

CHANGES OF YOUNG CONSUMERS' PERCEPTION REGARDING FUNCTIONAL FOOD - CASE OF CROATIA

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Abstract

Consumers have developed an interest in the type and the quality of food they eat and the benefits they gain by consuming it. Croatian consumers' perception of functional food regarding geographical region was not yet investigated and this was reason for defining the objectives of the research.

Questionnaire based survey was conducted on a sample with participants aged 18 to 22 (N = 250) during two periods (year 2008 and 2013). Data were analyzed using descriptive statistics as analysis of variance and multivariate analysis as exploratory factor analysis, cluster analysis and principal component analysis.

The results indicated that young consumers are relatively familiar with the term "functional food". The most important findings of the study are the significant differences between two subsets of respondents (those interviewed during 2008 and 2013) in their perception of "healthiness" of functional foods. Results indicate a need for the development of consumers' confidence and need to focus mainly on educating consumers in label comprehension, especially when it comes to the information that deals with the health attributes of food.

Extracted were the most important features and definitions of healthiness of functional food and the health motivation seems to have the highest relevance to explain consumer food choices.

Key words: Functional food, Young consumer, Perception, Attitude.

1. Introduction

The famous Hippocratic aphorism "Let food be thy medicine and medicine be thy food" during the 19th century philosophy of "food as medicine" was unfairly

ignored and replaced with the modern drug therapy. In the early 20th century the role of nutrition in disease prevention and health promotion becomes interesting again [1]. Functional food (FF) is becoming an engaging research topic in the recent years because of change in dietary habits and new trends in nutrition. Functional food's health benefits and nutrient content are important to the consumers. There is also an increasing economic interest which is not to be neglected when speaking about functional food as value added products. According to the Mark-Herbert [2] the boundaries between food and medicine are fading and business faces new challenges. Consumers have developed an interest in the type and the quality of food they eat and the benefits they gain by consuming it. Market and consumer knowledge and retailer involvement are key success factors in food product development [3]. At the same time labelling issues provide the means for communication of the product benefits to the consumers [4]. Functional food market is steadily growing in Europe and America ([5], [6], [7], and [8]) and the world market for functional food and drinks is expected to reach \$130 billion by 2015 [9].

The functional food is food in their original form such as fruits, vegetables, fish, meat, cereals, oil, milk and their products, as well as specially made industrial supplies [10]. Widely accepted definition of functional food among scientists is the following: "Functional food is food that contains bioactive ingredients that is scientifically found to have beneficial effects on human health". Functional food includes food that contains minerals, vitamins, fatty acids and fiber. It is food with added bioactive substances such as phytochemicals or other antioxidants and probiotics that have a beneficial impact on the lives of individuals. Free radicals are unstable particles which are formed in the body in normal physiological processes and have one

or more unpaired electrons in the outer electron shell. Because of unpaired electrons free radicals have very high chemical reactivity and strive to achieve steady state in response to the nearest molecule what leads to formation of free radicals [11]. Direct effects are not immediately obvious since the body is protected by the presence of antioxidant substances which, within certain limits, maintain equilibrium. Some studies have provided evidence about geographic variations in food environments and their relationship to socio-demographics factors ([12], [13], and [14]). According to NUTS2 [15] Croatia is defined as Coastal (Adriatic) Croatia and Continental Croatia. Coastal part is more oriented on the Mediterranean food style [16]. The Mediterranean diet is the intake of food that is healthy and nutritious and it consists of lots of fruits and vegetables, fish, seafood, olive oil, nuts and spices. Also this type of diet is not abundant in meat. As an evidence for positive effect of the Mediterranean diet on health there are a number of scientific studies that highlight a range of bioactive components as active substances of this diet. Fruit is a source of fiber, vitamins, minerals, flavonoids and terpenes and a large number of them have a protective role in the processes of oxidation [17]. Thus, the Mediterranean diet has several components that contribute to the overall protective effect on health ([1], [11], [18], and [19]). But "Food is considered to be functional if it is satisfactorily demonstrated to affect beneficially one or more target functions in the body beyond adequate nutritional effects" [20] because all foods are functional to some extent and provide flavor, aroma and nutritional value [21].

