

Article

A Survey to Discover Current Food Choice Behaviors

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Abstract: Food choices are complex functions of several elements that could change over time. Nowadays consumers appear careful about sustainable food consumption: the behavior of “food citizenship”, as the practice to support a sustainable food system during the consumption actions, arises. This study aims to recognize the existence of food choice behaviors in the contemporary scenario and to investigate the relation between the food choice factors and the behaviors recognized. Following a quantitative research method, a sample of 380 participants, recruited from a traditional Italian food and wine event, completed a questionnaire in order to detect their attitude about food. Four current food choice behaviors were recognized: The Individualist, The Foodie, The Environmentalist and The Health enthusiast. The relation between food choice factors and food choice behaviors was explained. Several stakeholders could benefit from the study results, in order to better understand how to adapt products and marketing strategies to satisfy the emerging customer’s needs and awareness. Even if a person can identify themselves within a single food choice behavior, they become aware of other choice models expanding their personal point of view. Finally, new research scenarios arose for the researchers.

Keywords: food choice behaviors; food choice; factors in food choice; cluster analysis; food trends

1. Introduction

Food choices, as human behaviors, are affected by several and interrelated factors including sensory and non-sensory characteristics [1,2]. Consumers can act on a food choice behavior during several activities, such as: acquiring, preparing, serving, giving away, storing, eating and cleaning up food [3]. Food choices have the following characteristics: (i) frequent, as a consequence of the availability and accessibility of food in contemporary developed countries, where the food can be acquired anywhere, anytime and by anyone [4]; (ii) multifaceted, related to several behaviors adopted during the different stages of food consumption [3]; (iii) situational, as affected by time, activities or in general society [5]; (iv) dynamic, changing over historical and personal time [6]; (v) complex, related to several considerations about what, when, where and with whom to eat [5]. Like any complex human behavior, food choice is influenced by many interrelated factors [7].

To the best of our knowledge, several models, able to investigate food choice factors and their interrelations, have been presented in scientific research over the years [8–14]. Various authors mention a certain number of food choice factors and arrange them into a range of groups between 3 and 10 [15]. Although these factors are labeled and combined in different ways and are shown within the models in several combinations, they are often related to three main points of view: product, consumer and context (see Table 1). Particularly, the last factor could include social, environmental, political, economic and cultural aspects. Considering the dynamism of food choice behaviors [6], we must take into account that these several aspects of context change over time. So, the historical context—a situation determined by the time, place, circumstances, habits and by what and with whom food is eaten [10,15–17]—becomes relevant factor in food choice evaluation. Indeed, during the last 10 years,

the world has seen a global change in consumption patterns. The figure of the “citizen consumer” was born [18–23]: a responsible person, ethically motivated to modify their own lifestyle in order to reach a model of sustainable consumption [24–26].

Table 1. Synthesis of factors in food choice models derived from the literature review.

Author	Factors	Focus
Furst et al., 1996 [9]	Life course Influences Personal System	Context Context and Consumer Consumer
Gains, 1994 [10]	Consumer characteristics Food characteristics Context characteristics	Consumer Product Context
Leng et al., 2017 [11]	Physiological factors Psychological factors Emotional factors	Consumer Consumer Consumer
Shepherd, 1989 [12]	Product-related factors Consumer-related factors Environmental-related factors	Product Consumer Context
Story et al., 2002 [13]	Individual influences Societal Environmental influences Physical Environmental influences Macrosystem Influences	Consumer Context Context Context

Sustainability could be declared according to several values, such as environmental, social and food awareness, that lead to the definition of several consumption patterns: (i) Ecological citizenship [27], as a practice where one feels a sense of responsibility about environmental issues that influence personal consumption choices, in order to reduce unfair impacts on others; (ii) Planetary citizenship [28], a practice of identifying oneself with the Earth and the whole of humanity, in order to promote a collaborative and non-competitive world, giving a new shape to the economy, driven by social and environmental needs and not by financial issues; (iii) Food citizenship, defined “as the practice of engaging in food-related behaviors that support, rather than threaten, the development of a democratic, socially and economically just, and environmentally sustainable food system” [29]. If the first and second consumption patterns are referring to the generic act of consumption, the last one is specifically defined for food consumption behaviors. Due to the huge variety of food citizen behaviors, several trends could be defined as food philosophies: “clusters of practices, values and beliefs that have been shaped and evolved over time within a particular cultural context” [30]. Two major categories of food philosophies were identified as proof of the current consumer attention in food behaviors: (i) related to diets, such as: the vegetarian diet, which consists of the refusal of meat consumption but proposes the tolerance of animal products, (e.g., milk, egg or honey) [31]; the vegan diet, which excludes any animal product (including also inedible animal derivatives such as fabrics and cosmetics), as well as meat [32,33]; the fruitarian diet, which consists of only fruit consumption [34]; the flexitarian diet, which consists of a reduction of meat consumption referring to the occidental standard [35]; macrobiotism, which proposes several diet-plans useful to progressively reach the ideal balancing of yin and yang [36,37]; crudivorism (or raw foodism), which pays particular attention to the preservation of the food quality that can be lost through cooking activities [38]; the very low-calorie diet, which proposes a complete range of aliments combined in order to respect the maximum level of 800 Kcal per day [39]; purist [40], which refers to a rigorous model of eating: no junk, no sugar, no fat and so on; the Mediterranean diet, which proposes a high level of consumption of legumes, cereals, fruits, vegetables and olive oil, a moderate level of consumption of fish, cheese and wine and a low level of consumption of non-fish meat products [41]; (ii) related to food production and distribution mode, such as: green food, which is based on food produced in a way that reduces the damage to the ecosystem [42]; organic food, which proposes food

