Retrospective study investigating the habits related to the snack consumption in a sample of the Greek population

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Background: The modern lifestyle is often characterized by time pressure during the day. Busy lives and not enough time to cook lead to most people no longer cook a meal. A snack is generally defined as any food eaten between main meals. Since snacking has become a key part of modern eating behaviors, this study investigates the preferences and habits of adult consumers in Greece regarding the snacking consumption, which nowadays shows a growing trend. Snack foods are an established part of this trend. They have become an even more popular meal replacement for many people on the go.

Objective: The purpose of this study was to evaluate the snacking consumption habits of Greek consumers. In addition, we aimed to record the adequacy of the knowledge about the nutritional status of snacks and whether the snack-products are pre-packaged to evaluate consumer preferences regarding nutritional claims or the nutrition table information.

Method: In this retrospective observational study, an online questionnaire consisting of 44 questions targeting the opinions and habits of consumers was employed. Greek adults were reached via social media, messaging apps and email platforms. Habits and preferences of the Greek consumers were assessed through questions pertaining to consumption of snacks. It should be noted that the questionnaire was composed without modifying or assisting by any other existing questionnaire. The exclusion criterion of the survey was the age under 18 years. This survey employed a self-administered questionnaire and assessed by 12 questions regarding demographic information and somatometric characteristics, 21 questions regarding snacking preferences and 11 questions regarding snacking consumption habits. Data statistical processing carried out using IBM-SPSS Statistics 2010 program through control with paired samples correlations, crosstab and t-test.

Results: In total, 1034 participants completed the survey. The majority (34.9%) age range was 35-44 years and 64.2% (n=664) were female. The mean BMI was 24.8 kg/m2 (normal weight), while the final sample comprised **29.5% in overweight** range and **11.4% with obesity**. The18.9% answered that their health was "**not good**". Most respondents (over 98,5%) admitted "snacking" in regular base. **"Cereal bars"** was the most popular choice (66,7%) because of limited time that respondents have during the day. The 49.4% of the participants **replaced** one of the **main meals** with a snack at least **1-2 times a week**. The 90.2% of participants believed that a snack consisting of chips was "not nutritious at all", compared with 58.5% of those who believed that nuts were "Very Nutritious". The 60,3% of participants preferred a **"tasty"** snack rather than a **"nutritious'** one. The **77,4% preferred nutrients derived from natural raw materials** rather than a snack enriched with specific nutrients. The majority of participants (36,6%) was interested in **"Energy" (calories)** of the Nutrition Table of a pre-packaged snack and **45% of them were influenced by the external packaging**. The three most **popular** categories of **nutrition claims** on a food product were **"Fat/Saturated Fat", "Energy Value"** and **"Sugar Content". The most popular claim (66.7%)** on a pre-packaged snack label, was the "**No sugar/no added sugar".** The participants preferred that a new snack product 66.6% should have a **savory** taste. The 45 % of participants believed that a food product with **high nutritional value** has the **same taste** with **low nutritional value** product. The 37.8% of the participants follow Mediterranean diet and olive oil was the prefered raw material that a snack should contain as the main ingredient..

Conclusion:

Greek adults prefer to consume a cheap, "grab 'n' go", tasty, savory, snack with high nutritional value, with no added sugar, low in fat and calories and follow the habits of the Mediterranean diet. On the other hand, depending on the daytime, they also consume different types of snack regardless if they are healthy or not (e.g. chips at night). Due to time pressure some of them necessarily replace at least one main meal during the day. That's why food industry should focus on developing enriched products (snacks) with nutritional ingredients from raw materials of the Mediterranean diet that promote nutritional claims in line with consumer demands.

