



Review

How to Measure Organic Fruit Consumer Behavior: A Systematic Review

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Abstract: This review article seeks to systematically identify appropriate ways to measure the consumption behavior of organic fruits. The systematic review of the literature was performed according to the criteria of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, and the eligibility criteria were declared through the PICOS (population, interventions, comparators, outcomes, and study) tool based on 277 article records scientiometrically identified in both the Journal Citation Report databases from Web of Science. The literature review stages determined a reduced set of articles that presented valid and reliable measurement scales that covered determinant constructs in organic fruit consumer behavior (OFCB). The measurement scale with the best results reported within the screened articles covered the constructs related to health, fear, environment, effort, and economy, allowing it to serve as a reference instrument in further studies on food consumer behavior.

Keywords: consumer behavior; behavior studies; consumer studies; food consumer; fruit consumer; organic consumer; organic fruit; sustainable business; behavioral measurement; confirmatory factor analysis



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1. Introduction

The objective of this article was to identify appropriate ways to measure organic fruit consumption behavior based on a systematic literature review. Given the importance of fruit consumption, from the nutritional quality and benefit for the human being point of view, fruits provide unique nutrients within the diet (e.g., the Mediterranean diet, a traditional food habit and healthy eating model), while on the other hand, they also consist of tropical fruits that are perceived as nutritious, healthy, tasty, attractive, and special [1–3].

Improving fruit and vegetable intake depends on including them in dinners and school meals; finding alternatives to reduce reticence toward trying new foods; providing timesaving cooking tools; new home processing efforts to cook nutrient-rich foods; offering and promoting healthy foods in bars and restaurants; implementing new freezing methods that provide benefits to preservation; offering visible and permanent in-store displays in disadvantaged areas [4–9].

1.1. Fruit Consumption Behavior

Consumer behavior tends to place greater importance on information about the food's nutritional value, is more attentive to sustainable attributes, is concerned about product

quality, and is slightly influenced by brands and special offers; all product attributes that have health implications for consumers are considered extremely important, especially in young consumers [5,10–13].

There are profiles within fruit and vegetable consumer behavior that are concerned about climate impact and food waste, which also end up as a cost to society and households [14–16]. Regarding fruit characteristics, these can be acquired in nearby places that provide high confidence in their quality with price becoming a variable that does not influence perceived quality. For example, in Chinese studies, the commodity substitution due to the fact of changes in relative prices was small, except for cereals [17,18]. In regard to preference for fruits, it is important that they are fresh, with variety, well packaged, available, and priced fairly [19–21].

When it comes to organic food, increasing fruit consumption requires specific marketing policies, renewing information on organic and nutritional labels, and improving the shopping experience in local markets to attract informed consumers [22–25]. Another aspect identified that affects fruit consumption is associated with misinformation about products with organic characteristics, which is often caused by the information on labels that tend to confuse consumers; in place of having positive and clear information linked to health, the consumption of organic food is favored in the decision process. The same occurs with the form of processing and preservation as in the case of papaya in Brazil [26] or certification systems in Greece [27]. On the other hand, the sanitary handling of the foods as well as negative information on the pesticides contained in fruits and vegetables have a negative influence on their incorporation into the market, for which different strategies should be used with different consumer groups [25–30].

1.2. Organic Fruit Consumption Behavior

Research conducted in several countries indicates that there are different factors that help to understand the consumption behavior of organic fruits. Among these factors, one that stands out above the rest is the knowledge that consumers have of the positive health effects of consuming organic fruit compared to non-organic fruit [20,22,23,27,29–35]. Fear of the effects of pesticides used on non-organic fruits and their harmful consequences on health and the environment are also highlighted as an influential purchasing decision factor [30,31,34,36]. At the same time, another important factor pointed out by several studies, which may inhibit or trigger organic fruit consumption, is price [31,32,37,38], especially in times of economic and health crises [39]; however, in markets with more developed cultures about the benefits of consuming organic products, consumer information about the benefits and product differentiation may be the most effective in increasing consumption [40]. Given the above, research has explored sensory aspects in the consumption of organic fruit (labeling, smells, and packaging), finding that an adequate development in response to the needs of the segments could have a positive effect on (1) contributing to dietary changes toward more sustainable foods and diets; (2) increasing food diversification; (3) reducing food waste; (4) prioritizing food-related well-being; (5) specific actions to mitigate the effects of climate change [18,24]. It has also been proposed that organic certifications can have a differentiating effect on the product; however, research shows that there is still little clarity among consumers on the types of certifications and their benefits [25,27]. Because the segments are so diverse, some researchers have proposed their own definition of organic fruit consumers, classifying them as bio-prepared consumers, price-sensitive consumers, variety-seeking consumers, and quality-seeking consumers [41]. There are also limiting factors that inhibit organic fruit consumption such as the limited ease with which customers can purchase the products, the irregular supply of duly certified suppliers, and the limited availability of establishments that regularly supply organic products [38,42]. Research has also found that consumption is influenced by the production season and the abundance allowed by the locality [15]. Finally, studies indicate that the female gender has a greater willingness to purchase organic products, moderated by educational, cultural, and socioeconomic levels [22,35].

