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Overview of organic, vegan, and plant-based diets, family farming and healthy food consumption in Brazil: concrete attributes, instrumental values, and perceived psychological consequences of consumption

Resumen de las dietas orgánicas, veganas y vegetales, la agricultura familiar y el consumo de alimentos saludables en Brasil: atributos concretos, valores instrumentales y consecuencias psicológicas percibidas del consumo

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RESUMEN

Este artículo presenta una visión general del consumo de alimentos saludables, como las dietas orgánicas, vegetarianas y vegetales, de la agricultura familiar y las relacionadas con las restricciones alimentarias. También propone explicar cómo los atributos concretos, los valores instrumentales y las consecuencias psicológicas percibidas del consumo se asocian con las motivaciones para consumir estos productos. La Teoría de Medios-Fin se utilizó como teoría base para esta investigación, que aborda aquellos atributos (medios) que están conectados a consecuencias intangibles y valores personales (fines). En el campo del Marketing y Comportamiento del Consumidor, se introdujo la teoría y se postuló que existe una relación organizada jerárquicamente que conecta los valores del producto, las consecuencias psicológicas y los valores personales, proporcionando una comprensión de la importancia personal para el consumidor en el momento de la decisión de compra. La investigación por encuesta se realizó con brasileños mayores de edad.

Se obtuvieron un total de 1.085 cuestionarios válidos (44% eran no consumidores de alguno de los productos bajo análisis (n = 478), y 56% consumidores (n = 607) - a quienes se analizó su comportamiento en el estudio. siendo que: (1) la facilidad de compra aumenta la frecuencia de

consumo de productos saludables; (2) la percepción de atributos concretos aumenta las consecuencias psicológicas del consumo saludable; (3) la percepción de valores instrumentales aumenta las consecuencias psicológicas percibidas de consumo saludable; (4), y finalmente, se puede inferir que la muestra tiene un comportamiento de consumo de alimentos saludable, pero no es un comportamiento frecuente.

Palabras clave: Comportamiento del consumidor. Consumo sustentable. La teoría del medio-fin.

ABSTRACT

This paper draws an overview of healthy food consumption, such as organic, vegetarian, and plant-based diets, from family farming and those related to food restrictions. Also, it proposes to explain how the concrete attributes, instrumental values, and perceived psychological consequences of consumption are associated as motivations for consuming these products. The Means-End Theory was used as the base theory for this research, which addresses those tangible attributes (means) that are connected to intangible consequences and personal values (ends). In the Marketing and Consumer Behavior field, the theory was introduced and postulated that there is a hierarchically organized relationship that connects product values, psychological consequences, and personal values, providing an understanding of the personal importance to the consumer at the time of purchase decision making. Survey research was conducted with Brazilians who are of legal age. A total of 1,085 valid questionnaires were obtained (44% were non-consumers of any of the products under analysis (n=478), and 56% were consumers (n=607) – who had their behavior analyzed in the study. The results support the hypotheses, being that: (1) the ease of purchase increases the frequency of consumption of healthy products; (2) The perception of concrete attributes increases the psychological consequences of healthy consumption; (3) the perception of instrumental values increases the perceived psychological consequences of healthy consumption; (4), and finally, it is possible to infer that the sample has a healthy food consumption behavior, but it is not a frequent behavior.

Keywords: consumer behavior. Sustainable consumption. The Means-End Theory.

1. Introduction

An unhealthy diet is considered one of the leading causes of obesity increase and chronic illnesses. Therefore, promoting and maintaining good health throughout life is necessary to adopt a healthy diet and a healthy lifestyle. In this context, diet choices are usually influenced by the diet systems and environment with the availability and accessibility to healthy and sustainable food. A big challenge is improving these aspects to better healthy food choices (Formoso et al., 2020). Consumers gradually become aware, and healthy eating is consolidating as a trend (Duarte et al., 2021). Consumption and purchase preferences significantly support sustainable development and environmental protection (Tigan et al., 2021). Consumer awareness of healthy eating has led the food industry to reformulate products and market them as healthier options (Duarte et al., 2021; Menrad, 2003). Companies' commitment to this type of market niche has proven beneficial, as companies in the food sector are financially rewarded for introducing new, healthier products (Hanson & Yun, 2018).