produced according to the organic farming standards [43]; local food, which aims to connect producers and consumers of the same geographic region developing a self-reliant and resilient food network, improving the profitability of the local economies and increasing the level of consumer awareness in health, environment, community and society issues [44]; fast food, which is based on a logic associated with the advancement of modern life, with frenetic time schedules and uniformity of tastes brought by globalization with a consequent lack of interest in seeking out fresh products [45]; functional food, which is based on aliments prepared using “scientific intelligence” useful to provide specific elements to the body, such as vitamins, fats, proteins, carbohydrates and so on, in order to support the diet [46]; fairtrade, which is based on the principle of helping producers in developing countries to achieve better conditions in the market, promoting equality, health and sustainability [47].

Diet philosophies also appear to be related to sustainable consumption in [48]. So, “consumption choices” and “consumer interests” become two faces of the same coin [27] and consumers need more or different kinds of information about food in order to satisfy the needs coming from the chosen food philosophy. Considering the label as the channel used to pass this information to consumers, its strategic role in food choice must be underlined [49]. The label shows information about food items and represents a tool to support the consumer in food choices. Some information is defined by national and international regulations (Codex Alimentarius; Food and Agriculture Organization of the United Nations, Regulation (EU) 1151/2012 and so on). However, these do not always satisfy consumer’s needs and could be integrated with other information chosen by the food companies according marketing strategies [49–51].

According to this perspective, the label is not considered as a product feature but as a communication channel that must consider the customer’s experiences, needs and wants. Labeling is able to perform several functions: (i) important social welfare effects (e.g., affecting consumers’ food choice, affecting consumer willingness-to-pay, impacting on health and environmental sustainability perception of the consumer) [52]; (ii) product identification, classification, description and promotion [53,54]; (iii) differentiation of the food product from competitors, communicating attractive or quality-based messages [55]. However, the consumers do not always use or correctly understand food labels [56]. For example, a lot of consumers are not able to understand nutritional contents on labels because they do not know the meaning of the terms used [57]. In other cases, consumer-oriented information is missing on the label [58–60]. Starting from this point of view and taking into account the asymmetric nature of information about food products, consumers would not be able to make the right food choice [61]. So, confusion in consumers could result in a low-quality decision, not protecting the safety rights of consumers.

In summary, it arose that food choice behaviors are complex, dynamic and affected by several factors. Particularly, (i) product features, (ii) consumer profile and (iii) context are always considered as factors in the food choice models, as discussed in Table 1. Even if the context factor takes several meanings, we selected this factor as historical context in order to consider the time-dynamicity of food choice, underlying a lack of this in previous models. New food philosophies (related to diets or food production and distribution modes) arose during recent years, representing a good parameter to evaluate this issue. Moreover, during the decision-making process about food choice, the consumer bases their own assessment on food information conveyed by labels. So, the label becomes a real interface between food companies and consumers, with the ability to change the latter’s behaviors.

The purpose of this study was (i) to recognize the current food choice behaviors and (ii) to identify the relationship between factors and behaviors in food choice.

Two fundamental research questions (RQ) guided this study:

RQ1—What are the current food choice behaviors?

RQ2—What are the groups of factors that affect these behaviors?

In order to achieve the purpose of the study and answers to the RQs, a quantitative research method was selected. The work is an explorative survey [62] on a sample of world citizens who

decided to freely joined an Italian food and wine event, using a questionnaire as research tool. The questionnaire was defined in order to investigate four groups of factors able to affect the food choices: consumer profile, historical context, label information, product features. To explore the aggregation of answers on the questionnaire, cluster analysis was applied in order to identify the current food choice behaviors and their relations with the food choice factors.

Several stakeholders could benefit from the results of this study in order to propose a consumer-tailored product portfolio, labels and marketing strategies and better understand how the consumer receives the policy, intervene by creating a more suitable policy for consumers and the food industry. Consumers could use the knowledge in food choices in order to enlarge their own point of view about food choice behaviors. Researchers could analyze and understand the field proposing interdisciplinary solutions.