2. Materials and Methods

In the review presented, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [43] were used, and the PICOS (population, interventions, comparators, outcomes, and study) tool was used to establish the eligibility criteria for the articles [44,45], for which the publications by Hapsari et al. and Semananda et al. [46,47] in *Horticulturae* were used.

The initial article search was reinforced with the use of scientometrics [48]. The use of scientometrics in a systematic review [49] focuses on knowledge production, the spatiality of knowledge production, and knowledge relationships within the global actor–network [50,51], allowing for the refinement of the initial article selection based on a search vector using field labels and Boolean and wildcard operators [52]. Its incorporation of sequential mixed usage with PRISMA guidelines has also been previously addressed [53].

The articles with the search vector TS = (consumer NEAR/0 (behavior OR behaviour) AND fruit) were identified using 2 databases of the Web of Science Core Collection (WoS): Science Citation Index Expanded (SCIE) and the Social Sciences Citation Index (SSCI), both containing journals indexed in the WoS Journal Citation Report (JCR), which are considered high-quality journals for which impact is calculated annually based on the average number of citations received. With respect to Scopus, the journals indexed in SCIE-WoS and SSCI-WoS had high duplicity of indexing. Using PRISMA, the selection of articles was specified based on eligibility criteria: the target population, the interventions in this population, the elements of comparison of these studies, the outcomes to which these studies were oriented, and the study designs (a set of criteria called the PICOS tool as shown in Table 1). Finally, the selected studies were classified, according to the emerging dimensions, into services, promotion, conservation, and policies.

Table 1. Eligibility criteria using PICOS (population, interventions, comparators, outcomes, and study).

PICOS	Description
Population	Consumers who purchase organic fruit or have the purchase intention of buying organic fruit.
Interventions	Survey application to organic fruit consumers or potential consumers.
Comparator	Analysis methods (validity and reliability), constructs, and variables measured with respect to organic fruit consumption behavior.
Outcomes	Valid and reliable measurement scales to study organic fruit consumption behavior.
Study designs	No a priori restrictions. Quantitative and mixed-study types were included.

3. Results

The scientometrics search of articles identified a total of 277 articles from two different databases of the Web of Science Core Collection (i.e., SCIE and SSCI). There were 184 unique titles and abstracts (no repeats); however, excluding documents of the types meeting abstract (1), article review (9), and non-English-language articles (German (3), Polish (1), Portuguese (3), and Spanish (2)) resulted in 165 records for screening. In addition, four articles not related to fruit consumer behavior (i.e., general consumer behavior, salt, e-cigarettes, and snacks) were excluded, reducing the corpus analyzed to 161 full-text articles in English retrieved and screened using the selection criteria defined with the PICOS tool (see Supplementary Materials Table S1; Appendices A and B). The screening thus identified eight articles that met our inclusion criteria as shown in Figure 1.

