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DETERMINANTS OF INTENT TO PURCHASE ORGANIC PRODUCTS TO IMPROVE QUALITY OF LIFE

Abstract: *Concerns about food quality and safety have grown as cases of disease and food-related scandals increase. To mitigate this problem, organic products have been a solution, as their certification is provided through processes that are less harmful to the environment and consumer health. To understand the main motivations of consumers of organic products, the objective of this study is to demonstrate whether the statistical values of the predictor variables (health concern, signaling trust, and attitude) confirm their purchase intention (dependent variable). To carry out this research, the survey method was used, applying a questionnaire with open and closed questions to 288 respondents, supporting the elaboration of a structural model based on four hypotheses, which were confirmed through statistical calculations. As for the contribution, this work supports the alignment of expectations and preferences of the members of the production chain of organic products.*
Keywords: *Organic products, Quality of life, Consumer behavior, Sustainable marketing, Survey.*

1. Introduction

The concern with food quality and safety has grown as cases of food-related illnesses and scandals have increased. Therefore, consumers are looking for healthy alternatives that can protect them from chemical agents, such as fertilizers and pesticides, and that can also strengthen their immunity, preserving them from diseases (Gumber& Rana, 2021). Organic products emerge as an important alternative to this public, because the recognition as "organic" requires certification that guarantees that the company holding the certificate respects the environment, biodiversity, animal welfare and that it reduces the level of pesticides in its production, according to the requirements of each country (Ladwein & Sánchez Romero, 2021).

Although the discussion about the importance of adopting organic products has been going on for decades, the rise of digital technology has made a large amount of information and options available to the population. In this way, consumers have been demanding products that favor their quality of life and that are less harmful to the environment (Bravi et al., 2020;Wang et al., 2020; Santos et al., 2014; Rebelo et al., 2015; Barbosa et al., 2021). This consumer desire is in line with the SDGs established in 2015 by the United Nations (UN), in particular SDG 3 - Quality Health that seeks to "ensure a healthy life and promote well-being for all ages". And SDG 12 -

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Responsible Consumption that aims to "ensure responsible production and consumption patterns"(Reis et al., 2021; United Nations, 2021; Vieira Nunhes et al., 2021;Zimon et al., 2020;Talapatra et al., 2022).

A variety of studies have been conducted to identify the main determinants in the consumption of organic products. In a survey in the Scopus database, with the key words "organic products" and "purchase intention", 35 articles were identified, 29 of which were conducted as surveys. Among these articles, there are surveys conducted in all continents. However, none of these studies performed a structural model with the "starting point" in health concern, aiming to contribute to SDG 3. The main research gap that this paper aims to fill is to improve the understanding of how the purchase intention of organic products is perceived by their consumers (Wang et al., 2019). The constant interest of consumers in emerging countries for organic products (Rana & Paul, 2017) which includes Brazil, a country where this research is delimited, is the main motivation of the authors of this article.

In Brazil, about 19% of its population consumes at least one organic food per month, with health benefits as the main motivation. In 2021, the number of consumers of these products increased 63% over the previous year. Among the most consumed organic products, vegetables stand out with 75% of market share, followed by 12% of grains and 10% of cereals (Organis, 2019).

Given the above, the guiding question of this research is: what are the influences of health concern, trust signaling, and attitude on consumers' intention to purchase organic products? To answer it, the aim of this study is to demonstrate whether the statistical values of the predictor variables (health concern, trust signaling, and attitude) support consumers' intention to purchase (dependent variable) organic products. The structure of this work includes, in addition to this introduction, the theoretical framework, method, results and discussion, conclusion, and references.

2. Theoretical framework

For this work the following variables were considered: health concern (which started the model), trust signaling, attitude, and purchase intention.

The concern for health is due to the perception that consumers have that organic product is important since babies, contributing to their growth and development, until elderly people, helping in the prevention of diseases and longevity. Another concern in line with the sustainable development proposal of the SDGs is the reduction of solid waste that impacts the environmental degradation (Araújo et al., 2021; Das et al., 2020; Espuny et al., 2021; Purnhagen et al., 2021). In general, consumers perceive organic products to have more nutritional qualities for the organism, which in theory could "compensate for the investment" in the long term. In this way, the substitution of organic products for conventional products would save consumers from buying medicine in the future (Fraga-Corral et al., 2021; Lin et al., 2021; Peschel et al., 2019). For the development of this work, three constructs related to health concern were considered, as follows: "HEALTH_CON 1" - I worry about the nutritional value of food; "HEALTH_CON 2" - I try to prevent health problems before feeling any symptoms; "HEALTH_CON 3" - I often worry about issues related to my health (Guilabert& Wood, 2012).

