand brought on by population growth and the inability of food production systems to keep up with this increasing demand are endangering the world's food security. Climate change, diminishing soil fertility, and issues pertaining to air availability are all factors [6].

Sustainable marketing strategies are crucial for increasing consumption of healthy, high-quality food, while supporting food security at the local and global levels. In this context, a deep understanding of consumer behavior and innovation in marketing strategies can create a more resilient and sustainable food system.

A comprehensive understanding of the determinants influencing sustainable consumer behavior is essential for the formulation of efficacious green marketing strategies. This research endeavors to investigate the underlying mechanisms elucidating the correlation between environmental attitudes, perceived environmental knowledge, and green consumption values on consumer behavior. In particular, this investigation underscores the mediating function of receptiveness to green communication and engagement with green enterprises via social media [7].

In light of the detrimental effects that our current food system has on the environment, society, and economy, it is essential to have a full grasp of how to successfully persuade consumers to make more environmentally friendly food choices. Since consumer psychological state factors are easily changed, it's important to pinpoint the variables that have a big impact on sustainable food results (i.e., attitudes, intentions, behaviors) is crucial for policymakers and marketing professionals [8].

Sustainable food consumption is essential for tackling worldwide environmental issues and encouraging healthy, ethical practices. Grasping the elements influencing sustainable food selections among younger generations, especially Generation Z, is

essential for formulating effective approaches to encourage sustainable consumption habits [9]. A key measure in encouraging sustainable buying habits is to investigate how consumers perceive responsible consumption [10].

In the digital era, food marketing strategies are developing rapidly, especially in developing countries with increasingly wider access to technology and online platforms [11]. Green marketing, especially green advertising, has become a crucial tactic for tackling these issues by encouraging sustainable consumer behavior and fostering a shift toward more environmentally responsible consumption practices [12].

Demand for sustainable food continues to increase at a rapid rate, making sustainable food production essential for ensuring food security. The desirability of a product is determined by the brands associated with it serve as marketing tools to communicate important attributes of a food product to consumers, such as organic production and other ethical features. The impacts of sustainable branding can include more positive consumer attitudes toward the product, increased willingness to pay, higher consumer satisfaction with purchases, and consumer loyalty to products labelled as sustainable. To achieve these impacts, it is important to promote awareness and image of sustainable brands, disseminate consumer knowledge of the effects of food production on poverty concerns, and the establishment of a social environment that values a culture of food sustainability, which will inspire consumers to choose sustainable food options [13].

Changes in food consumption patterns, coupled with increasing awareness of the importance of health and well-being, have driven demand for higher-quality, environmentally friendly food products. However, many local food products receive little attention, making them unable to compete with imported products, which are often cheaper but less costly but require less attention to travel costs. Therefore, innovative marketing strategies are needed to encourage people to choose local and sustainable food products.

The rapidly changing world has also significantly impacted food production and consumption patterns. Public attitudes toward food have evolved over time, driven by rising per capita incomes, demographic shifts, lifestyle changes, and evolving moral and social values. Technological innovation and competition in the international food market have driven changes in the diversity and availability of food products [14]. As purchasing power and consumer knowledge increase, consumers are gradually demanding safer and healthier products. Furthermore, consumers are placing a greater emphasis on organic food. This study uses perceived food quality and price sensitivity as mediators to examine the link between environmental awareness and the intention to buy organic food [15].

Food security is a state where food requirements are satisfied at all levels, from the national to the individual, as evidenced by the availability of sufficient food of acceptable quality and quantity. This food should be secure, varied, nutritious, fairly

distributed, inexpensive, and not in conflict with the community's religion, beliefs, and culture. This makes it possible for people to lead sustainable, healthy, active, and productive lives (UU 11 of 2020).

Food security is characterized by the 1996 World Food Summit as a situation in which all individuals, at all times, have physical and financial access to sufficient, safe, and nutritious food that meets their dietary needs and preferences for a healthy and productive life. The four key elements of food security are the physical availability of food, economic and physical accessibility to food, food utilization, and food stability.