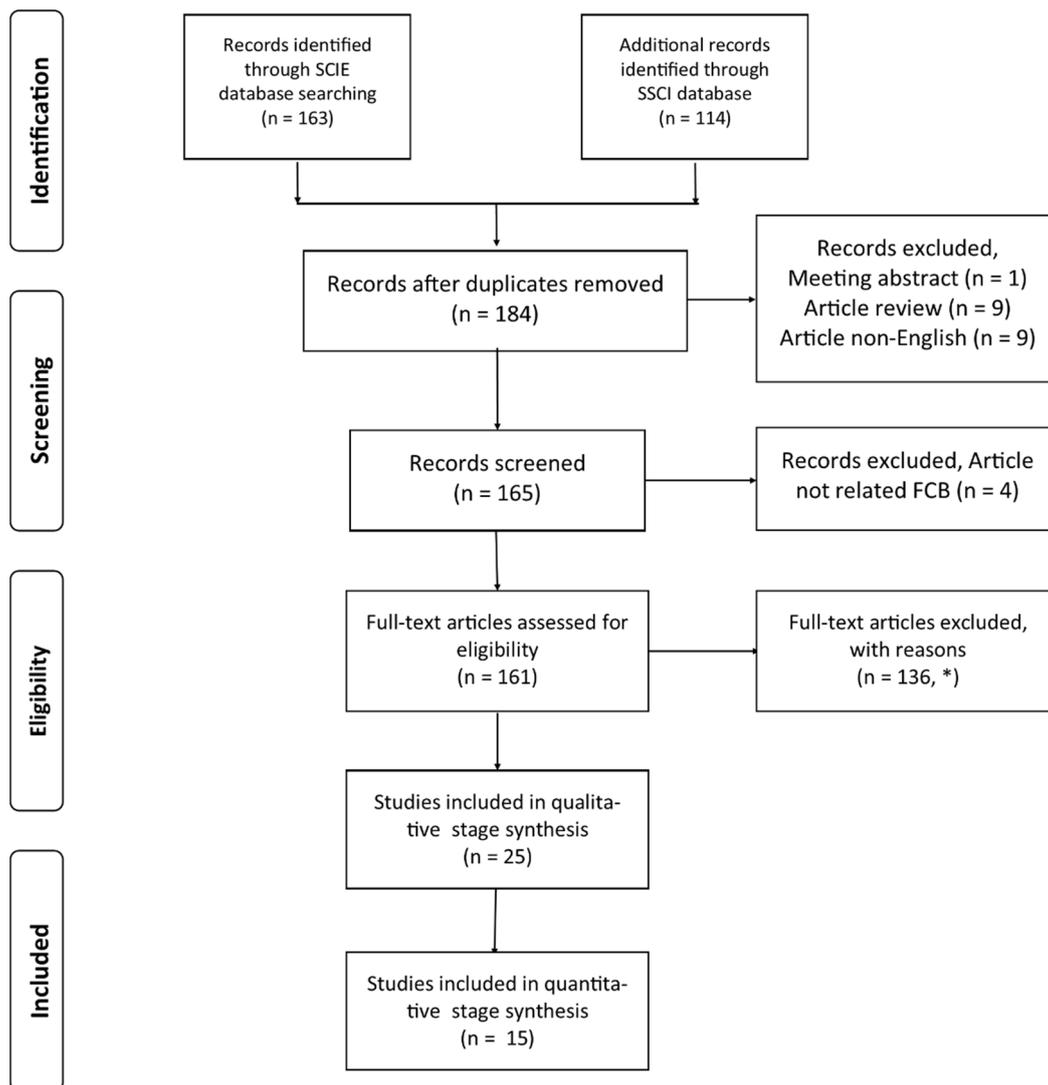


Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) analysis flow. * The exclusions corresponded to articles that did not refer to organic fruit consumer behavior.

3.1. Qualitative Review Analysis

The twenty-five articles that met the eligibility criteria were reviewed at the full-text level to determine with precision if their characteristics offered homogeneous criteria that made them comparable. Table 2 shows the main identification and retrieval information obtained from the WoS databases.

Table 2 shows a high concentration of articles in journals indexed in the SCI-E, with only one case indexed exclusively in the SSCI (*International Journal of Consumer Studies*), while the 23 empirical cases were mainly concentrated in Europe (15 cases), plus three cases in Turkey (a transcontinental Eurasian country), two in India (Asia), and three in the Americas (Brazil, Chile, and USA). In addition to the strong empirical studies focused on Europe, it is also noteworthy that the data mainly came from surveys (20 out of 25 articles). Finally, with few exceptions, the articles referred to fruit consumption in general, a criterion that has been maintained for the inclusion of documents in the next stage of the review.

3.2. Quantitative Review Analysis

The set of selected articles was valued according to the breadth of topics on measuring organic fruit consumer behavior. As for these fifteen articles, shown in Table 3, they used the quantitative stage in the PRISMA method.

Table 2. Included articles in the qualitative stage for the review analysis.

