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Postgraduate Dissertation

Examination of Post-Covid Consumer Perceptions and Preferences  
for Organic Food Products in Greece: A Comprehensive Study  
Based on Questionnaire Analysis.

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Supervisor: Athanasios Rentizelas

Patras, Greece, March, 2025

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*Anastasios Maliachovas, Examination of Post-Covid Consumer Perceptions and Preferences for Organic Food Products in Greece: A Comprehensive Study Based on Questionnaire Analysis.*

## **Abstract**

Aim of current study, was to study the Post-Covid Consumer Perceptions and Preferences for Organic Food Products in Greece and the factors that affect them. Current research was based on a primary, cross-sectional, quantitative design. Sample was consisted of 122 Greek participants (72 females, 50 males), mainly 25-44 years old, with bachelor or master educational level and annual family net income up to 40.000€. Data were collected from 10/3/2024 -22/11/24. Data analysis were performed with significance 5% using bivariate non parametric tests. There was a moderate frequency (monthly) of organic food consumption regarding fruit and vegetables, honey and beekeeping products and eggs. Participants indicated that a) health benefits, quality and safety are the most important factors for the purchasing and consumption of organic food products, followed by b) support of small family and greek producers, c) taste, d) Organic certification label, e) price, f) Environmental sustainability and g) Immediate availability in physical stores or e-shops. Covid-19 period did not affect generally, the amount of organic food products which Greeks consume, the perception regarding safety of organic food products and the online purchase method. However, there was a slightly increase of 36.89% for organic fruit and vegetables, 27.87% for eggs and 22.13% for honey and beekeeping products. The most important factor, which affected the consumer behavior during COVID-19 period was the focus on a healthier lifestyle, self-care and wellness. Women, people 25-54 years old, with higher educational level of bachelor or master degree presented a more positive attitude towards the Organic Food Products. Marketing strategies during covid-19 period were more effective towards participants with annual net family income up to 40.000€.

**Keywords:** Post-Covid Consumer Perceptions, Post-Covid Consumer Preferences, Organic Food Products, Greece.



*Anastasios Maliachovas, Examination of Post-Covid Consumer Perceptions and Preferences for Organic Food Products in Greece: A Comprehensive Study Based on Questionnaire Analysis.*

Εξέταση των Αντιλήψεων και Προτιμήσεων των Καταναλωτών  
προς τα Βιολογικά Προϊόντα Διατροφής, μετά την Πάροδο της  
Έξαρσης της Νόσου Covid στην Ελλάδα: Μια Ολοκληρωμένη  
Μελέτη με Βάση την Ανάλυση Ερωτηματολογίου.

Αναστάσιος Μαλιαχόβας

## Περίληψη

Σκοπός της παρούσας μελέτης, ήταν η μελέτη των αντιλήψεων και προτιμήσεων των καταναλωτών μετά την Covid για τα βιολογικά προϊόντα διατροφής στην Ελλάδα και τους παράγοντες που τις επηρεάζουν. Η τρέχουσα έρευνα βασίστηκε σε έναν πρωτογενή, συγχρονικό, ποσοτικό σχεδιασμό. Το δείγμα αποτελούνταν από 122 Έλληνες συμμετέχοντες (72 γυναίκες, 50 άνδρες), κυρίως 25-44 ετών, με μορφωτικό επίπεδο ή μεταπτυχιακό και ετήσιο οικογενειακό καθαρό εισόδημα έως 40.000 €. Τα δεδομένα συλλέχθηκαν από 10/3/2024 -22/11/24. Η ανάλυση των δεδομένων πραγματοποιήθηκε με σημαντικότητα 5% με χρήση διμεταβλητών μη παραμετρικών δοκιμών. Παρατηρήθηκε μια μέτρια συχνότητα (μηνιαία) κατανάλωσης βιολογικών τροφίμων σχετικά με φρούτα και λαχανικά, μέλι και μελισσοκομικά προϊόντα και αυγά. Οι συμμετέχοντες ανέφεραν ότι α) τα οφέλη για την υγεία, η ποιότητα και η ασφάλεια είναι οι σημαντικότεροι παράγοντες για την αγορά και κατανάλωση βιολογικών προϊόντων διατροφής και ακολούθησαν β) η υποστήριξη των μικρομεσαίων και Ελλήνων παραγωγών, γ) η γεύση, δ) η ετικέτα βιολογικής πιστοποίησης, ε) η τιμή, στ) η περιβαλλοντική βιωσιμότητα και ζ) η άμεση διαθεσιμότητα σε φυσικά καταστήματα ή ηλεκτρονικά καταστήματα. Η περίοδος Covid-19 δεν επηρέασε γενικά, την ποσότητα των βιολογικών προϊόντων διατροφής που καταναλώνουν οι Έλληνες, την αντίληψη για την ασφάλεια των βιολογικών προϊόντων και τη μέθοδο ηλεκτρονικής αγοράς. Ωστόσο, μικρή αύξηση 36,89% σημειώθηκε για τα βιολογικά φρούτα και λαχανικά, 27,87% για τα αυγά και 22,13% για το μέλι και τα μελισσοκομικά προϊόντα. Ο πιο σημαντικός παράγοντας που επηρέασε τη συμπεριφορά των καταναλωτών κατά την περίοδο του COVID-19 ήταν η εστίαση σε έναν πιο υγιεινό τρόπο ζωής, αυτοφροντίδα και ευεξία. Γυναίκες, άτομα 25-54 ετών, με υψηλότερο μορφωτικό επίπεδο πτυχίου ή μεταπτυχιακού τίτλου, παρουσίασαν πιο θετική στάση απέναντι στα Βιολογικά Προϊόντα Διατροφής. Οι στρατηγικές μάρκετινγκ κατά την περίοδο του Covid-19 ήταν πιο επιδραστικές προς τους συμμετέχοντες με ετήσιο καθαρό οικογενειακό εισόδημα έως και 40.000 €.

**Λέξεις κλειδιά:** Καταναλωτικές αντιλήψεις μετά την πανδημία Covid-19, Προτιμήσεις καταναλωτών μετά την πανδημία Covid-19, Βιολογικά Προϊόντα Τροφίμων, Ελλάδα.

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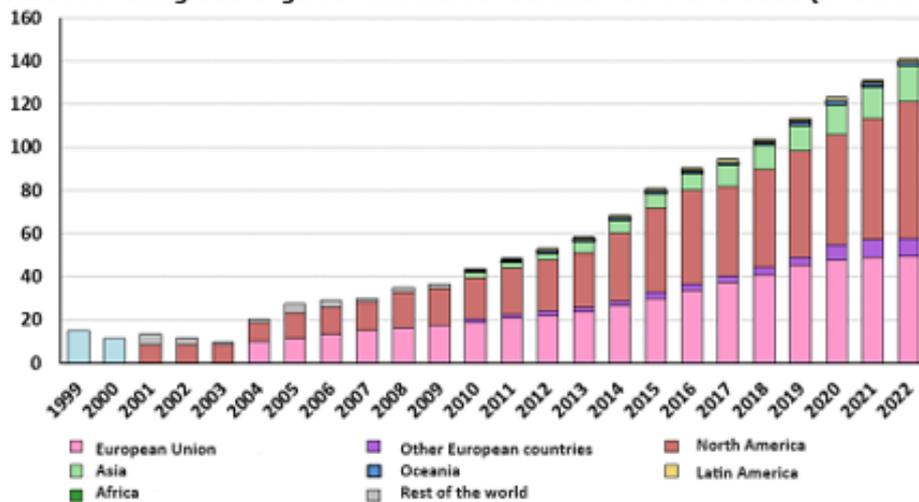
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# 1. Introduction

## 1.1. Theoretical Background

Changes in consumer attitudes and increasing concerns about health, sustainability, and the environment have driven significant changes in the global food industry over recent decades (Graph 1). The COVID-19 pandemic has accelerated and heightened these changes, shifting consumer perceptions of safety, nutrition, and sustainability by changing consumer interactions with food systems. Generally, organic food products are assumed to be healthier and ecologically safer than non-organic food. A massive boom in their consumption is observed globally. This fact can be caused by larger societal trends as well. Consumers regard personal happiness and environmental responsibility when making their purchase decisions (Tankosić Vapa et al., 2022).

**Evolution of the global organic food market between 1999 and 2022 (in € billions)**



Source: Agence BIO

**Graph 1:** The global organic food market has grown more than tenfold in twenty-three years and has reached nearly 141 billion euros in 2022. Compared to 2021, the increase was around 7% (Agence BIO, 2024, p 15).

Organic food is a type of food that is gaining place in the world food market and is defined by the absence of artificial ingredients, as well as pesticides or GMOs. The value of organic food matches well with consumer-minded consumers and health-concerned customers. Even before the pandemic, the organic food market had been on the rise because more and more customers were preoccupied with the quality of food, sustainability, and humane

farming practices. But the pandemic was just a further enhancement of these concerns, resulting in an increased desire for supposed safer and more natural products. This global phenomenon illustrates the complex interplay between health crises, consumer psychology, and market behavior (Tankosić Vapa et al., 2022).

The COVID-19 pandemic led to a change in consumer behavior, creating greater sensitivity to the relationship between diet and health. Through the weaknesses of the public health systems exposed by the virus and immunity at a personal level being sought by consumers, there were explicit consumer calls for food products to restore and invigorate health and wellbeing. Organic food came to be related to a lower quantum of chemicals and a more wholesome nutrient composition; it became a preference for those seeking a better quality of life (Śmiglak-Krajewska & Wojciechowska-Solis, 2021).

Another factor that contributed to the increase in popularity of organic food was a growing interest in sustainability and environmentalism. Consumers today are better informed about environmental impacts associated with decision making, especially on deforestation, biodiversity loss, and greenhouse gases by industrial agriculture. Organic agriculture emphasizes the promotion of soil health, water conservation, and carbon emission reductions, characteristics of environmental consciousness by consumers. The mix serves to increase the grip of organic foods in the global market. As consumers do become more concerned with the environmental impact of their purchasing decisions, this becomes a boost to the market position of organic foods. Trust in customers is of utmost importance for the organic food sector. Indeed, views regarding organic foods revolving around health and environmental friendliness largely emanate from the aspects of certification, labeling, and openness in production processes. Research indicated that proper labeling in a manner that permits understanding significantly influences consumer choice. This further builds confidence in the credibility of organic products. The nature of this dynamism underlines the pertinent role effective regulatory measures play in assuring genuineness and veracity in organic food labels. This is pivotal in upholding consumer confidence within an ever-growing market setting according to (Meixner & Katt, 2020).

Another aspect that shaped the consumption of organic foods by consumers was the pandemic. Due to the fact that many restaurants were either closing down or working under stipulated restrictions and mobility was generally limited, there was an upsurge in online

food buying. This has made it easier to get a hold of such products and in some places where they were really far in the market, it made access hard. These online platforms play a crucial role in connecting consumers with producers while also highlighting the importance of technology in modernizing logistics systems to meet consumer needs effectively (Śmiglak-Krajewska & Wojciechowska-Solis, 2021).

The Greek consumer has shown important changes in the attitudes and behavior concerning organic food, especially in the context of the post-COVID-19 era. The health and safety anxieties that were supercharged by the pandemic made the demand for organic products surge notably over items that are deemed healthier and more natural compared to their conventional versions (Skalkos et al., 2021). Indeed, organic food has turned into a central issue for the health-conscious Greek consumer since it is normally free of chemical impurities and carries higher nutritional value (Sklavounos et al., 2024).

The Mediterranean diet, which in Greek culinary heritage is core, perfectly matches the philosophy of producing food organically. This cultural synergy further underlines the appeal of organics since it is assumed that they complement the traditional dietary habits, steeped in naturalism and locality of ingredients (Skalkos et al., 2021). Besides, the role of local organic food has been expanding in Northern Greece as part of a country where, alongside its economic power, the awareness of sustainability and food security takes a more significant part in consumers' choices of products (Sklavounos et al., 2024).

Affordability constitutes, however, a major challenge. Many consumers in Greece, in principle, recognize the benefits of organic foods but refrain from adopting them due to associated higher prices, especially among middle and lower income classes. Against this background, the period following the pandemic seems to have ushered in a growing culture regarding paying premium prices for organic products since issues of health and environmental safety came into better light (Skalvos et al., 2024).

The organic food demand is rising, but for most, its price has not slackened. Organic foods have always been more expensive than conventional foods since their production costs are higher and their yield is normally lower. Studies have shown that while many lower-income consumers, particularly those with health and environmental concerns, are willing to pay more for organic food, their financial limitations often prevent them from doing so. This stresses the need for policy interventions and market innovations:

These global trends set consumer behavior and preference as an important area to study various delicate factors that make a complete organic food market. More importantly, as the world gradually transforms into a post-pandemic world, it is clear that the change witnessed during this time will cast long shadows on the preference of the consumer and market dynamics. Studies on such changes furnish valuable information about changing consumer relationships with organic food products; producers, as well as policymakers and research scholars, can make effective use of such information to address challenges and tap prospects.

## **1.2. Research Questions**

Aim of current study, is to study the Post-Covid Consumer Perceptions and Preferences for Organic Food Products in Greece and the factors that affect them. The research questions of current thesis are the following

- 1) What is the frequency of Organic Food Products consumption currently in Greece?*
- 2) How Greek participants currently evaluate the Organic Food Products?*
- 3) What was the role of covid-19 period to the consumer behavior towards Organic Food Products?*
- 4) What is the effect of demographic characteristics to the Post-Covid Consumer Perceptions and Preferences for Organic Food Products in Greece.*

## **1.3. Dissertation Structure**

Literature review of current thesis is presented at Chapter 2 via a) The Overview of the Organic Food Industry, b) The Consumer Behavior in Food Choices, c) Impact of COVID-19 on Consumer Behavior. Empirical research is presented at Chapters 3,4,5. Chapter 3 refer to the methodology of research, Chapter 4 to the results and Chapter 5 to the conclusions.

## **2. Literature review**

### **2.1. Overview of the Organic Food Industry**

#### **2.1.1. Global Food Industry**

The dynamic growth of the global organic food market results from increasing consumer demand for healthy and ecologically clean products. Such a market, valued at approximately \$220 billion by 2026, is dynamically increasing because of the ascending level of knowledge about the advantages of organic farming in food safety, nutritional quality and environmental benefits. Because organic foods are prepared without chemical fertilizers and pesticides, as well as do not contain genetically modified organisms, consumer fashions directed toward health and sustainability are well met (Golijan & Dimitrijevic, 2018).

The production side is gradually evolving organic farmland. Oceania is the leader in terms of organic farmland, which relates to nearly 40% of the aggregate area, followed by Europe and Latin America. The gap in yields between organic and conventional systems usually fluctuates at 10–20% and is a major constraint (Willer et al., 2007).

The total organic agricultural land in 2022 was 96.4 million hectares, accounting for about 2.0 percent of the total farmland. The organic farmland has increased by 26.6 percent, which is equivalent to 25.6 million hectares in 2022. The region with the most organic agricultural land is Oceania, with 53.2 million hectares, followed by Europe with 18.5 million, Latin America, with 9.5 million, and Asia, with 8.8 million. The U.S. and Canada have a combined total of 3.6 million hectares, and Africa has 2.7 million hectares. The total area of organic agriculture in the ten countries with the largest such areas summed to 79.3 million hectares (82 percent of the world's organic agricultural land). Besides the organic agricultural land, there are more organic areas, including wild collection areas. These were about 35 million hectares (Table 1). (Willer et al., 2024, p. 42).

**Table 1:** World: Organic agricultural land (including in-conversion areas) by region: growth 2021 to 2022, and 10-year growth. (Willer et al., 2024).

Region	Organic agri. land 2021 [ha]	Organic agri. land 2022 [ha]	Share of total [%]	1-year growth [ha]	1-year growth [%]	10-year growth [ha]	10-year growth [%]
Africa	2'607'489	2'735'006	2.8	127'518	4.9	1'531'669	127.3
Asia	6'496'002	8'830'990	9.2	2'334'989	35.9	5'440'949	160.5
Europe	18'258'903	18'450'355	19.1	191'452	1.0	7'081'206	62.3
Latin America	9'484'391	9'537'387	9.9	52'996	0.6	2'825'835	42.1
North America	3'276'330	3'627'818	3.8	351'488	10.7	580'109	19.0
Oceania	35'985'809	53'194'639	55.2	17'208'830	47.8	35'872'906	207.1
World*	76'108'924	96'376'196	100.0	20'267'272	26.6	53'332'674	123.9

The market is driven by various factors, including growing global health concerns and the rise of environmental awareness. From the consumers' side, organic foods are considered healthy foods with low chemical residues. Particularly in the COVID-19 period, perceptions are even stronger (Galutskykh & Didorchuk, 2024). The pandemic has catalyzed the process of adoption of organic products since people are looking for products to support their immune systems, sources providing them with safer food (Śmigłak-Krajewska & Wojciechowska-Solis, 2021). The further rise in consumer trust and market growth is seen with the regulatory support and well-established strong certification systems in the developed regions of North America and Europe (Golijan & Dimitrijević, 2018).

Certification systems of organic foods check the products of agriculture on the basis of standards for their production, handling, and labeling. In other words, these systems check and confirm whether or not organic farms and processors follow practices that help achieve both ecological equilibrium and biodiversity at their levels, and among other measures also reduce the use of synthetic inputs. When certification is granted, it means that the producer has followed all the rules and regulations concerning organic production (FAO, 2019).

Third-party verification is, of course, an essential element of organic certification. Organic operations are supposed to be checked by the independent agencies of certification, which are accredited by national or international bodies, to ensure that the organic producer complies with the standard (European Commission, 2018). The inspection activities cover farm management practices, records to be kept, and soil and produce sample testing results (IFOAM, 2020). Certification shall be granted when the review of an initial application, on-site inspection, and the report of such inspection confirms compliance (USDA, 2022).

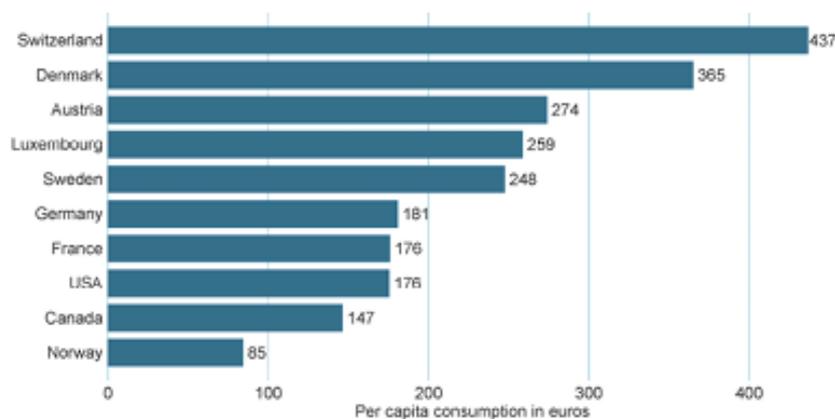
The certification process may be different in different parts of world, each with specific requirements. The United States Department of Agriculture (USDA) National Organic Program (NOP) looks after organic rules in the United States. Organic production in the European Union is governed by EU Regulation 2018/848, which mentions the different rules for organic farming and processing. Others are the Canadian Organic Regime (COR) and the Japanese Agricultural Standard (JAS) (IFOAM, 2020).