All four aspects must be fulfilled concurrently in order to accomplish the objective of food security. Food security is a situation in which food is accessible to all levels of society, from the national level to the individual. This is demonstrated by the availability of sufficient food, both in terms of quantity and quality, which must be safe, varied, nutritious, fairly distributed, and affordable, and must be available regardless of religion, beliefs, or culture. As a result, food security promotes a healthy, active, and productive lifestyle in a sustainable way. The development of food and nutrition security is a systematic process that includes a variety of industries. **Figure 2** present the sustainable marketing strategy.

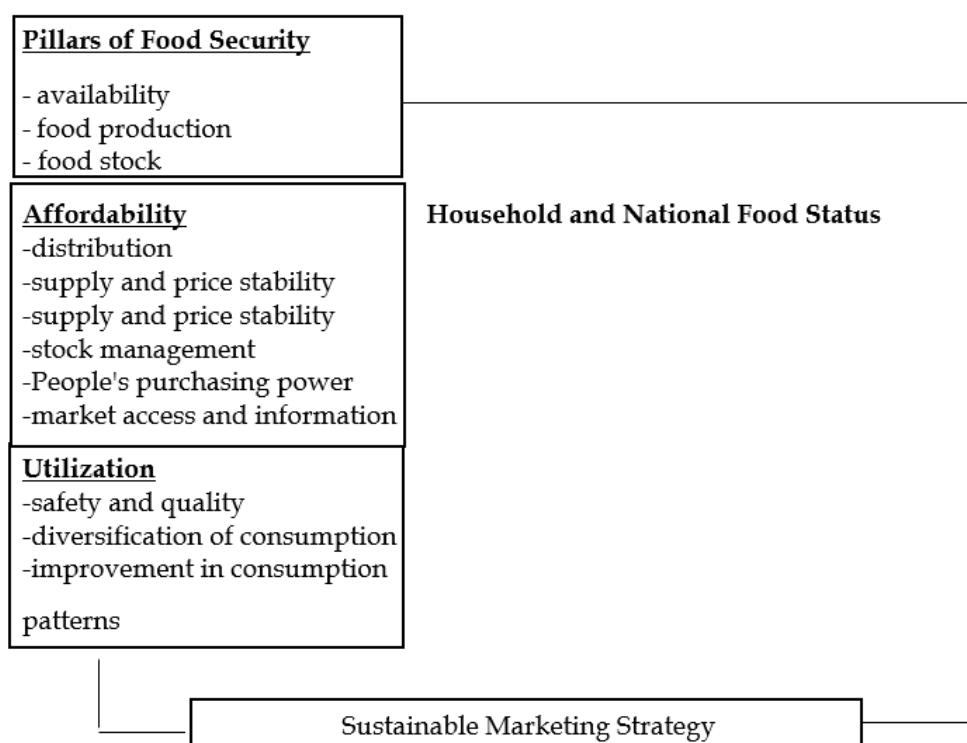


Figure 2. Sustainable Marketing Strategy

Cross-sectoral synergy from the central and regional levels, as well as partnerships between stakeholders, including the government, the private sector/state-owned enterprises (SOEs), community organizations in the food and agriculture sector, and farmers, are essential for developing a sustainable food system. To alleviate food insecurity in food-insecure regions and to realize the Sustainable Development Goals

(SDGs), notably zero poverty and zero hunger, it is essential to implement food security development policies and programs in a focused and thorough manner.

Changes in dietary behavior reflect societal change. In post-industrial society, consumers place a greater premium on health, ethics, and ecology in their buying behaviors. This research investigates changes in food consumption patterns in Finland from 1985 to 2016. Fruits, berries, vegetables, and fish serve as markers of modern and healthy dietary practices. Time-series information from Finnish household budget surveys spanning 1985 to 2016 along with a novel age-period cohort model is utilized to expose the dynamics of these changes. The percentage of overall expenditure on all examined food items steadily rose throughout the study period. Younger birth cohorts are shown to consume more fruits and vegetables than older cohorts, indicating an increase in their intake [16].

