

## Article

# Consumer Nutritional and Behavioral Perceptions of Snacking in a Sample of the Greek Population: A Cross-Sectional Survey

Kyriakos G. Makris and Antonios E. Koutelidakis \* 

Unit of Human Nutrition, Laboratory of Nutrition and Public Health, Department of Food Science and Nutrition, University of the Aegean, Leoforos Dimokratias 66, 81400 Myrina, Greece; kyma2004@gmail.com

\* Correspondence: akoutel@aegean.gr; Tel.: +30-2254083123

## Abstract

Snacking has become a routine part of how people eat today, with real potential to shape overall diet quality, food choices, and daily nutrient intake. This cross-sectional study aimed to investigate snack purchasing and consumption habits among Greek adults, examine consumers' perceptions of the nutritional value of snacks, and assess their attitudes toward nutrition labelling, nutrition claims, and innovative snack products. A structured questionnaire was sent out electronically to 1039 Greek adults. Participants provided information on their sociodemographic background, health and lifestyle habits, snack consumption and purchasing behavior, perceptions of snack products, nutrition labelling, and interest in innovative and functional snacks. The data were analyzed using descriptive statistics and Chi-square tests of independence. The most common packaged snack for the average person in the study was a cereal bar, while the least popular non-packaged snack was a bakery cheese pie. Consumers viewed the appearance of the product's packaging as a secondary consideration at the point of purchase, and the most prominent label elements that attracted consumer attention were nutrition, calories, and fat. The claims that consumers found most appealing were "no preservatives" and "sugar-free/no added sugars." A clear preference was shown for snack products that relied mainly on naturally occurring nutrients rather than fortified ingredients, as well as a greater willingness to try new savory snack options that used familiar/demonstrable Greek ingredients, such as certain olives, nuts, and fruit. Statistically significant relationships have been identified between certain snacking behaviors, attitudes, and labelling preferences, with respect to age, gender, education level, employment status, Body Mass Index (BMI), health status, physical activity, and place of residence. Within this relatively highly educated and predominantly urban sample, sociodemographic, education level and lifestyle all have an influence on how Greek adult consumers view and use snacks. Interest in nutrition information varies widely between different types of consumers. These findings may be useful in guiding the future development of snacks that meet the nutritional requirements of the Mediterranean diet, as well as in creating more targeted nutrition information and consumer education programs.



Academic Editor: Małgorzata Ziarno

Received: 22 May 2026

Revised: 4 July 2026

Accepted: 7 July 2026

Published: 9 July 2026

**Copyright:** © 2026 by the authors.

Licensee MDPI, Basel, Switzerland.

This article is an open access article distributed under the terms and conditions of the [Creative Commons Attribution \(CC BY\)](https://creativecommons.org/licenses/by/4.0/) license.

**Keywords:** snacking habits; snacking consumption frequency; nutritional preferences; consumer attitude; healthy food; nutrition labelling; nutrition claims; packaged snacks; functional snacks; Mediterranean diet

## 1. Introduction

People's eating habits have changed dramatically over the past several decades and snacking has evolved from an occasional eating behavior into an integral component of modern dietary patterns. Busy lifestyles extended working hours, urbanization, and limited opportunities for home cooking have contributed to the increasing reliance on snacks as a convenient source of energy throughout the day [1–3]. While there are obviously snacks that contain healthy nutrients, the majority of what is available at these points of sale (selected specifically for their convenient accessibility at any time of day) are formulated primarily for tastiness and convenience rather than nutritional quality. Front-of-pack claims (e.g., gluten-free, non-GMO, high-protein, no added sugar) often create a 'health halo effect' that does not necessarily correspond to the product's full nutrient profile, with many such products remaining high in calories, sugars, saturated fat, or sodium. Consequently, snacking is no longer regarded merely as an "in-between-meal" behavior but as an important contributor to daily energy and nutrient intake [1,2]. The snack food industry has grown dramatically, encompassing bakery products, cereal-based items, savory foods, dairy products, and an expanding range of functional snacks [1,2]. The number and type of snacks consumed each day can substantially shape the nutritional quality of the overall diet [4]. Consumers are increasingly seeking snacks that appear healthier and more natural than traditional options [4–6], and many products now contain higher amounts of protein or diet fiber, are fortified with vitamins and minerals, or are reformulated with reduced sugar, fat, or salt, all heavily marketed as healthier alternatives to traditional snacks [2,6]. Advances in food technology have created an entirely new class of functional snacks made from functional ingredients, new raw material sources, and simplified formulations [6,7]. However, the market success of these products depends on more than formulation alone: consumer preference and whether consumers can correctly interpret the information on a product's packaging both play a decisive role [5,6,8]. Consumers form their understanding of food products mainly through nutrition statements and health or nutrition claims on food labels; in principle, these statements and claims should allow consumers to compare products based on how each one performs against the claim made. In practice, however, research shows that consumers often do not read label information carefully, do not interpret it correctly, or do not apply it consistently when making purchasing decisions, and that these reactions vary considerably across different backgrounds, education levels, and demographic groups [9,10].

Snacking behaviors are shaped by a wide range of personal factors. Demographic variables—including age, sex, education, smoking status, physical activity level, and body weight—can influence snacking frequency, the types of snacks selected, perceptions of their nutritional quality, and the likelihood that consumers check product labels before purchasing [11–14]. Gathering more detailed data on these factors can help the food industry better understand consumer attitudes and behaviors toward snack foods and ultimately inform product development and marketing decisions [6,9]. However, data on the snacking behaviors of Greek adults remain limited, particularly regarding their perceptions of snack nutritional quality and their use of food labels before purchase. Most studies conducted in Greece to date have examined only general snacking patterns, without addressing the fuller picture of purchasing behavior, consumption behavior, perceived nutritional quality, labelling use, and receptivity to product innovation [11,12].

To address this knowledge gap, the present study investigated snack purchasing and consumption behaviors among Greek adults, their perceptions of the nutritional quality of snack products, and their attitudes toward nutrition labelling and nutrition claims displayed on packaged snacks. Additionally, the study examined how these behaviors and attitudes correlate with a variety of demographic and lifestyle attributes.

## 2. Materials and Methods

### 2.1. Questionnaire Design and Structure

The survey was developed between August 2021 and October 2022, following a detailed review of the current literature. The questionnaire was inspired by previously published surveys assessing dietary habits, snacking habits, the use and understanding of food labels, nutrition knowledge, and consumer attitudes toward functional, innovative, and healthier snacks [8,11,15–17], and was further informed by prior research examining the specifications and timing of snacking behavior and product choice [11,18], eating habits and lifestyle in adults [19], as well as methodological resources for conducting web-based surveys [16]. It was also informed by research on consumer perceptions of healthy, functional, and innovative snacks, and on the role of claims and naturalness in their evaluation [8,10,17,20,21]. The final version was then adapted to reflect the specific objectives of this study and the dietary and consumer characteristics of Greek adults.

The questionnaire was organized into three parts:

Part A—The demographic and personal health information collected from respondents included age, gender, occupation, residence, health status and how many physical activities they perform each week. Regarding occupation/educational level, PhD candidates were treated as a separate category from postgraduate (Master's-level) students to account for demographic and structural differences between the two groups, including age, employment status, and academic stage, which are recognized determinants of snacking and dietary behavior [22,23]. The questionnaire also collected data on the respondent's weight, height, Body Mass Index (BMI), smoking habits and whether they have any allergies or intolerances.

Part B—This section assessed participants' snack consumption and purchasing behaviors, including their definition of a snack, motivations for snacking, consumption occasions, sensory preferences, meal replacement practices, and purchasing criteria. Regarding purchasing behavior, participants were asked about the relative importance of various factors influencing their snack purchasing decisions, such as packaging, convenience, availability, and nutritional attributes of the snack products.

Part C—This section covered the perception and opinion referring to snacks, capturing how participants think and feel about snacks in general, including their overall attitude toward menu labels, nutritional/health claims, and innovative or functional snack products. Participants were asked to identify the label information that most attracted their attention, to indicate the nutritional characteristics and claims they considered most meaningful on a package; to report the level of trust they placed in such labelling, and to evaluate snacks enhanced with functional ingredients or developed using traditional Greek raw materials. Survey question, which concerned the perception of consumers whether organic products are safer compared to conventional ones, was formulated using simple language. The word "safer" has been used to ensure that it is understood by the consumer, while reflecting the restrictions that characterize organic production, such as no use of pesticides, fertilizers, GMOs, hormones, ionizing radiation, etc., in accordance with EU Regulation 2018/848 [24].

Closed-ended, single- or multiple-answer response formats were used throughout the questionnaire, simplifying both data coding and statistical analysis. The order, content, and wording of each question were carefully chosen to ensure clarity, relevance, and consistency with the study objectives, in line with previous nutrition and consumer surveys [15,19]. The final version of the questionnaire was pre-tested to confirm that it would be easy for the target population to complete [15,16].

## 2.2. Sample Collection and Processing

A convenience sample of Greek adults was recruited through social media platforms and email invitations. A total of 1039 complete questionnaires were collected, with participant ages ranging from 18 to 65+. The study followed the Helsinki Declaration ethical guidelines and was approved by the Ethics Committee of the University of the Aegean (protocol number 7505, 20 October 2019). All participants were informed about the study objectives before providing their consent to participate [16]. Respondents completed the questionnaire anonymously, with no names or identifying personal requested or recorded, to protect confidentiality and encourage truthful responses. Participation was voluntary and limited to adults capable of understanding the questionnaire content. Participants were informed of the study's purpose, of their right to decline participation or withdraw at any time prior to submission, and of how the collected data would be used. Only fully completed responses were included in the analysis, after which the data was prepared for entry into a statistical software program.

## 2.3. Analysis of the First Hypothesis ( $H_1$ )

The null hypothesis ( $H_{0,1}$ ) held that sociodemographic characteristics (including age, gender, education, occupation, place of residence, health status, and physical activity) had no bearing on snack consumption and purchasing habits, such as how often people buy and eat snacks, what types of snacks they tend to go for, their preferred taste profile, and what drives their purchasing decisions. The alternative hypothesis ( $H_{1,1}$ ) proposed the opposite: that these same characteristics do meaningfully shape snack-related behavior in all the above respects. To test this, sociodemographic variables were examined alongside a range of behavioral variables capturing snack consumption and purchasing patterns, including snacking frequency, the time of day at which snacking typically occurred, how often snacks substituted for a main meal, how regularly snacks were purchased, and the factors guiding product choice.

## 2.4. Analysis of the Second Hypothesis ( $H_2$ )

The null hypothesis ( $H_{0,2}$ ) assumed that sociodemographic factors had no influence on how participants perceived and thought about snacks, including their point of view on what the average consumer prefers and how nutritious they consider snacks to be. The alternative hypothesis ( $H_{1,2}$ ) proposed that these same factors do meaningfully shape such perceptions. This hypothesis was explored by looking at how participants' backgrounds related to the way they conceptualize snacks, the role they feel snacks play in daily eating, how they judge snack products nutritionally, and what they think about specific snack categories. The aim here was to find out whether a person's context affects not just what they do, but how they think about snack products and what they imagine others prefer.

## 2.5. Analysis of the Third Hypothesis ( $H_3$ )

The third hypothesis ( $H_{0,3}$ ) assumed that sociodemographic characteristics had no effect on attitudes toward snack packaging, labelling, and nutrition claims. The alternative hypothesis ( $H_{1,3}$ ) proposed that these same characteristics do meaningfully shape such attitudes. The focus here was on the possible links between participants' backgrounds and how they engage with packaging and label information. Specifically, the analysis looked at how much packaging appearance influences purchasing decisions, which parts of the nutrition declaration people pay attention to, and which nutrition or front-of-pack claims tend to catch their eye. The broader question addressed by this hypothesis was whether demographic and lifestyle differences are reflected in the

relative importance participants place on a product's external presentation versus its nutritional information.

