

FOOD SAFETY IN CONSUMER RELATIONS: THE INFLUENCE OF PERSONAL VALUES

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Abstract

The aim of this article is to analyze the relationship between food safety and personal values in light of consumer behavior theory. In this theoretical essay, this relationship is examined through a discussion on how consumers' subjective perceptions are influenced by their personal values in various contexts involving food safety. The debate addresses social, cultural, economic and environmental factors, considering that values are shaped through the interaction of these variables. By outlining their positioning strategies based on segments of values that are relevant to consumers, organizations are more likely to evoke favorable attitudes towards product acquisition. This includes considering external factors because they shape the formation of personal values and thus influence individuals' choices related to food and their perception of food safety. This work enriches the theory of personal values in the field of consumer behavior related to food safety by exploring the complex interplay between personal, cultural and market values. Considering personal values as a central element, the analysis presented provides insights for the development of more targeted marketing actions, effective public policies and food supply chain management approaches that meet consumers' expectations in terms of food safety.

Keywords: food safety; personal values; consumer behavior.

INTRODUCTION

Observation of trends in consumer behavior indicates that decision-making processes no longer depend solely on consumers' knowledge of the product (Barrena & Sánchez, 2012). Not only do people want to buy food that meets their basic needs, but they are also starting to opt for higher quality products in their purchases. This change in consumer preference results in a greater interest in knowledge about the quality and safety of purchased products (Severová et al., 2021).

Quality and food safety are present in various domains. In the public sphere, ensuring access to nutritious, healthy and safe food is a priority of economic and public health policies (Dinu, 2018). A global effort has been observed from producers, suppliers and governments to ensure that food production meets the quality and safety standards required by health authorities, thus reducing the impacts of foodborne illnesses (Feltes, Ariseto-Bragotto & Block, 2017). Similarly, particularly in recent years, academia has shown interest in issues related to implementing quality, safety and sustainability processes throughout the food supply chain (Adams, Donovan & Topple, 2021).

Several factors have driven discussions around food safety. Firstly, food crises have drawn public attention to food safety issues. Secondly, there has been a growing, often critical, interest in certain methods of food production, including organic production, animal welfare and the use of genetically modified organisms, among the most prominent. Thirdly, consumers have become more demanding in their food choices, increasing the demand for differentiation in terms of quality (Grunert, 2005; Verbeke, 2008; Soon, Brazier & Wallace, 2020).

Food safety and quality are two closely linked aspects of the food management system that directly impact consumer behavior; while one keeps consumers safe, the other keeps them satisfied (Nie et al., 2021). Given the growing consumer interest in these matters, both the public and private sectors have developed a variety of food quality and safety standards. Safety and quality audits are widely used and consider various aspects, such as assessing management systems, obtaining certifications for specific food safety and quality standards, evaluating the condition of facilities and products and ensuring legal compliance (Kotsanopoulos & Arvanitoyannis, 2017).

It is common for consumers to seek information that helps them achieve a healthier diet, as well as to learn about the origin and the ethical and technological conditions under which the food was produced. They are interested in transparency, traceability, and even more advanced food safety considerations that involve appropriate technology and regulation within the supply chain (Verbeke, 2008; Shahidi, 2021).

Understanding consumer choices implies understanding why they make such decisions. Alternatives are evaluated based on the positive and negative consequences that consumers consider relevant. In summary, purchasing behavior is based on experienced results, need satisfaction, goal or value achievement (Reynolds & Olson, 2001).

According to Rokeach (1973), the concept of value should hold a central position in all social sciences because, more than any other concept, it is a variable capable of unifying the theoretically diverse interests of all sciences investigating human behavior. Human values are significant constructs when it comes to psychosocial concepts considered fundamental for predicting attitudes and behaviors, including the understanding of phenomena that the humanities and social sciences are interested in studying (Torres, Schwartz & Nascimento, 2016).

Reynolds and Gutman (1988) emphasize that research on personal values in marketing arouses interest not only among academics but also among professionals in the field. This deeper analysis of consumer behavior and its relationships with products allows an understanding of cognitive positions regarding existing products and, furthermore, provides insights for the development of positioning strategies for new products.

Given this context, this theoretical essay establishes a dialogue between food safety and personal values from the perspective of consumer behavior. Food safety problems often arise from asymmetric information between consumers and suppliers (Janjić et al., 2017; Ortega et al., 2011). Considering this relationship between market participants, understanding consumers' responses to various food safety issues is crucial for developing more effective strategies (Frewer, De Jonge & Van Kleef, 2009).

For Liu and Grunert (2020), investigating the relationship between beliefs about food quality and safety attributes, desired benefits in relation to food and achieving personal life goals is useful for understanding how consumers obtain satisfaction from food consumption. In particular, food products should not be seen merely as a collection of physical attributes but should be considered, developed and promoted in terms of the benefits they provide to consumers (Choi, 2020). Furthermore, it is essential to understand the multiple dimensions required to achieve food safety promotion objectives; it is relevant to comprehend the factors that influence food choices, which are influenced by social, cultural, economic, historical and environmental aspects, among others that need to be considered for effective planning and action in the context of food and health (Pinho et al., 2021).