The International Federation of Organic Agriculture Movements is one of the driving forces in the world for the harmonization and equivalence of organic standards. Among its other activities, IFOAM develops the IFOAM Norms for Organic Production and Processing, against which most organic standards in the world are compared. The norms cover general principles of organic farming and methods of production and rules for certification, thereby aiding in the creation of an organic market that respects the same conditions and values throughout the world (IFOAM, 2020).

Challenges confronting organic certification systems include the cost of certification, especially to small-scale farmers, and fraud and mislabeling. Efforts being put in place to mitigate these comprise the development of the group certification schemes for smallholder farmers, traceability systems strengthening, and organic regulations enforcement. With such challenges, organic certification stands a very critical tool in promoting sustainable agriculture and creating trust in consumer minds regarding organic products (ITC, 2021).

**World: The ten countries with the highest per capita consumption 2022**

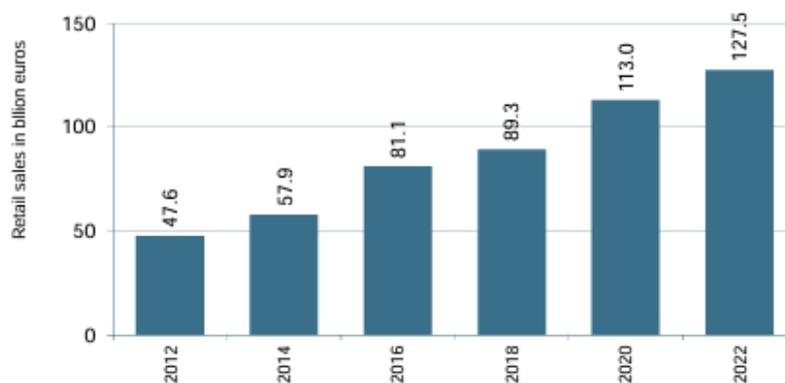
Source: FIBL-AMI survey 2024



**Graph 2:** Global market: The countries with the largest markets for organic food 2022. (Willer et al., 2024).

The global organic market is dominated by North America and Europe, with more than 60% of the world’s sales combined. In the United States, the market for organic food is the largest market, amounting to about \$35.8 billion, followed by Europe with strong markets in Germany and France. These areas are supported by well-established certification frameworks, effective consumer education programs, and substantial government support for the practices of organic agriculture (Golijan & Dimitrijević, 2018). Unlike that, the developing regions of Asia, Africa, and Latin America are marked for organic production primarily for exports because there is very little consumption at home due to affordability and local marketing infrastructure (Galutskykh & Didorchuk, 2024).

In terms of historical growth, the world organic food and drink market climbed from 47.6 billion euros in 2012 to its value at 127.7 billion euros in 2022. Over this ten-year period, organic food sales have seen a 10 percent compound annual growth rate. The best growth occurred in 2020. The coronavirus crisis triggered a very strong increase in demand for organic and health foods; consumers purchased organic products as part of efforts to strengthen their personal immunity (Graph 3) (Willer et al., 2024).



**Graph 3:** Growth in Global Market for Organic Food & Drink, 2012-2022 (Willer et al., 2024).

Consumer demand is focused on some particular product lines, wherein the shares of the organic market are considerable for fresh fruits, fresh vegetables, bread, and cereal. Most of these lines appeal to buyers who wish to consume low-processed, nutrient-rich foods for health reasons. Other specialized organic segments, such as baby food or gluten-free products, are growing rapidly, driven by consumer interest in specific dietary options (Galutskykh & Didorchuk, 2024).

Technological facilitation in this sector has been one of the major contributions to efficiency and accessibility. Precision agriculture, artificial intelligence, and digital marketplaces changed the dynamics of the supply chain. They are also now enabling farmers to optimize production and access broader markets. E-commerce has been increasingly important, especially during the time of the coronavirus disease 2019 (COVID-19) pandemic, in enabling direct-to-consumer models for expanding access to organic products in previously underserved regions (Śmiglak-Krajewska & Wojciechowska-Solis, 2021).

However, dimensions of issue remain. High production expenses, meager economies of scale, and tough certification requirements mainly reflect as high costs of organic products, which in turn make it unaffordable for some consumers (Crowder & Reganold, 2015). This also results in a lack of harmony in global standards, varying certification protocols, trade inefficiencies and a decline in consumer confidence. (Willer et al., 2007). Such problems can be addressed with coordinated policy efforts that involve subsidies to organic farmers, more investment in research and development, and a framework of international cooperation on certifications (Badgley et al., 2007).

### **2.1.2. Small Family Producers and Local Food Movements**

Small family producers have accounted for up to one-third of global food output, according to recent research (Lowder et al., 2021). Previous data revealed that worldwide, five out of six organic farms, consist of less than two hectares and include just about 12% of the agricultural land (Lowder et al., 2016). These small-scale producers play a vital role in food security as their share of food production varies greatly from country to country and can be as high as 80% in China (Ricciardi et al, 2018).

The Small-scale food producers have been given a definition by the Food and Agriculture Organization (FAO) that combines both the physical and economic criteria. Producers falling within the bottom 40% in terms of land size, livestock numbers and annual economic revenue from agricultural activities within their countries are identified by this criterion. The approach that the FAO has taken is to enable a standard method for these producers to be identified across different national contexts (FAO, 2018).

Food systems at the local level, which often depend mostly on small family producers, have seen remarkable growth in the past years. Sales of local food in the United States are estimated to have almost doubled from about \$5 billion in 2008 to \$11.8 billion in the

subsequent years (Low et al., 2015). Still, even the most optimistic estimations put local foods at less than 3% of total food sales (Martinez et al., 2010). Nevertheless, local food system structures are dynamic, with extreme variations over time in some regions. For example, a longitudinal social network analysis of two local food systems in the United States showed that 80% of the market connections changed after six years of research (Trivette, 2019). Farms, farmers' market, and grocery store "survival" ranged between 40 and 50%, meaning that these types of sectors support the existence of local food supply chains over longer durations (Trivette, 2019).

Small-scale producers face unique challenges in market access, and economic vulnerability (Hazell et al., 2010). However, the contribution of such producers to agricultural biodiversity and cultural preservation is based on traditional farming methods and crop varieties (Altieri, 2004). Local food systems are more often used as incubators for new food and farming businesses, providing entrepreneurship and small business development (Feenstra, 2002).

The small-scale producers are important for local economies, but their contributions are difficult to obtain accurate data on. The FAO has put more emphasis on the need for improved, and harmonized data collection methodologies that would give the policymakers a better and more accurate reflection of the agricultural activities taking place across the different scales. Informed data and statistics in this regard is critical in designing policies that will have a focus on small family producers while ensuring food security worldwide (FAO, 2020).

### **2.1.3. The Organic Food Industry in Greece**

Organic agriculture in Greece dates back to the 1990s and is an articulated alternative form highly consistent with traditional agricultural practices and the principles of the Mediterranean diet concerning the prominent use of fresh, natural ingredients and the symbiotic relationship between farmers and sustainable farming methods. The country is also well poised to lead the production of organic foods, but there are impediments to the realization of the fullest potential of the sector (Fotopoulos et al., 1999).

Even though organic farming has grown in Greece, it faces several structural and market-related challenges. For instance, while the land area under organic cultivation has expanded, only a small portion of the production is finally labeled and marketed as being organic, as

most of the products are sold as conventional due to the absence of necessary infrastructure and certification systems (Argyropoulos et al., 2013). The market in Greece for organic products is relatively underdeveloped and there is low consumer awareness of organic certification and benefits relative to conventional foods (Sklavounos et al., 2024).

Consumer attitudes toward organic food reflect an increasingly important consideration of health and environmental motives in Greece. Comparing the results of their study with consumer behavior in Sweden, the authors argue that in Greece, the adoption of organic food products is more driven by health concerns, whereas environmental concerns are of lesser significance compared to the northern markets (Diagourtas et al., 2023). Other aspects, such as economic contexts in Greece, also play a role in influencing consumer behavior, as organic products often fall under the premium category and are not quite affordable for low-income levels (Labros et al., 2014).

On the production side, the organic food industry in Greece has been promising, with specific sectors related to the production of organic olive oil and wine having received worldwide acknowledgment for the quality and sustainability of their products. Especially for Northern Greece, it is highlighted as the organic agricultural paradise that benefits from favorable climatic conditions and a resilient history in agriculture for over centuries. Yet, fragmented supply chains and limited export infrastructures confine the sector to realize its potential and prevent Greek organic products from being competitive at a global level (Fotopoulos & Krystallis, 2002).

Policy and institutional support constitute the vital driving force behind the development of organic agriculture in Greece. Financial support to farmers for adopting organic farming has constituted major driver support to organic farming; however, these supports mostly concern land conversion rather than performance and marketing of organic products (Argyropoulos et al., 2013). The trust should be built up with the tightening of the regulations and also the initiatives for educating the consumers to expand the domestic market in organic food products (Labros et al., 2014).

It turned out that, in the case of Greek organic products, e-commerce is a very strong bridge between farmers producing organic products and consumers living in major cities. This covers distribution channels through which organic produce accessibility has been increased during the pandemic period, when physical markets were disturbed. The transition makes a

serious claim for the contribution of digital innovation in bypassing the traditional barriers set for markets and giving space for organic food to be better promoted in Greece (Diagourtas et al., 2023).

The COVID-19 pandemic caused a considerable upheaval in the Greek organic food market, bringing greater attention to health and sustainability. The preference for organic products surged in the period of the pandemic as consumers became more conscious of health and immunity benefits. Greek consumers, long committed to the Mediterranean diet, have recently reinforced their preference for organic food in view of its safety compared to the use of conventional products, which is noted to have increased as a worldwide trend. The rise of awareness about environmental and sustainability problems further fueled this trend (Skalkos et al., 2021). For example, a study comparing the preferences of Greek and Swedish consumers immediately after the pandemic found that Greek consumers had limited consumption of organic foods during the economic crisis. However, during the pandemic, health consciousness and family well-being were the main factors that increased the likelihood of Greek organic food consumers purchasing organic products. Concerning the reason for buying organic food, the priorities of consumers in Greece and Sweden are different. In Greece, respondents consider health protection as the most important motivating factor. To the query on why they consume organic food, more than 71% of consumers in Greece brought up “Health consciousness” as a motivation for consuming organic food products, while in Sweden environmental and sustainability concerns are the main factors for organic food consumption (54% of the consumers) (Diagourtas et al., 2023).

The COVID-19 pandemic has also transformed the Greek organic food market, with the principal structure being that of e-commerce. It has helped in bridging relations between consumers and producers through online platforms, particularly when there are lockdown measures and organic products are more available. That is, thanks to this digital transformation, small-scale farmers can very well extend their market into the urban consumer located in the city center as explained by Sklavounos et al., (2024). Indeed, organic olive oils and wines are just a sample of the excellent organic agricultural products that come from Greece, which are exemplary for this sector based on the exploitation of their agricultural history and the favorable climatic conditions as stated by (Sklavounos et al., 2024).

However, economic difficulties are a barrier to the expansion of the market. Although the pandemic made the demand for organic foods rise further, the high price of organic commodities remains a concern for most consumers in Greece, especially those in the lower-income level. Government aid and support helped to some few extents, but problems such as the incomplete nature of the supply of the market and poor marketing also help to not bring the market to be realized to its full potential (Skalkos et al., 2021).

Future plans indicate that the organic food sector in Greece does have a significant potential for growth. Issues of market investment, certification processes, and consumer education will have to become crucial to addressing extant problems and upscaling the market. The pandemic proved, if there ever was room for doubt, the resilience and adaptability of the organic food sector, it is now being considered as an integral part of Greece's agricultural and economic future (Sklavounos et al., 2024 •Skalkos et al., 2021).

Looking forward, the organic food industry in Greece must rise up to meet a number of critical challenges if it is to achieve sustainable growth. This is possible through regular investments in unlocking the full potential of organic agriculture through certification systems and infrastructure, as well as marketing strategies. Collaboration between producers, policymakers and consumers would foster an integrated and coherent socio-economic model for organic food in Greece and enhance its resilience. Increasing the availability of Greek agricultural and food exports is a prerequisite for the sector to remain competitive in international markets. This can be achieved by strengthening synergies between agricultural enterprises and promoting product standardization processes (Karkanis & Melfou, 2022).

## **2.2. Consumer Behavior in Food Choices**

### **2.2.1. Understanding Consumer Behavior in Food Choices**

Consumer behavior, applies to reflections on psychological, social, and environmental facts that bear upon the process of deciding on consuming food. The reasons why individuals prefer one diet are linked by complex interactions between personal taste, cultural factors, and extrinsic stimuli (Khan & Pandey, 2023). As opined by Khan and Pandey (2023), motives and behaviors in eating must be understood since food intake is never just

demanded by hunger but also by emotions, cultural practices, and socio-economic factors. Research shows that sensory attributes, such as taste, or fragrances, are amongst the most immediate determinants of food choice, since they directly affect subjective aspects of eating, which are key in decision-making processes (Khan & Pandey, 2023). Further, the views on health and sustainability form a major part of consumer behavior, with most people making choices based on what they believe is healthy or ethically sound (Frewer & Trijp, 2007).

Behavioral models, such as the Theory of Planned Behavior, have extensively been applied to predict consumer intentions in food choice; it is proposed by these models that attitudes, subjective norms, and perceived behavioral control influence decisions to purchase significantly (Grunert, 2002). Real food choices appear to rarely reflect intentions and often get swayed by distortions created by availability and marketing outside the scope of the present study. Emphasis was, thus, provided by Grunert (2002) on how labels and branding can make quality expectations that most influence consumer perception and behavior. Besides, socio-cultural factors comprising traditions and social norms interact with individual preferences. Food choice is essentially about identity and belonging. In some cases, the dimensionality of food behavior appears very clearly where food is expressive of socially important values, like environmental sustainability or cultural heritage (Mötteli et al., 2016).

Economic issues are key in how people choose their food. As Martinho et al. (2021) support that, factors like income, education, and age, strongly affect economic reasons for eating. Consumers with lower incomes may look for cheap rather than healthy food, while better-off people can think about quality and ethical aspects in what they eat. The idea of ease has also become very important, as quick, ready-to-eat foods are often promoted as a time-saving answer in today's fast lifestyles. These economic factors show the pressure between what consumers prefer to do for healthier or greener choices and the real limits from cost and time (Radu, 2024).

Environmental factors, in addition to psychological and economic aspects, play a major role in the determination of consumer behavior regarding food consumption. The upsurge of urbanization and globalization has loosened the acquisition of diversified foods but has amplified the unification of diets and processing consumption of foods (Steenkamp, 1997).

Food availability and accessibility in retail settings play another role in determining consumers' decisions. Structural designs of stores, promotional activities, and product placements conditionally steer choices toward profitability rather than health (Corallo et al., 2019). Online food shopping which has recently gained more and more interest already changed the typology of purchase and consumption of foods by adding the aspect of convenience to the discussion but also raises doubts about the nutritional value of the most frequently purchased options (Foxall et al, 2023).

The other important point about consumer behavior in choosing food is based on information and education. It has been revealed by research that consumers do not have enough information regarding the recommended nutritional intake and value of processed foods, thus resulting in inappropriate choices of food (Mötteli et al., 2016). While activities to enhance food literacy have increased, many people find it difficult to apply theoretical knowledge into practical behavior, such as portion control or planning for balanced meals. Clear labeling and targeted educational campaigns are the best communication strategies to help bridge that existing gap and foster healthier eating habits (Szalotka et al., 2021).

Moreover, consumer behavior increases concern about sustainability and the intake of consumers who opt for choices that are environmentally friendly and socially responsible food. Radu (2024) highlights that good sustainable consumption is related to a high level of consumer consciousness and education. Hence, they wish to general values for their food choices. The high cost of sustainable food options is perceived as yet another barrier that holds to prevent the mainstreaming of such options, even though interest is growing. Some sort of a duality thus comes out that more systemic changes in the form of support, whether in terms of subsidies for ecologically safe practices or local food systems, is needed to buttress consumer efforts toward responsible eating (Ghvanidze et al., 2016).

### **2.2.2. Food Choices and Their Behavioral Dimensions**

The behavioral components of food choice include the psychological, social, and cultural components that affect individuals in their decisions regarding food consumption. These traits include goals, preferences, and methods of decision making that are affected by both intrinsic and extrinsic factors (Blake et al., 2011). Smith and Epstein (1991) believe that the food choices individuals make are primarily based on their personal preferences and the environmental circumstances they encounter, which together determine what they eat. Smith

and Epstein (1991) also support that the value of food is primarily derived from its sensory properties and accessibility, this value is significant in the decision-making process, as evidenced by the fact that individuals tend to enjoy and have easy access to food.

Emotional and psychological components of food-related behavior are significant. Meule and Vögele (2013) explain that the behavior of eating is often initiated by emotional states, even when no physical hunger is present, this suggests that food can serve as a means of coping with stress or depression. Similarly, Depa et al. (2019) showed that emotional drivers, such as comfort and nostalgia, have a significant impact on food preferences, particularly regarding the disordered eating pattern. The dual role of food as both a necessity and a pleasure source suggests the complexity of its behavioral context.

Many people's social lives have a significant impact on their dietary decisions (Higgs, 2015). Higgs (2015) describes the significant influence of social rules and cultural traditions on dietary preferences, she focuses on the significance of societal expectations regarding the definition of acceptable behavior associated with food. This additional information is supported by Blake et al (2011), who documented that family dynamics and work-life balance have an effect on food choice strategies, parents typically favored convenience in order to make up for their hectic schedule. These findings show that dietary decisions are not only personalized, but are also based on society.

Economic difficulties and food shortages augment the behavioral intrigue. Just et al. (2007) discuss the manner in which behavioral economic principles, such as choice architecture, affect the availability and visibility of healthier options. This approach is in line with the findings of Anderson et al. (2021), who advocate that low-income settings should be prioritized by strategies to encourage consumers to alter their dietary habits. Accessibility and affordability are recognized as being critical to the behavior of food-related decisions, these decisions are often practical, which is why healthy choices are made. Other factors, such as genetic and biological, also have an effect on the formation of food preferences. Grimm and Steinle (2011) state that genetic predispositions have an effect on a person's preference for taste and the size of their meals, both of these factors in turn have an effect on the way people eat overall. Other research by Foerde et al. (2020) shows that neurological processes are involved in the behavior of food restriction, with variations in

brain activity that affect the perception of the healthiness of food. These findings show the intricate connection between biology and behavior regarding food selection.

Queiroz et al. (2022) promote the idea that the capacity to eat, which includes attitudes, acceptance, and self-regulation, is one of the most significant components of behavior that affects the quality of food. However, Zwierczyk et al. (2022) notice that health knowledge alone is not sufficient to lead to healthier dietary choices; intrinsic factors like financial motivation and emotional commitment have a larger impact on consumption. This demonstrates the importance of actions that focus on both the cognitive and affective components of food behavior.

Research shows that environmental sustainability is increasingly important in the behavioral components of food selection. Ghvanidze et al. (2016) demonstrate the value of perceived consumer effectiveness in promoting environmentally responsible consumption, they demonstrate that individuals with a commitment to environmental conservation also have a tendency to consume organic and local food. However, Hough and Sosa (2015) admit that in impoverished populations, economic limitations often prevent the practicality of following a sustainability-oriented diet, this is illustrated by the contrasting patterns of behavior between socio-economic groups.