#### 2.6. Analysis of the Fourth Hypothesis ( $H_4$ )

The null hypothesis ( $H_{0,4}$ ) assumed that sociodemographic characteristics had no effect on how open participants were to innovative and functional snack products. The alternative hypothesis ( $H_{1,4}$ ) proposed that these same characteristics do meaningfully shape such openness. This hypothesis was examined by exploring how participants' backgrounds related to their openness to innovation and functionality in snacks. The analysis paid particular attention to preferences for enriched snack products, desired taste characteristics in a novel snack, and which traditional Greek ingredients people would like to see incorporated. The underlying goal was to build a clearer picture of which consumer groups are most-and least-receptive to new directions in snack product development.

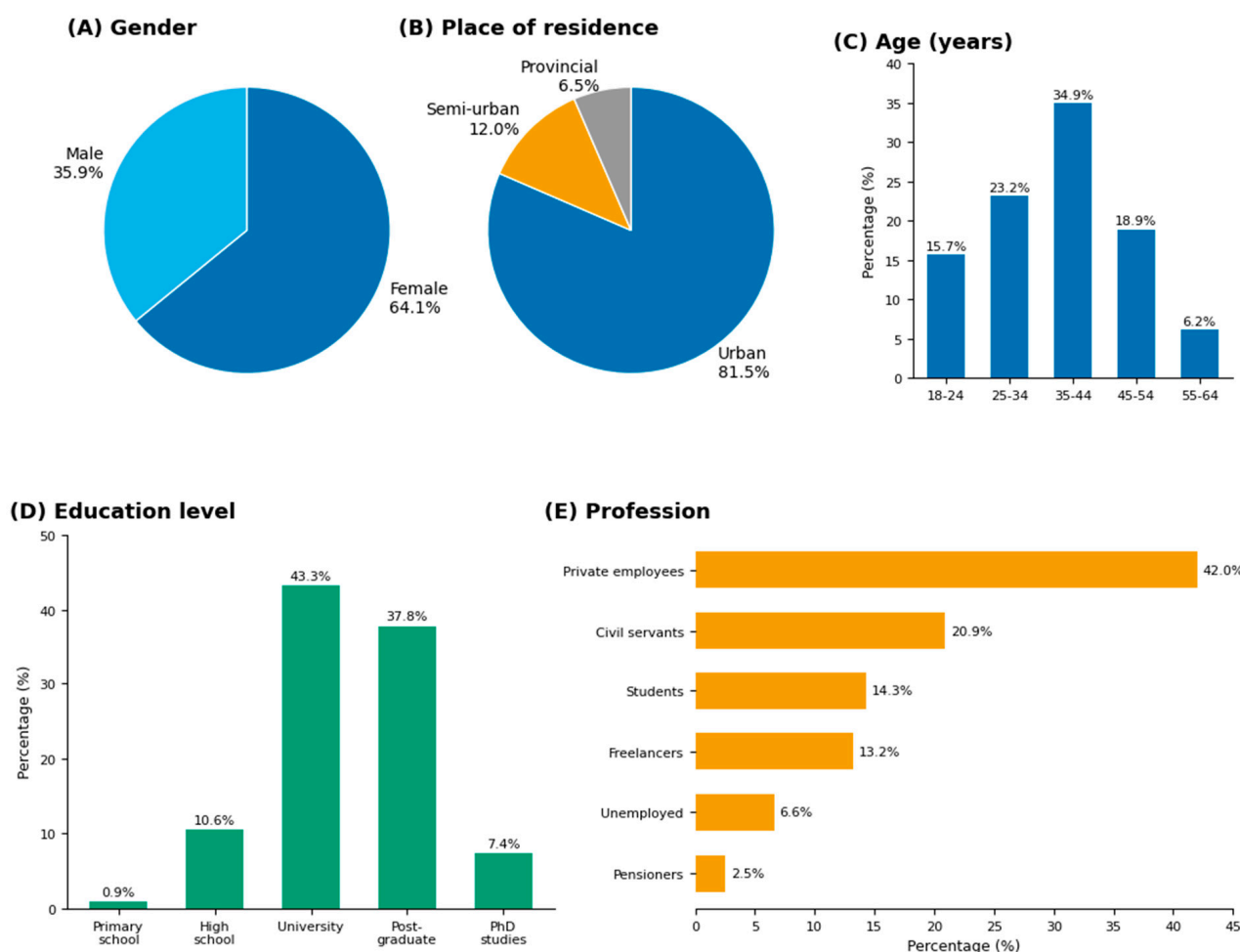
#### 2.7. Statistical Analysis

Data were processed and analyzed using IBM SPSS Statistics version 26 (Statistical Package for the Social Sciences). Descriptive statistics were first used to summarize sample characteristics and the distribution of responses; as most variables were categorical, these were reported as frequencies and percentages. Inferential analyses were subsequently conducted to examine associations between sociodemographic characteristics and variables related to snack consumption, perceptions, labelling preferences, and acceptance of innovative snack products. A Chi-Square Test for independence was used to determine if there was a significant association between two categorical variables, using a significance level of  $p < 0.05$ . Categorical variables were interpreted statistically and related to the patterns noticed among responses, to gain a more complete understanding of the results obtained from the analyses.

### 3. Results

#### 3.1. Participants' Sociodemographic Characteristics

The study sample consisted of 1039 adults. Women represented a larger proportion of the sample than men (64.1% vs. 35.9%). Such gender imbalances are commonly found in voluntary online surveys, where women participate more often. Most participants were between 35 and 44 years of age. The group of 35–44 was most heavily represented as a group, representing almost one third (at 34.9%); the group of 25–34 followed not far behind at 23.2%. Younger adults aged 18–24 made up 15.7%, while those in the 45–54 range came in at 18.9%. The educational profile of the sample was notably high. The single largest group had a university degree (43.3%), and a further 37.8% held a postgraduate degree. High school graduates accounted for 10.6%, while those whose education ended at primary school were a very small minority (0.9%). This is worth bearing in mind when interpreting the findings, as the sample is considerably more educated than the Greek general population. On the occupational front, private sector employees dominated at 42.0%, followed by civil servants (20.9%), students (14.3%), and freelancers (13.2%). Smaller groups included unemployed participants (6.6%), pensioners (2.5%), and police or military officers (0.5%). As for where people lived, the overwhelming majority (81.5%) were based in urban areas, which again reflects the recruitment approach via social media and email. Semi-urban residents made up 12.0% of the sample, and those living in provincial cities accounted for the remaining 6.5% (Figure 1).