In recent decades, consumer interest in environmentally friendly products has increased, and agricultural practices have continued to evolve in European countries. While consumer purchasing behavior is strongly influenced by personal needs, environmental concerns are also a key concern. Considering the severe strain that food production puts on the environment, especially through the use of air, energy, pesticides, and fertilizers, sustainable purchasing choices may help lessen the environmental impact of food by substituting high-impact items with "green" ones that do not harm the planet, hence protecting the environment and public health, as well as providing significant benefits to the economy as a whole [17].

The shift towards Sustainable production and climate change adaptation and mitigation rely on consumer interest in environmentally friendly food choices [18]. In West Africa, rice produced locally has failed to satisfy the demands and tastes of urban buyers. This research examines the obstacles encountered by local rice in urban markets and highlights policies that could be enacted to enhance the competitiveness of the regional rice industry [18].

The world today is witnessing ongoing changes in the market environment and heightened levels of competition arising from various factors. One of the most striking is the entry of imported products into local markets at lower prices than domestic products. Furthermore, there are strategic constraints related to the rising costs of local products, increasing product quality declines, and high levels of non-conforming products, there are also various variables that have direct and indirect impacts, such as political and economic factors that negatively impact the support of local products [19].

The purpose of this research is to analyze effective sustainable marketing strategies for increasing food consumption, identify factors influencing consumer behavior toward sustainable food, and develop recommendations for food industry players in designing sustainable marketing strategies that support food security.

The urgency of this research lies in the need to identify and implement effective marketing strategies to increase local food consumption and support food security. With the right strategies, it is hoped that consumers will be educated about the benefits of sustainable food consumption and encouraged to actively participate in selecting more environmentally friendly products. Furthermore, these strategies can also help local farmers and food producers market their products more effectively, thereby contributing to local economic growth.

Despite numerous studies on food marketing and food security, there remains a gap in understanding how sustainable marketing strategies can be effectively implemented to increase local food consumption. Many studies highlight the importance of phasing out, but few address concrete practices and marketing strategies that can be implemented in the field. Therefore, this study aims to bridge this gap by providing data-driven recommendations and best practices for sustainable marketing strategies that can increase food consumption and support food security.

Method

This research method uses a qualitative approach with descriptive analysis through interviews, observations, and a focus on literature review to gather relevant information regarding sustainable marketing strategies in the context of food consumption and food security. The research began with the collection and compilation of literature sources, including relevant scientific journals, books, articles, and reports, with selection criteria based on relevance, publication, and contribution to the research topic. Next, a content analysis was conducted to describe key information regarding sustainable marketing strategies, consumer behavior, and factors influencing sustainable food consumption. The findings from this analysis will be categorized into specific categories, such as successful strategies and challenges faced, then synthesized and interpreted within the context of food security. Finally, the research results will be compiled into a systematic and clear report, covering the background, methods, results, and recommendations for food industry players. Thus, this research is expected to provide in-depth insights into the role of sustainable marketing in increasing food consumption and supporting food security.

Results and discussion

The results of this study reveal several key findings related to effective sustainable marketing strategies for increasing food consumption and the factors influencing consumer behavior. First, the analysis shows that marketing strategies that prioritize poverty, such as the use of local raw materials, environmentally friendly packaging, and transparency in the supply chain, are able to attract the attention of increasingly environmentally conscious consumers.

This research investigates how sustainable marketing enhances supply chain transparency, especially via ethical marketing strategies that influence consumer trust and brand reputation. The methods of openness regarding visibility, traceability, and the sharing of practices from sourcing to distribution within the supply chain inspire companies' commitment to sustainability. By implementing ethical and environmentally responsible production methods, sustainable marketing can increase consumer trust and loyalty. Using a qualitative approach, including case studies of Patagonia and Unilever, this analysis demonstrates how firms utilize transparency to differentiate themselves in competitive markets. For instance, Patagonia implemented the "Footprint Chronicles" project to provide comprehensive information about its supply chain, while Unilever promotes transparency through its "Sustainable Living Plan," which emphasizes fair sourcing and environmental impact. The findings imply that transparency in the supply chain enhances brand authenticity and drives innovation and efficiency through the implementation of sustainable technologies to fulfill consumer demands. Nonetheless, the article highlights issues like greenwashing and the intricacies of managing global supply chains, necessitating strong data management systems and tight cooperation with stakeholders to realize genuine transparency. The link between sustainable marketing and supply chain transparency is crucial for encouraging ethical consumerism and sustainable business practices [20].