### **2.2.3. Factors Influencing Consumer Preferences**

#### ***Psychological and Emotional Factors***

The psychological and emotional aspects of the food choice consumer behavior are complicated and varied, conducted by a mixture of intrinsic and extrinsic factors. Psychological influences such as attitudes, beliefs, and motivations play a major role in individual determinations regarding food intake. Motives and personality play a huge role in dietary behaviors, with rational motives such as the wish to maintain good health mostly leading to positive results but, in some cases, leading to bad consequences, like eating disorders or orthorexia. The states of emotions are critical factors in these behaviors since evidence can testify that emotions influence the choice of certain types of food and their habits of consumption (Babicz-Zielińska, 2006).

The relationship between mood and food intake is pretty well agreed upon; that is, eating alters emotional states and vice versa. According to Gibson (2006), eating meals, particularly those which bring pleasure, according to the norms and choices of one

individual, increases mood by alleviating irritability and producing calmness. Bad or inadequate meals from what is expected, can drag down emotional well-being. Sweet taste and fatty feel in the mouth provoke neurotransmitters, including dopamine and serotonin, which play a role in the regulation of emotions. Such sensory-induced emotional reactions frequently lead to overeating high-energy foods and thereby encourage obesity within susceptible populations (Gibson, 2006).

Depression and stress are further related to changes in food preference, especially towards energy-dense and sweet food. Research highlights the relationship between sweets and fats in the food and emotional state, mainly depression conditions, indicating a desire of people with high emotional vulnerability to seek comfort from such food. This connection underscores the bidirectionality of mood and food interactions (Bartkienė et al. 2019).

Consumer behavior is shaped by the psychology of being neurotic and emotionally regulating. Individuals, who score high in neuroticism, or even in extraversion, show more emotional responses concerning their food choice. The tendency of emotions, such as being highly sensitive to stress, promotes indulgence in emotional eating (Rybanská, 2015). This is also supported study by Mantau et al. (2018) which proved that feelings of stress and negative mood state remarkably affect preferences regarding food, generally supporting high-calorie or comfort food.

As mentioned before, food behavior can be more complex by mind frameworks like the theory of planned behavior which counts for how people feel which they should do and think about being in control of their actions (Khan & Pandley, 2023). Khan and Pandey (2023) explain more on how these ideas lead food. They support those positive perspectives about healthiness and knowledge of food usually lead to healthy choices. But Köster and Mojet (2015) disagree and support those old models used to give too much value to smart choices, pointing out the unseen ways and usual habits that often decide what food people like. Still, the food choice is a sensory and emotional choice when it comes to health-conscious consumption. According to Brückner et al. (2024), consumer emotion indirectly influences intentions and behaviors to be healthy through diets. Such emotional drivers, through the lever of social-cognitive constructs and socio-structural factors, can promote healthier dietary patterns. Similar evidence is provided by the study of Coppola and Verneau

(2010) about how factors related to emotion, like the feeling of naturalness, play an essential role in forming preferences for foods of low processability.

Emotional calibration is another psychological dimension that would indeed affect food choice. Well-emotionally-calibrated individuals, who have heightened conscious awareness of their emotions and regulation of those emotions, are more likely to be successful in identifying appropriate food choices. Such emotional calibration reduces impulsive eating and increases the quality of decisions on alluring food options in an environment. Such findings would also highlight the place of healthier food behaviors in emotional intelligence (Sysko & Walsh, 2007).

The emotional part of food behavior goes outside and covers the social and cultural aspects, since Enríquez and Archila-Godínez (2022) claim that food represents identity and values with deep roots in social and cultural habits. Emotional ties to culturally important foods often outline preferences and show the way psychological and social factors join to determine behavior. Such a link comes clear in festive or traditional situations when strong emotional ties to particular foods are at their peak (Enríquez&Archila-Godínez2021).

### ***Socio-Environmental Factors***

The social, cultural, and environmental components of food choice are intricate, interrelated, and evolving. Social rules and interactions have a significant impact on dietary behavior, these rules either promote or prevent healthy eating (Witchell & Sheeshka, 2011). Higgs (2015) notes the significance of social norms, as individuals tended to follow the eating habits of their peers, which can have a significant impact on the size of their portions, the type of food they consumed, and the frequency of their meals. Additionally, social contexts like shared meals or family gatherings frequently influence the way food is chosen, as individuals are more likely to follow the pattern of eating that is concordant with the collective's preferences (Higgs, 2015). This emphasizes the value of utilizing social media for health-related initiatives that promote healthy eating (Folkvord et al., 2020).

Other cultural components have a significant impact on food preferences, which is manifested in dietary habits through traditions, rituals, and shared dietary practices. Cultural components are among the most influential on food choice, as they provide a framework for individuals that develops their preferences and traditions. For instance, traditional cuisines often specify the types of food consumed in a region, this has led to a deepening of the

dietary patterns that are perpetuated across generations (Shepherd, 1999). Additionally, Jeong and Lee (2021) state that cultural differences have an effect on the perception of culture, the way food is perceived, and the way it is accepted, the different consumers have different ways of interpreting the flavors, textures, and nutritional value of food. These cultural foundations indicate the necessity of customizing nutritional therapies to correspond with cultural-specific dietary traditions. Petrescu's team (2019) notice that consumers in different cultural traditions have different priorities when evaluating the quality of food, these include the freshness, naturalness and ethical behavior of producers. These preferences are often influenced by cultural narratives and media accounts that portray food as being healthier or more attractive based on the local culture and values. Understanding these cultural differences is crucial to developing culturally targeted marketing strategies and health-related campaigns that reach diverse demographics.

Environmental and economic factors have a larger role in the food choice, particularly in regards to accessibility and affordability, exposure to marketing is also significant (Szalonka et al. 2021). Szalonka et al. (2021) demonstrate that economic disparities have a significant impact on the quality of food available to consumers, lower income groups are often forced to consume less nutritious, energy-dense options. These economic barriers are exacerbated by food environments that promote the availability of pre-packaged and easy-to-eat foods over fresh, nutritious options (Szalonka et al., 2021). Environmental factors, such as the different regional traditions of agriculture and food processing, also have an effect on the availability and cost of food products. For instance, Ghvanidze et al. (2016) claim that consumers in developed countries with high economic power are more inclined to consume organic or environmentally friendly food because of their higher purchasing power and larger market availability.

Environmental sustainability is increasingly important in the contemporary behavior of food. Ghvanidze et al. (2016) notice that consumers with a high perceived effectiveness of consumption (PCE), the belief that individual actions have a larger impact on societal goals, are more inclined to favor environmentally friendly and ethical food production. However, this trend is less apparent in lower income groups, the immediate financial concerns are more significant than the environmental concerns. This discrepancy is significant because of the dual difficulty of attempting to consume sustainably while addressing social inequalities that hinder consumer choice (Ghvanidze et al. 2016).

The process of urbanization and globalization has added a new level of complexity to the behavior of food, this has changed the traditional patterns of dietary consumption and introduced new cultural traditions, since Yin et al. (2020) state that the combination of global food markets has led to the uniformity of diets, with pre-packaged and fast food becoming commonplace in both urban and rural areas. This shift has increased the dietary diversity of some areas, but has also led to the loss of traditional food traditions and increased reliance on nutrient-poor, energy-dense foods (Yin et al., 2020).

Other environmental factors, such as food-related physical activity, also have a significant impact on dietary behavior, particularly in urban areas (Anderson et al., 2016). Witchell and Sheeshka (2011) define the concept of "obesogenic environments," which are characterized by the presence of fast food restaurants, a lack of fresh produce, and aggressive marketing of unhealthy foods. These environments are problematic to eat healthy. These environmental factors have a disproportionate effect on low-income and underserved communities, this further exacerbates the health disparities (Witchell & Sheeshka, 2011). King et al. (2004) explain that physical environmental factors, including lighting, seating, and social interaction, all contribute to the acceptance of food and the volume of consumption, they demonstrate how environmental information is automatically transmitted to eaters.

Social differences and food insecurity are significant aspects of understanding the larger impact of social, cultural, and environmental factors on food behavior. Haghghian-Roudsari et al. (2018) indicate the importance of socio-economic status, educational attainment, and occupational status in regards to having access to nutritious food. These discrepancies highlight the structural limitations that prevent equal access to food, these limitations need to be addressed through policy actions that address the causes of food insecurity.

#### **2.2.4. Consumer Perceptions of Organic Food**

Consumer perceptions of organic food have been influenced by a number of factors such as rising health consciousness, growing concern for the environment, and trust in organic labels. In the study by Roy, Ghosh, and Vashisht (2022), it is found that organic food holds its health benefits as a primary reason for purchasing organic foods. Since organic foods are not prepared with synthetic pesticides and fertilizers, consumers feel it is safer and healthier,

thus meeting the current global preference for natural and minimally processed foods (Roy et al., 2022). The pandemic has further fueled such perceptions as a majority of consumers are willing to perceive organic foods to boost their immunity towards general good health (Cramarenco, Burcă-Voicu, & Dabija, 2023).

According to Brata et al. (2022), sustainability and ecological benefits have much relevance in the decision process of consumers. Consumers believe that organic farming practices aid biodiversity conservation and contribute towards the health of the soil, thus making organic products more ethical. Support is growing for these views in the form of organic agriculture meant for climate change and support to local farmers (Brata et al., 2022). This is also reflected in increased media coverage on matters of ecological degradation and global warming: it is also, by extension, an added driver for the already established consumers towards organic foods (Roy et al., 2022).

While organic food has positive connotations, consumer trust in organic certifications and labeling still remains a problem. The consumers are quite skeptical of the authenticity of organic labels, especially in markets with weak regulatory enforcement (Wang et al., 2022). An aspect compounded by previous fraudulent labeling and misrepresentation of organic claims, which undermine the consumers' confidence in the industry (Cramarenco et al., 2023). In this respect, transparency and credible certification systems are growing in the opinions that they are needed to sustain the trust of the organic food market (Brata et al., 2022).

The perceived severity of COVID-19 has also influenced the consumer perception and choice of purchasing the product. Wang et al., in a recent study conducted in 2022, explicitly state that consumers who are very much afraid of the risks associated with their health are more likely to trust certified organic products compared to their conventional alternatives. Health crises have the potential to therefore trigger a change in consumer behavior where organic food acquires further significance as a measure for preventive health. This finding supports earlier research work that suggested how susceptibility to diseases impacted the choice of food, particularly those connected to health and healthy living (Roy et al., 2022).

Differences in willingness to pay for organic food exist between income levels and accessibility. All these point to the fact that where one group of consumers, mainly the high-income group, can easily meet the price of organic food while considering the perceived

benefits, the other group finds it hard to accommodate the premium price of organic products (Roy et al., 2022). This sensitivity to price can work as an impediment against the adoption of organic food, notwithstanding the positivity in perceptions over and above health and environmental value. Organic food is perceived to be a consumption luxury by some consumers, which further complicates purchase behavior across different socioeconomic groups (Wang et al., 2022).

Moreover, cultural and regional differences affect consumer attitudes toward organic food. As revealed by Roy et al. (2022) consumers from developed nations are more inclined to prefer organic food as compared to those from developing nations, where food security and affordability are some of the primary aspects considered. Such a difference emphasizes the need for specific marketing plans that can address the diverse needs and expectations of consumers worldwide (Cramarenco et al., 2023).

Perceptions of consumers would help the industry stakeholders understand the effective marketing strategies toward the ascending consumption of organic food. The role of consciousness for health, environmental factors, and credibility for certifications will be imperative in determining the future scope of organic food demand (Roy et al., 2022). Strictly regulating the issues of consumers, transparent information, and well-targeted awareness-building measures can thus assure a long-term organic food market (Cramarenco et al., 2023). Organic food will have to become more affordable and available for most sectors as a fundamental strategy to broaden the market for organic food consumption (Brata et al., 2022). This long-term trend on organic food as a health choice keeps the organic food market still holding a place for some time due to the effect of creating customers who are more concerned about health and the environment (Wang et al., 2022).

## **2.3. Impact of COVID-19 on Consumer Behavior**

### **2.3.1. Increased Demand for Organic Food During the Pandemic**

The COVID-19 pandemic has provoked immense changes in the behavior of consumers worldwide. New demands have been generated, for example, unparalleled demand for organic food products, which seems to be just the beginning. Such preference is very much determined by the wish of most consumers to increase their health conditions by consuming

products that are considered to be safer and healthier (Cramarenco et al., 2023). Organic food products are known for their ingredients made without any synthetic pesticides and additives; hence, more consumption is preferred during the health crisis (Meixner & Katt, 2020).

Disruptions in the supply chain and concerns about food safety have also played an important part in determining consumer preference for organic food (Maqbool, Farhan, & Qamar, 2022). An increased fear among consumers of possible contaminations within conventional food supply chains caused a spike in demand for certified organic products with their safer standards assured (Timpanaro & Cascone, 2022). A trend seen in many other places, such as Europe and North America, where sales of organic foods had double-digit growth rates during the pandemic (Kim, 2021).

Factors that drove organic food demand even more included altered views on sustainability and sensitivity toward the environment. The organic food market boom during the pandemic added more reasons to it, with exposed weaknesses in the global food system and made consumers go for locally produced food as a means of supporting sustainable agriculture (Cramarenco et al., 2023). Results of research imply that the organic shift was not only due to organic health concerns but also due to organic ethics concerning the environment and food security (Maqbool et al., 2022).

During the pandemic, e-commerce platforms and online grocery services proved to be very important in organic food accessibility (Meixner & Katt, 2020). Logistically speaking, with all the lockdowns and considering very limited visits to physical stores, there was a spike in demand for organic products on digital marketplaces that could facilitate their easy purchase with certified organic labels (Kim, 2021). According to research, online organic food retail sales have risen by more than 30% in several markets; the change in consumer behavior by digitalization is thus brought to the forefront (Timpanaro & Cascone, 2022).

Consumer willingness to pay a premium for organic food increased as well, driven by increased health consciousness (Kim, 2021). Even the price-sensitive consumers found the benefits of organic products and their value in use far greater than the price premium, which led to an increase in market share for the organic brands (Meixner & Katt, 2020). Some demographic affordability concerns still exist, however—in the studies, low-income groups

indicated that they wanted discounts and promotions to gain access to organic products (Cramarenco et al., 2023).

The consumer perception of organic foods was induced to a large extent by social media and digital marketing (Kim, 2021). While creating consumer awareness about the safety and health benefits of organic foods, it was also noticed that consumer preference for immunity and general well-being through organic foods was gaining acceptance by many nutritionists and health experts (Meixner & Katt, 2020). To battle this crisis, brands have responded by opening up transparency in supply, ensuring all information regarding organic sourcing and sustainability is communicated to the consumer end (Timpanaro & Cascone, 2022).

The home cooking increasing further because of the pandemic raised even more awareness regarding the use of organic ingredients. Since more time was being spent making meals at home, consumers searched for high-quality organic food (Meixner & Katt, 2020). According to survey data on household consumption of organic food, expenditure grew on fresh produce, dairy substitutes, and whole grains. This shows a deeper commitment to healthier dietary habits (Cramarenco et al., 2023).

The fast increase in eating organic food during the pandemic shows a big change in what people want to buy. Research says that even when the pandemic is over, many buyers plan to keep their organic eating habits (Timpanaro & Cascone, 2022). This change gives a chance for more new ideas in making food sustainably and selling it smartly, so that organic food stays an easy and reliable pick for buyers all over the world (Maqbool et al., 2022).

### **2.3.2. Shifts in Purchasing Channels and Consumer Preferences**

The COVID-19 pandemic significantly impacted consumer behavior, especially in an organic food market, where channels of purchase and consumer preferences changed massively. The crisis increased consumers' worries about food safety, health, and sustainability, thus raising demand for organic products (Śmiglak-Krajewska & Wojciechowska-Solis, 2021). But more than ever before, the changes in how to buy and what consumers prefer that are playing a most vital part in the organic food sector transformation (Kusz et al., 2023).

The pandemic has sped up the digital transformation of food retailing. Unprecedented booms were experienced in e-commerce and online grocery shopping. The fear of getting

infected and the lockdown, encouraged people to embrace online organic buying, as explained by Kusz et al. (2023). In response, many of the retailers upgraded their digital platforms and optimized the supply chains for a higher volume of demand. In Poland, for instance, the available empirical evidence has supported the claim for any form of online food shopping, organic included, becoming habitual for consumers (Kusz et al., 2023). A change indeed proved not to be temporary. People who adopted online organic shopping in times of the pandemic are found to continue with the use of online platforms, because of convenience and perceived safety, even post-pandemic (Das et al., 2022).

Local and sustainable food sources were another e-commerce trend. According to Śmiglak-Krajewska and Wojciechowska-Solis (2021), consumers began to buy locally produced organic food, more than before, due to concerns about the global pandemic disruption in supply chains and to concerns about environmental sustainability of domestic agriculture. Such broad consumer tendency, which relates to ensuring environmental awareness and ethical consideration, became decisive of the ultimate food purchasing decision. The preference for organic foods was determined by the short supply chain, which would ensure less contamination thus a safer product compared to a long-distance supply chain (Śmiglak-Krajewska & Wojciechowska-Solis, 2021).

Supermarkets and mainstream retail, on the other hand, responded to the change in consumer behavior by increasing organic food offerings. They invested in the incorporation of organic sections, thus meeting the increasingly high demand. With organic foods more available in traditional supermarkets, the general population was more exposed to it, causing further market growth (Kusz et al. 2023). Also, private-label organic brands gained popularity, since consumers desired cheaper options, while still valuing healthier and environmentally friendly products. More mainstream retail spaces have increased organic food offerings, marking a change from the disease to the mass market and showing that it should stay after the pandemic (Ngho & Groening, 2022).

During the pandemic, price sensitivity turned out to be one of the crucial factors leading consumer behavior within the organic food market (Das et al., 2022). Though the demand for organic skyrocketed, the generalized financial insecurities arising out of job losses and economic slumps have shot up price sensitivity among consumers. Consumers reevaluate their expenditure and search for organic options that strike a balance between affordability

and quality. Organics-at-all-cost consumers were within constrained financial resources but did not mind paying more for organic foods because of health attributes and safety. Such double behavior underscores that there is a growing disparity between consumers for whom the main thing is the cost and those who stick to consuming organically irrespective of how the price changes (Ngho & Groening, 2022).

Consumer segmentation by shopping behavior attests to the diversified response toward the pandemic. Some consumers may have shifted entirely to online grocery shopping, while others adopted the hybrid strategy of purchasing organic foods online as well as at physical stores. Such segmentation speaks to the complex nature of consumer behavior. In other words, it indicates that, some people are aiming to an online convenience, while others are interested more in the in-store, especially for organic foods, which are always presumed to be fresh and quality that consumers want to check for themselves (Ngho & Groening, 2022).

The change in buying actions was also affected by age distinctions. Young buyers were more apt to take on web buying and virtual payment ways, while older buyers preferred regular physical shops. But even among the older age groups, there was an increase in openness towards digital shopping, especially when ease of use and access got better. This change shows how consumer habits are being altered over the long term, where smart tech skills have a big part in forming buying choices (Kusz et al., 2023).

The pandemic made consumers change their behavior towards organic foods. It made people buy online more, choose local and sustainable foods, and look for organic food in common stores. All the above, with changing views on prices and types of buyers, set how organic food is sold now. The shifts were studied by Śmiglak-Krajewska and Wojciechowska-Solis (2021), Kusz et al. (2023), Das et al. (2022) and Ngho and Groening (2022), they show how the organic food market adapted to new global changes. These changes will keep affecting what people like and how markets work in the time after the virus.