In this study, the common term 'healthy food' is used, which refers to a diet that offers the necessary nutrients according to each person's individual needs (Ministério da Saúde, 2008). There are brands of food products in the market to distinguish healthier versions from traditional versions (Duarte et al., 2021). Thus, the importance of structuring and defining the types of foods, products, and food groups to be addressed in this research is highlighted, as follows: (1) Organic foods: those that have an absence of pesticides and chemical fertilizers in their cultivation (Lombardi et al ., 2004); (2) vegetarians or plant-based: a diet that prohibits all animal products and their derivatives (with subdivisions within the category) (Sociedade Vegetariana Brasileira, 2021); and Vegan: Contains only plants (such as vegetables, grains, nuts, and fruits) and foods made from plants. Vegans do not eat food from animals, including dairy and eggs (NHS, 2021); (3) products from family farming: coming from family farmers who carry out activities in rural areas, with labor from their own family, income directed to the management of the establishment and which have areas of up to four fiscal modules (Pasqualotto et al., 2019); (4) balanced: balanced and varied diet, without too many restrictions, the objective is to consume all the necessary nutrients (TAEQ, 2021) and (5) Diet and Light: must have at least 25% less caloric value compared to a similar product conventional, while the diet must be free of one of its components (fat, salt, sugar) (Oliveira & Hoffmann, 2015).

Themes of healthy eating have been constantly addressed in the literature (Freitas & Trierweiller, 2017). However, this literature is very fragmented in Brazil. Efforts are focused on the drivers of organic consumption (Boas et al., 2006; Hoppe et al., 2012; Oliveira & Hoffmann, 2015; Zamberlan et al., 2017); consumption of diet, light, and zero products (Lucchese et al., 2006; Oliveira & Hoffmann, 2015), eating behavior based on dietary restrictions (Ferreira, 2018).

To study the concrete attributes, instrumental values, and perceived psychological consequences of healthy food consumption, the Means-End Chain Theory (MEC) will be used as a base theory. A value-based cognitive model facilitates a better understanding of decision-making and consumer behavior. The theory connects a product's tangible attributes (the means) to highly abstract and intangible personal and emotional values (the ends) (Olson & Reynolds, 2001). Thus, this article is structured as follows. This first stage of the study contextualized the theme and problem and presented the objective and underlying analysis theory. The second part will bring the theoretical foundation that builds the research hypotheses. Then, the methodological procedures are presented, followed by the survey results, discussions, and conclusions, with the referred suggestions for future research.

1.1. Purpose

This article draws an overview of healthy food consumption, such as organic, vegan, or vegetarian products, from family farming to those related to food restrictions. Moreover, it proposes to explain how the concrete attributes, instrumental values, and perceived psychological consequences of consumption are associated as motivations for consuming these products.

2. Healthy Food Consumption Explained by Means Chain (MEC) Theory

The fundamental knowledge about Means-End Chain Theory (MEC) was generated in the book "Understanding Consumer Decision Making: The Means-End Approach to Marketing

and Advertising Strategy" published by Olson and Reynolds (2001). Since then, MEC has been verified by empirical studies (Borgardt, 2020).

The MEC is a value-based cognitive model that connects a product's tangible attributes (the means) to highly abstract and intangible personal and emotional values (the ends) (Borgardt, 2020; Olson & Reynolds, 2001). In the field of marketing and consumer behavior, Reynolds & Gutman (1988) introduced the MEC approach, where the authors postulated the existence of a hierarchically organized relationship, connecting product attributes (A), consequences (C), and individual values (V) (Lin et al., 2006). The A-C-V ladder chain provides an understanding of salient factors and their importance to consumers as they make decisions (Borgardt, 2020). This type of approach allows for establishing a relationship between the attributes and benefits of the product with consumers' values, thus resulting in the reasons for purchasing a particular product (Boas et al., 2006). This type of approach allows a representation of several connected scales that reveal consumers' perceptions about the consumption of a particular product (Boas et al., 2006). This definition is given by three factors analyzed in the approach, and its empirical evidence is listed in Table 1:

  ➢ Attributes: can be classified into concrete and abstract (Freitas & Treiweller, 2017; Vilas Boas et al., 2006). Concrete attributes are considered physical and tangible aspects of a given product, while abstract ones correspond to intangible characteristics, perceived qualities (Vilas Boas et al., 2006).
  ➢ Consequences: Consequences can be defined as any physiological or functional result (quenching hunger or thirst) or psychological (self-esteem, improved perspective) resulting from the consumption of a particular product, which may be desirable or undesirable (Freitas & Treiweller, 2017). Gutman (1982) also states that the consequences can also be direct (when the consequence comes directly from the consumption of a specific product) or indirect (when other people react favorably or unfavorably to us due to our consumption habits. "An act of consumption must occur for the desired consequences to be realized." (Gutman, 1982, p. 61). A consequence is not a final state but uses relation or ability to move the consumer towards a final state giving the consequence a significant role in the means-ends model (Gutman 1982).
  ➢ Values: Rokeach (1968) differentiates values in terminals and instruments. It infers that terminal values are related to preferred final states of existence, such as achievement, security, and happiness. In contrast, instrumental values are related to modes of behavior, such as honesty, courage, and open mind.