LITERATURE REVIEW

Food safety and food consumption

Food safety and quality can be confusing concepts, making it necessary to differentiate them. Food safety refers to all hazards that can make food harmful to the consumer's health. Quality involves all other attributes that influence the value of a product to the consumer, whether positive – origin, color, taste, texture, and food processing method – or negative – spoilage, contamination, discoloration, and odors (FAO; WHO, 2003). Food safety, therefore, involves producing, handling, storing and preparing food in a way that prevents contamination in the food production chain and ensures the quality of food to promote health (WHO, 2015).

Another widely accepted concept of food security is found in the annual report of the Food and Agriculture Organization of the United Nations (FAO). In this report, food security is defined as a situation in which all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences, ensuring an active and healthy life (FAO, 2009).

According to this definition, four dimensions of food security are established: i) Availability: there is a sufficient quantity of locally produced and imported food; ii) Accessibility: food reaches the consumer (transportation infrastructure) and the consumer has sufficient financial means to purchase it. In this dimension, sociocultural access is also added to ensure that the food is culturally acceptable and social safety nets exist for the less privileged; iii) Utilization: the individual must have the ability to consume food in sufficient quantity and quality for a full and healthy life. Adequate water and sanitation are also included in this level, as well as the individual's healthy physical condition to be able to consume food; iv) Stability: the nation/community/person must be able to resist conflicts in the food supply chain, whether caused by natural disasters or human activities (wars, economic crises). For total food security, all these dimensions must be intact (Peng & Berry, 2019).

Some studies suggest that sustainability can be considered as the fifth dimension of food security. The inclusion of sustainability complements the food security framework, especially regarding indicators of availability and accessibility to natural resources. Without the integration of sustainability as an explicit dimension of food security, current policies and programs may become the very cause of increased food insecurity in the future (Berry et al., 2015). Food security and sustainability align with society's desires for safe and sustainably grown food. Various economic, cultural and regulatory forces are working to better align agricultural practices with these aspirations, both locally and globally (Baur, 2022).

According to the National Council for Food Security and Nutrition (Consea, 2014), healthy food consumption is a fundamental human right that implies ensuring permanent and regular access, in a socially fair way, to adequate nutrition in terms of both biological and social aspects of the individual. This dietary practice must comply with special dietary needs; be grounded in food culture and considerations of gender, race and ethnicity; be physically and financially accessible; be balanced in terms of quantity and quality, adhering to the principles of variety, balance, moderation and pleasure; and be based on sustainable productive activities.

Public policy regulatory responses in relation to food safety are basically divided into two categories. The first one refers to the application of food safety standards, which does not have a direct impact on consumer food choices, but is debatable in terms of economic efficiency, given the

heterogeneity of consumer preferences. The second one concerns the attempt to provide transparency and encourage consumers to form their own food safety judgments with the support of public participation mechanisms, consumer education and information tools such as labeling (Grunert, 2005).

Faced with growing concerns about food safety by governmental bodies, more stringent regulations and standards are constantly being introduced (Janjić et al., 2017). However, the emergence of food crises has demonstrated that science and technology, along with government regulations, are not sufficient to ensure that food-related risks remain at acceptable levels. Ensuring the integrity of food has become a predominant issue as consumer confidence in food has been shaken (Ling & Wahab, 2020).

Consumers typically express their concerns about food safety, but a small portion of them demonstrates changes in their food purchasing and consumption behaviors due to these concerns. For this reason, there is a need for more consumer education on food safety (Ergönül, 2013; Ruby et al., 2019). Educational tools and communication strategies are essential to support individuals in pursuing healthier eating practices. There is a call for a greater appreciation of the social, economic and environmental context for health communication to contribute to the fulfillment of the human right to adequate and healthy food and the transformation of individuals' reality (Nutbeam, 2018).

Several measures have been implemented with the aim of raising consumer awareness about the importance of healthy eating and encouraging the population to consume foods that pose lower health risks. Among these initiatives, there are prominent ones such as public education campaigns, nutritional education programs and fiscal programs (Wongprawmas et al., 2021). These actions can be implemented both in traditional ways, using advertising campaigns, for example, or through innovative tools like smart labels, QR codes, or other mobile applications (Annunziata and Mariani, 2019).

According to Leng et al. (2017), to develop the necessary evidence base for effective policies, a more comprehensive understanding of the determinants of food choice is required, one that is consistent with various types of evidence. In other words, building bridges between different levels of knowledge and understanding is necessary. In this regard, the development of strategies for promoting healthy eating requires the observation of the population's eating habits, food accessibility, convenience, local variety, and food prices, as these aspects are significant barriers to maintaining a healthy diet as well as to changes in consumer eating behavior (Santos et al., 2019).

Food consumption behavior

Food consumption is investigated from different perspectives. Studies from scientific disciplines such as nutrition, physiology, and epidemiology are useful for explaining aspects related to health, as they deal with diseases linked to food intake and dietary choices. However, they do not provide information on why, how and under what circumstances consumers select certain foods. This type of knowledge is provided by the science of behavior (Bellisle, 2003). Food choices play a significant role in the symbolic, economic, and social aspects of life, expressing preferences, identities, and cultural meanings. They are important because they create consumer demand for those who produce, process and distribute food (Sobal et al., 2006).