### 3. Methodology

#### 3.1. Research Design

Current research is based on a primary, cross-sectional, quantitative design. The research is cross-sectional as data was collected over a certain period of time and in particular from 10/3/2024 -22/11/24 (Olsen, et al. 2010). Furthermore, the research is primary as data was collected not from an online database but from organic food stores and sending a link via viber, WhatsApp, and emails i.e., from participants who constitute a sample of the broader population sub study (Driscoll, 2011). Quantitative research is appropriate when the concepts discussed in the research are measurable (Cohen, Manion and Morrison, 2018). In current study the measurable concepts are the Consumer Perceptions and Preferences for Organic Food Products. Correlational research is chosen when studying relationships between dependent and independent variables, using statistical inductive methods on numerical data (Muijs, 2011). The dependent variables of the research are the factors of Consumer Perceptions and Preferences for Organic Food Products and the independent variables are the demographic characteristics. Other advantages of quantitative research are a) The ability to collect a large sample in a short period of time, b) The collection of data from different areas, c) The ability to generalize conclusions due to the inductive approach (Cohen, Manion and Morrison, 2018).

#### 3.2. Data Collection

Questionnaire of current research was based on the studies of Yiridoe, Bonti-Ankomah and Martin, (2005), Scotia (2006), Melovic et al. (2020), Gundala & Singh (2021), Roy, Ghosh & Vashisht (2022), includes 60 questions and is separated in the following 4 sections:

**1.Demografic characteristics:** The section involves four (4) close type questions, regarding age group, gender, educational level and family net income level per year.

**2.Organic food consumption:** The section involves fourteen (14) Likert type questions from 1-5 (1= Never, 2=Rarely, 3=Monthly, 4=Weekly, 5=Daily). for the level of consumption frequency of organic food products such as “*Cereals (grains, legumes, and*

oilseeds)", "Pasta", "Bread and Bakery". The factor presented perfect reliability of internal consistency ( $\alpha=0.914$ ), using the Cronbach Alpha coefficient (Nunnally & Bernstein, 1994).

**3.Perceptions of Organic Food Products:** The section involves nine (9) Likert type questions from 1-5, regarding importance of factors, when considering the purchase of organic food products such as "Quality and safety", "Organic certification label" (1=Not important at all, 2=Slightly important, 3=Moderately important, 4=Important, 5=Extremely important). The factor presented high reliability ( $\alpha=0.800$ ).

#### **4)Role of Covid-19**

**4i) Consumer Behavior in comparison to pre-COVID-19:** The subsection involves fifteen (15) Likert type questions, where one (1) is from 1-4 (1= I buy fewer organic food products, 2= I buy the same amount of organic food products, 3= I started buying organic food products during the pandemic, 4= I buy more organic food products) and fourteen (14) from 1-3(1= Decreased, 2= Remained the same, 3= Increased), regarding the food purchasing behavior change since the COVID-19 pandemic. The factor presented high reliability ( $\alpha=0.867$ ).

**4ii)Factors affected consumer behavior during COVID-19:** The subsection involves eleven (11) Likert type questions from 1-5 (1=Not important at all, 2=Slightly important, 3=Moderately important, 4=Important, 5=Extremely important), regarding the importance of factors that have affected purchasing of organic food products, during the COVID-19 pandemic such as "Increased food safety concerns", "Focus on a healthier lifestyle, self-care and wellness" The factor presented perfect reliability ( $\alpha=0.928$ ).

**4iii) COVID-19 and safety of Organic Food Products:** The subsection involves one (1) Likert type question from 1-3 1= I consider them less safe, 2= My perception has not changed, 3= I consider them safer), regarding pandemic influence to perceptions regarding the safety of organic food products.

**4iv) COVID-19 and online shopping for Organic Food Products:** The subsection involves one (1) Likert type question from 1-3 (1= I use online shopping less for organic food products, 2= No difference in online shopping for organic food products, 3= I use online shopping more for organic food products), regarding pandemic influence to purchase method of organic food products.

**4v)Marketing Strategies:** The section involves five (5) Likert type questions from 1-5 (1=Not important at all, 2=Slightly important, 3=Moderately important, 4=Important, 5=Extremely important), regarding the importance of influence of marketing strategies by organic food brands on awareness or interest in purchasing organic food products, during the COVID-19 pandemic such as “*Promotional and informative activities related to health (e.g. food labels, competitions and collaborations with experts)*”, “*Online engagement activities (e.g. live sessions, cooking demos, interviews, webinars)*” The factor presented perfect reliability ( $\alpha=0.902$ ).

**Table 2:** Reliability analysis

Factor	Items	Cronbach Alpha	Reliability
Organic Food Consumption	2.1-2.14	0.914	Perfect
Perceptions of Organic Food Products	3.1-3.9	0.800	High
Consumer Behavior before, during and after COVID-19	4.1., 4.2.1.1-4.2.1.14	0.867	High
Factors affected consumer behavior during COVID-19	4.3.1.1-4.3.1.11	0.928	Perfect
Marketing strategies	4.6.1.1-4.6.1.5	0.902	Perfect

### 3.3. Sampling Method

Sample was consisted of 122 participants (72 females, 50 males), who live in Greece and have used at least once organic food products (inclusion criteria). The majority of participants are 25-44 years old, with bachelor or master educational level and annual family net income up to 40.000€. Questionnaire was distributed with Google Forms on social media and responses were also obtained by sharing a printed QR code in organic food stores and sending a link via viber, WhatsApp, and emails. Overall, data were collected via convenience sampling, as researcher gather data from a) social media via google forms, b) shops that had easy access (Creswell, 2014). Data were collected in period 10/3/2024 - 22/11/24.

### 3.4. Data Analysis

Statistical analysis of the data was performed using a combination of Microsoft Office Excel 2016 and IBM SPSS 26 programs. In the section of Descriptive Statistics percentages and frequencies were used for categorical variables such as demographic characteristics and other nominal variables refer to Post-Covid Consumer Perceptions and Preferences for Organic Food Products in Greece. Likert type questions that refer to Organic Food

Consumption, Perceptions of Organic Food Products, Consumer Behavior in comparison to pre-COVID-19, Factors affected consumer behavior during COVID-19 and Marketing Strategies were presented using mean, standard deviation and percentages. Inferential Statistics were performed at significance 5%. Factors of Post-Covid Consumer Perceptions and Preferences for Organic Food Products in Greece, were created using the mean of questions that demonstrated at least acceptable reliability ( $\geq 0.7$ ) (Nunnally & Bernstein, 1994). The 95% Confidence Intervals for the mean value of factors were calculated via the mathematical formula:  $(M - Z_{\alpha/2} * \frac{s}{\sqrt{n}}, M + Z_{\alpha/2} * \frac{s}{\sqrt{n}})$ , where M is the mean value, Z the typical normal distribution,  $\alpha$  the level of significance, s the standard deviation and n the sample size. Normality of factors, was tested using the Shapiro Wilk test which is consider to be more accurate (Razali and Wah, 2011). Normality was rejected for all the factors except of the factor “Organic Food Consumption”.

Thus, to examine mean differences of factor “Organic Food Consumption” between two independent samples, the independent samples t-Test was used. Similarly, to examine mean differences of factor “Organic Food Consumption” between three and more independent samples, the One-Way ANOVA was used. For the rest factors that do not satisfy normality, to examine mean differences between two independent samples, the Mann-Whitney was used . Similarly, to examine mean differences of the factors that do not satisfy normality, between three and more independent samples, the Kruskal-Wallis was used. Spearman was used to examine linear relationships between scale and variables which refer to Post-Covid Consumer Perceptions and Preferences for Organic Food Products in Greece (Field, 2017).

**Table 3:** Test of normality

<b>Factors</b>	<b>W (122)</b>	<b>p-value</b>
Organic Food Consumption	0.982	0.112
Perceptions of Organic Food Products	0.944	<0.001
Consumer Behavior before. during and after COVID-19	0.818	<0.001
Factors affected consumer behavior during COVID-19	0.948	<0.001
COVID-19 and safety of Organic Food Products	0.612	<0.001
COVID-19 and online shopping for Organic Food Products	0.700	<0.001
Marketing Strategies	0.956	0.001

### **3.5. Ethical Considerations**

In the introductory note of the questionnaire, participants were informed that the research was being conducted as part of a Postgraduate Dissertation in the Master Degree Program in Business Administration of the Hellenic Open University. Furthermore, they were informed that the purpose of the research is to understand the choices regarding organic food in Greece following the outbreak of the COVID-19 pandemic. They were also informed that their participation is voluntary, their responses will remain confidential and will not be identifiable, as their responses would be used for research purposes only. No personal data were recorded in the questionnaires. Overall, the necessary ethical and moral issues concerning the psychology of participants in a scientific study were observed (BPS, 2014).

### **3.6. Limitations of the Methodology**

The limitations of current study refer to a) the convenience sampling which does not guarantee the formulation of a representative sample, b) the sample size which was not adequate to ensure the necessary statistical power (Cohen, 2013), c) the fact that current scales used were valid only via content validity and were not validated with the technique of factor analysis (Kline, 2014).

## 4. Results

### 4.1. Descriptive statistics

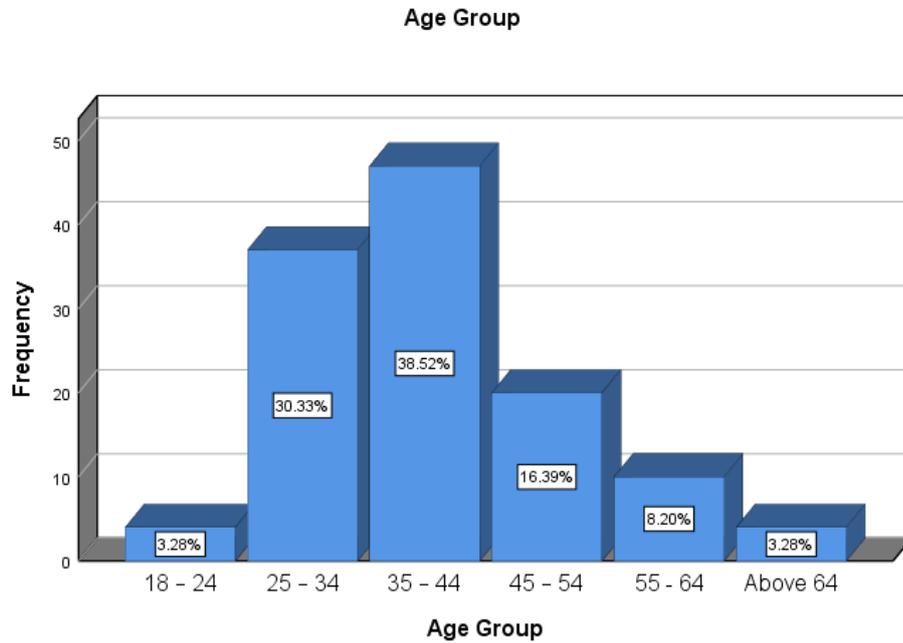
#### 4.1.1. Demographic characteristics

Table 4 (Graphs 4-7) presents the demographic characteristics of the sample which consists 122 participants.

**Table 4:** Demographic characteristics

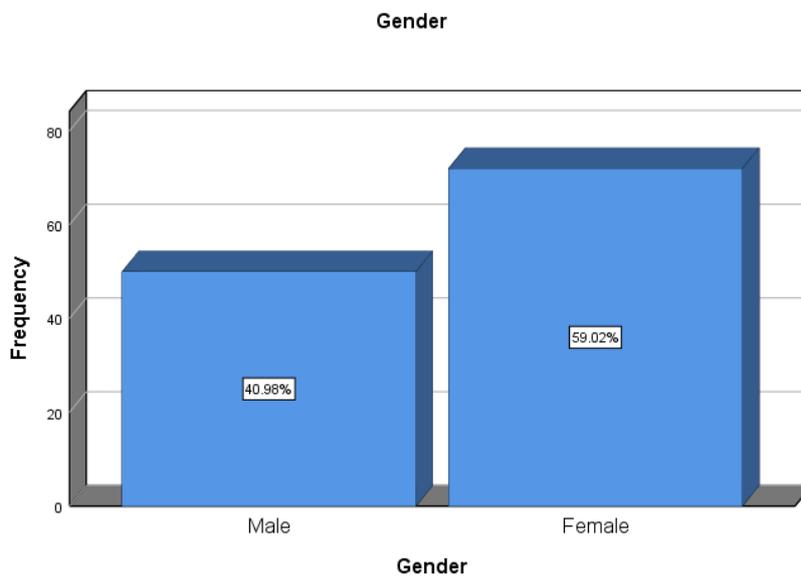
<b>Demographic</b>	<b>Category</b>	<b>N</b>	<b>%</b>
Age Group	18 – 24	4	3.28
	25 – 34	37	30.33
	35 – 44	47	38.52
	45 – 54	20	16.39
	55 - 64	10	8.20
	Above 64	4	3.28
Gender	Male	50	40.98
	Female	72	59.02
Education Level	Basic Education	2	1.64
	High School	6	4.92
	Bachelor's Degree	46	37.70
	Master's Degree	60	49.18
	Ph.D.	6	4.92
	Other	2	1.64
Family Net Income Level per Year	Less than 20.000€	39	31.97
	20.000€ - 40.000€	58	47.54
	40.001€ - 70.000€	21	17.21
	Over 70.000€	4	3.28

Regarding the age group, the majority of participants are 25-44 years old (68.85% (N=84)).



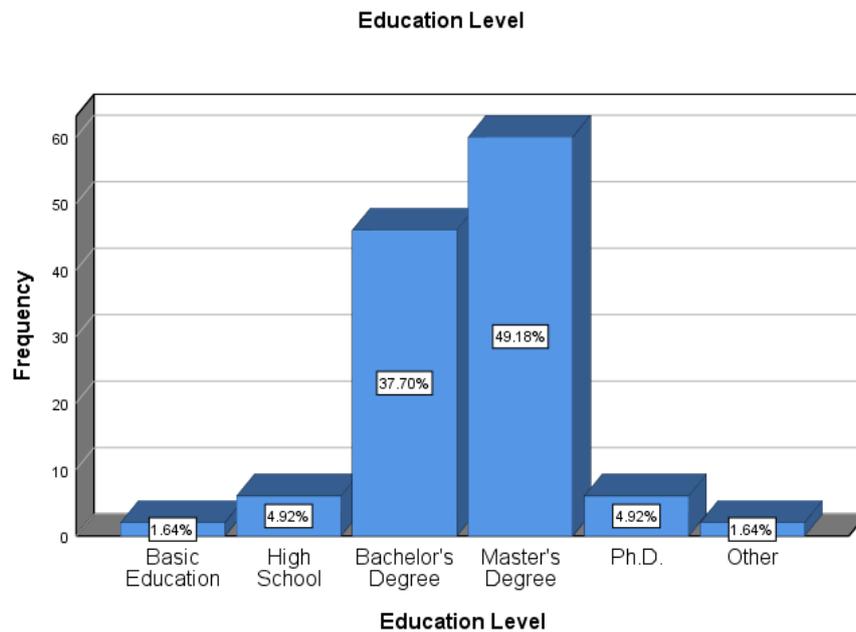
**Graph 4: Age Group**

In terms of gender, more than half (59.02% N=72) are females.



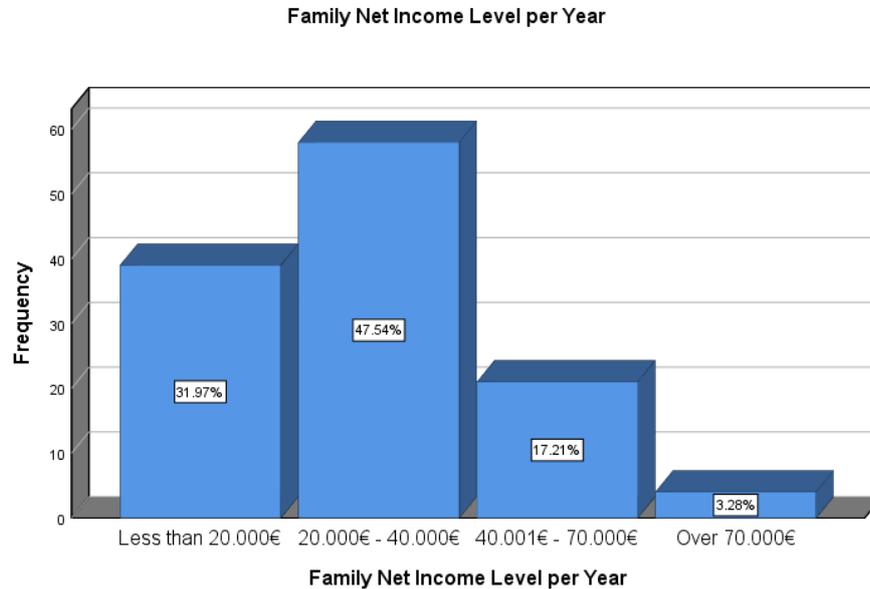
**Graph 5: Gender**

Considering the level of education, the majority are holders of Master or bachelor degree the 86.88% (N=106).



**Graph 6: Education Level**

In terms of family net income level per year, most participants earn up to 40.000€ per year (79.51%,  $N=97$ ).



**Graph 7: Family Net Income Level per Year**

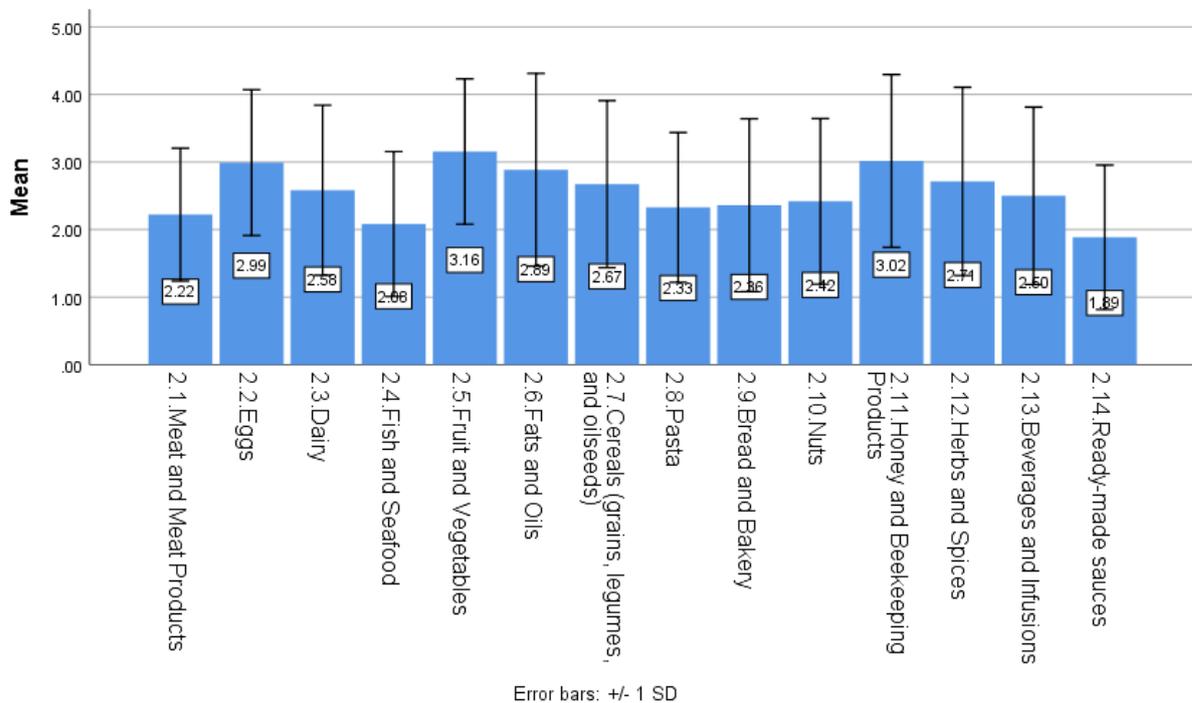
#### 4.1.2. Organic Food Consumption

Table 5 (Graph 8) shows the answers of the participants about the frequency of the consumption of organic food products. The answers are given on five Likert type point scale (1= Never, 2= Rarely, 3= Monthly, 4= Weekly, 5= Daily).