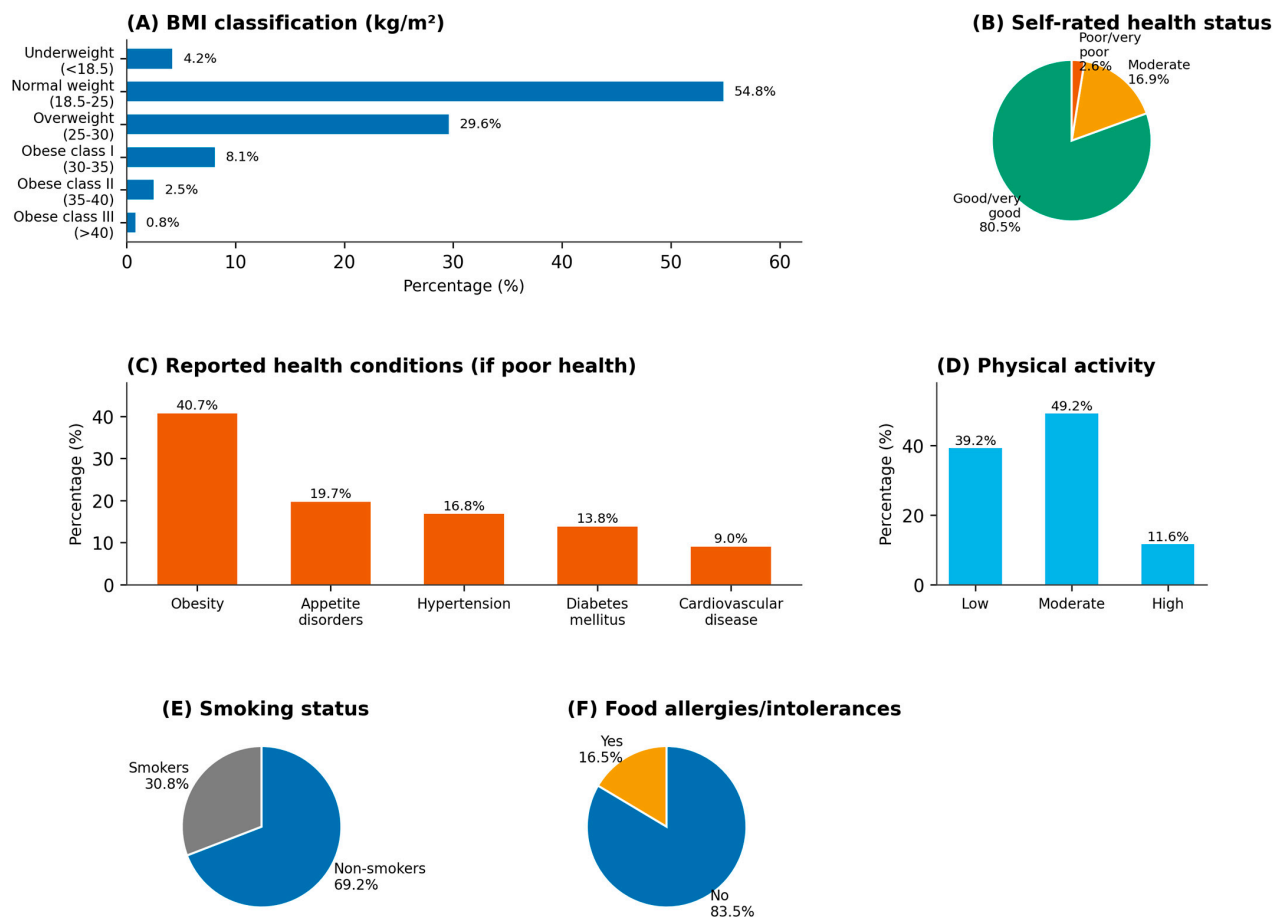


**Figure 1.** Participants' demographic characteristics. (A) Gender; (B) Place; (C) Age; (D) Education; (E) Profession.

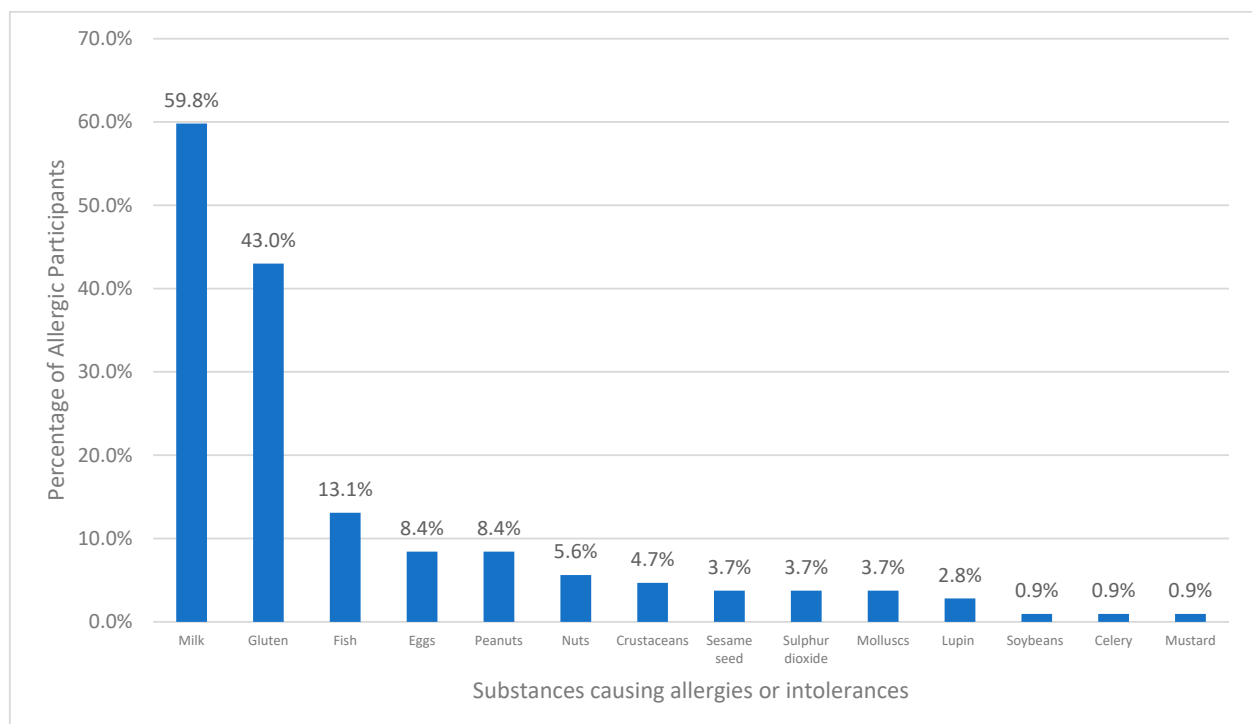
### 3.2. Participants' Health Status and Lifestyle Characteristics

The distribution of participants according to body mass index indicated that normal body weight was the most prevalent category (54.8%), followed by overweight (29.6%). Considerably lower proportions were classified as obese class I (8.1%) and underweight (4.2%). Concerning self-perceived health status, most respondents rated their health as good (44.9%) or very good (35.6%), whereas smaller percentages characterized their health as moderate (16.9%), poor (2.1%), or very poor (0.5%). Regarding lifestyle characteristics, moderate-intensity physical activity was reported most frequently (49.2%), followed by low-intensity physical activity (39.2%). In addition, most participants were non-smokers (69.2%). With respect to food allergies or intolerances, most respondents reported no such condition (83.5%), while 16.5% indicated the presence of food allergy or intolerances (Figure 2).

While Figure 2F presents the overall prevalence of food allergies and intolerances, Figure 3 illustrates the distribution of the specific substances reported by affected participants. Among those affected, milk was the most reported allergen/intolerance-related substance (59.8%), followed by gluten (43.0%) and fish (13.1%). Finally, among participants who did not report good or very good health, the most frequently reported health-related condition was obesity (40.7%), followed by appetite disorders (19.7%), hypertension (16.8%), diabetes mellitus (13.8%), and cardiovascular disease (9.0%) (Figure 3).



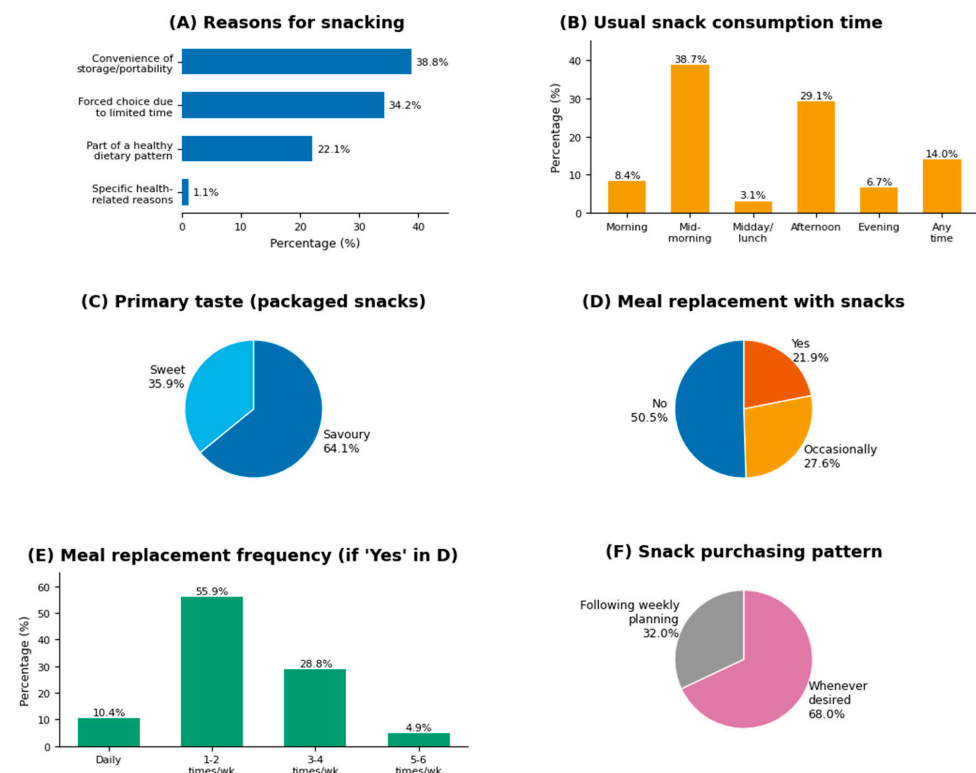
**Figure 2.** Participants' health status and lifestyle characteristics. (A) BMI; (B) Health status; (C) Health Conditions; (D) Physical Activity; (E) Smoking; (F) Allergies.



**Figure 3.** Distribution of Reported Allergies or Intolerances among Participants with Allergies.

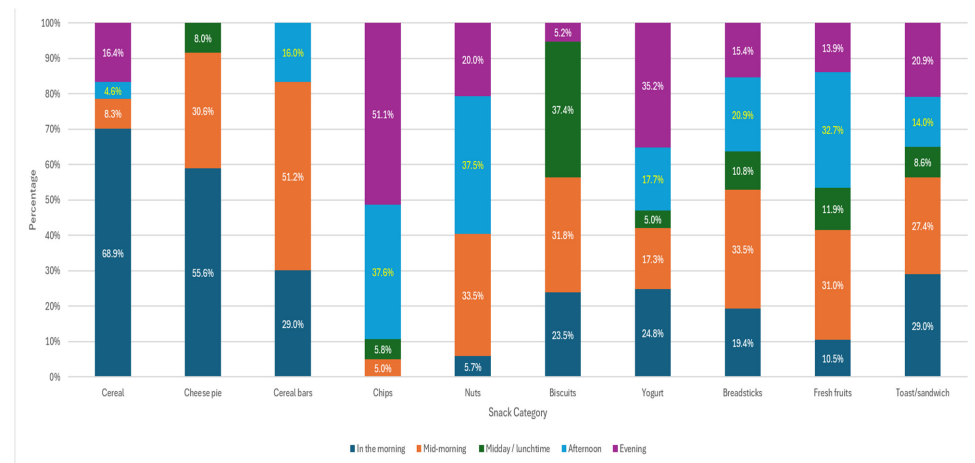
### 3.3. Participants' Snack-Related Purchasing and Consumption Habits

Snacking was mainly driven by convenience in terms of storage and portability (38.8%) and limited time availability (34.2%); 22.1% considered this as part of a healthy dietary pattern. Most of the participants consumed snacks during the mid-morning (38.7%) and afternoon (29.1%). A clear preference for savory packaged snacks was observed (64.1%) as opposed to sweet snacks (35.9%). Half of the participants reported that they did not replace meals with snacks (50.5%), whereas 27.6% did so occasionally and 21.9% reported meal replacement. Among those replacing meals with snacks, the most common frequency was 1–2 times per week (55.9%). Regarding purchasing behavior, most participants reported buying snacks whenever desired (68.0%) rather than following weekly planning (32.0%). Snacks were generally considered easy or relatively easy to access (46.8% and 44.1%, respectively). Storage and preparation requirements affected purchasing decisions considerably, with 42.8% reporting a strong effect and 28.8% having a moderate effect. Taste was identified as the primary factor influencing snack choice (60.2%), followed by nutritional value (39.8%). In addition, 61.3% of respondents believed that packaged snacks currently available on the market could meet their needs throughout the day. When combined choice criteria were examined, the most common response was taste, price, and nutritional value together (38.8%), followed by taste and nutritional value (37.1%) and taste and price (21.5%). Finally, regarding dietary habits and preferences, the Mediterranean dietary pattern was the most frequently reported (37.9%), followed by preference for conventional products (32.1%) and organic products (13.1%), while all other dietary preferences were reported by relatively small percentages (Figure 4).



**Figure 4.** Snack consumption habits, purchasing behaviour and dietary preferences. (A) Reasons; (B) Time; (C) Taste; (D) Replacement; (E) Replacement Frequency; (F) Snack Pattern.

Figure 5 shows the perceived time-of-day snack consumption pattern across different snack categories. It shows that cereal, baked cheese pie and cereal bars were more frequently associated with morning consumption. On the other hand, chips, nuts and fresh fruits were more commonly linked to afternoon and evening occasions.



**Figure 5.** Perceived time-of-day consumption pattern by snack category.

### 3.4. Participants' Data on Perceptions and Attitudes Toward Snacks, Perceived Average Consumer Preferences, and Snack Nutritional Value

When participants were asked about the first thought that came to mind when hearing the word/term “snack”, the largest proportion associated it with a prepackaged snack (40.7%), followed by a homemade snack (28.1%). Smaller percentages associated snacks with non-prepacked snacks (17.3%), nuts (11.7%), while only very limited proportions referred to fruits (1.1%) or other options (1.1%). Regarding the context in which snacks are most consumed, most participants associated snack consumption with working hours (42.5%). This was followed by leisure activities, such as travelling or excursions (20.6%), and entertainment occasions, such as going to the cinema (20.0%). Lower percentages reported snack consumption before or after exercise (10.5%) or immediately after waking up (6.1%), while only 0.3% selected all the above. Perceptions of the most popular packaged snack category for the average consumer, cereal bars ranked first (22.9%), followed closely by cookies/biscuits (18.1%), breadsticks/Greek ktsini (17.9%), and chips (16.6%). Less frequently mentioned categories were nuts (8.8%), dairy products such as yogurt (6.8%), rice cakes (4.9%), and breakfast cereals (4.0%). As for non-packaged snacks, the most popular category for the average consumer was bakery cheese pie (35.4%), followed by handmade toast (30.2%), fruits/vegetables (20.6%), and bakery rusks (Greek paksimadi) (13.8%).

Regarding the perceived appropriate portion size for a snack, the highest percentage of participants stated that portion size does not matter (37.3%). Among those who selected a specific amount, 100 g was the most frequently preferred portion size (29.8%), followed by 40 g (23.5%), 150 g (6.4%), and 20 g (3.0%). Participants' perceptions of the nutritional value of different snack categories varied considerably. Nuts (31.0%) and dairy products such as yogurt (30.4%) were most frequently perceived as very nutritious snack options. In contrast, chips were predominantly considered not at all nutritious (42.3%), followed by biscuits (19.4%) and bake-off cheese pie (21.8%). Cereal bars, handmade toast/sandwich, rice cakes and breakfast cereals received more mixed evaluations, with participants tending to classify them mainly as quite or a little nutritious. These findings are presented in Figure 6.