2. Materials and Methods

Due to the aim of the work, a survey research method was chosen because it is able to provide a description of trends, attitudes or opinions of a population and to collect data at one specific time analyzing the relationship between variables [62]. The survey research method is widely used to evaluate food choice behaviors [63–70].

2.1. Data Collection

The target audience for the proposed survey consisted of visitors to the food and wine event “*Mercatino del Gusto*”, located in Apulia (South Italy). This event is repeated every year in summer and attracts many tourists and residents interested in culture, sustainability, biodiversity and quality of food products. The survey was conducted by administering a questionnaire face to face to a sample of visitors, over the course of August (from 1 to 5 August 2017), from 8:30 pm to 11:30 pm, using the simple random sampling technique without replacement [71]. Using the simple random sampling, “each individual within the chosen population is selected by chance and is equally as likely to be picked as anyone else” [72].

The participation in the survey was voluntary and anonymous. No sensitive personal information was requested. Moreover, participants were informed about the purpose of the study and the use of the data, emphasizing that the information requested would be exclusively used for research, guaranteeing confidentiality.

The optimal size of the sample was identified considering that the parameter estimates are more reliable and plausible as the sample size increases [73]. Moreover, being a sample without replacement, with a fixed level of significance α equal to 0.05 and a margin of error equal to 5%, the optimal number of interviewees was 380 [74,75].

2.2. Questionnaire

The questionnaire, specifically designed to analyze the consumers food choice behaviors of the “*Mercatino del Gusto*”, consisted of four sections, called: Consumer profile, Historical context, Label information, Product features. In particular, the Consumer profile and Product features sections were chosen because they have been widely investigated in previous models (see Table 1 and Section 1). The Historical context section was chosen to investigate new food philosophies, characterizing the context factor to the current one (see Section 1). The Label information section was chosen to investigate this tool as a communication channel between food companies and consumers, overcoming the view that considers this factor as a product feature and recognizing its strategic role (see Section 1). In particular, these last two factors evolve the models shown in Table 1 in order to better connect the analysis to the current market trends.

Note that the questionnaire included questions with closed and highly structured answers and, for many answers, the items of questionnaire were associated with a five-point Likert scale (1: strongly disagree; 2: disagree; 3: neutral; 4: agree; 5: strongly agree) [76].

In order to guarantee the reliability of the survey results, pre-testing was carried out beforehand to test any criticalities of the questionnaire. Pre-testing helps to ensure that items are meaningful to the target population before the survey is actually administered and it minimizes subsequent measurement errors. In particular, 20 subjects were interviewed before the survey: they helped us to identify problems with the content and comprehension of the questions, as well as other causes of (dis)satisfaction, which the initial tool was unable to investigate, thus increasing the reliability and validity of the content. Furthermore, the judgement of an expert panel was also used to guarantee the validity of the content and the clarity of the items. On the basis of the annotations and comments that emerged during the pre-testing, the final version of the questionnaire was reached.

Each questionnaire section had a specific goal: investigate one of the food choice factors identified. In particular, the first section investigated the consumer profile factors, asking about age, sex, educational level, residence, current job and average monthly expenditure and physiological and psychological aspects during the food choices. Moreover, questions about the number of people for whom interviewee buys food, number of meals per day consumed at home and diet followed (e.g., Mediterranean, vegetarian and vegan, etc.) were added.

The second section investigated the historical context factors, with the purpose of identifying food philosophies followed by the interviewee, showing what the main diets followed were, asking about diet characteristics (diet based on specific factors such as health, low calorie food or amount of protein and so on) and about their own preferences of food production and distribution philosophies (fresh local food, frozen food, fast food, organic food and so on). The internal reliability of the historical context factors was very good, Cronbach's $\alpha = 0.89$.

The third section investigated the label information factors, analyzing what the consumers needed to be displayed on the label, considering the most important quality claims such as the organic label, the No-GMO label etc. The scope was to understand what consumers want to know and what they consider important when choosing a product. The scale's internal reliability was good, Cronbach's $\alpha = 0.73$.

The fourth section investigated product features factors, analyzing how much consumers are careful about product taste, health benefits, visual appeal, nutritional values and convenience. The product features factors scale had good internal reliability, Cronbach's $\alpha = 0.75$.

Finally, the validity construct was evaluated via the convergent validity, which refers to the degree to which two measures of constructs that theoretically should be related, are actually related. From the analysis of the correlation coefficients it arose that the items of the same section were correlated and all correlations were positive (with $r > 0.5$). The questionnaire is shown in the Appendix A.

2.3. Statistical Analysis

Cluster analysis covers a wide variety of techniques for delineating natural groups or clusters in data sets [77]. It represents the process of organizing objects into groups whose members present similar features [78,79]. Indeed, a cluster is a collection of objects that are similar to each other, but are dissimilar to objects belonging to other clusters [80]. In order to increase the reliability of the results, it is fundamental to choose the variables in the analysis appropriately [81].