Table 1. Preferred snack times

DAYTIME \ SNACK	morning	mid-morning	noon	afternoon	night
Chips					530
Cereal bars		690			
Biscuits				512	
Puff pastry	677				
Homemade snack	517				
Nuts				567	
Fruits&Vegetables				621	
Cereals	877				
Dairy products					598
Rusks		540			

Table 2. consumer opinion about the nutritional value of snacks

NUTRITIUS \ SNACK	Not at all	A little	Quite	Very
Chips	934			
Cereal bars			565	
Biscuits		534		
Puff pastry	486			
Homemade snack			568	
Nuts				605
Rice Cakes	449			
Cereals			535	
Dairy products				594
Rusks		542		

Chart 1. First thing on the nutrition table of a packaged snack that consumer is interested in

- Energy — 36,6%
- Total fat/Saturates — 22%
- Sugars — 12,6%
- Fibre — 16,3%
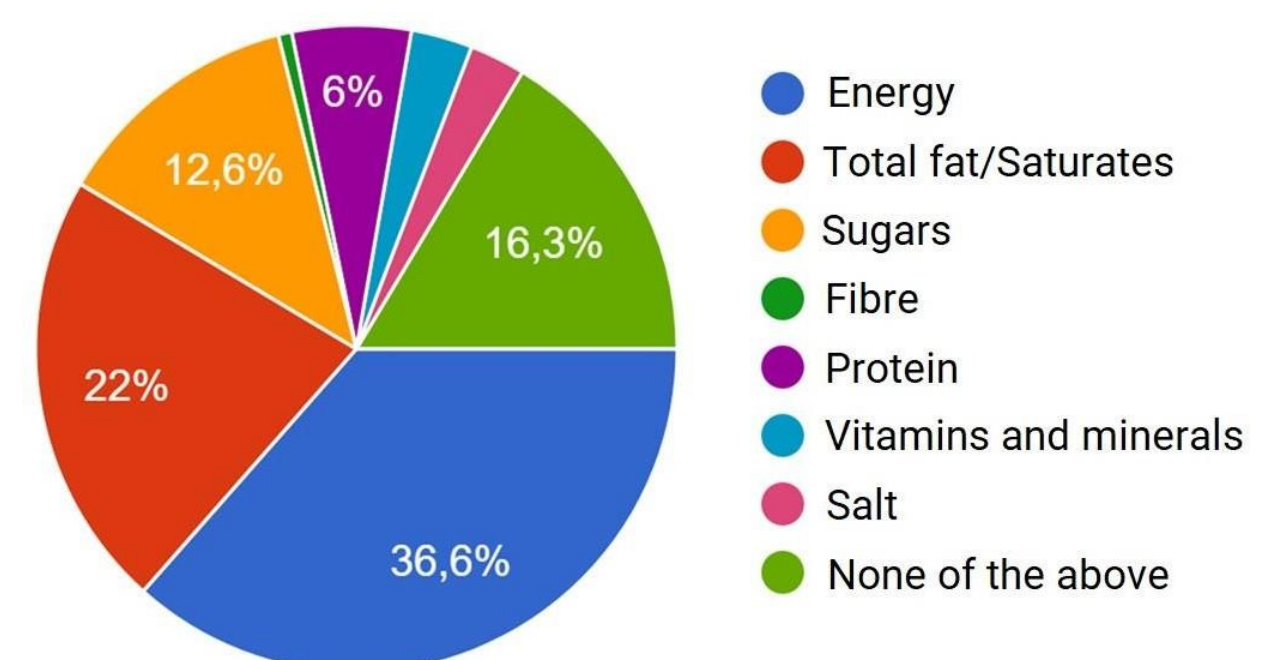- Protein — 6%
- Vitamins and minerals
- Salt
- None of the above

Chart 2. Consumer importance ranking of nutrition claims (EC) 1924/2006

- Sugar content — 413 (39,9%)
- Salt content — 258 (25%)
- Protein content — 395 (38,2%)
- Fibre content — 272 (26,3%)
- Energy — 536 (51,8%)
- Total fat/saturated fat — 548 (53%)
- Vitamin/mineral content — 295 (28,5%)
- Low calories (light) — 300 (29%)