Participants also had mixed perceptions of the nutritional value of specific snack categories. Almost half, 49.2 percent thought a vegan snack was healthier or more nutritious than a conventional one; 26.8 percent did not, and 24.1 percent said they did not know. On the other hand, the majority did not think a gluten-free snack was healthier than a conventional snack, 58.4 percent to be exact; 20.9 percent thought it was healthier, and 20.7 percent were unsure. Similarly, most participants reported that an organic snack is not safer than a conventional one (61.4%), whereas 27.4% believed that it is safer and 11.2%

selected “I do not know”. Finally, most respondents believed that the currently available packaged snacks can meet consumers’ needs throughout the day (61.3%), while 38.7% disagreed. Regarding taste perception, the largest number of participants believed that a snack with high nutritional value has the same taste as one with lower nutritional value (44.8%). However, 28.7% believed that it had a worse taste, whereas 26.6% considered it to have a better taste (Figure 7).

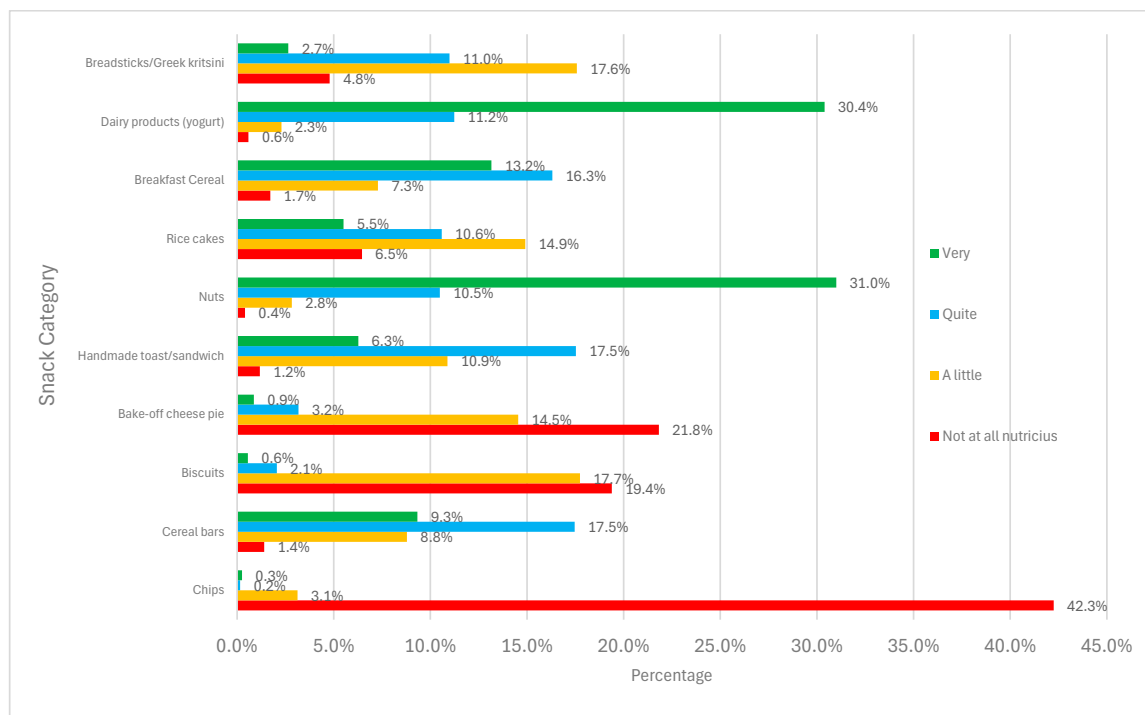


Figure 6. Perceived nutritional value of snack categories.

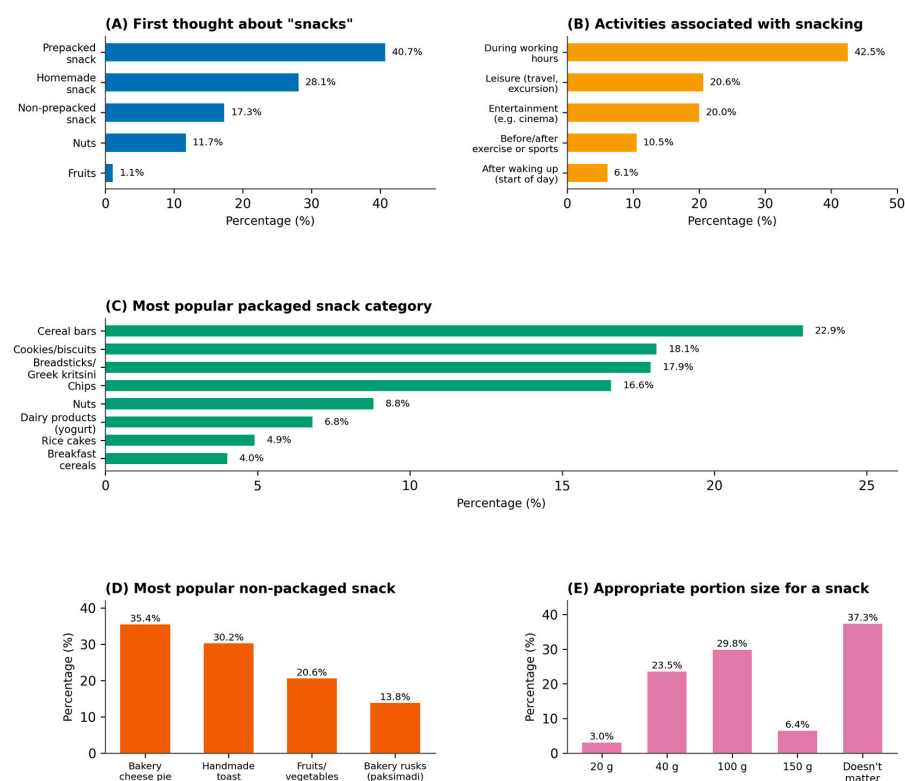
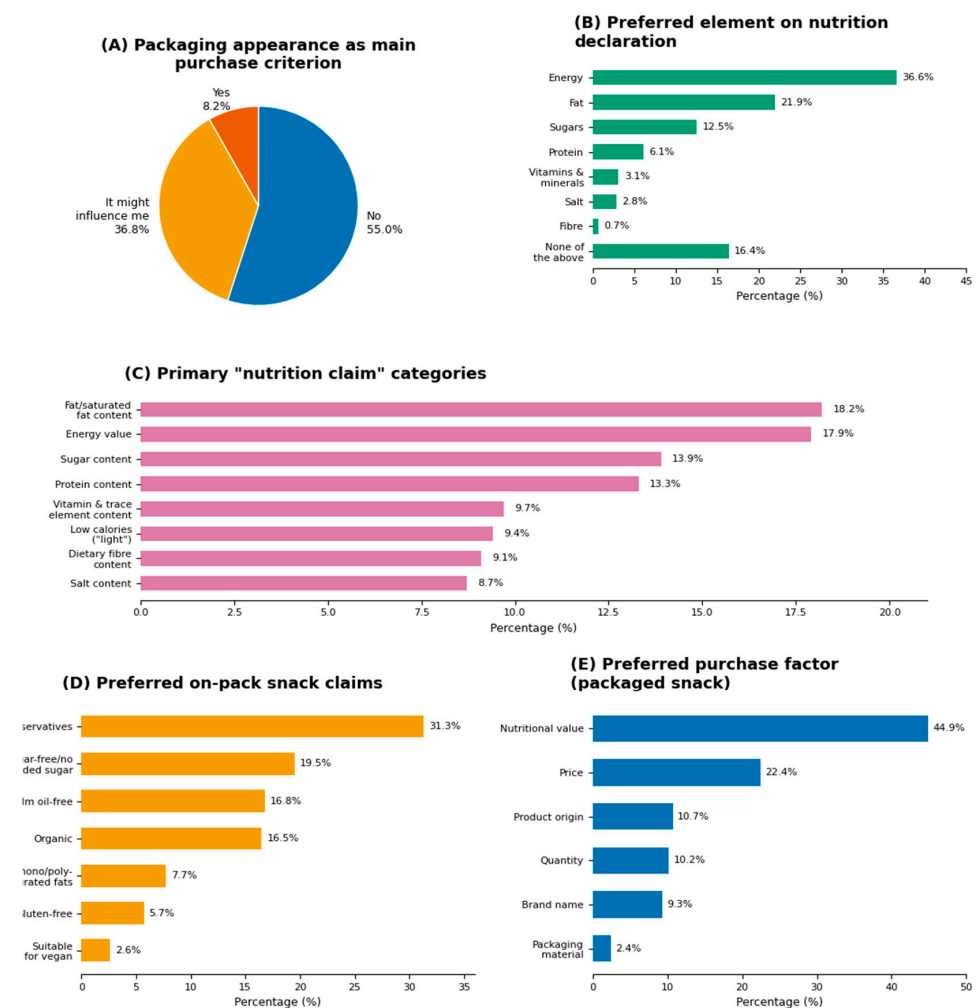


Figure 7. Participants' snack-related perceptions and attitudes.

### 3.5. Participants' Attitudes Toward Snack Packaging, Labelling, and Nutrition Claims

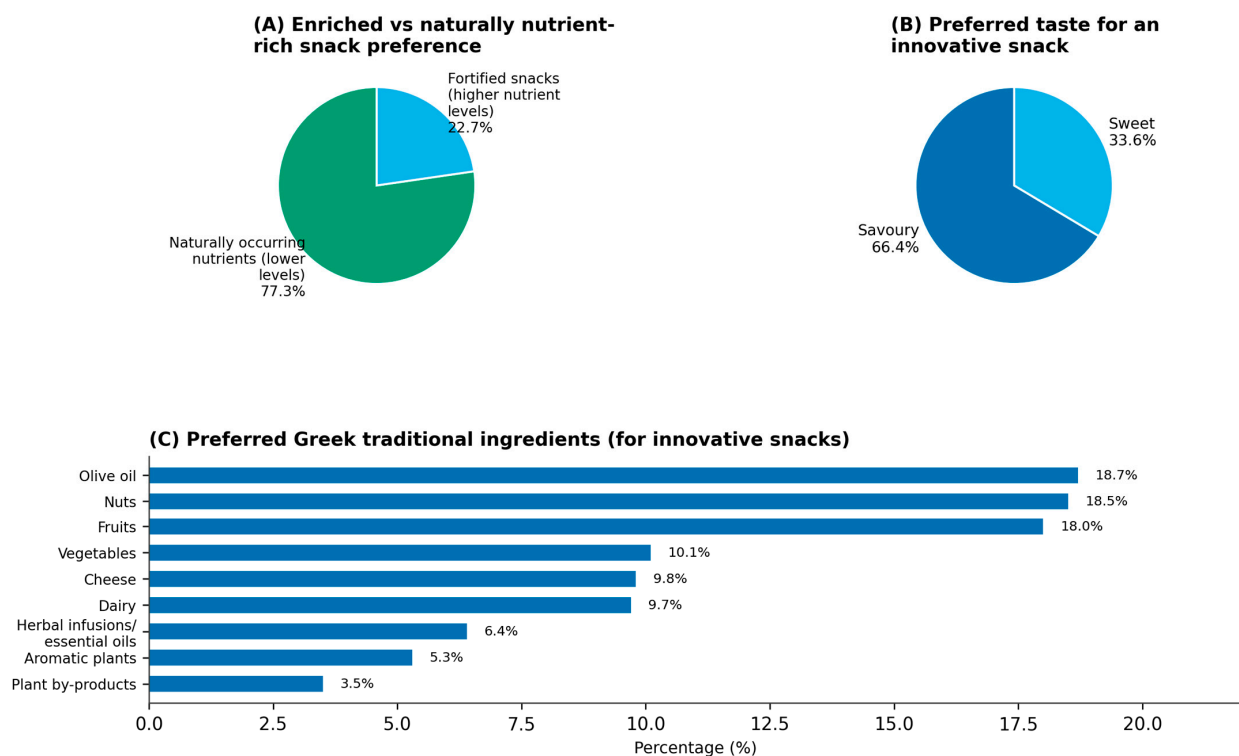
Participants did not think that the appearance of packaging was the most important aspect of their decision to purchase, with 55% of respondents indicating that it did not play a major role in their decision. A further 36.86% said packaging could influence their choice, and only 8.22% said it was a deciding factor. For nutrition declaration, the two most selected items by the respondents were energy (36.63%) and fat (21.89%); the other nutrients were selected less frequently, with sugars at 12.49%. The preferred categories of nutritional claims were fat/saturated fat content (18.2%) and the energy value (17.83%), with sugar content (13.93%) and protein content (13.27%) being selected next most frequently. When looking at the specific claims made on the packaging, the most selected claim was “No Preservatives” (31.30%), followed by “Sugar-Free/No Added Sugar” (19.46%), “Free from Palm Oil” (16.83%) and “Organic” (16.46%). Each of the other claims, “Contains mono/polyunsaturated fat” (7.69%), “Gluten Free” (5.74%), and “Suitable for Vegan” (2.65%) were selected much less frequently by participants. The most significant factor when purchasing packaged snacks is nutritional value (44.9%), with price (22.4%) as the next most significant factor. Origin of the product (10.7%), quantity (10.2%), brand name (9.3%), and packaging material (2.4%) are considered substantially less important (Figure 8).