In this study, data and statistical processing were performed using the SPSS software package (IBM, Italy) [82] and the sample was analyzed based on relative frequencies. Particularly, in order to group consumers into homogeneous groups, the hierarchical cluster procedure was used [83], adopting the complete linkage method and the squared Euclidean distance as a distance measure [84]. Hierarchical cluster analysis generates a unique set of nested clusters by sequentially pairing cases, clusters or cases and clusters. The hierarchical clustering algorithms, using the chosen variables, organize data into a hierarchical structure according to the proximity matrix providing a binary tree or dendrogram as the result. The root node of the tree represents the whole data set and each leaf node represents a data object and describes the proximity of each object to the other and the height of the dendrogram represents the distance between each pair of objects or clusters [85].

In particular, clusters were identified using complete linkage clustering, also known as farthest neighbor clustering, where the distance between two groups is defined as the maximum of the distances between each of the units of a group and each of the units of the other group. The process was iterative and, according to agglomerative clustering methods, after several successive agglomerations, the final dendrogram was created. To this end, the scree plot, in which the number of groups is placed in ordinate and the distance of fusion in the abscissa, was used. Starting from this, the ultimate clustering results can be obtained by cutting the dendrogram at different levels [85]. Typically, the cut was made in order to guarantee a large distance between two clusters [86], so the section where the curve considerably reduces its slope, becoming almost flat, was chosen.

Subsequently, the relationships between the different groups were analyzed using the χ^2 test, taking a probability less than 0.10 as significant. Note that, when the frequency was less than five, which makes the use of the χ^2 statistic inadvisable, the likelihood ratio statistic was used at the same probability level. To interpret the pattern of association between the variables studied, the corrected standardized residual between the observed and expected cases within each cell greater than |1.96| was considered [87,88]. Finally, analyzing the results coming from the analysis, researchers assigned a name to each cluster, representative of the resulting behavioral characteristics of food choices, also to increase the readability of the Results section.

3. Results

In this section the findings of analysis are shown.

3.1. Sample Characteristics

The demographic information of the sample is shown in Table 2.

Table 2. Demographic information of participants.

Category	Percent of Sample
<i>Gender</i>	
Male	4738
Female	5262
<i>Age group</i>	
<21 years	1440
21–30 years	4188
31–40 years	1990
41–55 years	1518
56–65 years	707
>65 years	157
<i>Area of residence</i>	
Northern Italy	793
Central Italy	503
Southern Italy	7011
Abroad	1693
<i>Education</i>	
Primary school	995
Secondary school	3874
High school	5131

Table 2. Cont.

Category	Percent of Sample
<i>Occupation (for adults only)</i>	
Unemployed	847
Employee	3750
Entrepreneur	927
Retired	323
Student	1895
Other	2258
Mediterranean diet	4667
Vegetarian/Vegan	293
Fruitarian	16
Protein	747
Varied diet/none in particular	4133

3.2. Results from Cluster Analysis

The cluster analysis extracted four clusters (Table 3), discussed below.

Table 3. Cluster means for each item.

	Cluster I	Cluster II	Cluster III	Cluster IV
When buying a food product, I am influenced by mood	453	302	98	144
When buying a food product, I am influenced by hunger	374	259	301	298
When buying a food product, I am influenced by religion	80	111	198	73
When buying a food product, I am influenced by previous experience	312	245	284	198
In my diet, I eat fruits/vegetables/legumes	384	467	442	371
In my diet, I eat meat and sausages	132	97	47	133
In my diet, I eat fish	26	16	23	38
In my diet, I eat cereals/bread/pasta	303	242	326	324
In my diet, I eat dairy products/milk derivatives	29	32	47	29
In my diet, I eat organic foods	13	15	12	1
When buying a food product, I am very careful about the health effects of the food product	321	302	403	435
When buying a food product, I am very careful about the respect for nature during product production and distribution	284	356	425	395
When buying a food product, I am very careful about the integrity of the farmer	308	274	417	382
When buying a food product, I am influenced by environment sustainability	128	156	383	264
When buying a food product, I am influenced by CO ₂ emissions	105	26	394	356
When buying a food product, I am influenced by exploitation of employees	63	42	297	186
I buy food products at the local market	147	322	403	311
I buy food products at the supermarket	293	244	172	298
I buy food products from the private farmers/breeder	45	123	369	241
The presence of the Organic claim influences my choices when buying food	202	205	407	338
The presence of the No-GMOs claim influences my choices when buying food	302	198	379	255
The presence of the Gluten Free claim influences my choices when buying food	254	202	178	432
The presence of the Traditional Food Guaranteed claim influences my choices when buying food	302	175	344	168

Table 3. Cont.