This study investigates the influence of desire practices on consumer behavior and brand loyalty by examining the adoption of eco-friendly materials, the use of ethical sourcing methods, and the adoption of circular fashion concepts. Using a mixed approach, including subjective surveys and quantitative observations, the study aims to provide insights into consumer perceptions and measure key factors. Anonymous and voluntary data were collected through a survey open to individuals aged 18 and over, with easy-to-access sampling through social media and dare communities, resulting in 187 completed responses. Analysis was conducted using ordinary least squares (OLS) regression. The findings demonstrate that desire plays a significant role in shaping consumer perceptions and purchasing choices, and shed light on effective marketing strategies for building customer relationships. The study also identifies challenges faced by the fashion industry related to environmental degradation and moral concerns, and recommends that simple supply chains implement innovative practices in product design as part of an effective desire strategy. Thus, this study offers pragmatic strategies for brands to enhance their competitive advantage and align with loyal customer preferences, serving as a valuable resource for partners in decision-making that aligns with today's consumer values [21].

In the modern marketplace, food packaging is essential in influencing consumer attitudes and actions. The visual appeal of food packaging has a big impact on how consumers see the product. Consumers are often drawn to appealing designs, vibrant colors, and clear images, which send signals about the product's quality and freshness.

Additionally, environmentally conscious consumers are increasingly concerned about packaging materials and durability [22].

The worldwide objective of sustainable development is to solve societal issues pertaining to raw materials, resource efficiency, the environment, and climate change. In this context, the promotion of green packaging, which involves employing sustainable materials and designs for packaging goods, is a critical strategy. This subject has seen a lot of research papers published in recent years, addressing different aspects and dimensions of green packaging [23].

The Industrial Revolution has created various global issues that have become significant for the world community since the 1970s. The rise in global environmental concerns has increased consumer awareness, emphasized the importance of green marketing, and emphasized the need to address ecological sensitivity in the business world. Sustainability and ecological awareness play a crucial role in consumer purchasing decisions in today's marketplace. In this context, green marketing strategies are crucial for both companies and consumers. This research focuses on the influence of eco-labelling, eco-friendly packaging and branding, eco-friendly products, and premium pricing on consumer behavior [24].

This research explores the complexities associated with green marketing instruments, particularly green advertising, eco-certification, and sustainable branding, and their impact on consumer decisions. The aim is to comprehend how these tools affect consumer preferences and impact actual buying behavior in light of increasing interest in environmentally friendly products [25].

Corporate social responsibility (CSR) and environmentally-friendly marketing play a vital role in encouraging ethical and sustainable business practices. This article offers a comprehensive review of the connection between green marketing and CSR, exploring its historical development, theoretical underpinnings, and the tactical consequences of green marketing for various companies [26].

Marketing strategies that emphasize the use of local raw materials, eco-friendly packaging, and supply chain transparency are effective in attracting environmentally conscious consumers. These strategies not only enhance brand image and consumer trust, but also contribute to environmental sustainability and support local economies. However, addressing challenges such as greenwashing and ensuring robust supply chain management are crucial to maintaining consumer trust and achieving long-term success.

This discussion focuses on the significance of these findings in the context of food security. With increasing consumer awareness of hate speech, food industry players need to adapt marketing strategies that focus not only on profits but also on social and environmental impacts. This aligns with the concept of a circular economy, which emphasizes waste reduction and efficient resource utilization.

The environmental, economic, and social impacts of the food value chain have attracted the attention of a variety of stakeholders. Nonetheless, only a limited number of studies have investigated sustainability within the food sector from a developing country's perspective in terms of social responsibility. The part that social responsibility plays in consumer preferences and purchasing behavior has not been adequately addressed in the current analyses [27].