The objective of this paper was to examine the attitude of young consumers regarding "functional food". Two basic subsets for the set in year 2008 were concentrated on geographical differences. The next focus was to establish similarity and/or differences between two subsets of respondents (those interviewed during 2008 and 2013) in their perception of "healthiness" of functional food. Young participants are an interesting group for research from the economic point of view. They represent future customers and are of great significance for food industry's strategy. Their habits and their perception of functional food is valuable information for R&D food sectors and also for all involved in food industry. In developing new functional food product consumer demands need to be taken into consideration [22].

2. Materials and Methods

Questionnaire based survey was conducted on a sample with participants aged 18 to 22 ($N = 250$) during two periods (year 2008 and 2013). In the first group (year 2008, $N_1 = 108$) were included respondents from Coastal (Adriatic) Croatia and Continental Croatia [15]

in the same proportion. The age of the participants ranged from 19 to 25 presents young consumers at the beginning of their independence (begin to work and define their lifestyle). The second group (year 2013, $N_2 = 142$) included just the continental respondents. The stratified random sample was conducted in two different regions: Zagreb, as Continental part and Split as the representative of the Coastal part.

Questionnaire

The questionnaire included questions related to the following: participants' knowledge about FF and participants' attitudes towards FF consumption. The questionnaire starts with the question "Do you know what FF is". If the answer was Yes - the participant was asked to write down the definition of FF; if the answer was No - the interviewer has provided the simple version of Diplock's FF definition to the participants. Diplock's definition is following: "Functional foods are foods that (claim to) demonstrate health promoting effects, when consumed in normal doses by healthy people" [23]. In order to collect data about the respondents' opinion regarding FF and their attitudes regarding healthiness of FF open-ended questions were used. To measure consumers' attitude, the five-point Likert scale was used with following degrees: 1 = "strongly disagree", 2 = "disagree", 3 = "neither agree nor disagree", 4 = "agree" and 5 = "strongly agree".

Data analysis

Data were analysed using descriptive statistics and cross tabs using the program SPSS v.17.

3. Results and Discussion

Frequencies of functional food product's purchase were evaluated in the year 2008. Concerning different geographical parts of Croatia (Continental and Coastal part) no significant differences were found ($I^2 = 0.417$), as presented in Figure 1.

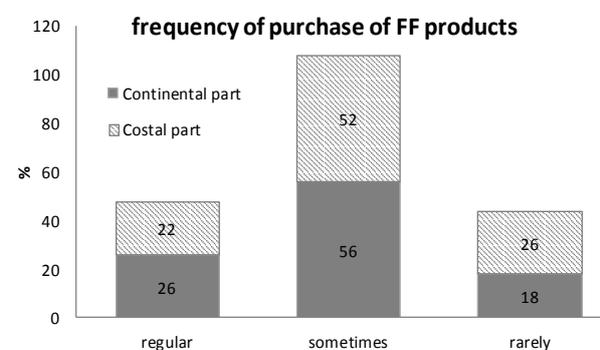


Figure 1. Frequency of purchase of functional food (FF) products in different geographical parts of Croatia (continental and coastal part)

Knowing that the purchase of functional food is independent to regional affiliation, results that will follow disregard the geographical affiliation.

Table 1. Percentage of the respondents knowing what is FF and those that buy FF

	yes	no
know what is FF		
2008	38.3	61.7
2013	50.9	49.1
buying FF		
2008	81.0	19.0
2013	81.5	18.5

The results from Table 1 indicate that percentage of respondents who are familiar with functional food has increased significantly ($I^2 = 0.0094$) in 2013 (50.9%) compared to 2008 (38.3%). At the same time willingness to buy functional food was in 2008 already 81% with an insignificant grow in 2013.