**Figure 8.** Participants' attitudes towards snack packaging, labelling, and nutrition claims. (A) Packaging; (B) Nutrition; (C) Nutrition Claim; (D) Preferred Claim; (E) Preferred Purchase factor.

### 3.6. Participants' Preferences Toward Innovative and Functional Snack Products

Regarding the preference between fortified snacks and snacks containing naturally occurring nutrients at lower levels, most participants preferred the latter option (77.3%), whereas only 22.7% favored fortified snacks with higher nutrient levels. In terms of taste preference for an innovative snack, savory taste clearly predominated, being selected by 66.4% of participants, while sweet taste was preferred by 33.6%. Concerning the Greek traditional ingredients that participants considered most desirable for incorporation into innovative snacks, olive oil ranked first (18.7%), followed very closely by nuts (18.5%) and fruits (18.0%). Lower but still notable percentages were recorded for vegetables (10.1%), cheese (9.8%), and dairy products (9.7%). Herbal infusions/essential oils were selected, whereas aromatic plants accounted for 5.3%. Plant by-products were the least preferred ingredient category, representing only 3.5% of responses. Overall, these findings indicate that participants were more receptive to innovative snacks based on naturally nutrient-rich ingredients rather than fortified formulations, with a clear preference for savory products and for the inclusion of familiar traditional Greek ingredients, particularly olive oil, nuts, and fruits (Figure 9).



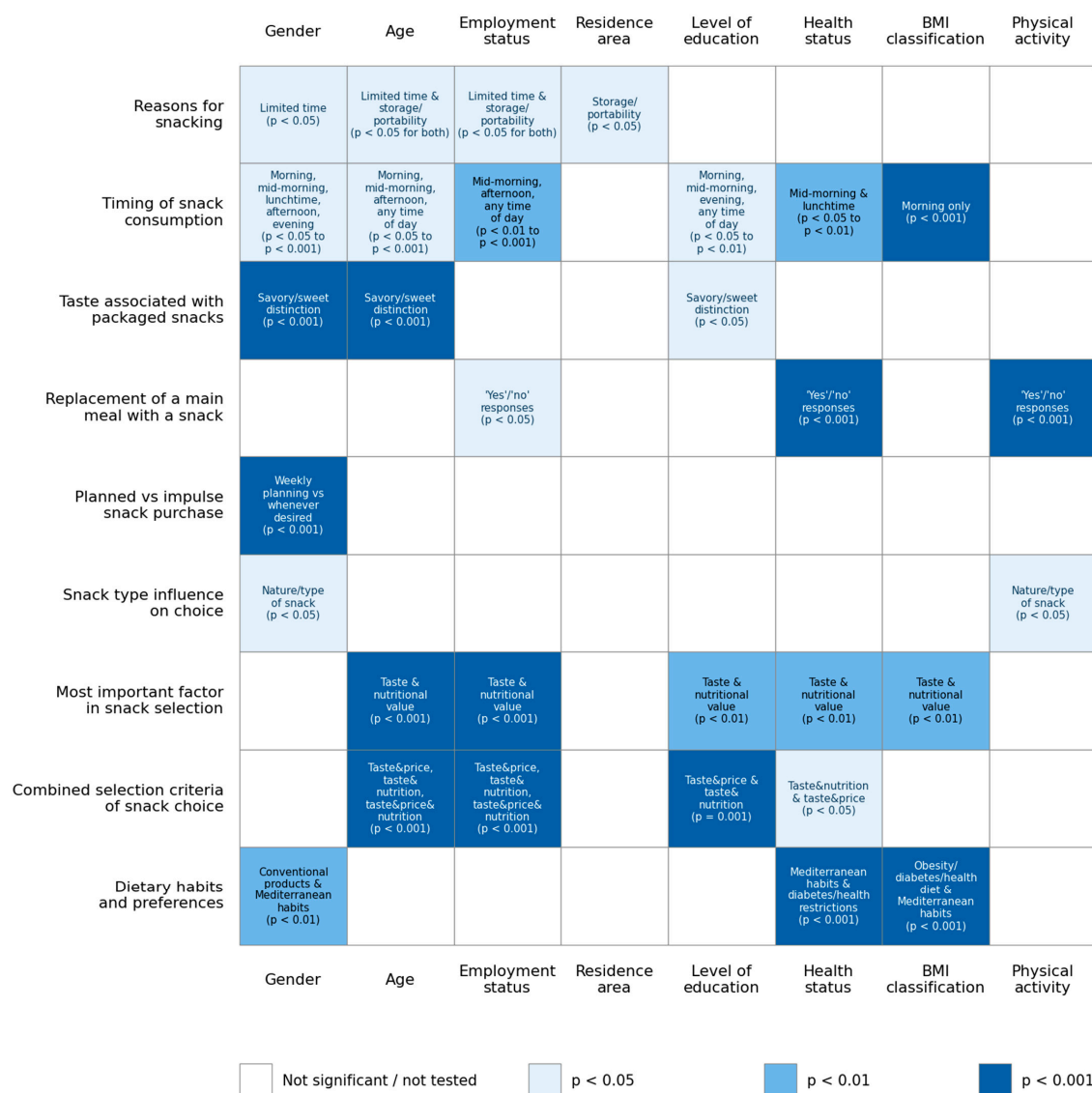
**Figure 9.** Participants' preferences toward innovative and functional snack products.

### 3.7. Results of the First Hypothesis ( $H_1$ )

The pooled results are summarized in Figure 10.

For example (first box of third column) shows that employment status was significantly associated with the reasons participants reported for snacking, specifically regarding limited time availability and the convenience of storage/portability ( $p < 0.05$  for both). These findings suggest that participants' employment status may shape the practical considerations underlying snack choice, with time constraints and portability emerging as relevant factors across different occupational groups. Another example (third row) is that preference for savory versus sweet, packaged snacks was significantly influenced by gender, age, and educational level. In contrast, no significant differences in savory versus

sweet snack preference were observed based on employment status, residence area, health status, BMI classification, or physical activity level (blank boxes).



**Figure 10.** Heatmap summary of statistical significance for sociodemographic and lifestyle factors associated with snack consumption and purchasing behavior. Cell color and asterisks indicate significance level ( $p < 0.05$ ,  $p < 0.01$ ,  $p < 0.001$ ); white cells indicate no significant association or a variable not tested.

### 3.7.1. Sociodemographic Determinants of Snack Consumption Motivations, Patterns, and Selection Behavior

The results confirmed the first alternative hypothesis. There are strong associations between sociodemographic and health-related characteristics of participants, and motivations for snack consumption, patterns of snack consumption and selections of snacks. In particular, the reasons for consuming a snack, the timing of the consumption of snacks, and the flavor profile (savory vs. sweet) of snacks were all greatly influenced by gender, age, educational status, employment status and BMI. There was a significant difference in the use of snacks as meal substitutes based on employment status, health status and physical activity level; selection criteria for snacks (specifically taste and nutrition value) were significantly different based on age, gender, BMI, education and health status. For instance, the different dietary habits and preferences across population subgroups were

influenced by gender, BMI and health status. In short, there are meaningful differences in motivations to consume snacks, when snacks are consumed and selection criteria for snacks between population subgroups.

### 3.7.2. How Demographic Characteristics Affected Snack Purchasing Behavior and Accessibility

Demographics had an impact on snack purchasing behavior. Purchasing behavior, whether planned or impulse, was associated with gender. The extent to which snack type affected choice depended on gender, age, education level and amount of physical activity. The results indicate that both purchasing behavior and perceived access differ across demographic/lifestyle subgroups.

### 3.8. Results of the Second Hypothesis ( $H_2$ )

The pooled results are summarized in Figure 11.

|                                                   | Gender                                                                        | Age                                                                                                 | Employment status                                                                              | BMI classification                | Physical activity                  | Health status                                         | Level of education                                                                   | Residence area                           |
|---------------------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------|------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------|
| First thought associated with "snack"             | Non-prepacked (p < 0.01), nuts (p < 0.05)                                     | Homemade (p < 0.05), prepacked (p < 0.001)                                                          | Prepacked product (p < 0.05)                                                                   | Non-prepacked product (p < 0.001) | Homemade/handmade snack (p < 0.05) |                                                       |                                                                                      |                                          |
| Activities most commonly associated with snacking | Recreation/excursion (p < 0.01)                                               | Wake-up, working hours, recreation, rest (p < 0.001 all)                                            | Wake-up (p < 0.01), working hrs, exercise (p < 0.01), recreation (p < 0.001), rest (p < 0.001) | Before/after exercise (p < 0.001) | Before/after exercise (p < 0.001)  | Working hours (p < 0.05), exercise (p = 0.05)         | Wake-up (p < 0.05), working hrs (p < 0.01), recreation (p < 0.001), rest (p < 0.001) |                                          |
| Most popular packaged snack (avg. consumer)       | Cereal bars (p < 0.001), rice cakes (p < 0.05), biscuits (p < 0.01)           | Chips (p < 0.001), cereal bars/ rice cakes (p < 0.05), biscuits/yogurt (p < 0.001), nuts (p < 0.01) | Chips (p < 0.001), biscuits/yogurt (p < 0.001), p < 0.05)                                      | Cereal bars (p < 0.05)            | Chips (p < 0.05)                   | Nuts (p < 0.01)                                       | Chips & cereals (p < 0.05 both)                                                      |                                          |
| Most popular non-packaged snack (avg. consumer)   | Fresh fruits/vegetables (p < 0.01)                                            |                                                                                                     | Handmade snack (p < 0.05)                                                                      | Puff pastry products (p < 0.05)   | Handmade snack (p < 0.05)          |                                                       |                                                                                      | Puff pastry & fruits/veg (p < 0.05 both) |
| Appropriate portion size of a snack               | Significant (p < 0.001)                                                       |                                                                                                     |                                                                                                |                                   |                                    |                                                       |                                                                                      |                                          |
| Perceived nutritional value of snack categories   | Chips/bars/ biscuits/pastries (p < 0.001), nuts (p < 0.01), yogurt (p < 0.05) | Pastries/handmade/nuts/ yogurt (p < 0.001), rice cakes/bread (p < 0.05)                             | Bars/handmade/ bread (p < 0.05), pastries/yogurt (p < 0.001), nuts (p < 0.01)                  | Puff pastries (p < 0.05)          | Handmade snack (p < 0.01)          | Cereal bars (p < 0.01), rice cakes/ yogurt (p < 0.05) | Cereal bars (p < 0.01), handmade/nuts (p < 0.001)                                    | Handmade snack (p < 0.05)                |
| Vegan snacks healthier than conventional          |                                                                               |                                                                                                     |                                                                                                |                                   |                                    |                                                       | Significant (p < 0.001)                                                              |                                          |
| Gluten-free snacks healthier than conventional    |                                                                               |                                                                                                     |                                                                                                |                                   |                                    |                                                       | 'Yes/no/ 'don't know' (p < 0.001)                                                    |                                          |
| Organic snacks safer than conventional            |                                                                               |                                                                                                     |                                                                                                |                                   |                                    |                                                       | Significant (p < 0.05)                                                               |                                          |
| Adequacy of snacks for all-day needs              |                                                                               |                                                                                                     |                                                                                                | All BMI categories (p < 0.05)     |                                    |                                                       |                                                                                      |                                          |
| Taste: high- vs low-nutritional-value snacks      |                                                                               |                                                                                                     |                                                                                                |                                   |                                    |                                                       |                                                                                      | Urban/semi-urban/rural (p < 0.05)        |
|                                                   | Gender                                                                        | Age                                                                                                 | Employment status                                                                              | BMI classification                | Physical activity                  | Health status                                         | Level of education                                                                   | Residence area                           |