Food choice is among the most common human behaviors, and although it may seem simple, it is complex, as it is a behavior influenced by many factors and their interactions. Food choices are influenced by a set of determinants, including biological aspects (hunger, appetite, taste), psychological factors (mood, stress, guilt), physiological factors (access, education, time), social factors (culture, family, and peers) and economic factors (cost, income, and availability). Moreover, each of these factors belongs to the traditional domains of a wide range of scientific disciplines, and as a result, each of these disciplines offers at least a partial answer to the central question in food choice research, which is to understand who consumers are, what they consume, when, where, and why (Köster, 2009; Wongprawmas et al., 2021).

Eating behavior is shaped by a series of contextual effects related to the intrinsic properties of food, as well as variables linked to the physical, social and temporal environments that characterize

the individual (Dacremont & Sester, 2019). In the perception of Connors et al. (2001), personal food systems must be expressly taken into account when analyzing food choices. The authors consider it essential to discover which values are important to which consumers and how these values are managed when food choices are made. Assessing the variation in the importance of values associated with food from one context to another, as well as examining the relative stability of personal food systems, improves understanding of food choice behavior.

Although studies from different research areas (nutrition, psychology, social sciences, marketing, etc.) provide evidence from different perspectives, it was possible to classify the factors that affect food choices into three main categories: food-related features, individual differences and society-related features. These categories include internal and external factors, such as food, personal state factors, and cognitive and sociocultural factors (Chen & Antonelli, 2020). Details of this categorization are presented in Table 1.

Table 1
Factors influencing individual food choices

Five main factors in three categories		Sub-factors under five main factors
Food-related features	Food-internal factor	Sensory features (flavor, taste, smell and texture) and perceptual features (color, portion size, nutrition and health value, and quality)
	Food-external factor	Information (nutritional labels, health claims, packaging, aesthetics, and ethics of production history, brand, advertisement)
		Social environment (intrapersonal factor and social norms from family, peers, and media including ethical concern, social context when food choice is made)
		Physical environment (availability and accessibility of food products, food retail environments, time)
Individual differences	Personal-state factor	Biological features (genetic factors, personal dietary patterns and metabolism, physical condition such as health)
		Physiological needs (hunger, appetite, and weight status)
		Psychological components (emotion, motivation, personality)
		Habits and experiences
	Cognitive factor	Knowledge and skills
		Attitude, liking and preference
		Anticipated consequences
Society-related features	Sociocultural factor	Personal identity (demographic features such as age, gender, ethnicity and education, and personal value and belief)
		Culture (norms and values)
		Economic variables (income, socioeconomic status and price)
		Political elements (agricultural and food policy and regulations)

Source: Adapted from Chen and Antonelli (2020)

Just like many complex human behaviors, food preferences result from internal factors and environmental influences. The effects of the external environment are mediated by learning processes that evoke hedonic states in the consumer, motivating them to consume certain foods over others. Naturally, food preferences can change, but studies on learned tastes suggest that once acquired, preferences tend to persist in the absence of active intervention (Prescott, 2020).

The food sector is part of an environment where food-related policies, standards, regulations, guidelines, education and advice, including aspects relating to food safety, are continually being developed or updated. When properly aligned, these developments can contribute to increasing the effectiveness of food chains and keeping consumers better informed (FAO; WHO, 2003).

Personal values as determinants in buying behavior

A value can be defined as an enduring belief that a specific way of behaving or end state of existence is personally or socially preferable over an opposite or converse way. A value system, in turn, is an organization of these modes of conduct along a continuum of relative importance (Rokeach, 1973).

Rokeach (1973) determines five assumptions about the nature of human values: i) the total number of values of an individual is relatively small; ii) all people have the same values, but to different degrees; iii) values are organized into value systems; iv) predecessor human values are linked to culture, society, and its institutions and personality; v) the consequences of human values are possibly manifested in all phenomena of interest to social scientists.

From Schwartz's perspective, values are considered a cross-culturally valid classification system for values research. Schwartz's (1992) theory of basic personal values, which generated hundreds of studies over two decades, divides the value space into ten distinct values, four of which are higher-order values and two polar value dimensions. However, Schwartz et al. (2012) developed an improved theory, which was called "refined" rather than "revised" because it did not contradict the original theory but identified values with greater "heuristic and predictive power" in the same value space. The authors evaluated the original theory, identified potentially beneficial new conceptual distinctions, investigated the values refined from empirical research, and analyzed their usefulness by observing their predictive associations with a set of background, attitude, and belief variables.

In the original and refined theories, basic values are defined as trans-situational goals of varying importance that act as guiding principles in a person's or group's life. Dividing a construct into more refined subparts yields a more precise understanding. Thus, distinct conceptual definitions were generated for 19 personal values (Schwartz et al., 2012; Schwartz, 2017). In Table 2, these values are presented and defined in terms of their motivational goals.