	Cluster I	Cluster II	Cluster III	Cluster IV
The presence of DOP/IGP marks influences my choices when buying food	315	307	299	274
The presence of marketing claims influences my choices when buying food	265	359	249	306
The quality certification reported on the label is important when choosing a product	103	115	325	426
The origin of the product shown on the label is important when choosing a product	47	69	365	403
The health and nutritional advice shown on the label is important when choosing a product	123	201	357	389
When I buy a product, I often look at the label	21	316	396	401
I think that information shown on labels is understandable	178	122	315	298
I think that information shown on labels is accurate	237	128	8	102
When buying a food product, I prefer easy preparation	444	89	232	276
When buying a food product, I prefer a long shelf life	376	219	97	58
When buying a food product, I prefer a lower cost	367	238	106	94
When buying a food product, I prefer a lower fat content	269	297	333	394
When buying a food product, I am very careful about the use of preservatives in food production	248	355	331	329
When buying a food product, I am very careful about food origin	106	114	236	203
When buying a food product, I am influenced by product sales or discounts	327	22	209	201
I choose food according to taste	299	317	308	289
I choose food according to visual appeal	245	259	235	231
I choose food according to advertising	289	319	277	272
I choose food according to calorie and healthy properties	305	321	359	364
I choose food according to price	354	104	89	95
I choose food according to brand	251	304	199	163

Note: all items are measured with a five-point Likert scale.

Cluster I (23.74% of respondents) bases their food choice on personal interests by paying attention to the objective benefits associated with the product, such as the possibility of buying a product while on sale. Indeed, the economic convenience results are very important for this cluster, considering factors such as price and discount policies as relevant in the choice between products belonging to the same category. Furthermore, the perceived ease of food preparation and the personal mood at the time of purchase, affects the choice. For example, on a happy day a consumer could be more inclined to choose a new product they have never bought before. So, the name “The Individualist” was chosen to emphasize the strategic role that the personal needs and benefits play in their food choice.

Cluster II (21.94% of respondents) bases their food choice on sensory aspects related to food, paying attention to the emotions related to the product characteristics. In this cluster, the consumer, inside the same food categories, prefers products with a better taste, lower level of preservative substances, a price that they consider right for the quality of the product bought. For example, a consumer belonging to this cluster could pay more for a product if it satisfies personal taste needs. So, the name “The Foodie” was chosen to emphasize the strategic role that the sensory aspects of food play in their food choice.

Cluster III (31.66% of respondents) bases their food choice on the environmental sustainability, by paying attention to the respect for nature during production, the integrity of the farmer, the food origin, the health benefits of the product if presented with organic claim. In other words, these consumers consider the ethical aspect of environmental and human safety. For example, a consumer belonging to this cluster could prefer to buy a low-miles product in order to reduce the environmental impact related to the delivery phase. Moreover, these consumers take into consideration the label information in order to evaluate if the product respects the personal sustainability standard. So, the name “The

Environmentalism” was chosen to emphasize the strategic role that the sustainability issue plays in their food choice.

Finally, cluster IV (22.66% of respondents) bases their choices on the contemporary diet philosophies, by paying attention to the following current issues: what the product contains, if the label contains healthy claims, if the quantity of calories is good for health. For example, customers belonging to this cluster could prefer to buy products with a low level of calories in order to improve wellness and health. So, the name “The Health Enthusiast” was chosen to emphasize the strategic role that diet philosophy plays in their food choice.

The following is the description of the clusters’ population characteristics including the respondents’ gender, age, area of residence, education, occupation for adults (all with $p < 0.000$), and some important variables, such as diet, food consumption typology frequency, food consumption frequency at home, kind of food bought more (all with $p < 0.000$), number of people for whom the consumer buys food (only one with $p = 0.03$).

Cluster I, The Individualist, was more often female (61.29%), with a slight dominance and median grouping in the 21–30 age category (37.10%), were residents of Southern Italy (71.67%), with a high education level (61.29%) and were mainly employees (35.48%). In addition, the people in this cluster mainly follow a varied diet (42.62%), mainly consumed fruits, vegetables and legumes (46.77%), they consume their meals at home at least three times a day (41.94%), buy food for at least two people (37.10%) and buy mostly fresh food (90.32%).

Cluster II, The Foodie, was more often male (51.16%), with a dominance of grouping in the 21–30 age category (34.88%), were residents of Southern Italy (65.12%), with a high education level (51.16%) and were mainly school students (32.56%). Furthermore, the people in this cluster mainly follow a Mediterranean diet (50.00%), consume chiefly fruits, vegetables and legumes (44.19%), consume their meals at home at least three times a day (41.86%), do grocery shopping for more than two people (39.54%) and buy mostly fresh food (93.02%).