Not significant / not tested

p < 0.05

p < 0.01

p < 0.001

**Figure 11.** Sociodemographic factors associated with perceptions of snacks, snacking occasions, popular snack choices, perceived nutritional value, and preferred portion size. Cell color and asterisks indicate significance level ( $p < 0.05$ ,  $p < 0.01$ ,  $p < 0.001$ ); white cells indicate no significant association or a variable not tested.

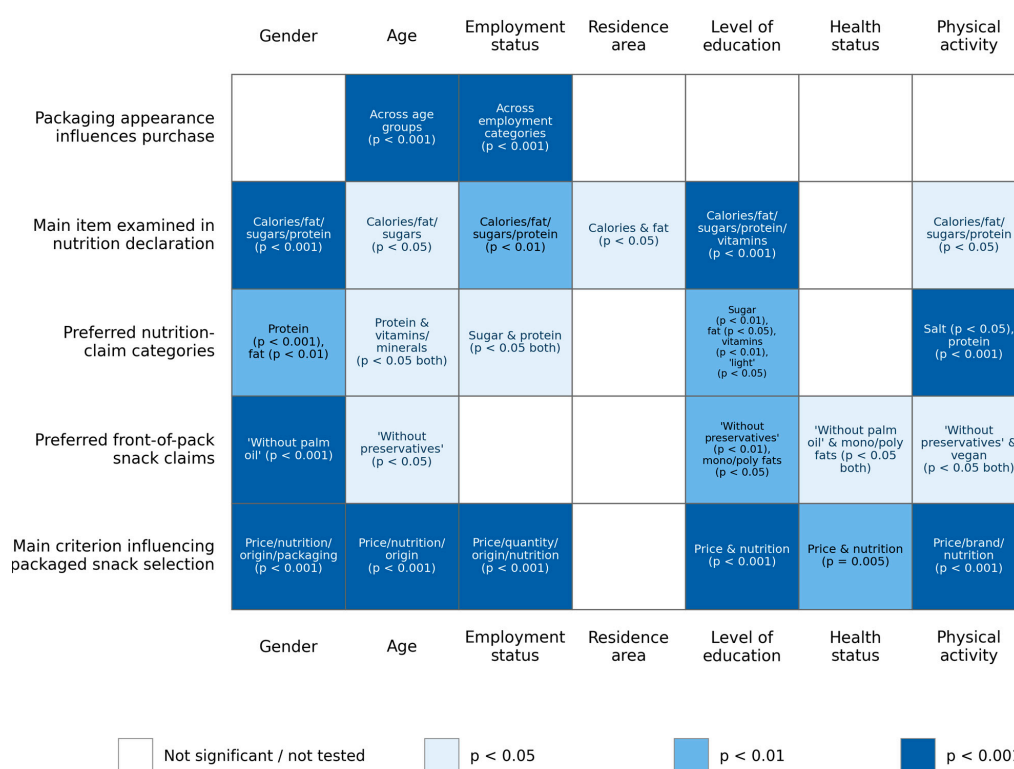
For example, BMI classification (fourth column) was significantly associated with participants' first thought about snacks, the timing of snack consumption relative to physical exercise, preferences for specific packaged and non-packaged snack categories, perceived nutritional value of certain snacks, and the perceived adequacy of available snack products for all-day needs. A further example (fifth row) concerns the perceived appropriate portion size of a snack, which was significantly associated with gender, whereas no significant differences were observed based on age, employment status, BMI classification, physical activity level, health status, educational level, or residence area.

### Sociodemographic Influences on Snack Perceptions, Perceived Popularity, and Nutritional Evaluation

The second alternative hypothesis ( $H_2$ ) was supported. The mental representation of the term “snack,” the activities associated with its consumption, and perceptions of the most popular packaged and non-packaged snacks all varied significantly according to gender, age, employment status, BMI, and physical activity. Perceived appropriate portion size was associated with gender, age, and employment status. Perceived nutritional value of snack categories was the most broadly differentiated domain and significantly associated with almost all sociodemographic variables examined. Beliefs about the healthiness of vegan, gluten-free and organic snacks differed mainly by educational level and employment status. In general, perceptions of snacks are shaped by a broad combination of demographic, occupational, lifestyle, and health-related characteristics.

### 3.9. Results of the Third Hypothesis ( $H_3$ )

The pooled results are summarized in Figure 12.



**Figure 12.** Heatmap summary of statistical significance for sociodemographic factors associated with attitudes toward snack packaging and nutrition labelling, preferred nutrition/health claims, and the main criteria influencing packaged snack selection. Cell color and asterisks indicate significance level ( $p < 0.05$ ,  $p < 0.01$ ,  $p < 0.001$ ); white cells indicate no significant association or a variable not tested.

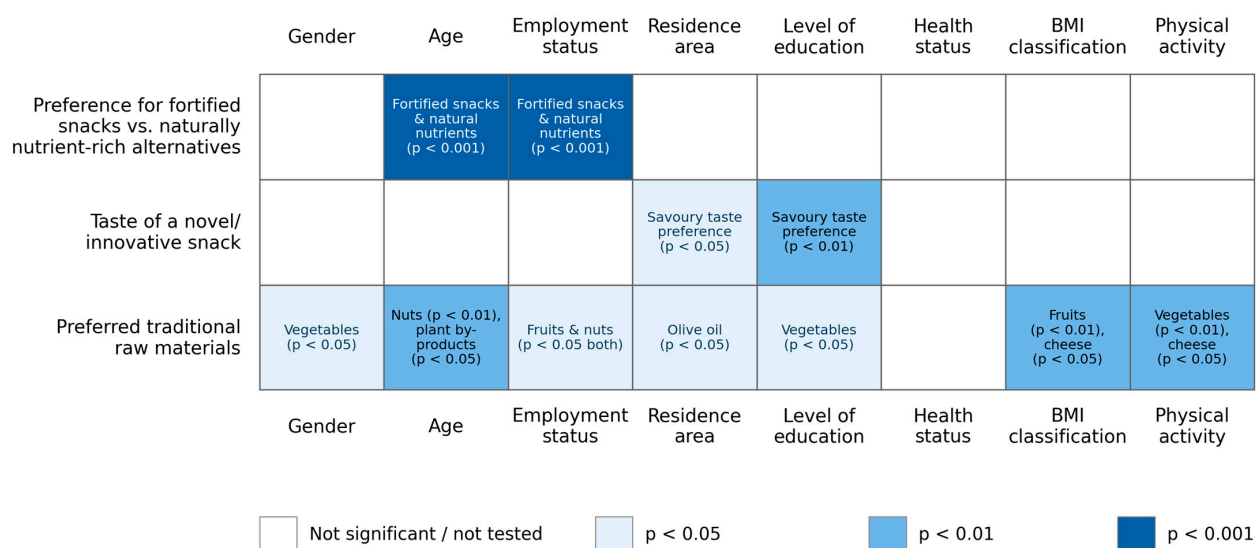
For example, preferred front-of-pack snack (fourth row) claims varied significantly according to gender, age, educational level, health status and physical activity level, whereas no significant differences were observed based on employment status or residence area. Another example (third box of fifth column) shows us that educational level was significantly associated with preference for multiple nutrition-claim categories, including sugar content, fat content, vitamin content, and “light”/low-calorie claims.

### Sociodemographic Differences in Snack Packaging and Labelling Perceptions

The third hypothesis ( $H_3$ ) was partially confirmed. There were very distinct variances between the different groups regarding the effect that appearance has on purchasing products based on age and employment. The specific nutrition items that were evaluated, primarily energy, fat, sugars, and protein, varied greatly based on the same demographic factors: gender, age, activity level, education level, and employment status. Gender, age, health status, level of activity, and education were also related to consumers’ preferences toward specific claims and front-of-pack labelling, such as “No Preservatives” and “No Palm Oil”. Similarly, consumers’ primary criterion for selecting snacks was also significantly impacted by the same factors. However, participants primarily selected products using price, healthiness of the product, and where the product came from, as the three major attributes that impacted where consumers spent their money.

### 3.10. Results of the Fourth Hypothesis ( $H_4$ )

The pooled results are summarized in Figure 13.



**Figure 13.** Heatmap summary of statistical significance for sociodemographic factors associated with preference for fortified/functional snacks, acceptance of novel snack flavors, and preferred traditional raw materials in snack ingredients. Cell color and asterisks indicate significance level ( $p < 0.05$ ,  $p < 0.01$ ,  $p < 0.001$ ); white cells indicate no significant association or a variable not tested.

For example, the second row shows that taste preference (savory vs. sweet) for an upcoming innovative snack was significantly associated with residence area and educational level, whereas no significant differences were observed based on gender, age, employment status, health status, BMI classification, or physical activity level. Another example (first box of second column) shows that age was significantly associated with preference for fortified snacks over naturally nutrient-rich alternatives, as well as with preference for specific traditional raw materials, particularly nuts and plant by-products. No significant association was observed between age and taste preference for a future innovative snack.

## How Demographic Characteristics Affected Preference for Fortified Snacks or Naturally Occurring Nutrients in Lower Amounts

Consumption of fortified and naturally occurring sources of nutrients is significantly affected by age/employment. The other variables influencing the choice of snacks include location of residence, educational level and savory flavor preference. Furthermore the traditional method of sourcing/raw materials for new snack food is affected by the time of the year/weather (for example: vegetables) based on gender/physical activity/education, ages/employment status (e.g., nuts), weight (BMI)/employment (fruits), physical activity (cheese) and age (e.g., olive oil) as well as by-products of plants will be influenced by the above variables. These various findings suggest that consumers' expectations for newly created snacks will vary based on each consumer's individual demographic/lifestyle characteristics.