The link between attributes and consequences occurs when considering an individual perceptual structure. The attributes (general characteristics) signal the consumer's ability to provide him with the expected consequence of his consumption. Through this connection, consumers can determine which products are appropriate to meet their needs or not (Pimenta & Boas, 2008). Based on this statement, we establish two hypotheses:

H1 – Concrete (tangible) attributes are positively associated with the perceived psychological consequences of healthy food consumption.

H2 - Instrumental values are positively associated with the perceived psychological consequences of consuming healthy food.

Furthermore, there is evidence in the literature that one of the barriers to healthier food consumption is the difficulty in finding these foods (related to distribution) (Andrade & Bertoldi, 2012; Radman, 2005). Thus, we establish the last hypothesis of this article:

H3- The ease of purchasing products is positively associated with the frequency of consumption of healthy food.

Figure 1 – Literature evidence

Atributos	Quality	(Higuchi & Avadi, 2015; Qendro, 2015; Radman, 2005; Rana & Paul, 2017)
	Freshness	(Higuchi & Avadi, 2015; Lobo et al., 2014; Qendro, 2015; Rana & Paul, 2017)
	Flavor	(Ergönü & Ergönü, 2015; Higuchi & Avadi, 2015; Lobo et al., 2014; Qendro, 2015; Radman, 2005; Rana & Paul, 2017; Toni et al., 2020; Vilas Boas et al., 2006; Zamberlan et al., 2017)
	Satisfactory distribution	(Andrade & Bertoldi, 2012; Radman, 2005)
	Variety	(Rana & Paul, 2017)
	Cost-benefit	(Rana & Paul, 2017)
	Seal	(Lobo et al., 2014; Zamberlan et al., 2017)
	Size	(Qendro, 2015; Rana & Paul, 2017)
	No pesticides	(Ergönü & Ergönü, 2015; Higuchi & Avadi, 2015; Lobo et al., 2014; Qendro, 2015; Sangkumchaliang & Huang, 2012; Toni et al., 2020; Vilas Boas et al., 2006; Zamberlan et al., 2017)
	Appearance	(Ergönü & Ergönü, 2015)
	Labels	(Higuchi & Avadi, 2015)
	Price	(Ergönü & Ergönü, 2015; Lobo et al., 2014; Radman, 2005; Toni et al., 2020)
	Healthier perception	(Ergönü & Ergönü, 2015; Higuchi & Avadi, 2015; Lobo et al., 2014; Qendro, 2015; Radman, 2005; Rana & Paul, 2017; Zamberlan et al., 2017)
Values	Quality of life	(Toni et al., 2020; Vilas Boas et al., 2006; Zamberlan et al., 2017)
	Well-being	(Toni et al., 2020)
	Longevity	(Vilas Boas et al., 2006; Zamberlan et al., 2017)
	Harmony and balance	(Vilas Boas et al., 2006)
Consequences	Environmentally friendly	(Higuchi & Avadi, 2015; Lobo et al., 2014; Rana & Paul, 2017; Sangkumchaliang & Huang, 2012; Toni et al., 2020; Zamberlan et al., 2017)
	Small producers	(Lobo et al., 2014; Qendro, 2015; Sangkumchaliang & Huang, 2012)
	Food safety	(Ergönü & Ergönü, 2015; Higuchi & Avadi, 2015; Lobo et al., 2014; Qendro, 2015)
	Origiin	(Zamberlan et al., 2017)
	Quality assurance	(Zamberlan et al., 2017)
	Disease avoidance	(Zamberlan et al., 2017)
	Pleasure to eat	(Zamberlan et al., 2017)
	Economy	(Zamberlan et al., 2017)

Source: Elaborated by the authors

3. Methodological Procedures

This research consists of a descriptive and quantitative approach. The interest of this type of research is to produce quantitative descriptions of a population using a pre-defined instrument, usually a questionnaire (Freitas et al., 2000). The operationalization of the study took place through a survey with Brazilians of legal age, willing to respond and participate in the research voluntarily.