Authors	Article Title	Journal Title	Publication Year	WoS Categories	WoS Index	Specific Fruit	Country	Sample	Data from	Went to the Next Stage
Adasme-Berrios et al. [36]	Who Are the Potential Consumers of Organic Fruits and Vegetables in Central Chile? A CHAID Approach	<i>Rev. Fac. Cienc. Agrar. Univ. Nac. Cuyo</i>	2015	Agric., Multidiscip.	SCI-E	No	Chile	425	Questionnaire-survey	Yes
Aigner et al. [40]	The Effectiveness of Promotional Cues for Organic Products in the German Retail Market	<i>Sustainability</i>	2019	Green & Sustain. Sci. & Technol.; Environ. Sci.; Environ. Stud.	SCI-E; SSCI	No	Germany	487	Questionnaire-survey	Yes
Akpinar et al. [35]	The Role of Demographic Variables in Purchasing Decisions on Fresh Fruit and Vegetables	<i>J. Food Agric. Environ.</i>	2009	Food Sci. & Technol.	SCI-E	No	Turkey	300	Questionnaire-survey	Yes
Ali et al. [20]	Buying Behaviour of Consumers for Food Products in an Emerging Economy	<i>Br. Food J.</i>	2010	Agric. Econ. & Polic.; Food Sci. & Technol.	SCI-E; SSCI	No	India	101	Questionnaire-survey	Yes
Aschemann-Witzel et al. [18]	A Sense of Sustainability? How Sensory Consumer Science can Contribute to Sustainable Development of the Food Sector	<i>Trends Food Sci. Technol.</i>	2019	Food Sci. & Technol.	SCI-E; SSCI	No	-	-	Commentary article	Non-empirical
Aydogdu and Kaya [33]	Factors Affecting Consumers' Consumption of Organic Foods: A Case Study in GAP-Sanlıurfa in Turkey	<i>J. Agric. Sci. Technol.</i>	2020	Agric., Multidiscip.	SCI-E	No	Turkey	382	Questionnaire-survey	Yes
Boca [54]	Factors Influencing Consumer Behavior in Sustainable Fruit and Vegetable Consumption in Maramures County, Romania	<i>Sustainability</i>	2021	Green & Sustain. Sci. & Technol.; Environ. Sci.; Environ. Stud.	SCI-E; SSCI	No	Romania	1230	Questionnaire-survey	Yes
Botonaki et al. [27]	The Role of Food Quality Certification on Consumers' Food Choices	<i>Br. Food J.</i>	2006	Agric. Econ. & Polic.; Food Sci. & Technol.	SCI-E	No	Greece	600	Questionnaire-survey	Yes
Carson et al. [23]	Buying In: The Influence of Interactions at Farmers' Markets	<i>Agric. Human Values</i>	2016	Agric., Multidiscip.; History & Philosophy of Sci.; Sociology	SCI-E; SSCI	No	USA	348 *	Surveys, observations, and interviews	Yes
Cerri et al. [55]	Factorial Surveys Reveal Social Desirability Bias over Self-Reported Organic Fruit Consumption	<i>Br. Food J.</i>	2019	Agric. Econ. & Polic.; Food Sci. & Technol.	SCI-E; SSCI	No	Italy	858 **	Questionnaire-survey	No, focus on reliable answering

Table 2. Cont.