The signaling of consumer confidence is given by the loyalty that consumers have to certain outlets/producers or by their demand for certification of products, processes and companies (Yu et al., 2021; Zgodavova et al., 2020; Santos et al., 2020). Loyalty can occur through previous good experiences of customers at the point of sale, making them

sure that they are buying a product with integrity, as advertised (Apaolaza et al., 2017; Delmas & Lessem, 2017; Peschel et al., 2019).

In Brazil, for example, the regulation of organic products began with Law No. 10831/2003, imposing the need for accreditation in the National Register of Organic Products (CNPO) and the Ministry of Agriculture, Livestock, and Supply (MAPA). In line with this regulation, the FSSC 22000 can help and support the practices and actions to ensure the quality of food safety (Baurina & Amirova, 2021; Brasil, 2003; Galhardo et al., 2018; Rajkovic et al., 2017). The constructs that were elaborated for the trust signaling were: "TRU_SIG 1"- I believe that certifying institutions, in the field of organic products, are conscious with their responsibilities". TRU_SIG 2"- I trust the organic products I buy in open markets; and "TRU_SIG 3"- I trust the organic products seal (Ayyub et al., 2018; Du et al., 2017; Watanabe et al., 2020;Martins et al., 2019; Félix et al., 2018).

There are not enough studies to clarify the most relevant segments, that consumers are willing to consume organic products (Ross & Kapitan, 2018).One attitude-related practice that entrepreneurs have pursued and appealed to is the Theory of Planned Behavior, which can induce the moral attitude of consumers to buy organic products (Nagaraj, 2021). Four constructs were defined to validate attitude, as follows: "ATT 1" - I believe that buying organic products is a good idea; "ATT 2" - I believe that buying organic products is important; "ATT 3" - I believe that buying organic products is beneficial; and "ATT 4"- I believe that buying organic products is reasonable (Yadav & Pathak, 2016).

Finally, in purchase intention, we include objective questions, such as price and food safety, and subjective ones, such as motivations and behavior, which can guide the consumer's desire to buy organic products (Qambrani et al., 2017). The

constructs designed for purchase intention were: "PUR_INT 1"- Choosing organic food next time I go shopping; "PUR_INT 2"- Continuing to buy organic products in the future; "PUR_INT 3"- Increasing the consumption of organic products in the future (Liang, 2016). After describing the constructs and the questions used to prepare the paper, we will describe the research hypotheses.

With regard to the variables "health concern" and "trust signaling ", consumers credit a lot to the label of the benefits that organics can offer to them (Aitken et al., 2020; Apaolaza et al., 2017; Delmas & Lessem, 2017). There are several certifying companies that guarantee the quality of the production processes of organic products, such as the "Sisorg" seal (Souza et al., 2019). In this way, consumers also trust that the prolonged use of organic products is healthier and can prevent the onset of serious diseases. There are cases in which parents and grandparents prefer to serve their children with organic products to avoid serious diseases or even difficulties in not compromising the fertility of their successors (Das et al., 2020; Purnhagen et al., 2021). For consumers to maintain this trusting relationship with organic brands, with the motivation to maintain their health, it is very important that retailers ensure that the products are true to the documentation and advertisements of their suppliers (Ladwein& Sánchez Romero, 2021).

H1- health concern positively influences trust signaling in the intention to purchase organic products.

The variables "trust signaling" and "attitude" are related, as the consumer feels at ease in purchasing organic products. This purchase can be made directly at the physical points of sale or virtually (Ashraf et al., 2019). The trust ends up being a support point for consumers, if they do not have instruments that can attest to the authenticity and veracity of organic products they consume. In fact, "organic products" ends up being a quality

attribute that consumers "believe" will bring them several benefits. There are studies that indicate places where the population has information about organic products in an objective way, however, consumers do not recognize exactly with the name "organic products" (Ladwein& Sánchez Romero, 2021).

H2- trust signaling positively influences attitude in the intention to purchase organic products.

As for the relationship between "attitude" and "purchase intention" it is important to note that the consumer of organic products is motivated by: product quality, environmental concerns, food safety, animal welfare and support for the local economy (Katt & Meixner, 2020; Tandon et al., 2020; Watanabe et al., 2020;; Santos et al., 2021; Sá et al., 2021). Some studies mention that the variables of price, social norms and environmental awareness are related to purchase intention and frequency, however, the perception of product quality is only determinant for purchase intention and not for frequency (Mondelaers et al., 2009; Costa et al., 2019; Sá et al., 2020). Other studies indicate that consumers can also be influenced by advertising and marketing campaigns in their attitude towards buying organic products (Shan et al., 2020). These campaigns induce a "consciousness raising" behavior towards sustainable consumption and provide better quality of life conditions (Katt & Meixner, 2020; Tandon et al., 2020; Watanabe et al., 2020).