Table 2

The 19 values in the refined theory, each defined in terms of its motivational goal

Value	Conceptual definitions in terms of motivational goals
Self-direction-thought	Freedom to cultivate one's own ideas and abilities
Self-direction-action	Freedom to determine one's own actions
Stimulation	Excitement, novelty, and change
Hedonism	Pleasure and sensuous gratification
Achievement	Success according to social standards
Power-dominance	Power through exercising control over people
Power-resources	Power through control of material and social resources
Face	Security and power through maintaining one's public image and avoiding humiliation
Security-personal	Safety in one's immediate environment
Security-societal	Safety and stability in the wider society
Tradition	Maintaining and preserving cultural, family, or religious traditions
Conformity-rules	Compliance with rules, laws, and formal obligations
Conformity-interpersonal	Avoidance of upsetting or harming other people
Humility	Recognizing one's insignificance in the larger scheme of things
Benevolence-dependability	Being a reliable and trustworthy member of the ingroup
Benevolence-caring	Devotion to the welfare of ingroup members
Universalism-concern	Commitment to equality, justice, and protection for all people
Universalism-nature	Preservation of the natural environment

Source: Adapted from Schwartz et al. (2012, p. 669)

The refined theory is based on the idea that all values are ordered relative to each other on a circular motivational continuum, as shown in Figure 1. Values are compatible to the extent that behaviors motivate or express the goals of a pair of values. When behaviors present opposite consequences for two values, highlighting the objective of one to the detriment of the other, the values are in conflict (Torres, Schwartz & Nascimento, 2016).



Source: Schwartz et al. (2012, p. 669)

Figure 1. Proposed circular motivational continuum of 19 values with sources that underlie their order

The finer the distinctions between values, the more evident it becomes that they form a continuum. The terms representing the values position themselves on the circular continuum based on the compatibility or conflict between the motivations they express. In a two-dimensional space, the more items are correlated with each other and the more similar their correlations are compared to other items, the closer they are located. Conversely, the less correlated, the farther apart items are in the space. Thus, the distance between items indicates how similar or different they are from each other (Schwartz, 2017).

Schwartz (2017) explains that, most of the time, attitudes mediate the relationships between values and behaviors. For this reason, correlations between values and specific behaviors are rarely very strong. For a value to influence a behavior, it must: i) be activated, which usually occurs unconsciously; ii) be experienced as relevant to the behavior in question, that is, if the performance of the behavior results in consequences that promote or inhibit the realization of the goals of that value; iii) determine the importance people attribute to the perceived consequences of available actions; iv) be able to affect attention, perception and interpretation of situations; v) promote planning, as people tend to create plans on how to proceed to achieve the goals of more important values.

The relationship between personal values and behavior is established in the sense that they are considered as standards or criteria that influence evaluations or decisions related to people, objects, and ideas. Values are significant cognitive factors for the study of consumer behavior because they are substantial cognitive elements that stimulate motivation for behavioral response. They are organized in a hierarchy in which global values are interconnected with values related to consumption, which, in turn, are linked to product attributes (Vinson, Scott & Lamont, 1977).

According to Reynolds and Olson (2001), personal relevance is the basis for understanding consumer decision-making; consumers tend to choose options that prove more useful in achieving their goals and values. Once committed to a certain value (e.g., "it's important for me to act responsibly"), this value can become a goal that the consumer wants to achieve in their life. However, due to its high degree of abstraction, this goal can only be reached if it is gradually broken down into more concrete and manageable objectives (e.g., "acting responsibly" means "doing something good for the environment," and one way to achieve this is "consuming organic foods") (Scholderer and Grunert, 2004). Product attributes themselves have little or no relevance to consumers; what truly matters are the consequences they appear to produce. The end state is, therefore, a personal life goal that the consumer is trying to achieve (Reynolds & Olson, 2001).

DISCUSSION

The relationship between personal values and food safety

Originating in the 1960s and 1970s, non-economic schools of marketing represented a significant shift in focus due to the growing interest in behavioral influences – whether social or psychological – in marketing. While other marketing approaches were almost exclusively centered around the producer or seller of market goods, the consumer behavior perspective concentrated on the buyer of these goods. This school received the most attention in the history of marketing, with notable researchers such as Ernest Dichter, John Howard, George Katona, James Engel and Francisco Nicosia. These theorists suggested that marketing should delve into consumer actions and investigate the more complex and realistic reasons behind consumer behavior (Sheth, Gardner & Garrett, 1988).

In this context, the study of more intrinsic factors of consumer behavior, such as personal values, has gained attention. In the area of food, discussions regarding consumer behavior related to food safety have developed rapidly over the past few decades, and a significant amount of knowledge has been accumulated in this interdisciplinary field. Personal values, specifically, have been addressed in the literature in various research contexts involving food safety (Lakner et al., 2021; Bouranta, Psomas & Vouzas, 2019).

Cultural differences play a significant role in understanding the interaction between individual values and food consumption patterns. In Western studies, investigations have revealed a strong presence of consumer collectivist values, comprehensive environmental attitudes, and attitudes toward sustainable products. In contrast, in Eastern cultures, there is a stronger association with food safety, health, and reliability (Perrea et al., 2014). While Western consumers tend to express skepticism regarding technology, Eastern consumers adopt a more favorable view of technological progress as a positive factor for ensuring food safety and preserving the environment in food production (Worsley et al., 2018).

Understanding consumer values while taking cultural aspects into consideration is essential for promoting foreign foods in a specific location. For example, Lee et al. (2014) reported that entering the Chinese market is challenging due to cultural differences between Chinese and Western consumers. In this study, four personal values - security, hedonism, benevolence, and self-direction - were identified as influencers in the choices of healthy beverages in China. In the European market, Naspetti and Zanolì (2009) revealed that some values are globally shared when it comes to purchasing organic products, such as "well-being," "self-fulfillment," and "safety," but others vary depending on culture and the product, reflecting the diversity of this market.