## 4. Discussion

The present study aimed to provide a comprehensive understanding of snack consumption and purchasing behaviors among Greek adults, as well as their perceptions of snack nutritional quality and nutrition labelling. It also attempted to learn the extent to which nutritional information has any influence on snacking nutritional behavior. The findings indicate that snacking behavior is influenced by multiple interacting demographic, socioeconomic, and lifestyle factors rather than by any single determinant. Factors such as one's demographic background, education level, lifestyle choices, and physical well-being will all impact an individual's snacking decisions; some factors will interact with one another as opposed to working independently of one another. This confirms the assertion in the existing literature that food choices are subjective and complicated processes dependent upon both the consumer's identity and the products availability [5,8–10,21].

The emergence of new understanding about what people perceive to be snacks and how they snack has recently revealed apparent differences between various demographic or socio-economic groupings of people. For most of those surveyed in this study, snacking is associated with convenience and portability, and occurs after work or leisure hours; the primary times of day when snacks are consumed by both demographic groups are between mid-morning and mid-afternoon, which is consistent with previous research showing that (across cultures) snacks have become, for adults at least, an integral part of their daily routine rather than an indulgence to consume between their three main eating occasions.

Age emerged as one of the strongest determinants of snack-related behaviors and perceptions. The younger, 18-34-year-old participants were more likely to prefer pre-packaged, or more extravagant options when purchasing food than were the older participants, 35 years of age or older, who appeared to be more selective of food choices and more likely to consider health attributes associated with food choices. This finding is consistent with previous research that has also indicated younger adults tend to prefer convenience-oriented food choices, whereas older adults tend to put more thought into what they eat [12,13,19,25]. Evidence from the Greeks and the Mediterranean culture corroborates this trend; therefore, the results of this current study are most likely reflective of trends related to age and not just trends related to snacking [12,13,25].

Beyond age itself, demographic characteristics appear to shape snacking-purchase capacity primarily through their association with income, occupational status, and time-related lifestyle constraints, which jointly determine both the financial capacity and the practical opportunity to select certain snack types. This is consistent with evidence from a large-scale study of French adults, in which socioeconomic and demographic factors were systematically associated with the nutritional quality of snacks consumed: low-income individuals and manual workers had snacks with lower nutrient density and higher energy

content than higher socioeconomic categories, indicating that purchasing capacity interacts with occupation and income to shape the nutritional quality of snacks that are accessible or selected, rather than being driven by income alone [26]. Occupational structure may further contribute to these differences by affecting both the time available for food planning and preparation and exposure to specific snack-purchasing environments, such as workplace settings, which have themselves been associated with snacking occasions in prior research. Women were more likely to read nutritional content on packaged foods and choose healthier snacks than men, consistent with previous research [1,6].

An individual's level of education affects how they behave as consumers. For example, individuals with a higher level of education tend to consult nutrition labels more frequently than individuals with a lower level of education. In a general sense, these findings confirm that individuals' levels of education affect the extent to which nutrition literacy develops. Education plays an important role in providing the knowledge necessary to understand and use nutrition-related information when making food choices; however, this research has demonstrated further evidence that education serves as not only a variable representing an individual's social background, but also as one that influences the degree of practicality of the individual's knowledge-based food choices [2,3].

Nutritional claims and declarations require special consideration when dealing with packaged snacks. Labels may influence some groups of consumers more than others—females and those who have higher education used labels more than older and less educated groups, who relied on labels less often when choosing what to purchase. This finding is consistent with other studies done in various countries, which show that nutritional claims can have many different effects when used by consumers and that these differences depend on the presentation of the information, credibility of the information, and clarity of the information available [8–10]. These are some of the factors that help to explain why just labeling a package will not assure consumers of making healthy choices. Such patterns may, in part, be explained by differences in nutrition literacy and motivation to process label information: people with higher levels of education tend to have more familiarity with nutrition-related terms and numerical information, which lowers the cognitive effort required to interpret labels and enhances the likelihood that this information will be used at the point of purchase [9,10]. Similarly, the tendency of women to engage more with nutrition labels may reflect, at least in part, their more frequent role in household food provisioning and a correspondingly stronger habitual orientation toward health-related food information, rather than an inherent difference in interest in nutrition itself [1,6]. Understanding these underlying drivers, rather than the demographic associations alone, is essential for designing labelling and educational interventions that are genuinely effective for the groups least likely to engage with current label formats.

Consumers prefer food products that are wholesome or natural in some way, rather than heavily fortified products or those with bold health claims. Consumers demonstrated a greater interest in snacks with naturally occurring nutrients, even if those nutrients were at lower levels than in fortified varieties of similar foods. This is consistent with research on the consumption of functional and innovative foods, where consumer acceptance depends heavily on perceptions of naturalness, familiarity and compatibility with existing eating patterns and habits [6–8,10,17]. The tension between health credentials and naturalness is very strong in the snack food category because the consumer's expectations include that snack foods should be healthy enough, convenient and enjoyable all at the same time [5,6].

Another aspect of this narrative is consumers' preference for savory snacks and traditional Greek ingredients. When placed alongside the other findings, it seems clear that not only are consumers simply looking for healthier foods in an abstract way, but they also desire foods that remind them of what they already enjoy and have culturally

identified with. This indicates that, from a practical perspective, in the development of new snack products, those that are more likely to resonate with consumers would be based on familiar, traditional, and recognizable ingredients rather than those that seem technical or unknown. This study supports and complements research on how perceptions of the Mediterranean diet and socially embedded food behaviors can influence the acceptance of new product types by individuals. Additionally, healthier snacks are typically given more favorable reception when they reflect what consumers have previously come to expect or value [20,25,27]. Therefore, one of the best ways for Greek firms to innovate in developing snacks may be to combine more nutritious credentials with taste profiles and ingredients that are already trusted by consumers.

Lifestyle characteristics were also important factors. More specifically, those participants who did not lead a healthy lifestyle (e.g., smokers with higher BMIs) were found to have less desirable snacking habits than the physically active ones and those who engaged in better overall healthy food choices and nutritional information.

From the standpoint of Greek Public Health, these findings contribute some valuable new evidence related to adult snacking and their relationship to nutrition awareness, as well as their use of nutrition labels in Greece as part of a limited but constantly expanding database of research on the subject. Prior studies in Greece have indicated that individuals differ with respect to both the pattern of how they snack and the quality of the food they consume based on various sociodemographic and lifestyle-related factors; therefore, this research builds upon what was previously known by focusing exclusively on snacking-related attitudes and behaviors. The community at large appears to be undergoing a transition to consuming more Western-style convenience foods compared to traditional, healthier foods and seeing a trend away from strictly consuming traditional foods. This inconsistency between community members' convenience and desire to eat more traditional, healthy and nutritionally based foods will provide interesting opportunities for public health efforts and for food manufacturers as they seek to innovate within the snack category [8,14,27–29].

Manufacturers of healthy and innovative snack foods are generally well aware of the key lessons they can learn from the research conducted to date: snack foods that are successful are those that have appealing sensory qualities (i.e., taste and texture), communicate clearly and simply, and look close enough to similar products to give consumers a feeling of familiarity rather than criticality. Just changing a product will likely not produce enough of a positive change to be successful. If people do not understand or do not trust claims made about a product's nutritional value, then this will limit the impact it has (both commercial and on people's behavior). Also, if a product is perceived by consumers as requiring them to sacrifice taste, naturalness, or convenience, then it is unlikely that the product will be accepted. Research supports these findings regarding both acceptance of healthy snacks and acceptance of innovation in foods [8,17,20,21,28].

For public health and nutrition policy, within the context of this sample, the results support utilizing targeted strategies instead of broad initiatives. Younger generations, as well as people with lower levels of education, generally do not use nutrition information meaningfully; however, these populations would benefit from additional support to develop their ability to read nutrition labels and interpret them in practice. While nutrition labels demonstrate great promise to be population-wide tools, they will only be effective if consumers can understand how to read them [9,10]. As a result, improving snack quality at the population level requires not only higher quality products, but also having clearer front-of-pack messaging and providing additional educational programming about nutrition [10]. Targeted approaches could entail front-of-pack labeling systems that include simplified formats, such as inter-pretive nutrition symbols rather than purely numerical

declarations, for younger and less educated consumers, who seem to be less attracted to the detailed nutrition information, alongside workplace- or social-media-based nutrition literacy initiatives that reach these groups through channels they already use regularly, rather than relying only on point-of-sale information. The clear preference observed for snacks based on naturally occurring nutrients over fortified formulations, together with the preference for familiar traditional Greek ingredients such as olive oil, nuts, and fruits, is consistent with the broader ‘naturalness heuristic’ described in the consumer behavior literature, whereby consumers tend to perceive naturally derived ingredients as inherently healthier, safer, and more trustworthy than industrially fortified alternatives, regardless of their actual nutritional equivalence [5,6,8]. This has direct implications for snack product development: rather than competing primarily on fortification levels, manufacturers and product developers targeting the Greek market may achieve greater consumer acceptance by emphasizing the use of recognizable, culturally familiar raw materials and transparent, minimally processed formulations, even when these approaches yield comparable nutritional profiles to fortified products.

There are some limitations in the present study that should be acknowledged. The demographic composition of our sample (young and female) is in line with patterns typically reported in online, volunteer-based survey research on dietary and snacking behavior [29]. This does not impact the internal reliability of the measurement instrument but does limit the generalizability of our findings to the broader adult population—particularly older adults and males, who were underrepresented in this study. Future research should aim for stratified or quota-based sampling to improve representativeness across age and gender groups. Additionally, the use of a convenience sampling methodology, recruited through social media and email, resulted in a sample that diverges from the general Greek adult population in several respects: women were overrepresented (64.1% of respondents), the sample was considerably more educated (81.1% held a university or postgraduate degree), and respondents were predominantly urban-based (81.5%). Consequently, the findings are best interpreted as reflecting the attitudes and behaviors of a relatively highly educated, predominantly urban, and female-skewed subgroup of Greek adults, rather than the Greek adult population, which restricts the generalizability of the results. Self-reported data may also be subject to recall (memory) bias, reporting bias, or social desirability bias, particularly for body weight, healthy lifestyle and nutrition- and attitude-related behaviors. Finally, because these data reflect preferences and perceptions instead of actual behaviors or dietary consumption, researchers should be mindful when considering the implications of these results from a practical standpoint.

It would be helpful for future studies if larger, more representative sample sizes were utilized, as well as utilizing questionnaires in conjunction with actual purchase data and/or dietary assessment or experimental choice tasks. Longitudinal research designs would also be meaningful to establish whether demographic/lifestyle factors actually predict an individual’s change, or if demographic/lifestyle factors are only associated with the change. In addition, more research is needed on how Greek consumers interpret and evaluate nutrition and health claims, particularly as they relate to fortified versus naturally occurring snack concepts, and on the relative importance of trust, familiarity, and perceived naturalness in relation to the acceptance of new products [8,20]. Evidence of this type would greatly aid the development of snacks that are nutritionally enhanced, but also that have an inherent degree of understandability, credibility, and cultural relevance in Greece.

## 5. Conclusions

This study provides a detailed image of the acquisition, consumption, and perceptions of snacking among a relatively highly educated, mostly urban, and female-skewed sample

of Greek adults. Cereal bars were the most readily identified packaged snack category. Bakery cheese pie was the most associated non-packaged snacking option. Snacking was most associated with working hours and concentrated in the mid-morning and afternoon. Although the role of packaging appearance in purchasing decisions was only secondary, participants showed an increased interest in specific parts of the nutrition declaration, such as energy, fat, and sugars. Claims like “no preservatives” and “sugar-free/no added sugars” were very attractive to the participants. Claims like “gluten-free” or “suitable for vegan” attracted relatively little interest.