H3- attitude positively influences the intention to purchase organic products.

The variables "health" and "purchase intention" may be related as a result of studies indicating a reduction in the likelihood of disease (Ladwein & Sánchez Romero, 2021). Another important aspect to consider about these two variables is that the marketing bias towards organics is oriented to "private" attributes, considering health, by the issue of taste and quality. However, if the demand that drives this market is the appeal of "public" attributes, such as the improvement of the environment and animal welfare, it is necessary to have communication strategies so that the consumer does not see the integrated communication of organic products companies as a paradox (Kushwah et al., 2019; Prentice et al., 2019).

H4- health concern positively influences the intention to purchase organic products.

3. Research Method

This research can be classified as to its nature as applied. Additionally, it can be classified as to its quantitative approach, in which statistical methods were used to analyze the responses collected through a survey (Kothari & Garg, 2019).

The survey contains open and closed questions to test the hypotheses formulated in the previous section. The questionnaire was composed of 13 questions, described in the theoretical framework, and subdivided into 4 constructs: concern with health, confidence signaling, attitude, and purchase intention.

The questionnaire was structured according to a Likert-type scale of agree or disagree, with each response option having an associated value from 1 to 7. To ensure the validity of the questionnaire, it was sent to and validated by three different experts in the area of sustainable marketing in Brazil.

The sampling technique adopted for the development of the survey was the non-probability by convenience, in which the sample is obtained through the network of contacts of the researcher (Alvarenga et al., 2021; Andrade, 2021; Sari Dewi et al., 2021). Therefore, the questionnaire was made available online and sent by email and social networks to collect responses between October and November 2020. In total, 288 valid responses were collected.

To analyze the responses, structural equation modeling was used, which allows testing and validating the hypothesized dependency

relationships and the proposed conceptual model (Hair et al., 2017). For this the Analysis of Moment Structures (AMOS) software was used.

4. Results and Discussion

In this section, we present the sociodemographic data (the script is in Appendix A), the reliability of the instrument, the convergent validity, the discriminatory validity, and the model obtained with the research, according to the

conditions of respondents and number of questions. mentioned in the Research Method section.

As shown in Figure 1, the sociodemographic data show similar patterns on the profile of consumers of organic products already published in previous studies. The importance of this analysis is to support the improvement of market strategies and management of the production chain for this target audience.
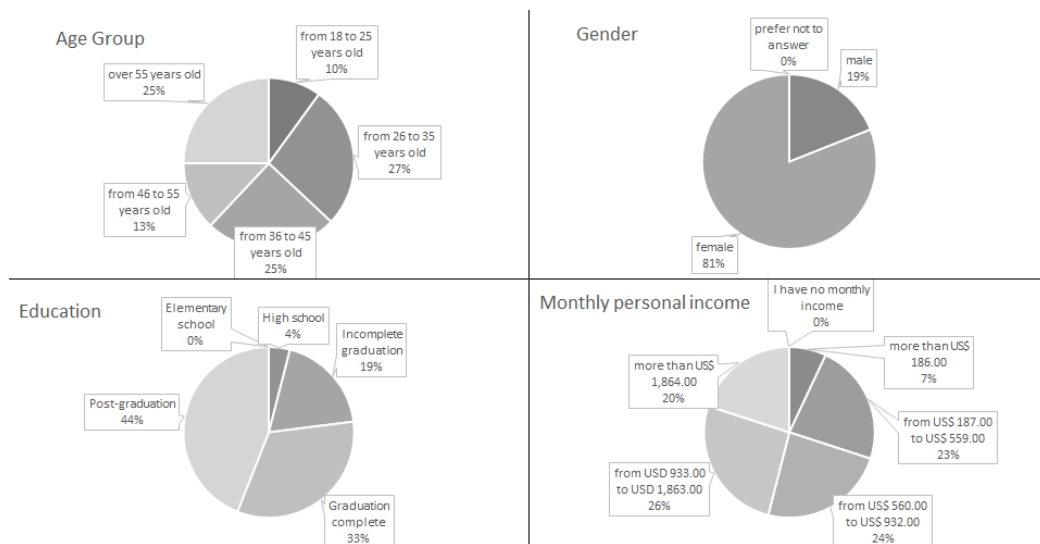

Figure 1. Socio-demographic data

Regarding the age of the respondents, there is a predominance of buyers among those aged between 25 and 55, comprising 65% of the target audience. Those under 25 and over 55 represent only 35% of this total. Regarding gender, 81% of buyers of organic products belong to the female audience. As for education, 77% of clients have a degree or post-graduate degree. Regarding the income range, almost half (46%) have an income above USD 933.00.