Authors	Article Title	Journal Title	Publication Year	WoS Categories	WoS Index	Specific Fruit	Country	Sample	Data from	Went to the Next Stage
Diaz et al. [26]	Consumer knowledge, consumption, and willingness to pay for organic tomatoes	<i>Br. Food J.</i>	2012	Agric. Econ. & Polic.; Food Sci. & Technol.	SCI-E; SSCI	Tomato	Spain	361	Questionnaire-survey	No, focus on specific fruits
Guney and Sangun [39]	How COVID-19 Affects Individuals' Food Consumption Behaviour: A Consumer Survey on Attitudes and Habits in Turkey	<i>Br. Food J.</i>	2021	Agric. Econ. & Polic.; Food Sci. & Technol.	SCI-E	No	Turkey	1023	Computer-assisted telephone interviewing (CATI)	No, surveys were not applied
Jose and Kuriakose [31]	Emotional or Logical: Reason for Consumers to Buy Organic Food Products	<i>Br. Food J.</i>	2021	Agric. Econ. & Polic.; Food Sci. & Technol.	SCI-E	No	India	632	Questionnaire-survey	Yes
Kamenidou et al. [15]	Segmenting the Generation Z Cohort University Students Based on Sustainable Food Consumption Behavior: A Preliminary Study	<i>Sustainability</i>	2019	Green & Sustain. Sci. & Technol.; Environ. Sci.; Environ. Stud.	SCI-E; SSCI	No	Greece	252	Questionnaire-survey	Yes
Kuhar and Juvancic [42]	What Determines Purchasing Behaviour for Organic and Integrated Fruits and Vegetables?	<i>Bulg. J. Agric. Sci.</i>	2010	Environ. Sci.	SCI-E	No	Slovenia	933	Questionnaire-survey	Yes
Liu et al. [37]	Behavior-Based Pricing between Organic and General Food Enterprises	<i>Br. Food J.</i>	2019	Agric. Econ. & Polic.; Food Sci. & Technol.	SCI-E; SSCI	No	-	-	Theoretical mathematical modeling	Non-empirical
Martins et al. [38]	Consumer Behavior of Organic and Functional Foods in Brazil	<i>Food Sci. Technol.</i>	2020	Food Sci. & Technol.	SCI-E	No	Brazil	1230	Questionnaire-survey	Yes
Padel and Foster [29]	Exploring the Gap between Attitudes and Behaviour—Understanding Why Consumers Buy or Do Not Buy Organic Food	<i>Br. Food J.</i>	2005	Agric. Econ. & Polic.; Food Sci. & Technol.	SCI-E; SSCI	No	UK	181	Focus groups and laddering interviews	No, surveys were not applied
Radzimska and Jakubowska [56]	The Conceptualization of Novel Organic Food Products: A Case Study of Polish Young Consumers	<i>Br. Food J.</i>	2019	Agric. Econ. & Polic.; Food Sci. & Technol.	SCI-E	No	Poland	200	Questionnaire-survey	Yes
Rodriguez-Bermudez et al. [22]	Consumers' Perception of and Attitudes Towards Organic Food in Galicia (Northern Spain)	<i>Int. J. Consum. Stud.</i>	2020	Business	SSCI	No	Spain	830	Questionnaire-survey	Yes

Table 2. Cont.

Authors	Article Title	Journal Title	Publication Year	WoS Categories	WoS Index	Specific Fruit	Country	Sample	Data from	Went to the Next Stage
Skreli et al. [41]	Assessing Consumer Preferences and Willingness to Pay for Organic Tomatoes in Albania: A Conjoint Choice Experiment Study	<i>Span. J. Agric. Res.</i>	2017	Agric., Multidiscip.; Soil Sci.	SCI-E; SSCI	Tomato	Albania	100	Questionnaire-survey	No, focus on specific fruits
Smed [30]	Information and Consumer Perception of the Organic Attribute in Fresh Fruits and Vegetables	<i>Agric. Econ.</i>	2012	Agric. Econ. & Polic.; Econ.	SCI-E; SSCI	No	Denmark	3200	Panel data households	No, surveys were not applied
Sorqvist et al. [24]	The Green Halo: Mechanisms and Limits of the Eco-Label Effect	<i>Food. Qual. Prefer.</i>	2015	Food Sci. & Technol.	SCI-E; SSCI	Banana, grape, and raisin	Sweden	144	Questionnaire-survey	No, focus on specific fruits
Stranieri et al. [34]	Convenience Food with Environmentally-Sustainable Attributes: A Consumer Perspective	<i>Appetite</i>	2017	Behavioral Sci.; Nutrition & Dietetics	SCI-E; SSCI	No	Italy	550	Questionnaire-survey	Yes
Wojciechowska-Solis, and Barska [32]	Exploring the Preferences of Consumers' Organic Products in Aspects of Sustainable Consumption: The Case of the Polish Consumer	<i>Agriculture</i>	2021	Agronomy	SCI-E; SSCI	No	Poland	1067	Questionnaire-survey	Yes

* Only considered surveys; ** 143 individuals in six scenarios.

Table 3. Included articles in the quantitative stage for the review analysis.