Cluster III, The Environmentalist, was more often female (51.43%), with a strong dominance of grouping in the 21–30 age category (42.86%), were residents of Southern Italy (69.23%), with a high education level (60.95%) and were mainly school students (35.24%). The people in this cluster mainly follow a varied diet (46.15%) and Mediterranean diet (44.23%), consume fruits, vegetables and legumes (37.14%) and cereal, dough and bread (32.38%), consume their meals at home two times a day (42.31%), do grocery shopping for more than two people (39.04%) and buy mostly fresh food (77.88%).

Finally, Cluster IV, The Health Enthusiast, was more often female (55.88%), with a dominance of grouping in the 21–30 age category (32.35%), were residents of Southern Italy (77.27%), with a high education level (47.06%) and were mainly employees (35.29%) and school students (32.35%). The people in this cluster mainly follow a Mediterranean diet (53.03%), they eat fruits, vegetables and legumes (40.30%), consume their meals at home two times a day (38.80%), do grocery shopping for more than two people (53.73%) and buy mostly fresh food (83.58%).

4. Discussion and Conclusions

The paper aims to investigate the motivations underlying the food choices of consumers in order to recognize the existence of behaviors in the current food scenario and to identify the factors that affect these behaviors.

The first research question proposed by the study was: What are the current food choice behaviors? From the present analysis, four food choice behaviors were detected:

- (I) The Individualist, composed of people that base their food choices on personal interests (such as economic convenience, personal mood).
- (II) The Foodie, composed of people that base their food choices on sensory aspects related to food (such as better taste, low level of preservative substances, right price–quality ratio).

- (III) The Environmentalist, composed of people that base their food choices on environmental sustainability issues (such as respect for nature during production, the integrity of the farmer and the food origin).
- (IV) The Health Enthusiast, composed of people that base their food choices on the contemporary diet philosophies (such as low-calorie diet, Mediterranean diet) analyzing the label contents, claims and health effects.

The results confirm the statements about the influence of several and interrelated factors on food choice behaviors proposed by several authors [1,3–6]. So, calculating the medium score of the items that comprise each questionnaire section, it is possible to find an answer to the second research question: What are the groups of factors that affect these behaviors? (Figure 1).

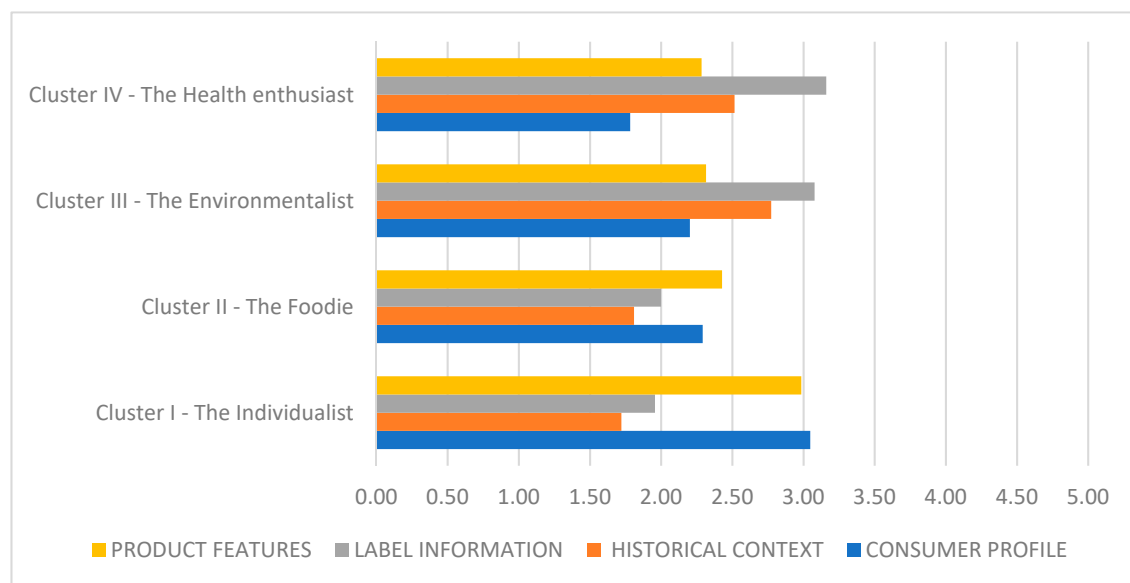


Figure 1. Links between food choice behaviors and food choice factors.

Starting from the evidence that all factors affect all behaviors, the results show that some factors influence some behaviors more.

The Individualist results were particularly affected by the consumer profile factors showing a food choice that depends on physiological and psychological factors (e.g., hunger or mood). However, the Individualist pays particular attention to the economic convenience of the product which fits into the product features factors as accessibility and convenience of product. These results confirm the centrality of these two factors in food choice behaviors as proposed by [10,12].