Growing concerns Concerns regarding environmental and social issues in food production and consumption have rapidly proliferated across Europe. From a corporate social responsibility (CSR) viewpoint, food and agribusiness firms frequently face diverse interests, and there is an increasing demand for them to address sustainability issues [28].

Consumer awareness of various important issues in everyday life is one of the most important priorities, and this awareness frees people from various problems, thus creating a sophisticated and civilized society. However, many communities, especially in developing countries, face obstacles in increasing consumer awareness of various daily necessities, especially processed food products that have become one of the basic ingredients of everyday food [29].

Furthermore, education and marketing campaigns that emphasize the importance of sustainable food consumption can play a significant role in shaping consumer behavior. For example, information about the positive impacts of local food on health and the environment can increase public interest in switching to more sustainable food options.

As a community, we seek to meet the Sustainable Development Goals (SDGs) by 2030, with one of the key challenges being the encouragement of responsible production and consumption. Green marketing initiatives and education in university programs provide opportunities to positively influence the decision-making processes of producers and consumers. This study sought to assess how a voluntary university course on sustainability and the circular economy (SCE) affected students' motivation and behavior. We describe how students tend to consume products and adopt more sustainable practices both before and after taking an SCE course. The findings indicate that these have an impact on students' attitudes toward sustainable consumption. Specifically, the four main recommendations for creating green marketing strategies were revealed by the largest changes in the six dimensions that define green consumption. We suggest that businesses 1) educate about green practices, 2) foster community, 3) acknowledge consumer diversity, and 4) be gender-neutral. As a result, we contend that university education may have a significant impact on how students view sustainable behavior. Furthermore, the results show no discernible gender differences, which contrasts with behavioral differences observed in existing research on older cohorts [30].

Health promotion and education for the future and the desire to offer new approaches with the potential to reduce diseases related to diet and lifestyle, such as cancer,

metabolic disorders, obesity, and neurodegenerative diseases. Integrating educational channels related to food consumption outside the home, particularly in the workplace, could be an innovative strategic intervention, as an alternative to the less than satisfactory results of traditional information-education strategies implemented to date [31].

Human behavior, including the desire to participate in activities that benefit society, is influenced by education and moral values. Recent research has focused more on sustainable human behavior, but there seems to be a gap in the literature when it comes to studies exploring the role of poverty-focused marketing education (SME) and morality in fostering sustainable behavior, such as sustainable consumption. Based on the comprehensive theory of planned behavior, this study sought to determine how SME and morality affect university students' intentions toward sustainable consumption. A quantitative online survey was conducted among Management Science students at several Nigerian institutions. The data were analyzed using the SmartPLS structural model. The results showed that morality had a positive impact on sustainable consumption intentions and completely mediated the relationship between SME and sustainable consumption intentions, while SME was positively related to all constructs. However, attitude, subjective norms, and perceived behavioral control were found to be unimportant factors in determining sustainable consumption intentions [32].

Readers are increasingly examining the impact of education on awareness of sustainable behaviors is significant, yet research concentrating on developing nations remains limited, and the function of sustainability-oriented marketing education is not well examined. Using the theory of planned behavior, this research examines how desire-oriented marketing education influences students' understanding of sustainable consumption. This quantitative study relies on a digital questionnaire directed at marketing students at the National Marketing Institute of Nigeria who are enrolled in a training/seminar program. Participants were chosen from three universities in the Southeast and South-South regions of Nigeria. The resulting data was analyzed using structural equation modeling using SmartPLS. Our findings demonstrate that marketing instruction with a focus on desire impacts students' awareness of sustainable consumption, attitudes, subjective norms, and perceived behavioral control. These results will improve marketing education for sustainable development and affect students' environmental consciousness when making purchasing choices. This research also highlights the importance of marketing education in aiding Nigeria to attain the United Nations Sustainable Development Goals [33].

Second, factors influencing consumer behavior toward sustainable food include knowledge of health benefits, social values, and community influence. Third, food industry players who implement sustainable marketing strategies tend to gain a competitive advantage, both in the form of high customer loyalty and enhanced brand image.