Authors	Published Year	Country	Total Sample	Analysis Method	Constructs or Variables
Adasme-Berrios et al. [36]	2015	Chile	425	EFA/CFA	Ethical benefits, healthiness, and nutrition
Aigner et al. [40]	2019	Germany	487	ANOVA	Product category, product type, promotional format
Akpinar et al. [35]	2009	Turkey	300	Chi-square analysis	Price, freshness, appearance, taste and smell, nutritional content, packaging (labeling) presentation, organic growing, in-season growing, product display, and shopping environment
Ali et al. [20]	2010	India	101	EFA	Quality and variety, storage and packaging, product price, convenience, convenient marketplace, additional services, attraction for children, basic amenities, product availability, and affordability

Table 3. Cont.

Authors	Published Year	Country	Total Sample	Analysis Method	Constructs or Variables
Aydogdu and Kaya [33]	2020	Turkey	382	Nonparametric analysis (MWU/KW)	Color–appearance–packaging, odor–taste–flavor, label—certificate of reliability, food safety and no additives, hormone free, and nutrition value
Boca [54]	2021	Romania	1230	EFA/SEM	Budget, quality, frequency, needs/, culture, and knowledge
Botonaki et al. [27]	2006	Greece	600	PCA	Attitude toward origin, ethics, and attitude toward extrinsic cues Confidence in organic production, confidence in organic legislation, confidence in SIM production, confidence in SIM legislation, attitude toward price, health consciousness, attitude toward environment, attitude toward convenience, and exploratory behavior
Carson et al. [23]	2016	USA	348 *	Descriptive analysis	Health, local economy, and environment
Jose and Kuriakose [31]	2021	India	632	CFA/SEM	Health, fear, environmental motives, effort, perceived price, attitude toward buying OF&V, and purchase intention
Kamenidou et al. [15]	2019	Greece	252	EFA	Restricted food, green consumption, local consumption, meat and protein substitutes, social norms, and ethical behavior
Kuhar and Juvancic [42]	2010	Slovenia	933	Ordered probit model	Environment friendly, healthy, price, visual attractiveness, best taste deemed, availability at retailers, and perceived linkages between origin and quality
Martins et al. [38]	2020	Brazil	1230	Mean difference analysis (<i>t</i> -test)	Willingness to pay, knowledge of organic foods by consumer, limiting causes for organic food consumption, reason for organic food consumption, establishments for purchase of organic foods, most-consumed organic foods, and most-consumed functional foods
Rodriguez-Bermudez et al. [22]	2020	Spain	830	Chi-square analysis	Organic foods (quality, freshness, price, brand, origin, establishment, and naturalness), traditional breeds, ecotourism, and farm schools
Stranieri et al. [34]	2017	Italy	550	CFA/SEM	Intention to purchase OV, attitude toward OV, perceived availability of OV, food shopping habits, agricultural practices concern, food-related habits, agricultural practices concern, and food-related environmental behavior
Wojciechowska-Solis and Barska [32]	2021	Poland	1067	DFA/Regression analysis	Care for the environment and animal welfare, production is not harmful to the environment, low level of processing, short shelf life, and produced without the use of artificial fertilizers, chemical pesticides, and antibiotics

* Only considered surveys. ANOVA: analysis of variance; CFA: confirmatory factor analysis; DFA: discriminant function analysis; EFA: exploratory factor analysis; KW: Kruskal–Wallis; MWU: Mann–Whitney U; PCA: principal component analysis; SEM: structural equation modeling.

Given the above selection of articles (Table 2), the cases studied were mostly located in Europe (i.e., Greece (2), Germany, Italy, Poland, Romania, Slovenia, and Spain), although at the country level, together with Greece, the number of cases studied in India (2) and Turkey (2) stand out. In temporal terms, these articles were published between 2005 and 2021 with the average publication year being 2016. Thematically, the journals in which these articles were published were simultaneously associated with one to three WoS categories, which totaled 14 categories for the 25 articles. These categories were mainly concentrated in Food Science and Technology (13), Agricultural Economics and Policy (10), Agriculture, Multidisciplinary (4), and Environmental Sciences (4), with the cases of articles published in journals indexed in categories such as Behavioral Sciences, Business, Economics, and Sociology, being scarce with only one occurrence each.