The questionnaire was developed based on the proposal by Freitas and Trierweiller (2017). The authors divided the analysis into three subdivisions: (1) concrete attribute – what is physical, tangible in a product – observable physical characteristics; and (2) abstract attributes - intangible characteristics and perceived quality. The consequences, also subdivided into two groups, are treated as (1) functional consequences – they act directly on the consumer, based on the consumption of the product, convenience, and comfort; (2) psychological consequences: status acquired with the consumption of the product, resulting from functional consequences. Finally, the values, divided into instrumental and terminal values. The terminals represent the achievement and prosperity, the goals that the individual seeks in life. While the instrumental is the behaviors linked to the individual in pursuing their goals (Freitas & Trierweiller, 2017). In addition, the questionnaire included questions on the consumption of healthy products, barriers, and difficulties for this, built based on a literature reference, addressing factors such as price, appearance, variety, regularity in supply, and credibility (Freitas & Trierweiller, 2017; Vilas Boas et al., 2006).

The questions in the questionnaire were closed, consisting of a five-point Likert-type interval scale (1-5) and the questions on the profile of the respondents used ordinal and nominal scales. The questionnaire was self-administered, in the online format, and sent through a link to fill out the survey in the 'Google docs' tool. The questionnaire was published on social networks, and it reached extensive territorial and population coverage, as it was disclosed on account of a digital influencer. Data were collected between August 17, 2021, and September 21, 2021.

Our sample consisted of 1085 respondents (44% of whom were non-consumers of any of the products under analysis (n=478), and 56% were consumers (n=607). Table 1 shows the sociodemographic characteristics of the sample.

Table 1 – Comparison of socioeconomic distribution between consumers and non-consumers

		Consumers (n=607)	Non-consumers (n = 478)
Gender	Male	27.7%	42.3%
	Female	71.7%	57.1%
	Not binary	0.7%	0.6%
Age	Up to 25	62.6%	62.1%
	Between 26 and 40	32%	34.5%
	Between 41 and 60	5.4%	2.9%
	Over 61	-	0.4%
Marital Status	Single	84.5%	83.9%
	Married	14.7%	14.9%
	Divorced	0.8%	0.8%
	Widow/widower	-	0.4%
Education	Middle School	0.5%	1.9%
	High School	28.7%	38.5%
	Undergraduate	57%	49.4%
	Graduate (MBA programs)	10.2%	8.4%
	Graduate (master's and Doctorate programs)	3.6%	1.9%
Family income*	Up to 2 minimum wages	24.3%	32.8%
	From 2 to 6 minimum wages	40.4%	45.4%
	From 6 to 10 minimum wages	18.9%	11.7%
	From 10 to 14 minimum wages	6.1%	6.5%
	More than 14 minimum wages	10.4%	3.6%
Profession	Self-employed	13.2%	11.5%
	Public-sector employee	27.7%	31%
	Businessman/businesswoman	5.1%	3.3%
	Public-sector employee	8.4%	8.8%
	Retired	0.3%	0.6%
	Student	36.2%	32.6%
Frequency of physical activities	Not working at the moment	9.1%	12.1%
	Occasionally, without defined frequency.	21.6%	27.8%
	Once or twice a week	15%	15.9%
	Three to four times a week	27.3%	15.9%
	Five to seven times a week	21.6%	12.3%
	I don't practice physical activities	14.5%	28%
Food intolerance	Lactose	10.5%	6.1%
	Gluten	1%	0.2%
	Fructose	0.3%	-
	N/a	88.1%	93.7%

Source: Research data / *Note: 1 minimum wage is BRL 1,100.00 (around USD 209.06)

Among non-consumers, respondents were obtained from the following federative units: Alagoas, Amazonas, Bahia (4.2%), Ceará, Federal District, Espírito Santo, Goiás, Maranhão, Mato Grosso, Mato Grosso do Sul, Minas Gerais (6.1%), Pará, Paraíba, Paraná, Pernambuco, Piauí, Rio de Janeiro (4.8%), Rio Grande do Norte, Rio Grande do Sul, Rondônia, Roraima, Santa Catarina (15.5%), São Paulo (45.6%) and Sergipe. Among consumers, respondents

were obtained from: Alagoas, Amazonas, Acre, Bahia (3.5%), Ceará, Federal District, Espírito Santo, Goiás, Mato Grosso, Mato Grosso do Sul, Minas Gerais (5.8%), Pará, Paraíba, Paraná, Pernambuco, Piauí, Rio de Janeiro (4.3%), Rio Grande do Sul (3.3%), Rondônia, Roraima, Santa Catarina (17%), São Paulo (43%), Sergipe, and Tocantins.