Variations of responses were high for the Organic Food Consumption [0.98, 1.43], thus the exact percentages were presented. Generally, organic food consumption is noticed never or rarely in most cases. Regarding the most frequent choices most participants consume monthly to daily fruit and vegetables (68.85%,  $M=3.16$ ), honey and beekeeping products (59.83%,  $M=3.02$ ) and eggs (59.84%,  $M=2.99$ ).

**Table 5: Organic Food Consumption**

Organic food products	M	SD	Never	Rarely	Monthly	Weekly	Daily
2.5. Fruit and Vegetables	3.16	1.08	2.46%	28.69%	34.43%	19.67%	14.75%
2.11. Honey and Beekeeping Products	3.02	1.28	12.30%	27.87%	21.31%	22.95%	15.57%
2.2. Eggs	2.99	1.08	4.92%	35.25%	23.77%	27.87%	8.20%
2.6. Fats and Oils	2.89	1.43	16.39%	36.07%	12.30%	13.11%	22.13%
2.12. Herbs and Spices	2.71	1.39	22.95%	30.33%	14.75%	16.39%	15.57%
2.7. Cereals (grains, legumes, and oilseeds)	2.67	1.24	18.03%	32.79%	23.77%	14.75%	10.66%
2.3. Dairy	2.58	1.26	21.31%	33.61%	21.31%	13.11%	10.66%
2.13. Beverages and Infusions	2.50	1.31	27.87%	29.51%	17.21%	15.57%	9.84%
2.10. Nuts	2.42	1.23	28.69%	28.69%	20.49%	16.39%	5.74%
2.9. Bread and Bakery	2.36	1.28	30.33%	32.79%	17.21%	9.84%	9.84%
2.8. Pasta	2.33	1.11	26.23%	35.25%	21.31%	13.93%	3.28%
2.1. Meat and Meat Products	2.22	0.98	22.13%	50.00%	12.30%	14.75%	0.82%
2.4. Fish and Seafood	2.08	1.07	36.07%	36.07%	12.30%	14.75%	0.82%
2.14. Ready-made sauces	1.89	1.07	46.72%	31.97%	9.84%	9.02%	2.46%



**Graph 8: Organic Food Consumption**

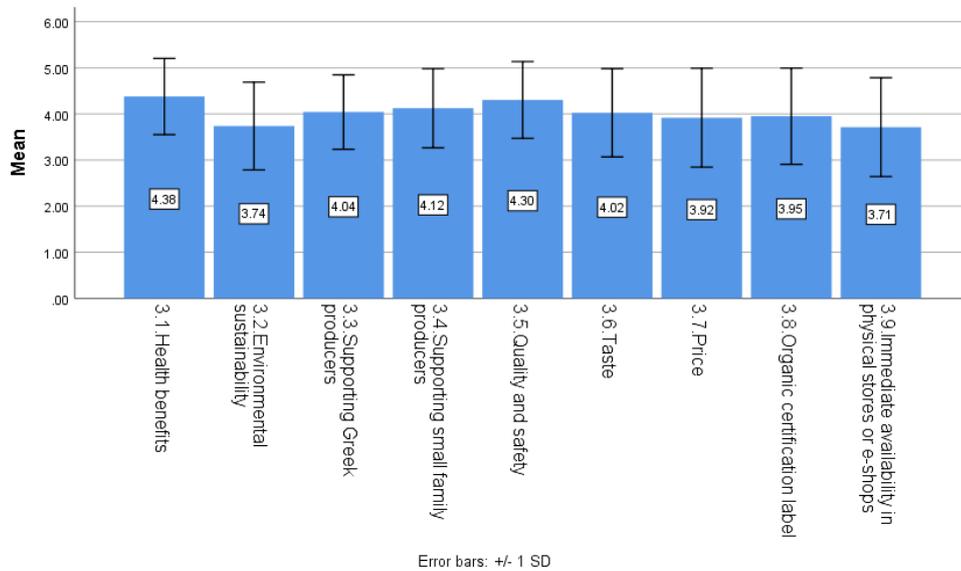
### 4.1.3. Perceptions of Organic Food Products

Table 6 (Graph 9) presents the answers of the participants in the terms of the perceptions of organic food products. The answers are given on five Likert type point scale (1= Not important at all, 2= Slightly important, 3=Moderately important, 4= Important, 5= Extremely important).

Variances of responses were moderate for the perceptions of Organic Food Products [0.81, 1.07], thus the exact percentages were presented. More than half of participants consider as extremely important factor to consume Organic Food Products the health benefits (55.74%,  $M=4.38$ ) and almost half consider as extremely important factor the quality and safety (48.36%,  $M=4.30$ ). In addition, the majority consider as important or extremely important factors consume Organic Food Products, the supporting small family producers (78.68%,  $M=4.12$ ) and greek producers (77.87%,  $M=4.04$ ), the taste (77.87%,  $M=4.02$ ), the organic certification label (72.95%,  $M=3.95$ ), the price (71.32%,  $M=3.92$ ), the environmental sustainability (66.39%,  $M=3.74$ ) and then immediate availability in physical stores or e-shops (63.93%,  $M=3.71$ ). Overall, all proposed factors are considered as important or extremely important by the majority of sample, to consume Organic Food Products.

**Table 6:** Perceptions of Organic Food Products

Factors	M	SD	Not important	Slightly Important	Moderately Important	Important	Extremely Important
3.1. Health benefits	4.38	0.83	0.82%	1.64%	12.30%	29.51%	55.74%
3.5. Quality and safety	4.30	0.83	0.82%	3.28%	9.02%	38.52%	48.36%
3.4. Supporting small family producers	4.12	0.86	0.00%	4.92%	16.39%	40.16%	38.52%
3.3. Supporting Greek producers	4.04	0.81	0.00%	4.10%	18.03%	47.54%	30.33%
3.6. Taste	4.02	0.96	2.46%	4.92%	14.75%	43.44%	34.43%
3.8. Organic certification label	3.95	1.04	3.28%	6.56%	17.21%	37.70%	35.25%
3.7. Price	3.92	1.07	3.28%	8.20%	17.21%	36.07%	35.25%
3.2. Environmental sustainability	3.74	0.95	3.28%	5.74%	24.59%	46.72%	19.67%
3.9. Immediate availability in physical stores or e-shops	3.71	1.07	3.28%	11.48%	21.31%	38.52%	25.41%



**Graph 9:** Perceptions of Organic Food Products

#### 4.1.4. Consumer Behavior in comparison to pre-COVID-19

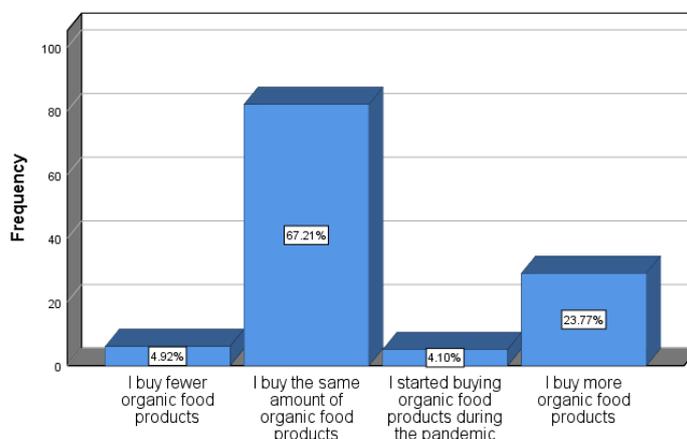
Table 7 (Graph 10) shows the results regarding the change of food purchasing behavior since the COVID-19.

**Table 7:** How has your food purchasing behavior changed since the COVID-19 pandemic?

Question	Category	N	%
4.1. How has your food purchasing behavior changed since the COVID-19 pandemic?	I buy fewer organic food products	6	4.92
	I buy the same amount of organic food products	82	67.21
	I started buying organic food products during the pandemic	5	4.10
	I buy more organic food products	29	23.77

Considering to food purchasing behavior, the 67.21% (N=82) buy the same amount of organic food products.

4.1. How has your food purchasing behavior changed since the COVID-19 pandemic?



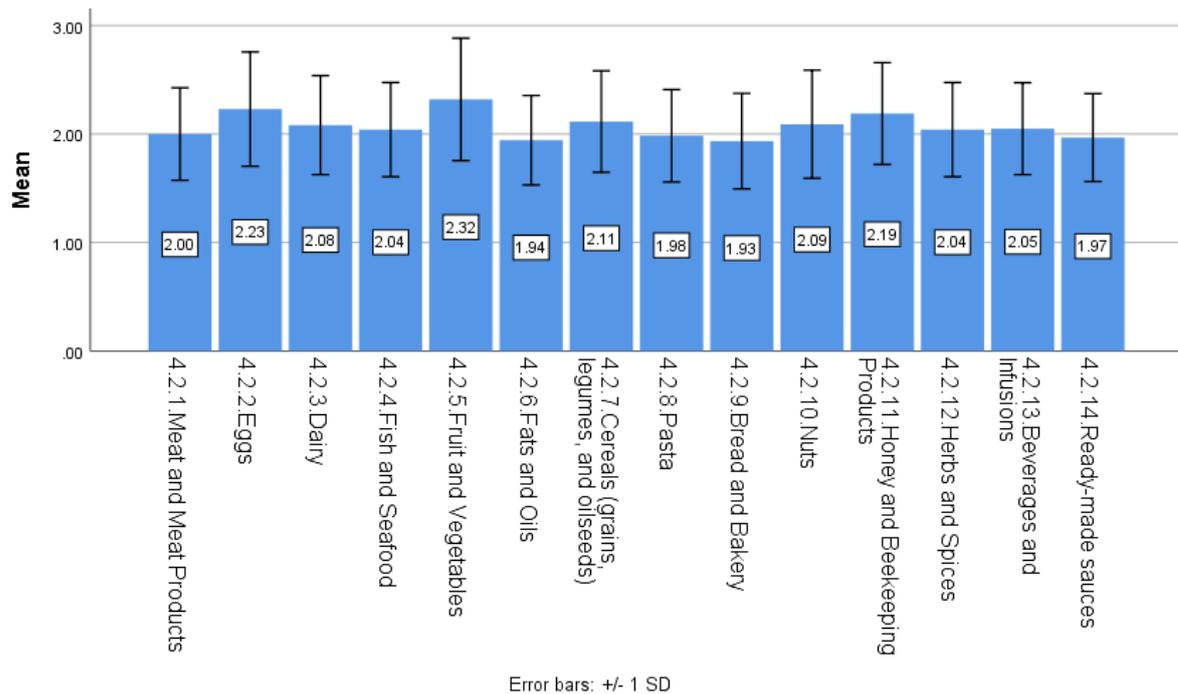
**Graph 10:** How has your food purchasing behavior changed since the COVID-19 pandemic?

Table 8 (Graph 11) presents the results regarding the consumer’s behavior in comparison to pre-COVID-19 about organic food products. Due to use of three Likert type point scale (1= Decreased, 2= Remained the same, 3=Increased), answers were presented with percentages, except from mean.

Generally, most participants stated that their consumer behavior remained the same in comparison to pre-COVID-19 in all food options [58.20, 83.61%]. However, a slight increase (above 20%) was observed for fruit and vegetables (36.89%,  $M=2.32$ ), eggs (27.87%,  $M=2.23$ ), honey and beekeeping products (22.13%,  $M=2.19$ ). On the other hand, a slight decrease of about 10% was observed for pasta (9.84%,  $M=1.98$ ), ready-made sauces (9.84%,  $M=1.97$ ), fats and oils (11.48%,  $M=1.94$ ) and bread and bakery (13.11%,  $M=1.93$ ), in comparison to pre-COVID-19.

**Table 8:** Consumer Behavior in comparison to pre-COVID-19

Organic food products	M	SD	Decreased	Same	Increased
4.2.5. Fruit and Vegetables	2.32	0.56	4.92%	58.20%	36.89%
4.2.2. Eggs	2.23	0.53	4.92%	67.21%	27.87%
4.2.11. Honey and Beekeeping Products	2.19	0.47	3.28%	74.59%	22.13%
4.2.7. Cereals (grains, legumes, and oilseeds)	2.11	0.47	5.74%	77.05%	17.21%
4.2.10. Nuts	2.09	0.50	8.20%	74.59%	17.21%
4.2.3. Dairy	2.08	0.46	6.56%	78.69%	14.75%
4.2.13. Beverages and Infusions	2.05	0.42	6.56%	81.97%	11.48%
4.2.12. Herbs and Spices	2.04	0.43	7.38%	81.15%	11.48%
4.2.4. Fish and Seafood	2.04	0.43	7.38%	81.15%	11.48%
4.2.1. Meat and Meat Products	2.00	0.43	9.02%	81.97%	9.02%
4.2.8. Pasta	1.98	0.43	9.84%	81.97%	8.20%
4.2.14. Ready-made sauces	1.97	0.41	9.84%	83.61%	6.56%
4.2.6. Fats and Oils	1.94	0.41	11.48%	82.79%	5.74%
4.2.9. Bread and Bakery	1.93	0.44	13.11%	80.33%	6.56%



**Graph 11:** Consumer Behavior in comparison to pre-COVID-19

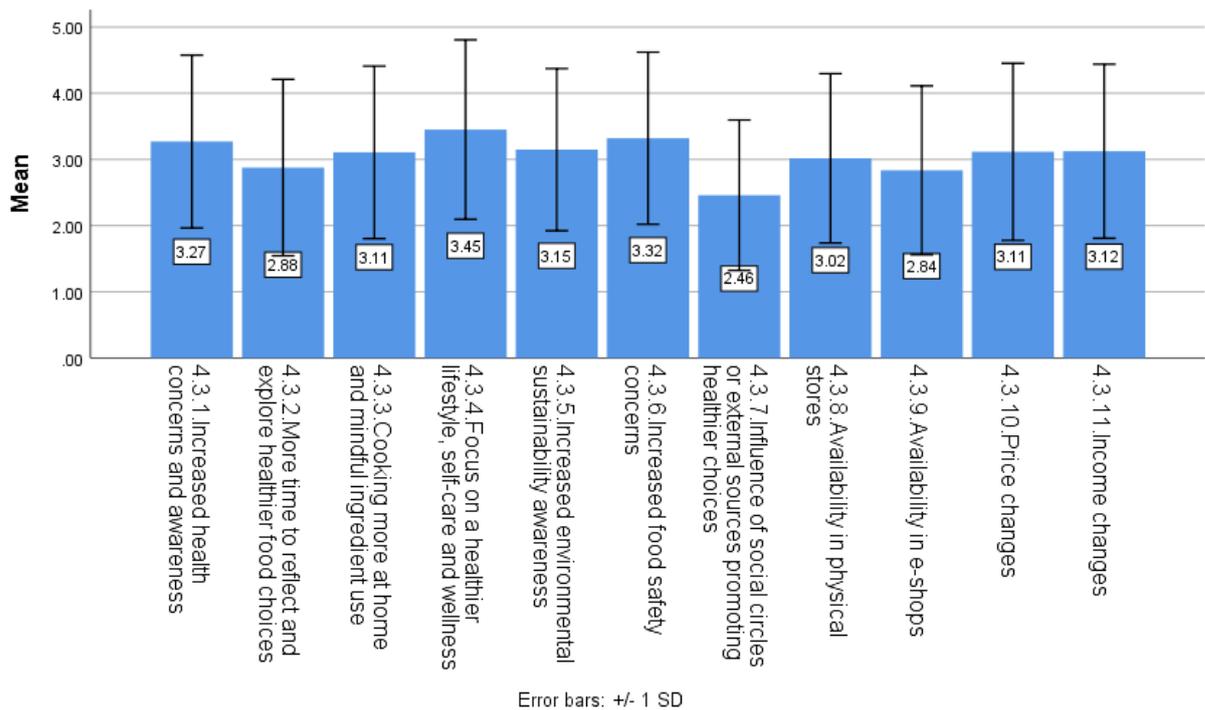
#### 4.1.5. Factors affecting consumer behavior during COVID-19

Table 9 (Graph 12) represents the perceptions of the participants in the terms of the factors which affected their purchasing and consumption of organic food products, during the COVID-19 pandemic. The answers are given on five Likert type point scale (1= Not important at all, 2= Slightly important, 3=Moderately important, 4= Important, 5= Extremely important).

Variances of responses were high for the factors that affected the consumer behavior during COVID-19 [1.14, 1.36], thus the exactly percentages were presented. The participants stated that an important or extremely important factor for purchasing and consumption of Organic Food Products is to focus on a healthier lifestyle, self-care and wellness (60.66%,  $M=3.45$ ). In addition, more than half stated that important or extremely important factors for purchasing and consumption of Organic Food Products are the increased food safety concerns (56.55%,  $M=3.32$ ) and the increased health concerns and awareness (53.28%,  $M=3.27$ ).

**Table 9:** Factors affected consumer behavior during COVID-19

Factors	M	SD	Not important	Slightly Important	Moderately Important	Important	Extremely important
4.3.4. Focus on a healthier lifestyle, self-care and wellness	3.45	1.36	13.93%	12.30%	13.11%	36.07%	24.59%
4.3.6. Increased food safety concerns	3.32	1.30	13.93%	13.93%	15.57%	39.34%	17.21%
4.3.1. Increased health concerns and awareness	3.27	1.31	13.93%	15.57%	17.21%	36.07%	17.21%
4.3.5. Increased environmental sustainability awareness	3.15	1.22	14.75%	14.75%	20.49%	40.98%	9.02%
4.3.11. Income changes	3.12	1.31	16.39%	15.57%	22.95%	29.51%	15.57%
4.3.10. Price changes	3.11	1.34	17.21%	16.39%	19.67%	31.15%	15.57%
4.3.3. Cooking more at home and mindful ingredient use	3.11	1.30	18.03%	13.11%	21.31%	35.25%	12.30%
4.3.8. Availability in physical stores	3.02	1.28	18.03%	14.75%	26.23%	29.51%	11.48%
4.3.2. More time to reflect and explore healthier food choices	2.88	1.33	21.31%	20.49%	18.03%	29.51%	10.66%
4.3.9. Availability in e-shops	2.84	1.28	20.49%	18.85%	27.05%	23.77%	9.84%
4.3.7. Influence of social circles or external sources promoting healthier choices	2.46	1.14	27.05%	22.13%	31.15%	17.21%	2.46%



**Graph 12:** Factors affected consumer behavior during COVID-19

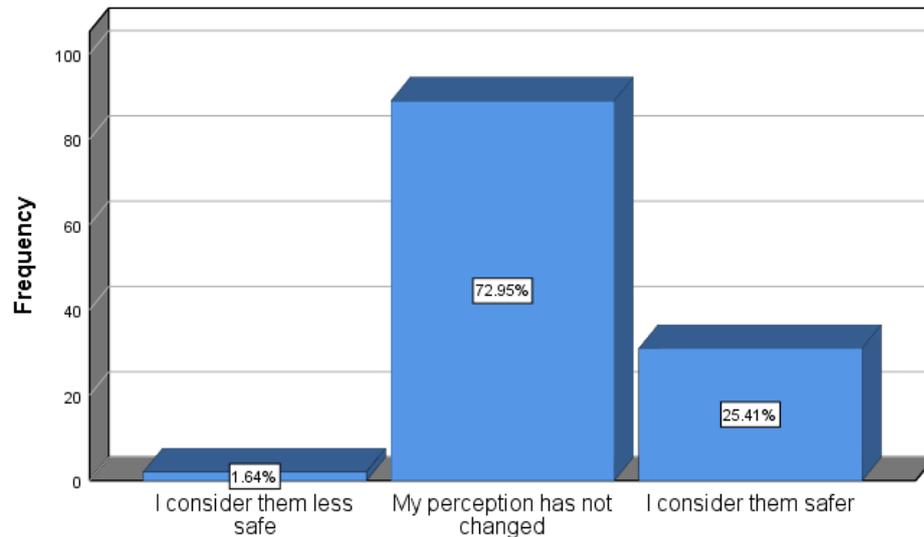
#### 4.1.6. COVID-19 and safety of Organic Food Products

Table 10 (Graph 13) presents the change of perceptions of the participants regarding the safety of organic food products. The 72.95% ( $N=89$ ) stated their perception about the safety of organic food products has not changed.