According to the respondents' answers functional food was classified in six different groups. Most of respondents in 2008 identified functional food as food that helps to maintain health (35.7%) and fortified food (33.3%). In 2013 more than half of participants considered functional food as food with health benefits and food with specific function (15.6%). Study of Siegrist and co-workers [10] suggest that consumers are more inclined to buy functional food with physiological health claims compared with psychological health claims. Health claims were most positively evaluated when attached to a product with a positive health image.

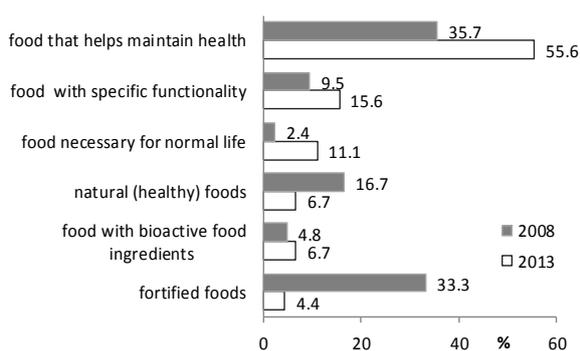


Figure 2. Perception of the role of consumption of functional food

Those participants who are familiar with the term "functional food" (giving the answer "yes" on the first question) gave their definition of functional food (figure 2). The majority links the term FF with health what is in accordance with other studies ([24], and [25]). In a period of five years some significant changes were noticed ($I^2 = 1.6 \cdot 10^{-15}$) in relations to the definitions

provided. Changes were noticed in participants' perception of food that was distinguished as functional food (figure 3). Fruit and vegetables were most distinguished as functional food in 2008 (51%) followed by dairy products (38%) and tea (14%). In 2013 dairy products were most identified functional food (38%) followed by fruits and vegetables (28%) and tea (13%). It could be concluded that dairy industry was the most successful in advertising which doesn't surprise compared with fruit and vegetables that are mostly produced by farmers. The dairy products are preferred regarding their content of probiotics [26]. Apart from specified participants have also recognised olive oil and cereals as functional food [27].

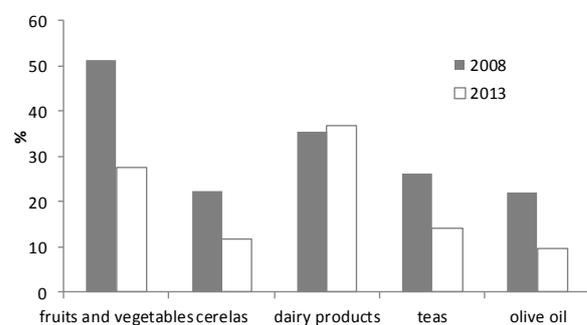


Figure 3. Foods that are distinguished as functional foods

Concerning the participants group consisted of young people (aged 19 to 25) that begin to work and define their lifestyle, important question was the regularity of purchasing food that potentially offers functionality. Results about participants' purchasing habits are presented in fig. 4. They show that in the last five years more and more people are regularly buying functional food. Number of occasional buyers has decreased in 2013 compared to 2008 as well as the number of rarely buyers and differences appeared to be significant ($I^2 = 1.3 \cdot 10^{-7}$). Difference between regularly and occasional buyers was 30% in 2008 and in 2013 those two categories have been almost equalized (48% and 49% respectively).

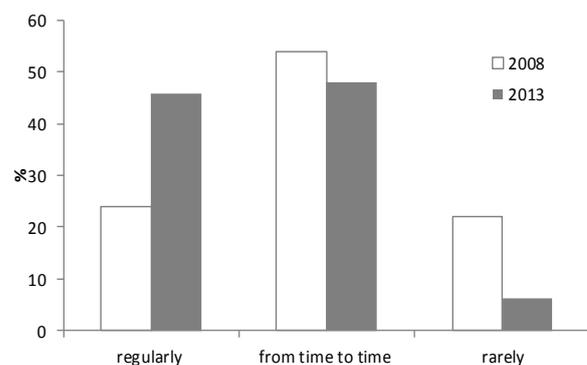


Figure 4. Changes in the purchasing of functional foods

Considering perception of young consumers regarding FF, it is evident that in the last five years taste and origin has been the most important characteristic of FF followed by price and quality (P & Q) ratio and price (Table 3). The least important characteristic of FF in both participants groups are purchase place and brand.