The study, after analyzing the sociodemographic data, analyzed the reliability of the other data collected linked to each variable and its corresponding

construct, as shown in Table 1.

Thus, confirmation of the reliability and validity of the database used in this research were verified through Cronbach's Alpha coefficient, a measure that has a variation from 0 to 1, with a minimum value recommended in the literature of 0.6 for exploratory research, according to criteria by (Fornell & Larcker, 1981; Hair et al., 2018; Ventura-León, 2018), in order to assess the internal consistency of the set of variables of the same construct and the Corrected Item-Total Correlation (CITC), (values above 0.5 recommended), according to Hair et al. (2018).

Table 1. Instrument reliability

Constructs	Cronbach alpha	Item	CITC
Trust Signaling	0.72	TRU_SIG 1	0.56
		TRU_SIG 2	0.50
		TRU_SIG 3	0.58
Attitude	0.93	ATT 1	0.85
		ATT 2	0.90
		ATT 3	0.85
		ATT 4	0.79
Purchase intention	0.85	PUR_INT 1	0.69
		PUR_INT 2	0.80
		PUR_INT 3	0.72
Health Concern	0.79	HEALTH_CON 1	0.57
		HEALTH_CON 2	0.73
		HEALTH_CON 3	0.62

It is noted that the reliability indices of the variables followed the standards recommended by the literature. Afterwards, based on the reference values recommended by Hair et al. (2009), according to Table 2, it was verified through Cronbach's Alpha, the Average Variance Extracted (AVE) and the Composite Reability (CR), with the purpose of accessing the convergent validity of the researched constructs. Following the recommendations of the authors in the area, the AVE explains how much the total variance of each variable is used to compose the variation of the construct, representing the convergence of a set of items that represent the construct. CR is a measure of convergence calculated from the standardized factor loading of a latent variable (Hair et al., 2018). For the analysis of CR, values above 0.70 were considered, while for AVE, the value of 0.5 was considered, according to literature criteria (Fornell & Larcker, 1981; Hair et al., 2018).

Table 2. Convergent Validity

Construct [AVE] (CR)	Variables	Non-standardized Coefficients		Standardized factor loading *	Value t*	R^2
		Factor Loads	Standardized Errors			
Trust Signaling	TRU_SIG 1	1	**	0.65	**	0.42
[0.60]	TRU_ SIG 2	0.97	0.12	0.85	7.96	0.72
-0.73	TRU_ SIG 3	1.22	0.15	0.81	8.14	0.67
Attitude	ATT_1	1	**	0.87	**	0.76
[0.77]	ATT_2	1.13	0.04	0.94	24.42	0.89
-0.93	ATT_3	0.81	0.04	0.85	20.12	0.73
	ATT_4	1.13	0.06	0.82	18.53	0.68
Purchase Intention	PUR_INT_1	1	**	0.75	**	0.56
[0.69]	PUR_INT_2	0.87	0.05	0.88	15.30	0.77
-0.87	PUR_INT_3	0.85	0.06	0.85	13.98	0.73
Health Concern	HEALTH_CON_1	1	**	0.66	**	0.43
[0.58]	HEALTH_CON_2	1.51	0.14	0.90	10.75	0.81
-0.80	HEALTH_CON_3	1.16	0.11	0.70	10.04	0.49

In Table 3, the discriminant validity was verified. Convergent validity assesses the degree to which measures of the same concept are correlated, while discriminant validity verifies the degree to which a construct is truly different from the others (Hair et al., 2018).

Table 3. Discriminant Validity

	Constructs	1	2	3	4
1	TRU_SIG	**0.77**			
2	ATT	0.33	**0.87**		
3	PUR_INT	0.32	0.69	**0.83**	
4	HEALTH_CON	0.35	0.21	0.41	**0.76**

According to the criteria of Fornell and Larcker (1981), from the discriminant validity, the values of the loads of each of the latent variables, were evaluated, within the correlation matrix, where the square roots of the values of the AVE of each construct in the model with Pearson's correlations between the constructs. Thus, the square roots of the AVE must be superior to the correlations of the constructs (Fornell&Larcker, 1981; Hair et al., 2018). In this sense, according to Table 5, it appears that the values of the variance extracted from each construct are greater than the variance shared between the constructs (square correlations), meeting the criteria Fornell and Larcker (1981).