The Foodie results were particularly affected by the product features factors showing a food choice that depends on: food sensory attributes (e.g., taste, aroma, texture, etc.) and functional factors with particular attention to the quality–price ratio, confirming the same factor centrality that arose in the previous cluster. Even the consumer profile factors were important.

The Environmentalist results were affected by the label information and historical context factors, showing a food choice based on environmental sustainability issues and on the possibility of discovering environmental information on the label. This behavior matches with the current philosophies of sustainable consumption (ecological [24], planetary [28] and food citizenship [29]) where the consumers pay more attention to the respect for nature during production, the integrity of the farmer and the food origin, the healthy benefits of the product if declared as organic.

The Health Enthusiast results were affected by the label information and historical context factors showing a food choice based on: what the product contains, if the label contains healthy claims, if the level of calorie content is good for their health. The relevance of diet philosophies and their relation to

sustainable consumption movements is underlined by the findings coming from this cluster, whose results aligned with point of view of [24,25,48].

So, the strategic role of the label to pass on product information [49,53–55] is also confirmed by two clusters of people that consult the label to reach several scopes. In order to evaluate the sustainability requirements, the Environmentalist uses the information shown on the food label, at the same time, the Health Enthusiast consults label information to evaluate the product contents and health benefits.

It is interesting to underline that each behavior is affected, preponderantly, by a maximum of two factors, confirming the position of [89] which considers four or five factors to increase the level of discriminant validity of the study.

Finally, it is consequential to understand that almost all participants being from Southern Italy leads to a preponderance of the Mediterranean and Varied diet, typical of the culture of the territory.

In the Foodie, people show a low preference towards food with an easy preparation, probably because these people prefer to create sophisticated recipes by themselves in order to fully enjoy the emotions that derive from this ritual or to choose restaurant with a high food quality. In the Health enthusiast, people buy few Milk products, so this cluster probably considers the aspects related to lactose intolerance widely diffused in modern society.

4.1. Implications

The results coming from this study could be relevant from several points of view and potentially interesting for different stakeholders (e.g., food companies, governmental entities, consumers and researchers) in order to better understand the current food choice behaviors. For example, the existence of consumers more concerned with health and wellness observed in the study, suggests a need for genuine and safe food. Furthermore, the existence of consumers more careful about environmental sustainability arose from the study, suggests a need for low-miles products.

Moreover, from a marketing perspective, the strategic role of the information in the label arose. Creating a label with a good match between needed and offered information could lead a food company to gain a new market share. So, the communication effectiveness and readability of the contents could be increased. For example, the existence of a cluster of people that take into consideration the label information in order to evaluate the product's sustainability and genuineness, as detected in the study, suggests the need to add, on labels, information (or claims) about the respect for nature during production, the integrity of the farmer, the origin of the food and the healthy benefits of the product.

The advertising strategies could be adapted in order to better reach the several consumer clusters, also leveraging in techniques of Smart Advertising and Internet of Things (IoT) Technologies to create an attractive user experience. Smart Advertising represents a new paradigm of marketing strategies that leverage IoT Technologies, defined as a worldwide network of objects able to communicate thanks to interconnection, addresses features and standard protocols [90], adds more intelligence to advertising, providing customized offers depending on the consumer and where the place is located. For example, the existence of people concerned with economic convenience, as observed in the study, suggests the need for pricing and discount policies using smartphones and sensors placed near the stores.

It arose that environmental policies are acknowledge by the consumers, but also social policies about the exploitation of employees or low-miles products were relevant and seen as positives if considered in companies' business models. Consumers' attention towards quality, healthiness and safety of food during the production processes, integrity of the farmer and food origin require a new regulatory framework able to fill the gap in mandatory traceability.

This study could be useful for consumers: even if a person can identify themselves within a single food choice behavior, they could become aware of other choice models, expanding their personal point of view.

Finally, the study opens several points of discussion in a scientific scenario, not only in terms of food choice recognition, but also in other matters such as: label design based on an ethical communication concept; technology traceability systems, in order to manage food product information and use it

as marketing tool; Smart Advertising technologies and methodologies complying with customers' needs; Circular Economy business models in the food industry that represent a different strategy of producing and consuming goods and services, giving the company the potential to transition towards a more sustainable economy improving resource efficiency and reducing environmental pressure of economic activities. Hence, a complex scenario comes to light and, like each challenge, it should be faced following multidisciplinary logic.

4.2. Limits and Follow-Up

The study's results successfully and consistently identify four consumers clusters based on their food choice behaviors. Indeed, the existing relations between the four identified factors and the four food choices behaviors was explained by the analysis. However, it is necessary to consider that the significance of the cluster analysis depends on the type and quality of the variables used in the analysis itself. In addition, the cluster analysis requires a series of decisions by the researchers, before (choice of variables, distance/similarity measures), during (aggregation techniques, number of groups obtained) and after (solution quality evaluation, choice among several possible alternative solutions) the analysis. Notice that different choices lead to different results. Indeed, the process of scientific knowledge leads to a controlled reduction and simplification of the information available, to facilitate the understanding of the phenomenon [91]. Moreover, none of the clusters were distinguished according to socio-demographics variables.