Additionally, in this set of articles that studied empirical cases where the data were collected through surveys, they were analyzed statistically using various methods: descriptive analysis, mean difference analysis (*t*-test), analysis of variance (ANOVA), Chi-square analysis, nonparametric analysis (Mann–Whitney U (MWU), Kruskal–Wallis (KW)), discriminant function analysis (DFA), regression analysis, ordered probit model, principal component analysis (PCA), exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modeling (SEM). These are detailed for each article and the only ones that report a complete validation and reliability of the instruments applied are those that directly use CFA or CFA as part of a SEM. The table also abounds in reporting the constructs or variables studied in reference to organic fruit consumption behavior.

Table 4 presents in detail four articles, already included in Table 3, that use various combinations of exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modeling (SEM). For these analyses, the indicators reported by the researchers are presented: Chi-square/degree freedom ratio (χ^2/df), root mean square error of approximation (RMSEA), adjusted goodness-of-fit index (AGFI), goodness-of-fit index GFI, comparative fit index (CFI), normed fit index (NFI), non-normed fit index (NNFI), and the standardized root mean square residual (SRMR) [57].

Table 4. Included articles with the validation and reliability reported in the quantitative stage for the review analysis.

Authors	Published Year	Country	Sample	Method	Factors	χ^2/df	RMSEA	AGFI	GFI	CFI	NFI	NNFI	SRMR
Adasme-Berrios et al. [36]	2015	Chile	425	EFA/CFA	2	1.652 **	0.055 *	0.927 **	0.966 **	0.976 **	NR	NR	NR
Boca [54]	2021	Romania	1230	EFA/SEM	4	NR	0.049 **	0.850 *	0.870	0.950 *	0.920 *	0.950 *	NR
Jose and Kuriakose [31]	2021	India	632	CFA/SEM	7	1.670 **	0.033 **	NR	NR	0.989 **	NR	NR	0.026 **
Stranieri et al. [34]	2017	Italy	550	CFA/SEM	6	3.500	0.070 *	NR	NR	NR	NR	NR	NR

NR: not reported. ** Good fit; * acceptable fit [58].

The above permitted to discriminate between consultation instruments that allow for measurement of organic fruit consumption behavior.

In comparable terms, for the four articles, only the χ^2/df , RMSEA, and CFI indicators were presented for at least three of the studies. The remaining tests reported were of complementary interpretation according to the results of the set of tests reported in each case and according to the sample size of each study [59].

In these tests, the articles by Adasme-Berrios et al. [36] and Jose and Kuriakose [31] obtained a good level of fit for both χ^2/df and CFI. As for the RMSEA, the article by Boca [54] and Jose and Kuriakose [31] obtained a good level of fit. On the other hand, the article by Stranieri et al. [34] showed only one reported test, with an acceptable level of fit. As for the factors covered by these three articles with the best reported results, the range of factors confirmed by Jose & Kuriakose [31] (i.e., health, fear, environmental motives, effort, perceived price, attitude toward buying OF&V, and purchase intention)

managed to cover those expressed by Adasme-Berrios et al. [36] (i.e., ethical benefits and health and nutrition) and Boca [54] (i.e., individual characteristics, needs, culture, and knowledgeable consumers).

4. Discussion

The systematic review presented in this manuscript analyzed fruit consumer behavior in general without focusing on a specific food product as did previous contributions by Kyriacou et al. [60] on genotype and the agri-environmental factors of watermelon and melon on consumer behavior; Neves et al. [61] on the biotic factors and the effects of fruit quality on the consumption of frozen concentrate orange juice (FCOJ); Stiletto et al. [62] who studied factors explaining consumers' pomegranate choice; Restuccia et al. [63] on virgin olive oil (VOO) and how de-stoning technology increases its nutritional and sensory quality, influencing consumers' behavior. This choice, because of the broader approach we provided in our article, allowed us to review common aspects of the articles previously indicated (e.g., fruit quality) as well as to cover variables and factors of consumer behavior that provide a more complete and complex coverage of fruit consumption choice, allowing for future studies on a larger set of consumers in different geographical and seasonal contexts.

Regarding the health characteristics of fruit and their relationship with consumption behavior, previously developed review articles emphasized aspects such as food health promotional campaigns [64], health motives in purchasing [65], dietary guidelines influence [66], and the functional use of foods [63]. The health variable was also covered in our review and was in line with Rana et al. [65]. We incorporated the organic characteristics of fruit to systematize the publications that studied consumption behavior on this type of food, thus marking a difference with respect to previous literature reviews [63,64,66].