Generally, there are no significant differences between the two samples (consumers vs. non-consumers) except that there is a trend towards more consumption of the products under analysis the higher the education level. There seems to be a trend that people who have consumption habits also do more physical activities. Furthermore, it should be inferred that to analyze the objectives of this study, only the 607 respondents who are consumers will be considered. The collected data were analyzed using SPSS Statistics 21 and univariate and bivariate analysis models.

4. Results

Initially, the information that makes up the consumption panorama is presented. Thus, Table 2 distributes the sample according to the frequency of consumption recorded by the survey respondents. Each food category is treated as an observable variable. Frequencies were verified using a scale of 1-5, with 1-never; 2- rarely; 3 – frequently; 4- almost always; 5- always.

Most of the sample focuses on 'balanced eating,' representing the highest average consumption and highest frequency. Although there are behaviors present in the sample, the other variables did not have expressive values about the frequency of consumption, with the highest percentages divided between 2 and 3, with emphasis on 'organic products' and 'family farming products.' The results obtained allow us to state that the analyzed sample has the consumption behavior of all the categories listed but that the frequency of consumption is low (it is not a daily habit).

Table 3 includes the frequencies referring to the ease of finding the products. It is understood that the frequencies are distributed on a scale of 1-5, following the same hierarchical logic from infrequent to more frequent, or more difficult to more accessible, being: 1- very difficult to find; 2- hard to find; 3 – few spaces sell these products; 4- some spaces sell these products; 5 - It is easy to find these products.

Table 2 – Frequency of consumption of the listed products

	Mean	Std. deviation	Frequency (%)				
			1	2	3	4	5
Organic products	2.76	0.932	5.1	37.1	39.9	12.4	5.6
Vegetarian Products	2.36	1.112	22.7	39.2	25	5.8	7.2
Light, diet or zero products	2.43	1.023	17.3	40.4	29.5	7.9	4.9
Gluten free products	1.75	0.780	42.2	44.6	10	2.6	0.5
Lactose free products	1.95	1.050	41.2	35.9	13.5	5.8	3.6
Family farming products	2.71	1.107	13.5	31.3	33.6	13.7	7.9
Balanced diet	3.30	0.901	1.2	15.7	45.8	26.5	10.9

Source: Research data

Table 3 – Ease of finding the listed products

	Mean	Std. deviation	Frequency				
			1	2	3	4	5
Balanced diet	4.29	1.001	2.8	4.1	10.5	26	56.5
Light, diet or zero products	4.23	1.064	2.5	6.3	14.2	20.3	56.8
Lactose free products	3.60	1.118	4.0	14.2	23.7	33.8	24.2
Gluten free products	3.45	1.124	5.1	16	27.3	32.1	19.4
Produtos Vegetarianos	3.40	1.180	7.7	15.3	25.5	32.5	18.9
Organic products	3.37	1.174	7.4	16.3	26.9	30.8	18.6
Family farming products	3.14	1.265	11.5	21.4	25.7	23.7	17.6

Source: Research data

Note that the variables' light, diet or zero products' and 'balanced food' are at the top of the hierarchy of ease of purchase. This fact implies stating that, according to the sample, light, diet or zero calories' products and balanced food products are easier to find. It can also be seen that, although consumption is not a habit (according to Table 2), the sample states that it is easy to buy all products.

Table 4 refers to the valuation of concrete attributes as purchase motivators. It refers to how much the sample values each tangible attribute of all the analyzed product classes. It is important to emphasize that the table is arranged to follow a hierarchy, following the precepts of the basic theory used to analyze the data in this research. The variables were arranged from the most relevant (closest to 5) to the least valued (closest to 1) for the purchase decision sample.