**Table 10: COVID-19 and safety of Organic Food Products**

Question	Category	N	%
4.4. How the pandemic has affected your perceptions regarding the safety of organic food products?	I consider them less safe	2	1.64
	My perception has not changed	89	72.95
	I consider them safer	31	25.41

4.4. How the pandemic has affected your perceptions regarding the safety of organic food products?



4.4. How the pandemic has affected your perceptions regarding the saf...

**Graph 13: COVID-19 and safety of Organic Food Products**

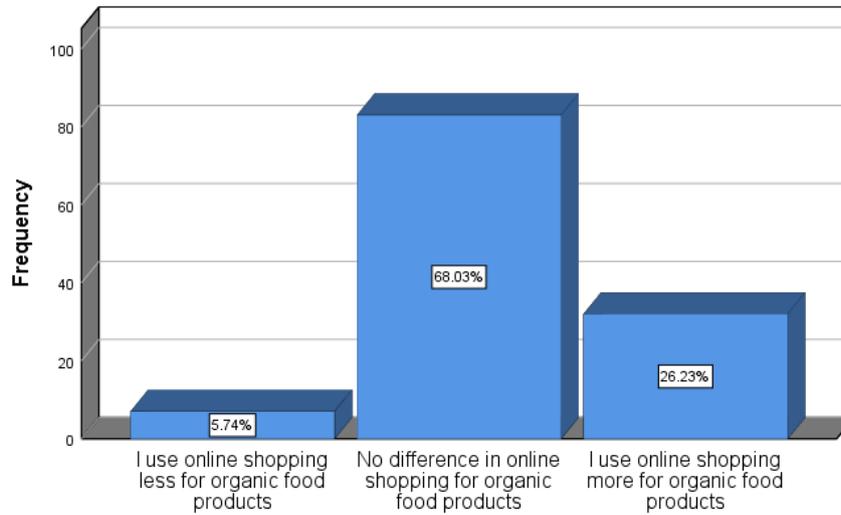
#### 4.1.7. COVID-19 and online shopping for Organic Food Products

Table 11 (Graph 14) presents the change of the purchase method of organic food products. The 68.03% (N=83) stated there is no difference in online shopping for organic food products.

**Table 11: COVID-19 and online shopping for Organic Food Products**

Question	Category	N	%
4.5. How Covid-19 pandemic has affected the purchase method of organic food products?	I use online shopping less for organic food products	7	5.74
	No difference in online shopping for organic food products	83	68.03
	I use online shopping more for organic food products	32	26.23

4.5.How Covid-19 pandemic has affected the purchase method of organic food products?



4.5.How Covid-19 pandemic has affected the purchase method of orga...

**Graph 14: COVID-19 and online shopping for Organic Food Products**

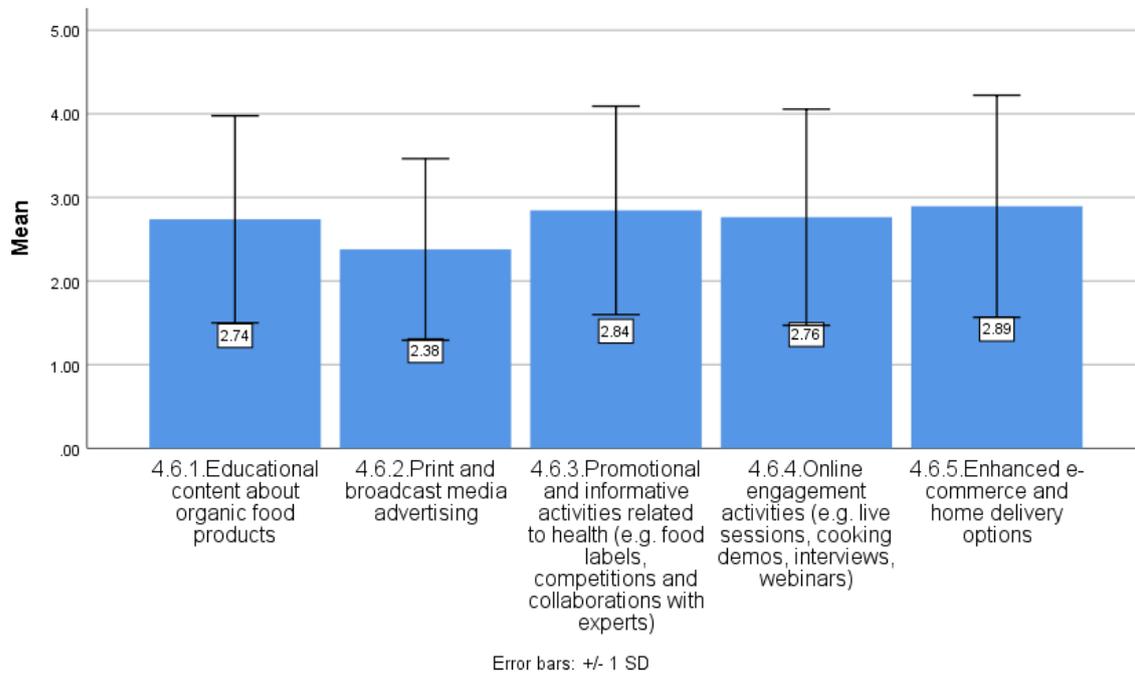
**4.1.8. Marketing Strategies**

Table 12 (Graph 15) represents the influence of the participants regarding the marketing strategies by organic food brands which affected consumers’ awareness or interest in purchasing organic food products, during the COVID-19 pandemic. The answers are given on five Likert type point scale (1= Not important at all, 2= Slightly important, 3=Moderately important, 4= Important, 5= Extremely important).

Variances of responses were high for the marketing strategies [1.09, 1.33], thus the exactly percentages were presented. Generally, all marketing strategies were on average considered less than moderately important.

**Table 12: Marketing Strategies**

Marketing Strategies	M	SD	Not important	Slightly Important	Moderately Important	Important	Extremely important
4.6.5. Enhanced e-commerce and home delivery options	2.89	1.33	19.67%	21.31%	22.13%	23.77%	13.11%
4.6.3. Promotional and informative activities related to health (e.g., food labels, competitions and collaborations with experts)	2.84	1.25	20.49%	20.49%	17.21%	37.70%	4.10%
4.6.4. Online engagement activities (e.g., live sessions, cooking demos, interviews, webinars)	2.76	1.29	24.59%	16.39%	24.59%	27.05%	7.38%
4.6.1. Educational content about organic food products	2.74	1.24	20.49%	24.59%	22.13%	26.23%	6.56%
4.6.2. Print and broadcast media advertising	2.38	1.09	25.41%	31.97%	22.95%	18.85%	0.82%



**Graph 15: Marketing Strategies**

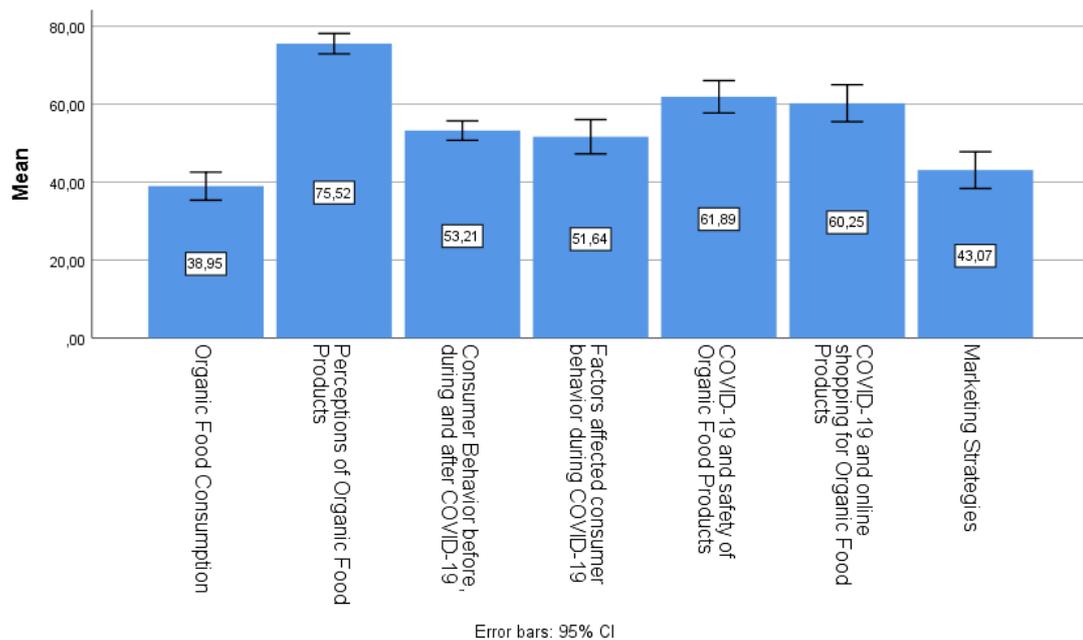
## 4.2. Inferential Statistics

### 4.2.1. Descriptive data of factors and 95% c.i.

Table 13 (Graph 16), presents the descriptive data of the factors and the corresponding 95% c.i. Values were transferred to the interval [0,100], using the mathematical formula  $100 * [Xi - Min(X)] / Range(X)$ . Specifically, the factor “Perceptions of Organic Food Products” [95% c.i. = (72.91, 78.14)] was rated high. The factors “COVID-19 and safety of Organic Food Products” [95% c.i. = (57.72, 66.05)] and “COVID-19 and online shopping for Organic Food Products” [95% c.i. = (55.50, 64.99)] were moderate to high rated. The factors, “Consumer Behavior before, during and after COVID-19” [95% c.i. = (50.72, 55.69)], “Factors affected consumer behavior during COVID-19” [95% c.i. = (47.23, 56.05)] and “Marketing Strategies” [95% c.i. = (38.36, 47.79)] were moderate rated. The factor “Organic Food Consumption” [95% c.i. = (35.35, 42.55)] was low rated.

**Table 13: Descriptive data of factors and 95% c.i.**

Factors	M	SD	95% c.i.
Organic Food Consumption	38.95	20.08	(35.35, 42.55)
Perceptions of Organic Food Products	75.52	14.58	(72.91, 78.14)
Consumer Behavior before, during and after COVID-19	53.21	13.88	(50.72, 55.69)
Factors affected consumer behavior during COVID-19	51.64	24.60	(47.23, 56.05)
COVID-19 and safety of Organic Food Products	61.89	23.22	(57.72, 66.05)
COVID-19 and online shopping for Organic Food Products	60.25	26.46	(55.50, 64.99)
Marketing Strategies	43.07	26.30	(38.36, 47.79)



**Graph 16:** 95% c.i. of factors

#### 4.2.2. Effect of demographic profile on the factors

##### Age Group

The One-way ANOVA (for factors that are normally distributed) and the Kruskal Wallis (for factors that are not normally distributed) were used to compare the mean value of factors between different age groups. The hypotheses of test are:

*Ho (Null):* The mean value of factor does not differ between age groups: a)18-24, b)25-34, c)35- 54, d)55-64 and e) above 64.

*H1 (Alternative):* The mean value of factor differs between age groups: a)18-24, b)25-34, c)35- 54, d)55-64 and e) above 64.

Table 14 (Graph 17) presents the results of the comparisons of the factors across age group. Statistically significant mean differences were observed for the factors “Perceptions of Organic Food Products” ( $H(4, 117) = 10.568, p = 0.032$ ), “Factors affected consumer behavior during COVID-19” ( $H(4, 117) = 12.142, p = 0.016$ ) and “Marketing Strategies” ( $H(4, 117) = 10.588, p = 0.032$ ).

**Table 14:** Comparisons of factors across age group

Factors	Age	N	M	SD	Statistic	p-value
Organic Food Consumption	18-24	4	33.04	20.85	F (4, 117) =0.669	0.615
	25- 34	37	38.66	21.69		
	35 - 54	67	38.49	20.50		
	55 - 64	10	47.86	10.27		
	Above 64	4	33.04	16.01		
Perceptions of Organic Food Products	18-24	4	68.06	15.30	H (4, 122) =10.568	<b>0.032</b>
	25- 34	37	77.25	13.48		
	35 - 54	67	77.20	13.94		
	55 - 64	10	66.11	19.33		
	Above 64	4	62.50	8.64		
Consumer Behavior before, during and after COVID-19	18-24	4	35.56	29.69	H (4, 122) =6.547	0.162
	25-34	37	58.29	13.10		
	35 - 54	67	52.85	10.63		
	55 - 64	10	47.78	12.98		
	Above 64	4	43.33	29.58		
Factors affected consumer behavior during COVID-19	18-24	4	16.48	11.34	H (4, 122) =12.142	<b>0.016</b>
	25-34	37	55.41	23.26		
	35 - 54	67	54.48	22.32		
	55 - 64	10	37.05	33.25		
	Above 64	4	40.91	25.51		
COVID-19 and safety of Organic Food Products	18-24	4	50.00	40.82	H (4, 122) =2.465	0.651
	25-34	37	60.81	20.87		
	35 - 54	67	64.18	22.71		
	55 - 64	10	60.00	31.62		
	Above 64	4	50.00	0.00		
COVID-19 and online shopping for Organic Food Products	18-24	4	75.00	28.87	H (4, 122) =1.658	0.798
	25-34	37	58.11	22.09		
	35 - 54	67	60.45	28.25		
	55 - 64	10	60.00	31.62		
	Above 64	4	62.50	25.00		
Marketing Strategies	18-24	4	33.75	23.58	H (4, 122) =10.588	<b>0.032</b>
	25- 34	37	49.59	23.70		
	35 - 54	67	43.36	26.42		
	55 - 64	10	35.00	29.15		
	Above 64	4	7.50	11.90		

A Post Hoc Analysis Bonferonni was used to identify which age groups differ regarding their mean value in the factor “Perceptions of Organic Food Products”. The mean of participants who are above 64 ( $M=62.50$ ) is statistically lower than the mean of those who are 35-54 years old ( $M=77.20, p=0.021$ ) and 25-34 ( $M=77.25, p=0.020$ ). Also, the mean of participants who are 55-64 ( $M=66.11$ ) is statistically lower than mean of those who are 35-54 ( $M=77.20, p=0.047$ ) and of those who are 25-34 ( $M=77.25, p=0.045$ ). The results

indicate a more positive attitude towards Organic Food Products for participants 25-54 years old than older participants.

**Table 15:** “Perceptions of Organic Food Products” across age group, Post Hoc Bonferroni

Age group 1- Age group 2	Statistic	p-value
Above 64-55 - 64	18.150	0.384
Above 64-18-24	19.375	0.437
Above 64-35 – 54	41.847	<b>0.021</b>
Above 64-25– 34	43.345	<b>0.020</b>
55 - 64-18-24	1.225	0.953
55 - 64-35 – 54	23.697	<b>0.047</b>
55 - 64-25– 34	25.195	<b>0.045</b>
18-24-35 – 54	-22.472	0.216
18-24-25– 34	-23.970	0.197
35 – 54-25– 34	1.498	0.836

A Post Hoc Analysis Bonferonni was used to identify which age groups differ regarding their mean value in the factor “Factors affected consumer behavior during COVID-19”. The mean of participants who are 18-24 ( $M=16.48$ ) is statistically lower than the mean of those who are 35-54 years old ( $M=54.48, p=0.007$ ) and 25-34 ( $M=55.41, p=0.005$ ). Also, the mean of participants who are 55-64 ( $M=37.05$ ) is statistically lower than mean of those who are 25-34 ( $M=55.41, p=0.047$ ). The results indicate that the consuming behavior of participants 25-54 years towards Organic Food Products during Covid-19 was most affected than older or younger participants.

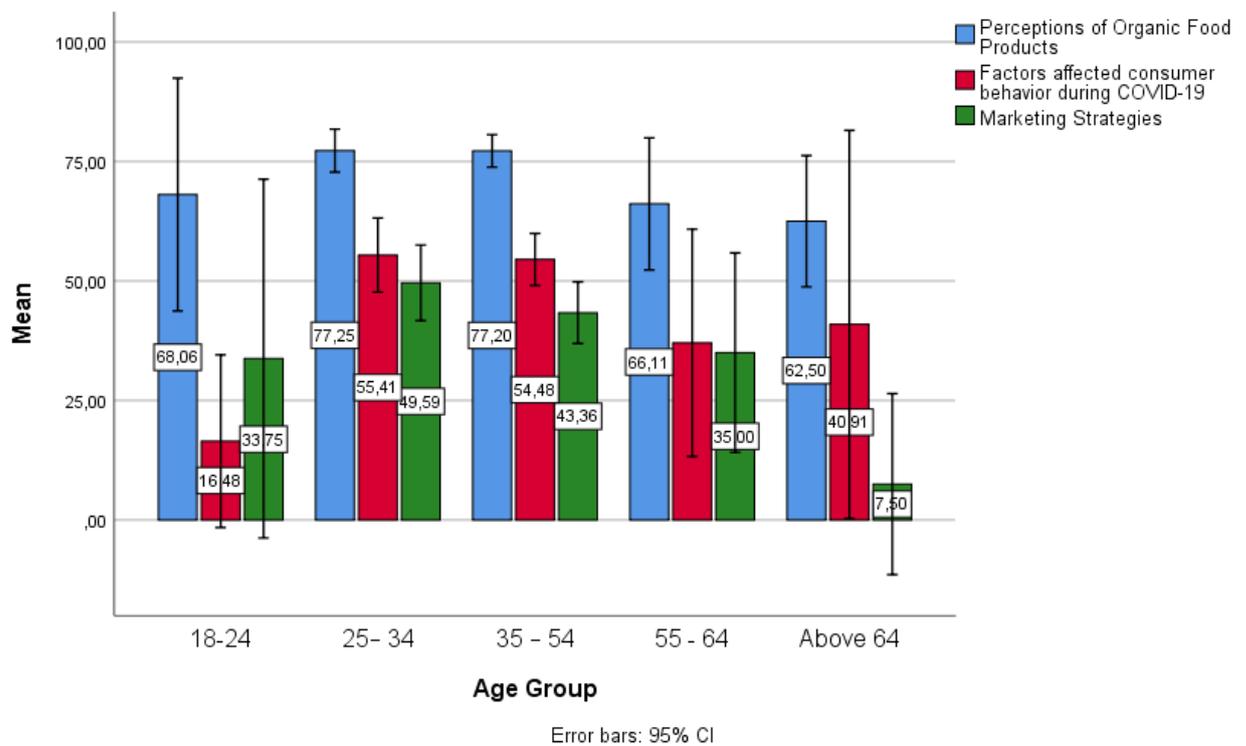
**Table 16:** “Factors affected consumer behavior during COVID-19” across age group, Post Hoc Bonferroni

Age group 1- Age group 2	Statistic	p-value
18-24-55 - 64	-27.500	0.188
18-24-Above 64	-30.500	0.222
18-24-35 – 54	-49.272	<b>0.007</b>
18-24-25– 34	-52.547	<b>0.005</b>
55 - 64-Above 64	-3.000	0.886
55 - 64-35 – 54	21.772	0.069
55 - 64-25– 34	25.047	<b>0.047</b>
Above 64-35 – 54	18.772	0.302
Above 64-25– 34	22.047	0.236
35 – 54-25– 34	3.275	0.651

A Post Hoc Analysis Bonferonni was used to identify which age groups differ regarding their mean value in the factor “Marketing Strategies”. The mean of participants who are above 64 ( $M=7.50$ ) is statistically lower than the mean of those who are 35-54 years old ( $M=43.36, p=0.012$ ) and 25-34 ( $M=49.59, p=0.004$ ). The results indicate that participants who are above 64 years old were less affected by marketing strategies, which promote Organic Food Products than participants of 25-54 years old.