From these findings, it is observed that there is a relationship between personal values and intersubjective cultural representation, which concerns the shared way of representing a collective culture. This common representation serves as a basis for individuals to build an identification with

the culture in question. More specifically, the more an individual's personal values are aligned with the values considered essential to a given culture, the more deeply that individual will identify with that culture (Wan, 2015).

The role played by culture also reflects in the direction of food safety actions in different locations. For this reason, considering the way in which values reverberate in food security is a promising way to improve the performance of the food industry in multicultural contexts (Nyarugwe et al., 2020). Consumers make their choices seeking to satisfy the basic values by which they are driven. Therefore, by aligning product marketing positioning strategies with these values, the chances of success in the market increase significantly (Lema-Blanco, García-Mira & Muñoz-Cantero, 2023; Seo and Lee, 2021).

In previous studies, the impact of risk perception on consumer behavior has already been demonstrated. Barrena and Sánchez (2010) explored the cognitive structures that guide the purchase of two types of food, each associated with different degrees of perceived risk: beef and rice. The importance of hedonic values associated with factors such as the practicality of preparation and the sense of tradition associated with the dishes was verified. On the other hand, significant differences emerged regarding consumer risk perception. Beef, being a food with greater perceived risk, has led to greater emphasis on issues related to food safety.

Risk perception is a multifaceted construct, shaped by a variety of contextual influences, such as available information, social norms and degree of confidence in the safety of the food system (Lobb, Mazzocchi & Traill, 2007; Ha, Shakur & Do, 2020). Furthermore, cultural, demographic and regional diversity can play a significant role in how consumers evaluate the risks associated with different foods. Therefore, it is essential to interpret the findings within a broader framework and consider a diverse range of factors that contribute to consumers' complex food choices.

When it comes to sustainable consumption, the association between personal values and food safety presents divergent perspectives. Worsley, Wang and Burton (2015) confirmed the hypothesis that universalist values mediate concerns related to food, including food safety and environmental policies related to food. In contrast, Vega-Zamora et al. (2014) observed a less significant evaluation of the impact of food on environmental preservation and community compared to individualistic values such as health, safety, and reliability. This difference can be explained by the more immediate and personal focus of these values. Consumers with individualistic values may be more interested in the narrow quality of food in terms of health and safety, minimizing the importance of broader aspects of sustainable consumption and food safety.

In more recent studies, a factor that has stood out in food choices is animal welfare, a concept that involves social and human values, ethical concerns and moral considerations. Cembalo et al. (2016) highlight the influence of personal values on individual attitudes towards animal welfare, demonstrating that values linked to self-transcendence, such as benevolence and universalism, demonstrated a strong connection with general animal welfare attitudes. In contrast, values linked to aspects of self-enhancement and conservatism, such as power, achievement and tradition, showed a considerable association with less sensitive attitudes towards animal welfare.

The finding by Sonoda et al. (2018) that consumers who value openness to change and security are more likely to prefer ecological labels reflects a deep connection between personal values and consumption choices. These individuals are more inclined to adhere to sustainable production practices and animal welfare, possibly because these values align with the pursuit of a broader understanding and consideration of collective issues. On the other hand, those who emphasize self-enhancement showed less interest in ecological labels. Hence, there are other characteristics of food that, for a specific group of consumers, override concerns about animal welfare or sustainability. This highlights the complexity of food choices, which are shaped not only by ethical considerations but also by a variety of individual factors.

An interesting point is that awareness about the origin and quality of food is not only linked to animal welfare itself, but also to broader concerns about consumer safety and health. This suggests that, in many cases, the decision to choose foods based on animal welfare may be influenced by confidence in the safety of those foods. In this sense, animal welfare is used by consumers as an

indicator of other more important attributes of the product, such as safety and impact on health (Harper & Makatouni, 2002).

Personal values and concerns regarding food safety are also related to the sociodemographic profile of consumers (Worsley, Wang & Hunter, 2013; Kraus, Annunziata & Vecchio, 2017). Characteristics such as gender, age and level of education indicated different personal values linked to the way consumers evaluate and prioritize food safety. Food preferences and concerns are influenced by values intrinsic to each individual, and this influence manifests itself differently in different demographic groups. Consequently, marketing strategies, food education, and public policy development should consider these differences to meet consumers' diverse needs and expectations more effectively.

Research involving personal values in the described contexts has enabled a better understanding of the potential motivations for food consumption. It describes how the tangible attributes of the product are linked to relevant consumption consequences and personal life goals, as demonstrated in a hierarchical model of consumer cognitive structures. These studies have sparked interest among companies and researchers about how diverse consumers' deep motivations for purchasing food products can be (Choi, 2020).

Consumer food choices can be profoundly influenced by communication and information. However, messages promoting positive outcomes, such as nutritional and health benefits, face challenges in achieving their goal of establishing healthier food options. Much of the current information linked to food can be irrelevant or overwhelm consumers, leading to indifference and not meeting the target audience's needs, expectations, and interests (Verbeke, 2008).