After building the structural model, the adjustment indices were performed as recommended by the literature, finding the values listed below, according to Table 4. It is noted that the indices were in accordance with the standards of the literature Hair et al. (2018).

Table 4. Discriminant Validity

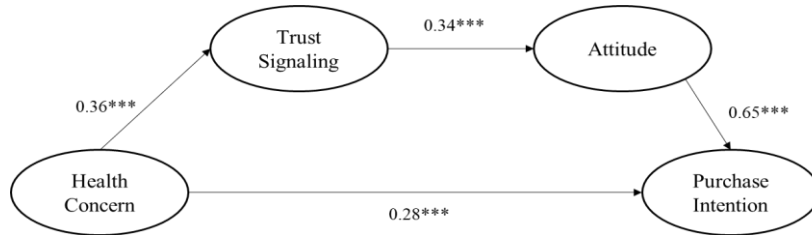| Fit index	Recommended statistic value	Model statistic value
X^2/df	Below 3	2.53
CFI	Above 0.92	0.95
IFI	Above 0.92	0.95
TLI	Above 0.90	0.94
SRMR	Below 0.08	0.06
RMSEA	Below 0.07	0.07
GFI	Above 0.90	0.93

Figure 2. Model

As shown in Figure 2, the result reflects what authors such as Schuler and Toni (2015) and the United Nations itself point out in their research when they say that consumers indicate nutritional characteristics, better quality of life concern with disease prevention and, thus, directly with health, when they choose to consume organic products. Regarding the relationship with trust signaling, it was found that the relationship with the attitude of organic products is represented by strong demonstrations of consumer confidence in the certification processes of organic products as well as in producers, as indicated by Yu et al. (2021). Finally, the strongest relationship evidenced in the model is the relationship between attitude and intention to purchase organic products. As this relationship is still difficult to clarify, this study becomes even more important when

we see a high rate of relationship between the variables. Thus, attitude can be considered, together with characteristics linked to health, as a practical action and no longer of a subjective nature, when analyzing its relationship with organic products, thus representing what the consumer considers to be beneficial to society and for your health to buy organic products (Nagaraj, 2021; Yadav & Pathak, 2016). Thus, the four hypotheses of this work can be supported (Table 5).

Table 5. Results of hypothesis testing

Hypothesis	Standardized factor loading	Support
H1	0.36	Supported
H2	0.34	Supported
H3	0.65	Supported
H4	0.28	Supported

Note: Default values, *** $p < 0.001$.

5. Conclusion

The objective of this work was achieved by confirming the appropriate ranges of values of the statistical indicators referring to each of the four relationships in the model, being "concern for health and purchase intention (0.28), concern for health and trust signaling (0.36), trust signaling and attitude (0.34) and attitude and purchase intention (0.65)". Thus, it was possible to answer the question of this research, confirming that there is discriminantvalidity between all four relationships described.

The main theoretical contributions of this work are: (1) the expansion of the knowledge block between marketing and quality of life, by identifying the potential relationship between health concerns and purchase intention; (2) the association between the purchase intention determinants and the achievement of the SDG 3. As for the main applied contribution, these findings can help organic food producers, decision makers, managers and retailers, to better understand what generates added value in organic products in the minds of consumers and, therefore, to make an offer that is in line with your expectations and preferences, a factor recognized as one of the main prerequisites for the acceptance and purchase of organic food products.

For future studies, it is important to investigate the results of this work with other conceptual models, to support new relationships between consumer behavior and moderators. In this way, advances are made in the planning of actions aimed at sustainable marketing and the market in the organic products sector.

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Appendix A - Socio-demographic information questionnaire

Age Group	( ) from 18 to 25 years old ( ) from 26 to 35 years old ( ) from 36 to 45 years old ( ) from 46 to 55 years old ( ) over 55 years old
Gender	( ) male ( ) female ( ) prefer not to answer
Education	( ) Elementary school ( ) High school ( ) Incomplete graduation ( ) Graduation complete ( ) Post-graduation
Monthly personal income	( ) I have no monthly income ( ) more than US$ 186.00 ( ) from US$ 187.00 to US$ 559.00 ( ) from US$ 560.00 to US$ 932.00 ( ) from USD 933.00 to USD 1,863.00 ( ) more than US$ 1,864.00
Amount spent/week on organic products	( ) from US$ 1.83 to US$ 5.53 ( ) from US$ 5.54 to US$ 9.29 ( ) from US$ 9.30 to US$ 13.00 ( ) more than US$ 14.00
Monthly frequency of organic products purchase	( ) from 1 to 2 times ( ) between 2 and 3 times ( ) between 3 and 4 times ( ) more than 4 times