So, despite some important findings, there are some limitations in interpreting the results.

The event under investigation has been repeated over 20 years and is very popular, with a very varied target of visitors. Nevertheless, despite the tourists attending the event, the data was geographically localized, and in particular the interviewees reside mainly in Southern Italy. Because the present survey detects the preferences and attitudes of the event participants, the results are considered as significant only for visitors to the food and wine event in southern Italy. For this reason, the suggestions proposed in the implication section should be understood as open discussion points and due the discordance with other findings in recent literature, the results should be fostered through specific cost-benefit analysis in order to provide a guide to companies and government strategies.

Future studies should attempt to obtain data at national and/or international level, to compare the various segments that may exist. In addition, future research should be realized through a longitudinal survey, reapplying the study in the same context but in the future in order to evaluate how the food choice behaviors change, or not, over time.

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Appendix A

Table A1. Questionnaire about consumer habits.

First Section: Consumer Profile	
Gender	Male/Female
Age	Open-ended answer
Area of residence	Northern Italy/Central Italy/Southern Italy/Abroad
Education	Primary school/Secondary school/High school
Occupation (for adults only)	unemployed/employee/entrepreneur/retired/student/other
Diet	Mediterranean/Vegetarian/Vegan/Protein/Varied diet/None in particular
Number of people for whom I buy food	Open-ended answer
Number of meals per day consumed at home	Open-ended answer
When buying a food product, I am influenced by mood	Five-point Likert scale
When buying a food product, I am influenced by hunger	Five-point Likert scale
When buying a food product, I am influenced by religion	Five-point Likert scale
When buying a food product, I am influenced by previous experience	Five-point Likert scale
Second Section: Historical Context	
In my diet, I eat fruits/vegetables/legumes	Five-point Likert scale
In my diet, I eat meat and sausages	Five-point Likert scale
In my diet, I eat fish	Five-point Likert scale
In my diet, I eat cereals/bread/pasta	Five-point Likert scale
In my diet, I eat dairy products/milk derivatives	Five-point Likert scale
In my diet, I eat organic foods	Five-point Likert scale
When buying a food product, I am very careful about the health effects of the food product	Five-point Likert scale
When buying a food product, I am very careful about the respect for nature during product production and distribution	Five-point Likert scale
When buying a food product, I am very careful about the integrity of the farmer	Five-point Likert scale
When buying a food product, I am influenced by environment sustainability	Five-point Likert scale
When buying a food product, I am influenced by CO ₂ emissions	Five-point Likert scale
When buying a food product, I am influenced by exploitation of employees	Five-point Likert scale
I buy food products at the local market	Five-point Likert scale
I buy food products at the supermarket	Five-point Likert scale
I buy food products from the private farmers/breeder	Five-point Likert scale
Third Section: Label Information	
The presence of the Organic claim influences my choices when buying food	Five-point Likert scale
The presence of the No-GMOs claim influences my choices when buying food	Five-point Likert scale
The presence of the Gluten Free claim influences my choices when buying food	Five-point Likert scale
The presence of the Traditional Food Guaranteed claim influences my choices when buying food	Five-point Likert scale
The presence of DOP/IGP marks influences my choices when buying food	Five-point Likert scale
The presence of marketing claims influences my choices when buying food	Five-point Likert scale
The quality certification reported on the label is important when choosing a product	Five-point Likert scale
The origin of the product shown on the label is important when choosing a product	Five-point Likert scale
The health and nutritional advice shown on the label is important when choosing a product	Five-point Likert scale
When I buy a product, I often look at the label	Five-point Likert scale
I think that information shown on the labels is understandable	Five-point Likert scale
I think that information shown on the labels is accurate	Five-point Likert scale

Table A1. Cont.

Fourth Section: Product Features	
When buying a food product, I prefer easy preparation	Five-point Likert scale
When buying a food product, I prefer a long shelf-life	Five-point Likert scale
When buying a food product, I prefer a lower cost	Five-point Likert scale
When buying a food product, I prefer lower fat content	Five-point Likert scale
When buying a food product, I am very careful about the use of preservatives in food production	Five-point Likert scale
When buying a food product, I am very careful about food origin	Five-point Likert scale
When buying a food product, I am influenced by product sales or discounts	Five-point Likert scale
I choose food according to taste	Five-point Likert scale
I choose food according to visual appeal	Five-point Likert scale
I choose food according to advertising	Five-point Likert scale
I choose food according to calorie and healthy properties	Five-point Likert scale
I choose food according to price	Five-point Likert scale
I choose food according to brand	Five-point Likert scale

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