Table 3 – Hierarchy of concrete/tangible attributes

	Mean	Std. deviation	Frequency				
			1	2	3	4	5
1. Taste	4.81	0.486	0.2	0.3	2.0	13.8	83.7
2. Product quality assurance	4.73	0.590	0.2	0.7	4.6	15	79.6
3. Confidence in origin	4.63	0.647	0.2	1.0	5.3	22.7	70.8
4. Sentir o sabor real	4.60	0.734	0.3	1.5	8.4	17.8	72
5. Price	4.58	0.754	0.5	1.0	10.2	17.0	71.3
6. Healthier	4.55	0.713	-	1.2	9.6	22.7	66.6
7. Indicate on the label that it is without pesticides/chemicals	4.51	0.890	1.6	2.6	9.2	16	70.5
8. Natural appearance	4.39	0.845	0.2	3.0	13.8	23.9	59.1
9. Production form (conscious)	4.37	0.920	1.0	4.1	12.4	22.4	60.1
10. Durability	4.36	0.890	0.7	3.5	13.7	23.7	58.5
11. Avoid risks associated with non-organic products	4.36	0.909	1.2	2.8	14.3	22.1	59.6
12. Presence of seal/certification	4.25	1.034	2.6	4.3	15.5	21.1	56.5
13. Positive sensory characteristics	4.15	0.973	1.5	3.3	21.9	24.9	48.4
14. Functional consequences	4.21	0.908	1.0	3.1	17.5	30.5	47.9
15. Store for longer period	4.04	1.021	0.7	7.2	24.5	22.9	44.6
16. Convenience/ gain time	4.04	0.988	1.2	4.8	25.5	26	42.5
17. Size	3.86	1.059	2.6	7.6	25.7	29.8	34.3

Source: Research data.

Note that the variables: 'flavor'; 'product quality assurance'; 'confidence'; 'feel the real taste' and 'price' are the concrete attributes most valued by the sample. Even though all variables had averages considered high, 'storing for longer,' 'convenience/gaining time,' and 'size' are the concrete attributes judged to be less relevant as determinants of purchase for the sample.

Table 4 – Hierarchy of Perceived Psychological Consequences

	Mean	Std. deviation	Frequency				
			1	2	3	4	5
1. Enjoy eating	4.69	0.635	0.2	1.0	5.4	16.8	76.6
2. Feel safe when eating	4.69	0.614	0.2	0.2	6.6	16.8	76.3
3. Feeling that I'm taking better care of my health/self-esteem	4.66	0.663	0.3	1.0	5.8	18.5	74.5
4. Stimulus for better nutrition	4.65	0.631	-	0.7	6.6	19.6	73.1
5. Feeling able to do daily tasks and face everyday problems	4.55	0.775	0.7	1.6	8.7	20.1	68.9
6. Feeling that I'm taking better care of my family's health/concern for children	4.48	0.890	1.8	2.1	9.7	18.5	67.9
7. Feeling environmentally responsible (respecting nature)	4.44	0.877	1.2	2.5	11.7	20.4	64.3
8. Save money (I value my money/don't waste it)	4.43	0.892	0.8	3.3	12.7	18.8	64.4
9. Reduce expenses and inconveniences with health treatments	4.42	0.931	1.3	3.6	12.4	17.5	65.2
10. Do my part / lead by example	4.36	0.985	2.3	2.6	15.2	16.6	63.3
11. Avoiding negative psychological sensations	4.33	1.013	2.8	3.8	12	20.3	61.1
12. Feeling socially responsible (social justice / adding social values)	4.31	0.930	1.3	3.8	13.2	25.9	55.8
13. Return to origins / cherish	4.03	1.135	3.6	7.4	18.8	22.4	47.8

Source: Research data.

Table 5, in turn, presents the valued psychological attributes, also called perceived psychological consequences. Following the same hierarchical logic, the variables: 'pleasure when eating'; 'feel safe when eating'; 'feeling that I am taking better care of my health/self-esteem; and 'stimulation to better nutrition' had the highest averages. While the variables: 'feeling socially responsible'; and 'returns to origins/value had the least valued means. However, it is essential to highlight that all attributes had considerable frequency values, which implies that the psychological consequences, that is, the intangible characteristics of the products, are crucial factors in the purchase decision of the analyzed sample.

Table 6 summarizes the perceived consumption values of all food classes analyzed. Also arranged in a hierarchical way, it allows us to state the values: 'quality of life'; 'live life well'; and 'happiness/joy of life are the attributes that the sample values the most, with 'socialization' as the least relevant attribute.

Table 5 – Hierarchy of perceived instrumental values of consumption

	Mean	Std. deviation	Frequency 1	2	3	4	5
1. Quality of life	4,80	0,505	0,2	-	3,8	11,5	84,5
2. Live life well	4,71	0,596	0,2	0,5	4,9	17	77,4
3. Happiness/Joy of living	4,67	0,664	0,2	0,8	7,5	15,2	76,3
4. Tranquility	4,60	0,745	0,7	1,2	8,3	17,5	72,4
5. Harmony /balance	4,46	0,818	0,3	2,6	11,1	22,7	63,2
6. Longevity	4,40	0,869	1,2	1,8	13,3	23,4	60,3
7. Socialization	4,18	0,997	1,5	4,6	19,3	23,1	51,4

Source: Research data

In order to identify the relationships between the researched constructs and socioeconomic variables, Pearson's correlation was used (Table 7). This type of analysis allows to verify if there is a correlation between the observable variables.