Although the origin is very important property for young consumers (more than 60% from both groups), certificate is not so important for them (25.2% and 18.9% respectively). It could be understood as contradiction because the origin is proved by certificate. On the other hand, this result indicates lack of confidence in certificates and labels. The largest differences between two subsets of respondents were observed in price and P&Q ratio indicating increase in perception in 2013.

Table 3. Perception of young consumers regarding properties of FF rated with Lickert scale (1 - strongly disagree... 5 - strongly agree)

	Lickert scale				
	1	2	3	4	5
Taste					
2008	0.0	1.9	11.1	17.6	69.4
2013	0.7	1.5	6.7	29.9	61.2
Price					
2008	6.5	6.5	36.4	22.4	28.0
2013	1.5	4.5	30.6	35.8	27.6
P&Q ratio					
2008	0.9	1.9	28.7	26.9	41.7
2013	0.7	0.0	10.4	37.3	51.5
Purchase place					
2008	7.5	16.0	38.7	25.5	12.3
2013	3.9	10.9	41.1	31.8	12.4
Brand					
2008	9.3	10.2	34.3	30.6	15.7
2013	9.6	18.5	39.3	25.2	7.4
Certificate					
2008	6.5	6.5	19.6	42.1	25.2
2013	3.8	12.9	29.5	34.8	18.9
Origin					
2008	0.0	1.9	11.1	17.6	69.4
2013	0.7	1.5	6.7	29.9	61.2

Examining the perception of young consumers regarding important features of FF that are rated with the Lickert scale, the results indicate relative familiarity of young consumers with the term "functional food" (Table 4). The most important findings of the study are the significant differences between two subsets of respondents (those interviewed during 2008 and

2013) in their perception of "healthiness" ($I^2 = 0,043$) and tastefulness ($I^2 = 4.13 \cdot 10^{-7}$) of functional food. Results indicate a need for the development of consumers' confidence and need to focus mainly on educating consumers in label comprehension, especially when it comes to the information that deals with the health attributes of food.

Table 4. Perception of young consumers regarding important features of FF rated with Lickert scale (1 - strongly disagree... 5 - strongly agree)

	Lickert scale				
	1	2	3	4	5
Healthier than others					
2008	0.0	1.9	11.1	17.6	69.4
2013	0.7	1.5	6.7	29.9	61.2
Tastier than other					
2008	7.4	9.3	34.3	35.2	13.9
2013	1.5	6.0	54.1	27.8	10.5
Safer than other					
2008	1.9	3.7	34.6	32.7	27.1
2013	1.5	5.2	32.1	40.3	20.9
Back to the nature					
2008	8.3	14.8	33.3	24.1	19.4
2013	9.8	14.4	33.3	24.2	18.2
My lifestyle					
2008	12.1	19.6	39.3	15.9	13.1
2013	14.2	14.9	35.8	16.4	18.7

These important features (Table 4) are proven to be considered as positive attribute of such food, which shows the complexity in the relationship between the health motives and the attitude towards FF [28]. Extracted were the most important features and definitions of healthiness of functional food and the health motivation seems to have the highest relevance to explain consumer food choices.

4. Conclusions

- Functional food will continue to effect mainstream products in the future because consumers seek better options to meet their needs. The purchase of functional food between young consumers in Croatia is independent to geographical region and young consumers are relatively acquainted with the term of FF.

- Research has proved that healthiness of functional food and health motivation to a large extent determines consumer food choice. It could be concluded that market growth is result of product innovation and increasingly health-conscious consumers.

- According to the results of the research education of consumers continuous to remain the primary task for food industry and other parts involved. There is a strong need to increase consumers' trust and understanding of labels.

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