**Table 17: Marketing Strategies across age group, Post Hoc Bonferroni**

Age group 1- Age group 2	Statistic	p-value
Above 64-18-24	31.375	0.208
Above 64-55 - 64	32.400	0.120
Above 64-35 – 54	45.664	<b>0.012</b>
Above 64-25– 34	53.541	<b>0.004</b>
18-24-55 - 64	-1.025	0.961
18-24-35 – 54	-14.289	0.431
18-24-25– 34	-22.166	0.232
55 - 64-35 – 54	13.264	0.267
55 - 64-25– 34	21.141	0.092
35 – 54-25– 34	7.876	0.275



**Graph 17: Statistically significant mean differences across age group**

### Gender

The independent samples t-test (for factors that are normally distributed) and the Mann Whitney U test (for factors that are not normally distributed) were used to compare the mean value of factors between males and females. The hypotheses of test are:

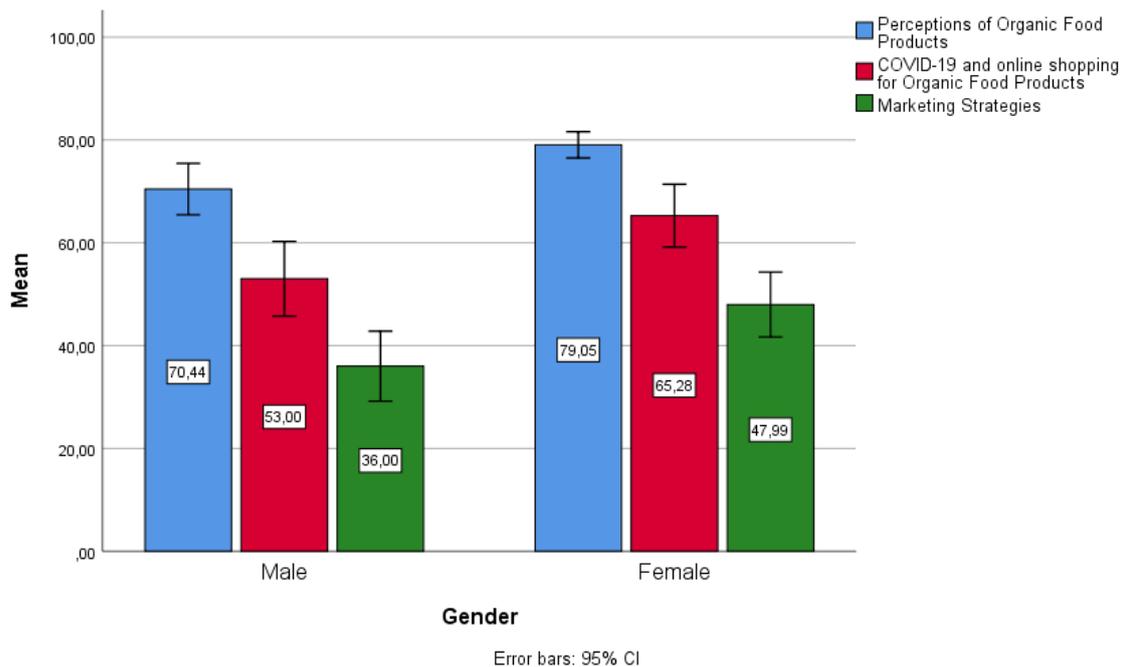
*Ho (Null):* The mean value of factor does not differ between males and females

*H1 (Alternative):* The mean value of factor differs between males and females.

Table 18 (Graph 18) presents the results of the comparisons of the factors across gender. Statistically significant mean differences were observed. In particular, the mean of females was statistically higher than the mean of males in the factors “Perceptions of Organic Food Products” ( $M_{Male}=70.44$  vs  $M_{Female}=79.05$ ,  $Z=-2.902$ ,  $p=0.004$ ), “COVID-19 and online shopping for Organic Food Products” ( $M_{Male}=53.00$  vs  $M_{Female}=65.28$ ,  $Z=-2.486$ ,  $p=0.013$ ) and “Marketing Strategies” ( $M_{Male}=36.00$  vs  $M_{Female}=47.99$ ,  $Z=-2.611$ ,  $p=0.009$ ). Results indicate a) a more positive attitude of females towards Organic Food Products, b) females used more frequently online shopping for Organic Food Products during Covid-19, c) females were more affected by marketing strategies, which promote Organic Food Products.

**Table 18:** Comparisons of factors across gender

Factors	Gender	N	M	SD	Statistic	p-value
Organic Food Consumption	Male	50	37.25	19.87	$t(120)=-0.778$	0.438
	Female	72	40.13	20.28		
Perceptions of Organic Food Products	Male	50	70.44	17.59	$Z=-2.902$	<b>0.004</b>
	Female	72	79.05	10.86		
Consumer Behavior before, during and after COVID-19	Male	50	51.67	10.91	$Z=-1.598$	0.110
	Female	72	54.27	15.60		
Factors affected consumer behavior during COVID-19	Male	50	49.09	23.92	$Z=-0.967$	0.334
	Female	72	53.41			
COVID-19 and safety of Organic Food Products	Male	50	58.00	23.39	$Z=-1.457$	0.145
	Female	72	64.58	22.89		
COVID-19 and online shopping for Organic Food Products	Male	50	53.00	25.58	$Z=-2.486$	<b>0.013</b>
	Female	72	65.28	26.05		
Marketing Strategies	Male	50	36.00	23.99	$Z=-2.611$	<b>0.009</b>
	Female	72	47.99	26.86		



**Graph 18:** Statistically significant mean differences across gender

#### Education Level

The One-way ANOVA (for factors that are normally distributed) and the Kruskal Wallis (for factors that are not normally distributed) were used to compare the mean value of factors between different educational levels. The hypotheses of test are:

*Ho (Null):* The mean value of factor does not differ between educational levels: a) Up to High School, b) Bachelor's Degree-Vocational Institute, c) Master's Degree, d) Ph.D.

*H1 (Alternative):* The mean value of factor differs between educational levels: a) Up to High School, b) Bachelor's Degree-Vocational Institute, c) Master's Degree, d) Ph.D.

Table 19 (Graph 19) presents the results of the comparisons of the factors across educational level. Statistically significant mean differences were observed for the factors “Perceptions of Organic Food Products” ( $H(3, 122) = 8.058, p = 0.045$ ) and “Factors affected consumer behavior during COVID-19” ( $H(3, 122) = 10.656, p = 0.014$ ).

**Table 19:** Comparisons of factors across educational level

Factors	Education Level	N	M	SD	Statistic	p-value
Organic Food Consumption	Up to High School	8	37.28	17.11	F (3, 118) =0.402	0.752
	Bachelor's Degree-Vocational Institute	48	40.92	20.55		
	Master's Degree	60	38.24	20.21		
	Ph.D.	6	32.44	21.44		
Perceptions of Organic Food Products	Up to High School	8	58.33	20.79	H (3, 122) =8.058	<b>0.045</b>
	Bachelor's Degree-Vocational Institute	48	75.29	14.13		
	Master's Degree	60	78.01	12.75		
	Ph.D.	6	75.46	14.10		
Consumer Behavior before, during and after COVID-19	Up to High School	8	45.69	24.93	H (3, 122) =3.020	0.389
	Bachelor's Degree-Vocational Institute	48	53.59	15.11		
	Master's Degree	60	54.39	11.20		
	Ph.D.	6	48.33	5.34		
Factors affected consumer behavior during COVID-19	Up to High School	8	33.24	30.47	H (3,122)=10.656	<b>0.014</b>
	Bachelor's Degree-Vocational Institute	48	50.38	23.53		
	Master's Degree	60	56.89	23.32		
	Ph.D.	6	33.71	21.29		
COVID-19 and safety of Organic Food Products	Up to High School	8	62.50	35.36	H (3, 122) =1.946	0.584
	Bachelor's Degree-Vocational Institute	48	61.46	23.61		
	Master's Degree	60	63.33	22.30		
	Ph.D.	6	50.00	0.00		
COVID-19 and online shopping for Organic Food Products	Up to High School	8	75.00	26.73	H (3, 122) =2.769	0.429
	Bachelor's Degree-Vocational Institute	48	58.33	29.77		
	Master's Degree	60	60.00	24.01		
	Ph.D.	6	58.33	20.41		
Marketing Strategies	Up to High School	8	39.38	30.64	H (3, 122) =5.529	0.137
	Bachelor's Degree-Vocational Institute	48	41.15	24.48		
	Master's Degree	60	47.17	26.99		
	Ph.D.	6	22.50	20.68		

A Post Hoc Analysis Bonferonni was used to identify which educational levels differ regarding their mean value in the factor “Perceptions of Organic Food Products”. The mean of participants with up to high school level of education ( $M=58.33$ ) is statistically lower than mean of participants with bachelor's degree-vocational institute ( $M=75.29$ ,  $p=0.021$ ) and with master's degree ( $M=78.01$ ,  $p=0.005$ ). Results indicate a more positive attitude towards Organic Food Products for participants with bachelor's-vocational institute degree or master’s degree than participants of high school educational level.

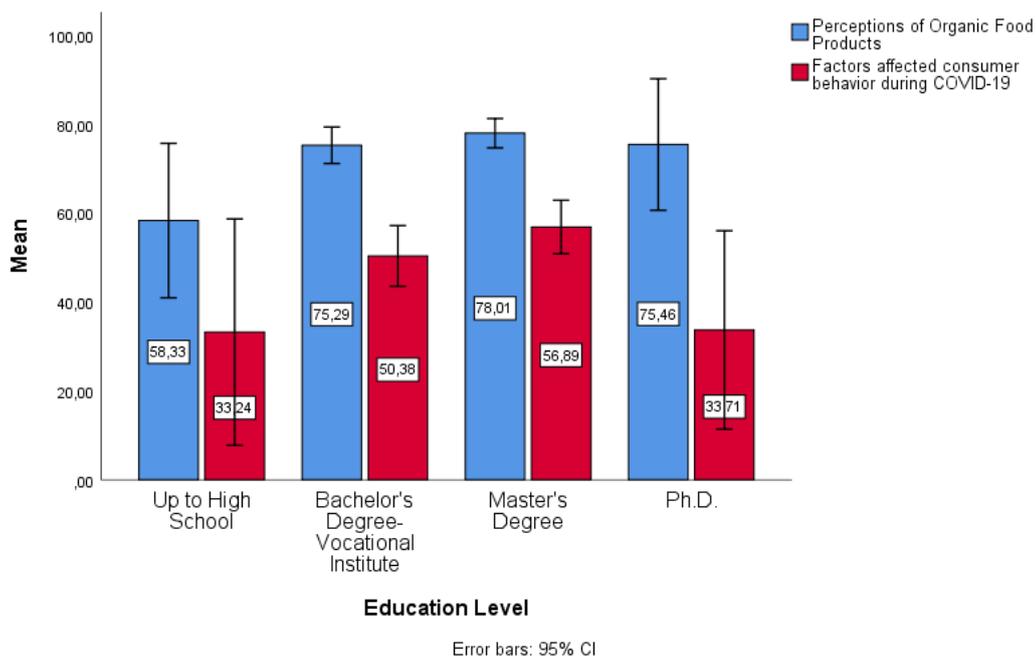
**Table 20:** “Perceptions of Organic Food Products” across educational level, Post Hoc Bonferroni

Educational level 1- Educational level 2	Statistic	p-value
Up to High School-Ph.D.	-24.146	0.205
Up to High School-Bachelor's Degree-Vocational Institute	-31.073	<b>0.021</b>
Up to High School-Master's Degree	-36.904	<b>0.005</b>
Ph.D.-Bachelor's Degree-Vocational Institute	6.927	0.650
Ph.D.-Master's Degree	12.758	0.398
Bachelor's Degree-Vocational Institute-Master's Degree	-5.831	0.393

A Post Hoc Analysis Bonferonni was used to identify which educational levels differ regarding their mean value in the factor “Factors affected consumer behavior during COVID-19”. The mean of participants with master's degree ( $M=56.89$ ) is statistically higher than mean of participants with Ph.D. ( $M=33.71, p=0.022$ ) and with up to high school level of education ( $M=33.24, p=0.013$ ). Results indicate that participants with master degree were most affected regarding their consuming behavior towards Organic Food Products than participants of high school educational level or with PhD.

**Table 21:** “Factors affected consumer behavior during COVID-19” across educational level, Post Hoc Bonferroni

Educational level 1- Educational level 2	Statistic	p-value
Ph.D.-Up to High School	1.833	0.923
Ph.D.-Bachelor's Degree-Vocational Institute	24.521	0.109
Ph.D.-Master's Degree	34.700	<b>0.022</b>
Up to High School-Bachelor's Degree-Vocational Institute	-22.688	0.093
Up to High School-Master's Degree	-32.867	<b>0.013</b>
Bachelor's Degree-Vocational Institute-Master's Degree	-10.179	0.137



**Graph 19:** Statistically significant mean differences across educational level

Family Net Income Level per Year

The independent samples t-test (for factors that are normally distributed) and the Mann Whitney U test (for factors that are not normally distributed) were used to compare the mean value of factors between participants with family net income level/year up to 40.000€ and 40.001€+. The hypotheses of test are:

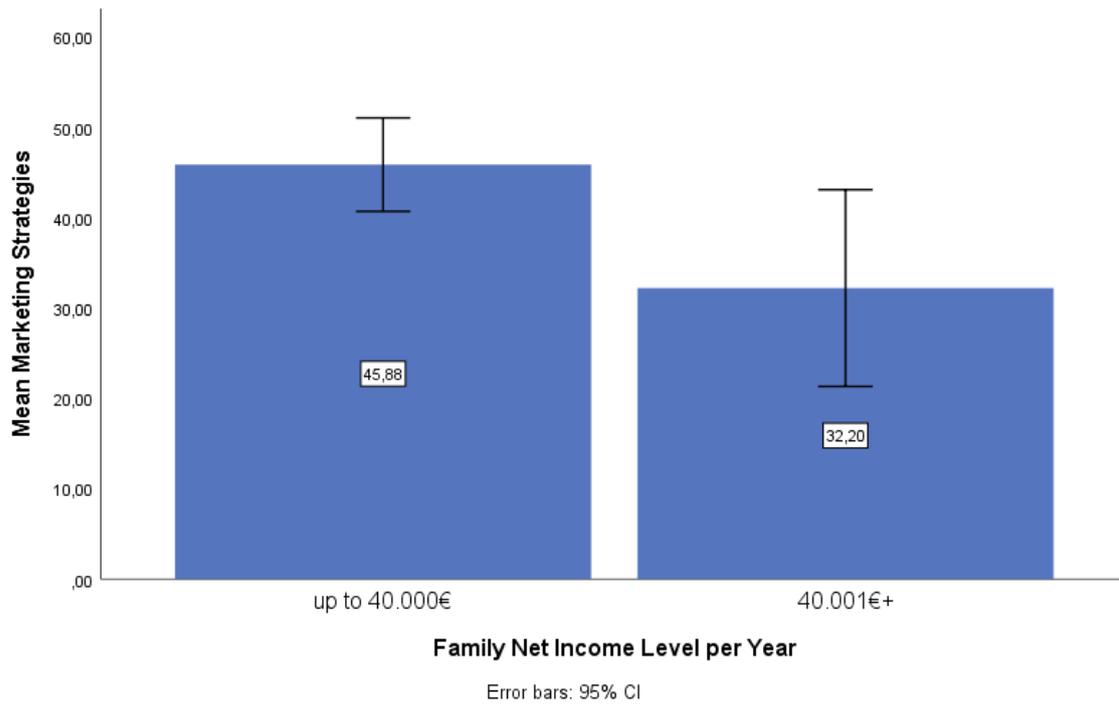
*Ho (Null):* The mean value of factor does not differ between participants with family net income level/year up to 40.000€ and 40.001€+.

*H1 (Alternative):* The mean value of factor differs between participants with family net income level/year up to 40.000€ and 40.001€+.

Table 22 (Graph 20), presents the results of the comparisons of the factors across family net income level per year. Statistically significant mean differences were observed for the factor “Marketing Strategies”. Specifically, the mean of participants whose family net income level per year is over 40.000 € is statistically lower than the mean of participants whose income is up to 40.000 € ( $M_{Up\ to\ 40.000€}=45.88$  vs  $M_{40.001€+}=32.20$ ,  $Z= -2.265$ ,  $p=0.024$ ). Results indicate that participants with family net income level/year more than 40.000€ were less affected by marketing strategies which promote the Organic Food Products.

**Table 22:** Comparisons of factors across family net income level per year

Factors	Family net income level/year	N	Mean	SD	Statistic	p-value
Organic Food Consumption	Up to 40.000€	97	38.31	20.31	t (120) = -0.691	0.491
	40.001€+	25	41.43	19.34		
Perceptions of Organic Food Products	Up to 40.000€	97	75.20	15.36	Z = -0.038	0.970
	40.001€+	25	76.78	11.25		
Consumer Behavior before, during and after COVID-19	Up to 40.000€	97	53.37	14.39	Z = -0.153	0.878
	40.001€+	25	52.58	11.94		
Factors affected consumer behavior during COVID-19	Up to 40.000€	97	53.70	24.33	Z = -1.886	0.059
	40.001€+	25	43.64	24.51		
COVID-19 and safety of Organic Food Products	Up to 40.000€	97	62.89	23.14	Z = -0.888	0.375
	40.001€+	25	58.00	23.63		
COVID-19 and online shopping for Organic Food Products	Up to 40.000€	97	60.31	26.94	Z = -0.097	0.923
	40.001€+	25	60.00	25.00		
Marketing Strategies	Up to 40.000€	97	45.88	25.67	Z = -2.265	<b>0.024</b>
	40.001€+	25	32.20	26.38		



**Graph 20:** “Marketing Strategies” across family net income level per year

## 5. Conclusions

### 5.1. Discussion

Aim of current study, was to study the Post-Covid Consumer Perceptions and Preferences for Organic Food Products in Greece and the factors that affect them. Sample was consisted of 122 Greek residents (72 females, 50 males), mainly 25-44 years old, with bachelor or master educational level and annual family net income up to 40.000€.