From the results, four associations were obtained between dimensions, with a <u>high</u> correlation between concrete attributes and psychological consequences; the <u>moderate</u> correlation between instrumental values and psychological consequences and with concrete attributes; and a <u>small</u> but defined correlation between ease of purchase and frequency of consumption – following the precepts of (Hair et al., 2005). The verification of the associations allows the analysis of the relationships proposed by the study hypotheses to be carried out. Analyzing the relationships carried out through linear regression makes it possible to verify whether the correlation between variables is positive or negative (see table 8).

Table 6 – Result of the correlation between dimensions

	Frequency of consumption	Ease of purchase	Psychological consequences	Concrete attributes	Instrumental values
Frequency of consumption	1				
Ease of purchase	**.208****	1			
Psychological consequences	.052	.032	1		
Concrete attributes	-.068	.033	**.702****	1	
Instrumental values	.005	.039	**.667****	**.549****	1

Source: Research data.

** The correlation is significant at the 0.01 level (2 extremities) / * The correlation is significant at the 0.05 level (2 extremities)

Table 7 – Linear Regression Result

	R²	R²-ajus	SD Residual	F Statistic	t	Sig
Ease of purchase → Frequency of consumption	.208	.43	.497	27.451	5.239	.000
Concrete attributes / tangibles → Psychological consequences	.702	.492	.406	587.22	24.233	.000
Instrumental values → Psychological consequences	.667	.443	.031	478.13	21.886	.000

Source: Research data

Linear regression shows that:

- Ease of purchase is associated with consumption frequency $|F(1.605)= 587.22$, $p < 0.001$; R^2 0.208)|. Thus, the increase of 1,956 points in the ease of purchase increases the consumption frequency by 0.140.
- The instrumental values perceived with the consumption of the products are associated with the psychological consequences $|F(1.605)= 587.22$, $p < 0.001$; R^2 0.702)|. Thus, an increase of 0.839 points in the perception of concrete attributes increases the perceived psychological consequences by 0.828.
- The concrete attributes perceived with the consumption of the products are associated with the psychological consequences $|F(1.598)= 478.13$, $p < 0.001$; R^2 0.667)|. Thus, an increase of 1.427 points in the perception of instrumental values increases 0.669 the perceived psychological consequences.

5. Theoretical implications and conclusion

This article focused on drawing an overview of healthy food consumption, such as organic, vegan, or vegetarian products, from family farming to those related to food restrictions. It proposes to explain how the concrete attributes, instrumental values , and psychological consequences perceptions of consumption are associated as motivations for consuming these products. The Means-End Chain Theory (MEC-Means End Chain) was used as the base theory for this research, which addresses those tangible attributes (means) are connected to intangible consequences and personal values (ends). A survey was conducted with 1085 Brazilians of legal age (44% of whom were non-consumers of any of the products under analysis (n=478), and 56% consumers (n=607) – who had their behavior analyzed in the study.

The findings indicate that food based on organic, vegan, or vegetarian products, from family farming, and those related to food restrictions and balanced eating is not yet a widespread behavior among Brazilian consumers (mainly because of the general sample, 44 % claim not to consume any of these segments). The 56% of the sample who claim to be consumers should be highlighted. However, what can be seen in this analysis is that consumer behavior is prevalent in balanced eating, and the other segments, although consumed, have a frequency of low consumption (i.e., not a daily habit).

As for the ease of purchase, it was found that although consumption is not a habit, the sample claims that all products are easy to purchase, incredibly 'light, diet or zero products' and 'balanced food.' The main concrete attributes linked to consumption are 'taste,' 'guaranteed product quality, 'trust,' and 'price.' For the valued psychological attributes, also called

perceived psychological consequences, the main variables are: 'pleasure when eating'; 'feel safe when eating'; 'feeling that I am taking better care of my health/self-esteem; and 'stimulation of better nutrition. Finally, the main values linked to consumption are 'quality of life'; 'live life well'; and 'happiness/joy of life.'

Regarding the hypotheses, it is concluded that: the ease of purchase increases the frequency of consumption of healthy products; the perception of specific attributes increases the psychological consequences of healthy consumption; the perception of instrumental values increases the perceived psychological consequences of healthy consumption.