An alternative to this problem is the inclusion of aspects related to consumers' personal values in communication, which can be done based on the application of the assumptions of the values theory. To improve the quality and food safety of the population, competent authorities can, for example, try to promote the idea that following official guidelines for a healthy diet is important for consumers because it is an experience that contributes to their achieving feelings of (self) respect and fulfillment (Hansen & Thomsen, 2018).

Ultimately, it is understood that personal values play a crucial role in research on food consumption behavior, as food is increasingly being produced and marketed based on intangible properties such as health, safety, and sustainability. By investigating personal values that guide consumption decisions, it is possible to understand whether consumers indeed perceive such characteristics as part of the meaning of a food product and, furthermore, identify ways to increase consumer demand for a particular food item (Grunert, 2020).

FINAL CONSIDERATIONS

With an approach focused on consumer behavior theory, this study presented a discussion on the relationship between food safety and consumers' personal values. More specifically, it sought to analyze how individual values, influenced by various external factors, impact food choices regarding food safety concerns.

The consumer is a social being, influenced by external factors ranging from cultural norms, peer opinions and influencers to marketing and communication strategies of the food industry. These external influences interact in a complex manner with personal values, shaping individual food choices and perceptions of food safety. Therefore, understanding consumption behavior requires a holistic analysis that considers both internal aspects and the impacts of the external environment.

As consumers become more informed and conscious of their food choices, the expectation of safety and quality becomes a central aspect of their daily decisions. This concern highlights the complexity of food choices, demonstrating how various factors, including ethical considerations, environmental concerns and food safety, can influence consumer behavior. Thus, food choices go beyond the individual, having the capacity to impact public health and food industry practices.

Personal values play a crucial role in understanding consumers' motivations for food purchases. When it comes to food safety issues, exploring these deeper motivations enables the development of more effective marketing strategies and market positioning. This, in turn, allows for

the promotion of intangible characteristics, such as health, safety and sustainability, which are highly valued by conscious consumers.

It is important to highlight that the meanings attributed by consumers to a given product may differ from the perspectives of a marketing professional. On the one hand, consumers are influenced by their personal experiences, beliefs and cultural identities. On the other hand, there is specialized knowledge about market trends, competition and the messages to be communicated. The challenge then arises of assessing the values that are considered significant both for consumers and for the culture to which they belong, and, based on this evaluation, integrating them in a coherent way into their marketing strategies.

Finally, considering that values represent particularly important meanings for consumers regarding products, they are unique to each consumer's personal interests. Therefore, personal values constitute a powerful tool for market segmentation because they assist in identifying desired end states by consumers, allowing for the creation of segments based on expected benefits. From a managerial perspective, segmentation based on personal values leads to a deeper understanding of consumers' real needs, aligning strategies more closely with their subjective expectations and, consequently, increasing their level of satisfaction.

Research ethic statement

The authors declare that this study no submitted for evaluation in another journal simultaneously with the CBR or previously published in another journal.

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References

- Adams, D., Donovan, J., & Topple, C. (2021). Achieving sustainability in food manufacturing operations and their supply chains: Key insights from a systematic literature review. *Sustainable Production and Consumption*, 28, 1491-1499.
- Barrena, R., & Sánchez, M. (2010). Differences in consumer abstraction levels as a function of risk perception. *Journal of Agricultural Economics*, 61(1), 34-59.
- Baur, P. (2022). When farmers are pulled in too many directions: comparing institutional drivers of food safety and environmental sustainability in California agriculture. In: *Social Innovation and Sustainability Transition* (pp. 241-260). Cham: Springer Nature Switzerland.
- Bellisle, F. (2003). Why should we study human food intake behaviour?. *Nutrition, Metabolism and Cardiovascular Diseases*, 13(4), 189-193.