In order to influence consumer behavior toward sustainable food consumption for to grasp sustainable development, it is crucial to recognize the elements that influence it. Through examination of consumer behavior and perspectives, this research enhances our comprehension of sustainable consumption of green agri-food products, providing new insights for stakeholders in the food market. It also focuses on the importance of age, income, and children's involvement in matters related to improving well-being through sustainable food consumption, along with consumer perceptions and understanding of eco-friendly agri-food products. Information from a sample of 614 participants, representing the examined consumer groups, was gathered through an online survey. Structural equation modeling (SEM) was employed to replicate the complex connections that underlie sustainable consumption behavior. This study creates a new model for sustainable food consumption and highlights how awareness and views of green agri-food products—which remain largely unfamiliar and insufficiently explored in Romania—boost consumer attitudes, buying habits, and overall well-being. The moderation model empirically shows that age, income, and having or engaging with children do not enhance the link between consumption behavior and well-being. This research provides important perspectives on the desirability framework for marketers and decision-makers in the food industry [34].

The study of food consumption behavior is crucial in modern society, where sustainability, health awareness, and the complexity of global supply chains are increasingly under scrutiny. This article aims to provide a comprehensive overview of the factors influencing food consumption decisions, including cultural, economic, social, and psychological aspects. Our analysis pays particular attention to the demand for sustainable food and the rise of ethical consumer behavior [35]. Rising ecological, health, and social awareness has prompted European consumers to consider more sustainable food choices. However, their behavior in this regard remains inconsistent [36].

The popularity of organic food consumption, which is a trend in sustainable consumerism, has made it a sought-after trend among consumers and a distinctive trend in the global economy. The study's findings indicate that a person's intention to buy organic food is positively influenced by subjective norms, perceived behavioral control, health awareness, concern for social responsibility, and trust, but not by subjective attitudes or environmental awareness. This research offers insights into the to grasp sustainable development, it is crucial to comprehend the elements that influence it. Examining consumer motivators and obstacles to organic food consumption can benefit all parties in the industry, especially producers, marketers, and policymakers. The research offers a comprehensive model of consumer behavior regarding organic food in developing countries [37].

Our study found that enhancing people's food selection skills is a useful strategy for increasing their sense of control and capacity to adopt sustainable eating habits. This was one of the major variables we identified as influencing changes in consumer

behavior. Attitudes, perceived behavioral control, subjective norms, experience, and individual characteristics are the most prevalent determinants of sustainable food choices. This study offers significant understanding of the factors affecting consumer behavior and presents chances to promote sustainable food selections. These results highlight the importance of consumer independence and assurance in making eco-friendly choices, suggesting that enhancing the availability and cost-effectiveness of sustainable packaging may promote acceptance. Regardless of societal pressures, urban shoppers prioritize personal values and their sense of control regarding purchasing choices [38].

On the other hand, challenges faced by industry players in implementing this strategy include high initial costs and resistance from consumers stuck in old consumption habits. Therefore, collaboration between the collaboration among the government, industry stakeholders, and the community is essential for developing an environment that promotes sustainable food. This study indicates that sustainable marketing approaches not only enhance food consumption but also significantly aid food security by fostering a more accountable and adaptive food system.

Conclusion

Sustainable marketing strategies play a crucial role in increasing food consumption and supporting food security, especially amidst increasingly pressing environmental and social challenges. By implementing practices that focus on sustainability, such as the use of local raw materials, transparency in the supply chain, and consumer education, food industry players can attract consumers who are increasingly concerned about sustainability issues. Furthermore, effective marketing strategies can build consumer trust and loyalty, which in turn encourages increased consumption of sustainable food products. Despite challenges such as high initial costs and resistance to change, collaboration between government, industry, and communities is crucial to creating a supportive ecosystem. By adopting a data-driven and innovative approach, food industry players can overcome these obstacles and meet consumer expectations. Overall, sustainable marketing strategies not only contribute to increased food consumption but also serve as a tool for achieving greater food security, which is essential for facing future global challenges.

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