In addition to the recognition of fruit quality and health benefits as relevant variables in consumption behavior, our review article was also in line with review articles that incorporated fruit loss and waste [67] and the distribution channel [68] as variables that affect fruit consumption behavior.

Finally, our review followed the PRISMA protocol as did several of the previous reviews on fruit consumption [62,65,68], showing the systematization of the review and advancing it to an objective–quantitative comparison of the analyzed articles. Although, without pretending to be similar meta-analytical reviews to those developed such as by Slapø et al. [68] (in relation to the influence of different types of in-store interventions on food consumption behaviors) and by Rana et al. [65] (on a restricted set of articles (8)), this meta-analytical review incorporated health as a factor affecting organic fruit consumption behavior and relied heavily on the statistical reporting provided in the reviewed literature on common variables and factors within the selected corpus [69–71].

In summary, this article provides an original systematic review, which using the PRISMA protocol, reviewed articles on organic fruit consumption behavior that presented valid and reliable scales that measured constructs (confirmatory factors) on the topics of health, fear, environmental motivation, effort, and economics.

5. Conclusions

This review article in its quest to identify appropriate ways to measure organic fruit consumer behavior, based on papers published in WOS JCR indexed journals, in two phases of review, managed to distinguish a reduced set of three articles, approximately 1% of the records originally registered in the PRISMA initial phase represented in Figure 1 (including duplicates).

These articles presented measurement scales that are considered valid and reliable by means of a confirmatory factor analysis (CFA). These scales gave wide coverage to the criteria (variables and factors) that were originally considered in the 15 articles of the quantitative stage of this review analysis (see Table 3), managing to consider determinant elements in organic fruit consumer behavior.

The results obtained by the scale presented in the article by Jose and Kuriakose [31] in the χ^2/df , CFI, and RMSEA tests showed a good level of fit, achieving dominance over the results presented by the other measurement instruments selected in the final stage (see Table 4). Thus, this scale incorporates constructs (factors) related to health, fear, environmental motives, effort, and economy (perceived price, attitude toward buying OF&V, and purchase intention).

As for the limitations, these are given by the original article selection being limited to the WoS JCR indexes (i.e., SCI-E and SSCI), but this measure of academic elitism combined, at the same time, a high requirement that allowed us to identify scales that had been subjected to strict statistical rigor, reporting in due form that the stated constructs were effectively measured and, therefore, contributed to a reliable understanding of organic fruit consumers' behavior based on factors such as human physical and mental health, ecosystem balance, and the efforts in time and money to acquire these products.

Finally, as a line of future research, given the strict selection of the scale surveyed in this article, its application in diverse contexts and geographies should be noted to account for its validity and reliability beyond India, where it was originally applied. This extensive massification of its use is not only a response to its performance in other scenarios but would also allow for the assessment of its multiple applications through a meta-analytical analysis in the future.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/horticulturae8040318/s1>, Table S1: OFCB.txt.

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Appendix A

This appendix shows the WoS identifiers (UT) for the 25 articles identified (qualitative stage) with the studied search vector: UT = (WOS:000234107000005 OR WOS:000236987200001 OR WOS:000272054400020 OR WOS:000276866500001 OR WOS:000280221800001 OR WOS:000303142300011 OR WOS:000310679100004 OR WOS:000353736300001 OR WOS:00036162-5000014 OR WOS:000387667100008 OR WOS:000405972700002 OR WOS:000414947500020 OR WOS:000458929500282 OR WOS:000474700100015 OR WOS:00047788800019 OR WOS:000479298600005 OR WOS:000505797900003 OR WOS:000506568900001 OR WOS:00050689-9000099 OR WOS:000519295600005 OR WOS:000519604200029 OR WOS:000620143700001 OR WOS:000621964900001 OR WOS:000624795200001 OR WOS:000645281400001).

Appendix B

This appendix shows the WoS identifiers (UT) for the 15 articles identified (quantitative stage) with the studied search vector: UT = (WOS:000236987200001 OR WOS:000272054400020 OR WOS:000276866500001 OR WOS:000280221800001 OR WOS:000361625000014 OR WOS:000387667100008 OR WOS:000405972700002 OR WOS:000458929500282 OR WOS:00050656-8900001 OR WOS:000506899000099 OR WOS:000519295600005 OR WOS:000519604200029 OR WOS:000621964900001 OR WOS:000624795200001 OR WOS:000645281400001).

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