- Berry, E. M., Dernini, S., Burlingame, B., Meybeck, A., & Conforti, P. (2015). Food security and sustainability: can one exist without the other?. *Public Health Nutrition*, 18(13), 2293-2302.
- Bouranta, N., Psomas, E., & Vouzas, F. (2019). The effect of service recovery on customer loyalty: the role of perceived food safety. *International Journal of Quality and Service Sciences*, 11(1), 69-86.
- Cembalo, L., Caracciolo, F., Lombardi, A., Del Giudice, T., Grunert, K. G., & Cicia, G. (2016). Determinants of individual attitudes toward animal welfare-friendly food products. *Journal of Agricultural and Environmental Ethics*, 29, 237-254.
- Chen, P. J., & Antonelli, M. (2020). Conceptual models of food choice: influential factors related to foods, individual differences, and society. *Foods*, 9(12), 1898.
- Choi, B. J. (2020). Cultural priming conditions and decision-making on food consumption: Means-end evidence for everyday consumer goods. *Journal of Marketing Theory and Practice*, 28(4), 403-417.
- Connors, M., Bisogni, C. A., Sobal, J., & Devine, C. M. (2001). Managing values in personal food systems. *Appetite*, 36(3), 189-200.
- Consea – Conselho Nacional de Segurança Alimentar e Nutricional. *Direito humano à alimentação adequada e soberania alimentar*. (2014). Segurança Alimentar e Nutricional.
- Dacremont, C., & Sester, C. (2019). Context in food behavior and product experience—a review. *Current Opinion in Food Science*, 27, 115-122.
- Dinu, V. (2018). Food safety in the context of the European Union. *Amfiteatru Economic*, 20(47), 5-7.
- Ergönül, B. (2013). Consumer awareness and perception to food safety: A consumer analysis. *Food Control*, 32(2), 461-471.
- FAO – Food and Agriculture Organization. (2009). *Declaration of the World Summit on Food Security*. Rome.
- FAO – Food and Agriculture Organization of the United Nations, & WHO – World Health Organization. (2003). Assuring Food Safety and Quality: Guidelines for Strengthening National Food Control Systems. *FAO Food and Nutrition Paper*, 76.
- Feltes, M. M. C., Ariseto-Bragotto, A. P., & Block, J. M. (2017). Food quality, food-borne diseases, and food safety in the Brazilian food industry. *Food Quality and Safety*, 1(1), 13-27.
- Frewer, L., de Jonge, J., & van Kleef, E. (2009). Consumer perceptions of food safety. *Medical Science*, 2, 243.
- Grunert, K. G. (2005). Food quality and safety: consumer perception and demand. *European Review of Agricultural Economics*, 32(3), 369-391.
- Grunert, K. G. (2020). Measuring Meaning of Food in Life. In: Meiselman, H. (Ed). *Handbook of Eating and Drinking: Interdisciplinary Perspectives*. Cham: Springer, 1197-1214.
- Ha, T. M., Shakur, S., & Do, K. H. P. (2020). Risk perception and its impact on vegetable consumption: A case study from Hanoi, Vietnam. *Journal of Cleaner Production*, 271, 122793.
- Harper, G. C., & Makatouni, A. (2002). Consumer perception of organic food production and farm animal welfare. *British Food Journal*, 104(3/4/5), 287-299.
- Janjić, J., Ćirić, J., Bošković, M., Šarčević, D., Popović, M., & Baltić, M. Ž. (2017). Consumer Responsibility for Food Safety. *Research in Agriculture*, 3(1).
- Köster, E. P. (2009). Diversity in the determinants of food choice: A psychological perspective. *Food Quality and Preference*, 20(2), 70-82.
- Kotsanopoulos, K. V., & Arvanitoyannis, I. S. (2017). The role of auditing, food safety, and food quality standards in the food industry: A review. *Comprehensive reviews in food science and food safety*, 16(5), 760-775.
- Kraus, A., Annunziata, A., & Vecchio, R. (2017). Sociodemographic factors differentiating the consumer and the motivations for functional food consumption. *Journal of the American College of Nutrition*, 36(2), 116-126.
- Lee, P. Y., Lusk, K., Miroso, M., & Oey, I. (2014). The role of personal values in Chinese consumers' food consumption decisions. A case study of healthy drinks. *Appetite*, 73, 95-104.
- Lema-Blanco, I., García-Mira, R., & Muñoz-Cantero, J. M. (2023). Understanding Motivations for Individual and Collective Sustainable Food Consumption: A Case Study of the Galician Conscious and Responsible Consumption Network. *Sustainability*, 15(5), 4111.

- Ling, E. K., & Wahab, S. N. (2020). Integrity of food supply chain: going beyond food safety and food quality. *International Journal of Productivity and Quality Management*, 29(2), 216-232.
- Liu, R., & Grunert, K. G. (2020). Satisfaction with food-related life and beliefs about food health, safety, freshness and taste among the elderly in China: A segmentation analysis. *Food Quality and Preference*, 79, 103775.
- Lobb, A. E., Mazzocchi, M., & Traill, W. B. (2007). Modelling risk perception and trust in food safety information within the theory of planned behaviour. *Food Quality and Preference*, 18(2), 384-395.
- Naspetti, S., & Zanolli, R. (2009). Organic food quality and safety perception throughout Europe. *Journal of Food Products Marketing*, 15(3), 249-266.
- Nie, W., Bo, H., Liu, J., & Li, T. (2021). Influence of loss aversion and income effect on consumer food choice for food safety and quality labels. *Frontiers in Psychology*, 12, 711671.
- Nutbeam, D. (2019). Health education and health promotion revisited. *Health Education Journal*, 78(6), 705-709.
- Nyarugwe, S. P., Linnemann, A. R., Ren, Y., Bakker, E. J., Kussaga, J. B., Watson, D., ... & Luning, P. A. (2020). An intercontinental analysis of food safety culture in view of food safety governance and national values. *Food Control*, 111, 107075.
- Ortega, D. L., Wang, H. H., Wu, L., & Olynk, N. J. (2011). Modeling heterogeneity in consumer preferences for select food safety attributes in China. *Food Policy*, 36(2), 318-324.
- Peng, W., & Berry, E. M. (2019). The Concept of Food Security. In: Ferranti, P., Berry, E. M., and Anderson, J. R. (Eds.). *Encyclopedia of Food Security and Sustainability*. Elsevier, 2, 1-7.
- Perrea, T., G. Grunert, K., Krystallis, A., Zhou, Y., Huang, G., & Hue, Y. (2014). Testing and validation of a hierarchical values-attitudes model in the context of green food in China. *Asia Pacific Journal of Marketing and Logistics*, 26(2), 296-314.
- Pinho, V. B., Pereira, Á. I. S., Ribeiro, F. A. A., & Freire, P. A. R. (2021). Fatores que influenciam as escolhas alimentares entre adolescentes: sob a lente teórica do materialismo histórico dialético. *Brazilian Journal of Development*, 7(1), 7193-7214.
- Prescott, J. (2020). Development of Food Preferences. In: Meiselman, H. (Ed). *Handbook of Eating and Drinking: Interdisciplinary Perspectives*. Cham: Springer, 199-217.
- Reynolds, T. J., & Gutman, J. (1988). Laddering theory, method, analysis, and interpretation. *Journal of Advertising Research*, 28(1), 11-31.
- Reynolds, T. J., & Olson, J. C. (Eds.). (2001). *Understanding consumer decision making: the Means-End approach to marketing and advertising strategy*. New Jersey: Routledge.
- Rokeach, M. (1973). *The nature of human values*. The Free Press: New York.
- Ruby, G. E., Abidin, U. F. U. Z., Lihan, S., Jambari, N. N., & Radu, S. (2019). A cross sectional study on food safety knowledge among adult consumers. *Food Control*, 99, 98-105.
- Santos, G. M. G. C. D., Silva, A. M. R., Carvalho, W. O. D., Rech, C. R., & Loch, M. R. (2019). Barreiras percebidas para o consumo de frutas e de verduras ou legumes em adultos brasileiros. *Ciência & Saúde Coletiva*, 24, 2461-2470.
- Scholderer, J., & Grunert, K. G. (2004). The validity of the means-end chain model of consumer behavior. Report, *MAPP Project Paper*, (05/04), Aarhus School of Business.
- Schwartz, S. H., Cieciuch, J., Vecchione, M., Davidov, E., Fischer, R., Beierlein, C., ... & Konty, M. (2012). Refining the theory of basic individual values. *Journal of Personality and Social Psychology*, 103(4), 663.
- Schwartz, S. H. (2017). The refined theory of basic values. In: Roccas, S., & Sagiv, L. (Orgs.). *Values and Behavior: Taking a Cross Cultural Perspective*. Springer Publishing, 51-72.
- Seo, K. H., & Lee, J. H. (2021). Understanding risk perception toward food safety in street food: The relationships among service quality, values, and repurchase intention. *International Journal of Environmental Research and Public Health*, 18(13), 6826.
- Severová, L., Svoboda, R., Šréd, K., Prášilová, M., Soukup, A., Kopecká, L., & Dvořák, M. (2021). Food safety and quality in connection with the change of consumer choice in Czechia (a case study). *Sustainability*, 13(11), 6505.