The theoretical model of the chain of means and ends is a tool that offers researchers a guide, which allows marketing professionals to develop a plan with the potential to direct products and messages considered of paramount importance for consumers to make the purchase (Gutman, 1982). The reason is that the theory identifies concrete attributes and relates them to psychological consequences expected by consumers, based on their values (Freitas & Trierweiller, 2017). Following a hierarchy of importance and based on the MEC, the results show that the most valued attributes are common with what had already been identified in other works in the segment. such as: 'flavor' (Ergönü & Ergönü, 2015; Higuchi & Avadi, 2015; Lobo et al., 2014; Qendro, 2015; Radman, 2005; Rana & Paul, 2017; Toni et al., 2020; Vilas Boas et al., 2006; Zamberlan et al., 2017); 'product quality assurance' (Higuchi & Avadi, 2015; Qendro, 2015; Radman, 2005; Rana & Paul, 2017); 'price' (Ergönü & Ergönü, 2015; Lobo et al., 2014; Radman, 2005; Toni et al., 2020).

Different samples' valuation of the same attributes over a 16-year time frame (Radman, 2005 – for this study) suggests that the most valued attributes change little regardless of generations, cultural patterns, and emerging issues. Even though the literature has been preaching growing awareness and listing healthy eating as a trend (Duarte et al., 2021), the consequences can be defined as the psychological or physiological result of consumption, which may be desirable or undesirable (Gutman, 1982). Following the Chain of Means and Ends view, on a hierarchical scale, it was observed that the perceived consequences of the consumption of healthy foods in the sample are based on the pleasure of eating well, safety when eating, and feeling that you are eating well/self-esteem.

However, when observing Tables 7 and 8, it is noted that there is a positive association between the concrete attributes and the perceived consequences, which implies that the greater the consumer's perception of the tangible and intangible attributes of the product, the greater the consequences psychological factors arising from consumption. Psychological consequences, in turn, treated as ends in MEC theory, can be explained by instrumental values linked to consumption. The consequences in individuals are related to consumer experiences and the values cultivated by each person. Values such as longevity, quality of life, and tranquility, highlighted by the sample, are structured values of each individual, which, combined with consumption, interfere with the psychological consequences.

Andrade & Berrtoldi (2012) and Radman (2005) observed that one of the barriers to consuming healthy foods was the difficulty in finding them. Based on this assumption, it is necessary to observe Table 2. It is possible to identify that the sample has a healthy food consumption behavior, but it is not very frequent. In Table 3, it is observed that the sample does not report great difficulty in finding the products. In turn, Tables 7 and 8 indicate that the ease of purchase explains the frequency of consumption in parts (20%). The greater the availability of healthy products, the greater the frequency of consumption. At this point, concrete/tangible attributes, instrumental values , and perceived psychological consequences are more relevant in the decision to consume than the availability of products (ease of purchase).

These results bring an essential insight for companies, which corroborates what was previously proposed by Severo et al. (2018), where the authors found that the sustainable (healthy) appeal of the brand/product does not directly influence the purchase intention, willingness to pay the price or the consumer's emotional reaction to the products. Thus, when positioning themselves in the market for healthy/sustainable products, companies need to be aware that this is not a competitive advantage and that consumers do not necessarily want to buy their products for it and are willing to pay more for them. From a behavioral perspective of consumers, it is necessary to work the consumer's awareness to perceive the concrete attributes and create psychological links with consumption to generate instrumental values. Perceived value is the base for the success of businesses that seek to explore the market for organic, vegan, or vegetarian products, from family farming, and those related to food restrictions, as well as those linked to a balanced diet.

6. Limitations and suggestions for further research

As with any research, although the scientific concern raised has been answered, possible limitations and the possibility of generalizing the results should be mentioned. The first question refers to the type of sample – non-probabilistic and for convenience – which, even having reached a significant number of respondents, there may be biases in the results arising from the profile of the sample. New studies may focus on testing these variables directly at retail outlets (and natural products/family farming fairs), analyzing consumption behavior through quasi-experimental and observational studies. Furthermore, considering that there is still a relatively low consumption of these products, and that, as shown in other surveys, consumers do not necessarily want to pay more for healthier/sustainable products, how can companies manage and position these products in the market? New research may focus on deepening this issue. Dividing the analysis into sectors can show distinct effects of concrete attributes, psychological consequences, and values related to consumption, which can be studied in further research.

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