Consistent consumer preference was detected for snacks with naturally occurring nutrients over fortified ones, along with a strong preference for savory products with familiar traditional Greek ingredients such as olive oil, nuts, and fruits. This pattern found in various parts of the questionnaire suggests that Greek consumers may find perceived naturalness and cultural familiarity more important for the acceptance of a product than the presence of specific health-oriented claims or fortification.

Sociodemographic and lifestyle characteristics (specifically age, gender, education level, employment status, and BMI) were found to be consistently and significantly related to snacking motivations, timing, purchasing behavior, label engagement, and openness to innovative or functional snacks. Snack-related attitudes and behaviors in this population are not uniform but vary systematically according to who the consumer is. These relationships hold for Greek and international consumer behavior research as well. Both have documented similar findings, showing that women, older adults, and more highly educated individuals tend to engage more actively with nutrition-related information than their male, younger, or less educated counterparts [9,12,19]. Information on nutrients is not enough as it seems that consumer acceptance of healthier or more innovative snacks depends much more on trust, familiarity, perceived naturalness, and the clarity of on-pack information [8,10].

All these imply that the most successful strategy for the development of snack products in Greece would be one that merges improved nutritional profiles with ingredients and flavor profiles already trusted and familiar to consumers, supported by clear and credible labeling rather than health claims on their own. Both industry research and development efforts and targeted nutrition education initiatives stand to benefit from the integration of these results into future planning.

**Author Contributions:** Conceptualization, K.G.M.; Data curation, K.G.M. and A.E.K.; Formal analysis, K.G.M.; Investigation, K.G.M.; Methodology, K.G.M.; Resources, K.G.M.; Software, K.G.M.; Supervision, A.E.K.; Validation, K.G.M. and A.E.K.; Visualization, A.E.K.; Writing—original draft, K.G.M.; Writing—review and editing, A.E.K. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research did not receive funding.

**Institutional Review Board Statement:** The study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of the University of the Aegean (protocol code 7505 and date of approval 20 October 2019).

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** Data is available upon request from the corresponding author.

**Acknowledgments:** We would like to thank all the volunteers who participated in the study.

**Conflicts of Interest:** The authors declare no conflicts of interest.

## References

- Hess, J.M.; Jonnalagadda, S.S.; Slavin, J.L. What Is a Snack, Why Do We Snack, and How Can We Choose Better Snacks? A Review of the Definitions of Snacking, Motivations to Snack, Contributions to Dietary Intake, and Recommendations for Improvement. *Adv. Nutr.* **2016**, *7*, 466–475. [\[CrossRef\]](#) [\[PubMed\]](#)
- Marangoni, F.; Martini, D.; Scaglioni, S.; Sculati, M.; Donini, L.M.; Leonardi, F.; Agostoni, C.; Castelnuovo, G.; Ferrara, N.; Ghiselli, A.; et al. Snacking in Nutrition and Health. *Int. J. Food Sci. Nutr.* **2019**, *70*, 909–923. [\[CrossRef\]](#) [\[PubMed\]](#)
- Njike, V.Y.; Smith, T.M.; Shuval, O.; Shuval, K.; Edshteyn, I.; Kalantari, V.; Yaroch, A.L. Snack Food, Satiety, and Weight. *Adv. Nutr.* **2016**, *7*, 866–878. [\[CrossRef\]](#) [\[PubMed\]](#)
- Potter, M.; Vlassopoulos, A.; Lehmann, U. Snacking Recommendations Worldwide: A Scoping Review. *Adv. Nutr.* **2018**, *9*, 86–98. [\[CrossRef\]](#) [\[PubMed\]](#)
- Schlinkert, C.; Gillebaart, M.; Benjamins, J.; Poelman, M.; de Ridder, D. The Snack That Has It All: People's Associations with Ideal Snacks. *Appetite* **2020**, *147*, 104649.
- Boukid, F.; Klerks, M.; Pellegrini, N.; Fogliano, V.; Sanchez-Siles, L.; Roman, S.; Vittadini, E. Current and Emerging Trends in Cereal Snack Bars: Implications for New Product Development. *Int. J. Food Sci. Nutr.* **2022**, *73*, 610–629. [\[CrossRef\]](#) [\[PubMed\]](#)
- Ciurzynska, A.; Cieśluk, P.; Barwińska, M.; Marczak, W.; Ordyniak, A.; Lenart, A.; Janowicz, M. Eating Habits and Sustainable Food Production in the Development of Innovative 'Healthy' Snacks. *Sustainability* **2019**, *11*, 2800. [\[CrossRef\]](#)
- Michel, F.; Sanchez-Siles, L.M.; Siegrist, M. Predicting How Consumers Perceive the Naturalness of Snacks: The Usefulness of a Simple Index. *Food Qual. Prefer.* **2021**, *94*, 104295. [\[CrossRef\]](#)
- Sharf, M.; Sela, R.; Zentner, G.; Shoob, H.; Shai, I.; Stein-Zamir, C. Figuring Out Food Labels: Young Adults' Understanding of Nutritional Information Presented on Food Labels Is Inadequate. *Public Health Nutr.* **2012**, *15*, 407–414.
- Iles, I.A.; Nan, X.; Verrill, L. Nutrient Content Claims: How They Impact Perceived Healthfulness of Fortified Snack Foods and the Moderating Effects of Nutrition Facts Labels. *Health Commun.* **2018**, *33*, 130–138.
- Fotiadou, E.; Babajimopoulos, M. Snack Patterns of Greek Adults 20–50 Years of Age. *J. Foodserv.* **2006**, *17*, 197–204. [\[CrossRef\]](#)
- Georgoulis, M.; Georgousopoulou, E.N.; Chrysohoou, C.; Pitsavos, C.; Panagiotakos, D.B. Longitudinal Trends, Determinants, and Cardiometabolic Impact of Adherence to the Mediterranean Diet among Greek Adults. *Foods* **2022**, *11*, 2389. [\[CrossRef\]](#) [\[PubMed\]](#)
- Yannakoulia, M.; Karayiannis, D.; Terzidou, M.; Kokkevi, A.; Sidossis, L.S. Nutrition-Related Habits of Greek Adolescents. *Eur. J. Clin. Nutr.* **2004**, *58*, 580–586. [\[CrossRef\]](#) [\[PubMed\]](#)
- Mitsopoulou, A.-V.; Magriplis, E.; Dimakopoulos, I.; Karageorgou, D.; Bakogianni, I.; Micha, R.; Michas, G.; Chourdakis, M.; Ntouroupi, T.; Tsaniklidou, S.-M.; et al. Association of Meal and Snack Patterns with Micronutrient Intakes among Greek Children and Adolescents: Data from the Hellenic National Nutrition and Health Survey. *J. Hum. Nutr. Diet.* **2019**, *32*, 13–22. [\[CrossRef\]](#)
- Jezewska-Zychowicz, M.; Gawęcki, J.; Wadolowska, L.; Czarnocińska, J.; Głański, G.; Kollajtis-Dolowy, A.; Roszkowski, W.; Wawrzyniak, A.; Przybyłowicz, K.; Krusińska, B.; et al. Dietary Habits and Nutrition Beliefs Questionnaire and the Manual for Developing Nutritional Data. In *Committee of Human Nutrition*; Polish Academy of Sciences: Olsztyn, Poland, 2018.
- Raju, N.V.; Harinarayana, N.S. Online Survey Tools: A Case Study of Google Forms. In Proceedings of the National Conference on Scientific, Computational and Information Research Trends in Engineering, GSSS-IETW, Mysore, India, 30 January 2016.
- Nørgaard, M.K.; Sørensen, B.T.; Brunsø, K. A Concept Test of Novel Healthy Snacks among Adolescents: Antecedents of Preferences and Buying Intentions. *Food Qual. Prefer.* **2014**, *33*, 20–28. [\[CrossRef\]](#)
- Cross, A.T.; Babicz, D.; Cushman, L.F. Snacking Patterns among 1,800 Adults and Children. *J. Am. Diet. Assoc.* **1994**, *94*, 1398–1403. [\[CrossRef\]](#) [\[PubMed\]](#)
- Lupi, S.; Bagordo, F.; Stefanati, A.; Grassi, T.; Piccinni, L.; Bergamini, M.; De Donno, A. Assessment of Lifestyle and Eating Habits among Undergraduate Students in Northern Italy. *Ann. Ist. Super. Sanita* **2015**, *51*, 154–161. [\[CrossRef\]](#) [\[PubMed\]](#)
- Mohamad, R.; Noh, N.F.M.; Mohamad, S.S. Consumer Preferences and Purchasing Intention towards a New Healthy Snack Product. *Econ. Technol. Manag. Rev.* **2014**, *9b*, 123–132.
- Wang, E.S.-T. Impact of Multiple Perceived Value on Consumers' Brand Preference and Purchase Intention: A Case of Snack Foods. *J. Food Prod. Mark.* **2010**, *16*, 386–397. [\[CrossRef\]](#)
- Almoraie, N.M.; Saqaan, R.; Alharthi, R.; Alamoudi, A.; Badh, L.; Shatwan, I.M. Snacking patterns throughout the life span: Potential implications on health. *Nutr. Res.* **2021**, *91*, 81–94. [\[CrossRef\]](#) [\[PubMed\]](#)
- Lima, J.P.M.; Costa, S.A.; Brandão, T.R.S.; Rocha, A. Food Consumption Determinants and Barriers for Healthy Eating at the Workplace-A University Setting. *Foods* **2021**, *10*, 695. [\[CrossRef\]](#) [\[PubMed\]](#)
- Munshi, R.; Agarwal, S.; Radia, S.; Makwana, S. A Study on the Organic Food Industry: Consumer Perception. *Int. J. Creat. Res. Thoughts* **2020**, *8*, 3057–3072.
- Angastinioti, E.; Zakrajsek, A.G.; Hutchins-Wiese, H. An Exploratory Study Examining Mediterranean Diet Perceptions, Eating Practices, and Food Choice of Emerging Adults from Cyprus and the United States. *World Nutr.* **2020**, *11*, 22–43. [\[CrossRef\]](#)

26. Si Hassen, W.; Castetbon, K.; Tichit, C.; Péneau, S.; Nechba, A.; Ducrot, P.; Lampuré, A.; Bellisle, F.; Hercberg, S.; Méjean, C. Energy, nutrient and food content of snacks in French adults. *Nutr. J.* **2018**, *17*, 33. [[CrossRef](#)] [[PubMed](#)]
27. VLamonaca, E.; Cafarelli, B.; Calculli, C.; Tricase, C. Consumer perception of attributes of organic food in Italy: A CUB model study. *Heliyon* **2022**, *8*, e09007. [[CrossRef](#)] [[PubMed](#)]
28. Aljefree, N.M.; Shatwan, I.M.; Almoraie, N.M. Impact of the Intake of Snacks and Lifestyle Behaviours on Obesity among University Students Living in Jeddah, Saudi Arabia. *Healthcare* **2022**, *10*, 400. [[CrossRef](#)] [[PubMed](#)]
29. Ogundijo, D.A.; Tas, A.A.; Onarinde, B.A. Age, an important sociodemographic determinant of factors influencing consumers' food choices and purchasing habits: An English university setting. *Front. Nutr.* **2022**, *9*, 858593. [[CrossRef](#)] [[PubMed](#)]

**Disclaimer/Publisher's Note:** The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.