- Shahidi, F. (2021). Consumer Behaviour and Healthy Diet: A Challenge or an Opportunity?. *Journal of Food Bioactives*, 15.
- Sheth, J. N., Gardner, D. M., & Garrett, D. E. (1988). *Marketing theory: evolution and evaluation*. New York: Wiley.
- Sobal, J., Bisogni, C. A., Devine, C. M., & Jastran, M. (2006). A Conceptual Model of the Food Choice Process over the Life Course. In: Sheferd, R., & Raats, M. (Eds.). *The Psychology of Food Choice*. Wallingford, Oxfordshire, UK: CABI in association with the Nutrition Society, 1-18.
- Soon, J. M., Brazier, A. K., & Wallace, C. A. (2020). Determining common contributory factors in food safety incidents—A review of global outbreaks and recalls 2008–2018. *Trends in Food Science & Technology*, 97, 76-87.
- Torres, C. V., Schwartz, S. H., & Nascimento, T. G. (2016). A Teoria de Valores Refinada: associações com comportamento e evidências de validade discriminante e preditiva. *Psicologia Usp*, 27, 341-356.
- Vega-Zamora, M., Torres-Ruiz, F. J., Murgado-Armenteros, E. M., & Parras-Rosa, M. (2014). Organic as a heuristic cue: What Spanish consumers mean by organic foods. *Psychology & Marketing*, 31(5), 349-359.
- Verbeke, W. (2008). Impact of communication on consumers' food choices: Plenary lecture. *Proceedings of the Nutrition Society*, 67(3), 281-288.
- Vinson, D. E., Scott, J. E., & Lamont, L. M. (1977). The role of personal values in marketing and consumer behavior. *Journal of Marketing*, 41(2), 44-50.
- Wan, C. (2015). Understanding cultural identification through intersubjective cultural representation. *Journal of Cross-Cultural Psychology*, 46(10), 1267-1272.
- WHO – World Health Organization. (2015). *Food safety: What you should know*. World Health Organization, Regional Office for South-East Asia.
- Wongprawmas, R., Mora, C., Pellegrini, N., Guiné, R. P., Carini, E., Sogari, G., & Vittadini, E. (2021). Food choice determinants and perceptions of a healthy diet among Italian consumers. *Foods*, 10(2), 318.
- Worsley, A., Wang, W. C., & Burton, M. (2015). Food concerns and support for environmental food policies and purchasing. *Appetite*, 91, 48-55.
- Worsley, A., Wang, W. C., & Hunter, W. (2013). Gender differences in the influence of food safety and health concerns on dietary and physical activity habits. *Food Policy*, 41, 184-192.
- Worsley, A., Wang, W. C., Sarmugam, R., Pham, Q., Februhartanty, J., & Ridley, S. (2018). Household food providers' attitudes to the regulation of food marketing and government promotion of healthy foods in five countries in the Asia Pacific region. *British Food Journal*, 120(6), 1236-1249.