The **1<sup>st</sup> research question** examined the frequency of organic food consumption in Greece. Results of current study indicated a moderate frequency (monthly) of organic food consumption regarding fruit and vegetables, honey and beekeeping products and eggs.

This trend is consistent with broader consumer behaviors noted in Greece during and post the COVID-19 pandemic. However, the authors stress some promising findings about the increasing awareness about organic and traditional food products, while the price sensitiveness, availability and marketing strategies determine consumption habits. For instance, investigating consumer behavior for traditional foods in Northwest Greece in times of the COVID-19 pandemic showed that consumer attitudes regarding local products were based on the importance placed on products' quality, nutritional properties, and social impact (Skalkos et al., 2021). A similar conclusion can be drawn based on a study of food-related behaviour in Greece, which identified consumers' greater intention to purchase and consume safe, high-quality local products after the pandemic due to health and sustainability concerns (Lazaridis, Panaretos, & Matalas, 2022). These findings reveal that, although there is a need for organic food, its consumption is moderate, limited by external factors.

The **2<sup>nd</sup> research question** examined the perceptions of Greeks for Organic Food Products. Participants of current study indicated that a) health benefits, quality and safety are the most important factors for the purchasing and consumption of organic food products, followed by b) support of small family and greek producers, c) taste, d) Organic certification label, e) price, f) Environmental sustainability and g) Immediate availability in physical stores or e-shops.

According to the perception of Greek consumers, the health benefits, quality, and safety of organic food products are presented as the main motivations for both their purchase and

consumption. This concurs with results from other studies, showing the priority Greek consumers are giving to food health-related factors at the post-COVID age. Consumers place significant importance on their quality and safety when purchasing, with emphasis on nutritional content, authenticity, and health impact. Research on the Greek traditional foods during the post-COVID era on the willingness of consumer shows that the factors contributing to the consumer attitudes toward traditional food were safety, healthiness, sustainability, authenticity and taste among others. The results support the argument that consumers consider organic food to be better in quality and safety, resulting in their demand. (Skalkos et al., 2021). According to research, Greek consumers tend to care for traditional and local products and organic production methods often coincide with this (Vlachos, 2012). This is being further propelled by the consumers' confidence in small scale farms which is believed to be far more transparent and eco-system friendly than mass food production. With the growing demand for organic products, affordability remains a huge hindrance in the adoption of these products. Previous research indicates that there is increased awareness of the health benefits of organic food amongst Greek consumers, but their purchase behaviour is often limited due to the increased price of organic food compared to their conventional alternative. Research on price perceptions within organic food systems indicates that even though some consumers are willing to pay a higher price, high cost is often associated with exclusivity and limited affordability in the eyes of many (Donaher & Lynes, 2017). Another important driver behind consumer behavior is the availability of organic food. When it comes to Greek consumers, studies suggest that they frequently have difficulties finding organic food products in general supermarkets, causing them to look to specialist shops/online (Anastasiadis & Poole, 2007). The e-commerce shift accelerated by COVID-19 has made it easier for consumers to consider online stores as a source for their organic food preferences.

The **3<sup>rd</sup> research question** examined the role of covid-19 period to the consumer behavior towards Organic Food Products. Results of current study indicated that Covid-19 period did not affect generally, the amount of organic food products which Greeks consume, the perception regarding safety of organic food products and the online purchase method. The marketing strategies moderately affected the consumers' awareness or interest in purchasing organic food products, during the COVID-19 pandemic.

Collectively, the finding is in line with more general studies on the subject, which suggest that Greek consumers did not change their purchasing behavior for food products compared to pre-pandemic times, especially when considering organic food products and traditional food products. According to a study on consumers' attitudes toward Traditional Foods of Greece, purchasing behaviours were not largely changed, and consumers were still purchasing from the supermarkets, with quality, safety, and nutritional value still taking priority (Skalkos et al., 2021). Furthermore, although consumer attitudes regarding local products were based on the importance placed on products' quality, nutritional properties, and social impact, most consumers encountered barriers related to marketing and accessibility (Skalkos et al., 2021). A separate study on food-related behavior in Greece during the pandemic revealed that while there seemed to be an increased interest in local and high-quality foods, marketing strategies had little effect on consumer purchasing behaviour (Lazaridis, Panaretos, & Matalas, 2022). This implies that consumer awareness about organic food was affected by marketing activities during the pandemic, but their purchase decisions were not affected.

However, in current research there was a slightly increase of 36.89% for organic fruit and vegetables, an increase of 27.87% for eggs and an increase of 22.13% for honey and beekeeping products.

This trend corresponds to results from studies established prior to the COVID-19 pandemic that showed consumers consideration of health-related factors increased since the pandemic. One pandemic-related study in Greece, for example, found report of greater fruit and vegetable consumption over previous periods, and more limited intake of ultra-processed food. This indicates a tendency towards healthy eating behaviours which are probably motivated by a concern for immunity and general health status (Dhammawati et al., 2023). Likewise, a study on traditional food consumption in Greece found that consumers maintained their preference for high-quality, locally sourced foods amid the pandemic, further corroborating the increasing interest in organic products (Skalkos et al., 2021). These results imply that though the total quantity of organic food consumption could not have decreased significantly, specific categories, namely fruits, vegetables, eggs, and honey, see increased consumption from increased health awareness.

Moreover, current research indicated that the most important factor which affected the consumer behavior during COVID-19 period was the focus on a healthier lifestyle, self-care and wellness.

This trend is consistent with earlier studies, which showed that consumers became increasingly aware of their eating habits, focusing more on nutrition, quality and localised food items. A study exploring food-related behavior in Greece during the pandemic showed that health considerations were a great motivating factor prompting consumers to adopt healthier food consumption behavior such as higher demand for local and high-quality food product (Lazaridis, Panaretos, & Matalas, 2022). Likewise, international studies on consumer behavior change practiced during the pandemic highlighted the fact that in terms of purchasing decisions, health awareness had a strong influence. COVID-19 helped shape lifestyle changes, with customers seeking further wellness-oriented products and low-impact food options, supporting the belief that COVID-19 triggered an increase in self-care and preventative lifestyles, both of which contributed pandemic readiness (Das, Sarkar, & Debroy, 2022).

The **4<sup>th</sup> research question** examined the effect of demographic characteristics to the Post-Covid Consumer Perceptions and Preferences for Organic Food Products in Greece. Significant was the effect of age, gender, education level and annual family net income.

Considering age, participants 25-54 years old presented a more positive attitude towards Organic Food Products, more incentives to consume and were more affected by marketing strategies during Covid-19 period. A recent study on food associated behavior in Greece has found attitudes of younger and middle aged consumers are driven by health awareness and media exposure, however, high quality, locally grown food consumption was preferred more by this awareness than previous generations (Lazaridis, Panaretos, & Matalas, 2022).

Regarding gender, females presented a more positive attitude towards Organic Food Products, preferred more the online purchase method during Covid-19 period and were more affected by marketing strategies. The COVID-19 pandemic had different effects on individuals' eating behaviours and preferences based on their gender, with female participants reportedly preferring local quality food and local/healthy food, indicating a greater concern towards health, culture and sustainability (Matalas, Panaretos, Tzoutzou & Lazaridis, 2023). It implies that engaging more female consumers regarding organic food

products could have been due to perceived health benefits and from environmentally friendly perspective in Greece. Post COVID-19 pointed out the tendency that more significantly in women, online shopping emphasized the approach of maintaining high-quality products with faster delivery (Skalkos et al., 2022). Marketing strategies mattered more when it came to influencing female consumers, they were more likely to respond to promotion campaigns that focused on health, safety and sustainability.

As far as educational level is concerned, participants with bachelor or master educational level presented a more positive attitude towards Organic Food Products and holders of master degree indicated more incentives to consume. Likewise, research on motives behind consumer choices for quality Greek products after the COVID-19 pandemic showed that education was a key factor that influenced consumer behavior. Those with higher education level were more likely to spend money on organic and sustainable products (Skalkos et al., 2022).

As for income, participants with annual net family income up to up to 40.000€ were more affected by marketing strategies to purchase organic food products, during the COVID-19 pandemic. This trend is consistent with wider evidence about consumer behavior in Greece during the pandemic, where consumers became more price-sensitive and more responsive to promotional campaigns and marketing activities. And this study of food-related behaviour in Greece found that lower to moderate-income consumers were more likely to change their purchasing profiles withing their marketing preferences, especially when the product seen is more healthy and aligned with sustainability (Lazaridis, Panaretos, & Matalas, 2022). The general findings are also reinforced by research into organic food consumption during the COVID-19 pandemic, which linked more financially constrained consumers to a greater reliance on price promotions and advertising to inform purchase decisions. Due to the pandemic and their well-being, marketing strategies highlighting health advantages, immunity improvement, and sustainability were major factors affecting their selections (Cramarenco, Burcă-Voicu, & Dabija, 2023).

## **5.2. Future research**

Although results of current study are useful more organized surveys are needed to strengthen current conclusions. It is proposed future research using a) larger sample of 300 participants to ensure the necessary statistical power, b) stratified sampling to ensure the formulation of a representative sample of the general population in Greece c) to validate the current questionnaire using the technique of factor analysis or to use other reliable and valid scales on the same factors.

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A Review and Update of the Literature. *Renewable Agriculture and Food Systems*, 20, 193-205.

## Appendix A: “The Questionnaire”

### Section 1: Demographics

1.a.1 Do you reside in Greece? (\*)  Yes,  No

**(If No, the questionnaire was automatically terminated)**

1.b.1 Age Group: (\*)  Under 18,  18 – 24,  25 – 34,  35 – 44,  45 – 54, 55 - 64,  
 Above 64

1.b.2 Gender: (\*)  Male,  Female,  Other

1.b.3 Education Level: (\*)  Basic Education,  High School,  Bachelor's Degree [  
], Master's Degree [], Ph.D. [], Other

1.b.4 Family Net Income Level per Year: (\*)  Less than 20.000€,  20.000€ - 40.000€  
, 40.001€ - 70.000€ [, over 70.000€

### Section 2a: Organic Food Consumption (a)

2.a.1 Have you ever bought organic food products? (\*)  Yes,  No

**(If No, the questionnaire was automatically terminated)**

### Section 2b: Organic Food Consumption (b)

2.b.1 How often do you consume each of the following organic food products (Check the box that applies the best for each product. Require a response in each row)? (\*)



	Never	Rarely	Monthly	Weekly	Daily
<b>Meat and Meat Products</b>					
<b>Eggs</b>					
<b>Dairy</b>					
<b>Fish and Seafood</b>					
<b>Fruit and Vegetables</b>					
<b>Fats and Oils</b>					
<b>Cereals (grains, legumes, and oilseeds)</b>					
<b>Pasta</b>					
<b>Bread and Bakery</b>					
<b>Nuts</b>					
<b>Honey and Beekeeping Products</b>					

<b>Herbs and Spices</b>					
<b>Beverages and Infusions</b>					
<b>Ready-made sauces</b>					

**2.b.1.2 In case you consume an organic food product, that is not included in the aforementioned categories, please specify the food product as well as the eating frequency (never, rarely, monthly, weekly, daily):**

\_\_\_\_\_ (short answer question)

**Section 3: Perceptions of Organic Food Products**

**3.1.1 Please rate the importance of each of the following factors, when considering the purchase of organic food products (Check the box that applies the best for each factor.**

**Require a response in each row): (\*)**

	<b>Not important at all</b>	<b>Slightly important</b>	<b>Moderately important</b>	<b>Important</b>	<b>Extremely important</b>
<b>Health benefits</b>					
<b>Environmental sustainability</b>					
<b>Supporting Greek producers</b>					
<b>Supporting small family producers</b>					
<b>Quality and safety</b>					
<b>Taste</b>					
<b>Price</b>					

<b>Organic certification label</b>					
<b>Immediate availability in physical stores or e-shops.</b>					

**3.1.2 In case there is a factor, that is not included above, please specify the factor as well as its importance (not important at all, slightly important, moderately important, important, extremely important):**

\_\_\_\_\_ (short answer question)

**Section 4: Consumer Behavior before, during and after COVID-19 Pandemic**

**4.1 How has your food purchasing behavior changed since the COVID-19 pandemic?**

(\*)

I started buying organic food products during the pandemic

I buy more organic food products

I buy fewer organic food products

I buy the same amount of organic food products

**4.2.1 How your consumption of each of the following organic food products has changed, in comparison to the pre-Covid-19 era (Check the box that applies the best for each product. Require a response in each row): (\*)**

	<b>Decreased</b>	<b>Remained the same</b>	<b>Increased</b>
<b>Meat and Meat Products</b>			
<b>Eggs</b>			
<b>Dairy</b>			
<b>Fish and Seafood</b>			

<b>Fruit and Vegetables</b>			
<b>Fats and Oils</b>			
<b>Cereals (grains, legumes, and oilseeds)</b>			
<b>Pasta</b>			
<b>Bread and Bakery</b>			
<b>Nuts</b>			
<b>Honey and Beekeeping Products</b>			
<b>Herbs and Spices</b>			
<b>Beverages and Infusions</b>			
<b>Ready-made sauces</b>			

**4.2.2 In case you consume an organic food product, that is not included in the aforementioned categories, please specify the food product as well as the change in consumption (decreased, remained the same, increased):**

\_\_\_\_\_ (short answer question)

**4.3.1 Please rate the importance of each of the following factors that have possibly affected your purchasing of organic food products, during the COVID-19 pandemic (Check the box that applies the best for each product. Require a response in each row):**

(\*)



	<b>Not important at all</b>	<b>Slightly important</b>	<b>Moderately important</b>	<b>Important</b>	<b>Extremely important</b>
<b>Increased health concerns and awareness</b>					
<b>More time to reflect and explore healthier food choices</b>					
<b>Cooking more at home and mindful ingredient use</b>					
<b>Focus on a healthier</b>					

<b>lifestyle, self-care and wellness</b>					
<b>Increased environmental sustainability awareness</b>					
<b>Increased food safety concerns</b>					
<b>Influence of social circles or external sources promoting healthier choices</b>					
<b>Availability in physical stores</b>					
<b>Availability in e-shops</b>					
<b>Price changes</b>					
<b>Income changes</b>					

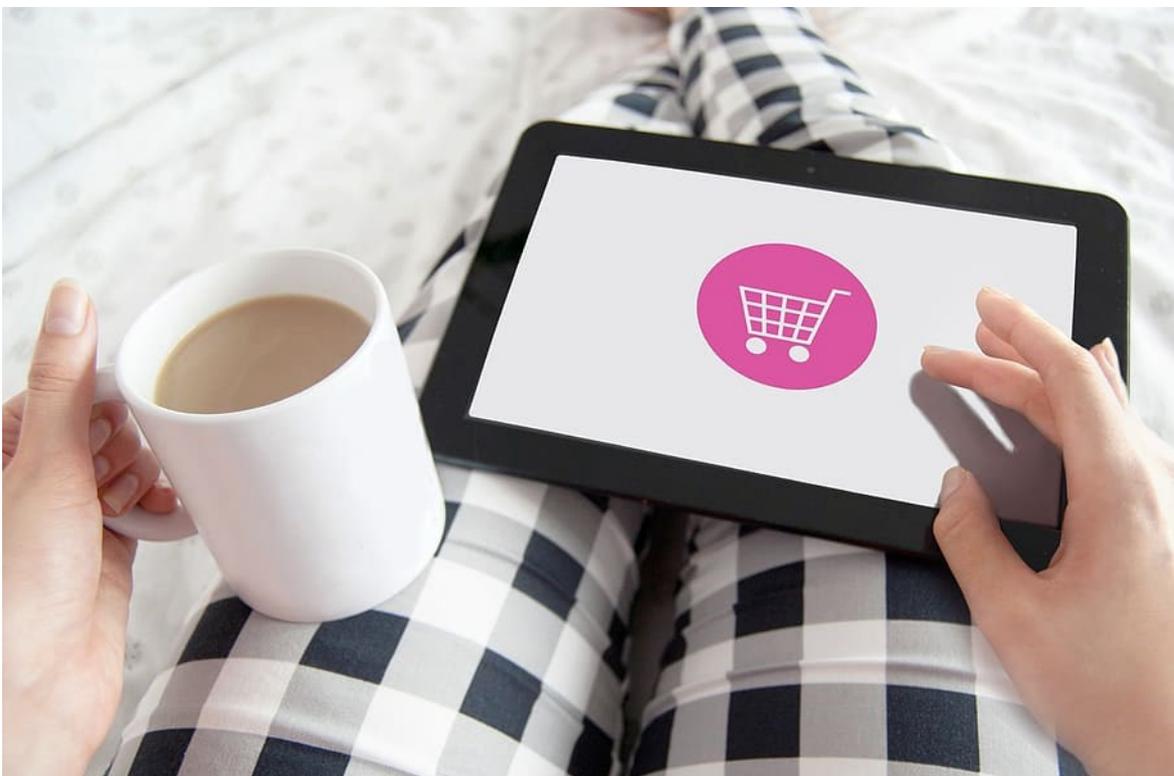
**4.3.2 In case there is a factor, that is not included above, please specify the factor as well as its importance (not important at all, slightly important, moderately important, important, extremely important):**

\_\_\_\_\_ (short answer question)

**4.4 How the pandemic has affected your perceptions regarding the safety of organic food products? (\*)**

- I consider them safer
- I consider them less safe
- My perception has not changed

**4.5 How Covid-19 pandemic has affected the purchase method of organic food products? (\*)**



- I use online shopping more for organic food products
- I use online shopping less for organic food products
- No difference in online shopping for organic food products

**4.6.1 Please rate the importance of influence of each of the following marketing strategies by organic food brands on your awareness or interest in purchasing organic food products, during the COVID-19 pandemic (Check the box that applies the best for each strategy. Require a response in each row): (\*)**

	<b>Not important at all</b>	<b>Slightly important</b>	<b>Moderately important</b>	<b>Important</b>	<b>Extremely important</b>
<b>Educational content about organic food products</b>					
<b>Print and broadcast media advertising</b>					
<b>Promotional and informative activities related to health (e.g. food labels, competitions and collaborations with experts)</b>					
<b>Online engagement activities (e.g. live sessions, cooking demos, interviews, webinars)</b>					
<b>Enhanced e-commerce and home delivery options</b>					

**4.6.2 In case there is a marketing strategy, that is not included above, please specify it as well as its importance (not important at all, slightly important, moderately important, important, extremely important):**

\_\_\_\_\_ (short answer question)

### **Section 5: Additional Comments**

**5.1 If you wish, you can provide an additional comment or insight on how Covid-19 pandemic has affected your purchasing behavior regarding organic food products:**



\_\_\_\_\_ (long answer text)

**Questions marked with an asterisk (\*) are required.**

**Thank you for participating in this survey. Your input is valuable for our research.**



*Anastasios Maliachovas, Examination of Post-Covid Consumer Perceptions and Preferences for Organic Food Products in Greece: A Comprehensive Study Based on Questionnaire Analysis.*



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Author's Statement:

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