

CONSUMERS' PERCEPTION OF FUNCTIONAL FOOD IN SERBIA REAGOVANJE POTROŠAČA U SRBIJI NA FUNKCIONALNU HRANU

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ABSTRACT

The majority of research works dealing with functional food is related to the potential health effects these foods may confer; however, relatively small number of them investigates the reaction of consumers and their perception of functional food. Moreover, modern life style and increased concern over health protection have led to changes in consumers' attitude towards food. Increased consumers' conscience and changed structure influenced the growing need for higher quality food products. This study was aimed at analyzing the impact of educational level on consumers' perception of functional food. The study was performed using questionnaires on the population of 500 randomly chosen subjects on the territory of Novi Sad, Serbia. The subjects were divided into four groups regarding their educational level. The study showed that educational level significantly influenced the consumers' attitude towards functional food and that increasing knowledge i.e. their education may considerably improve their opinions and orientation.

Key words: functional food, educational level, consumers' functional food perception.

REZIME

Većina istraživanja u vezi sa funkcionalnom hranom je koncentrisana na njene moguće zdravstvene posledice, a relativno malo je poznato o reagovanju potrošača na nju. Savremeni način života i povećana briga za očuvanjem zdravstvenog stanja dovela je do toga da potrošači postaju sve zahtevniji i precizniji pri donošenju odluke o kupovini određenih namirnica. Razvojem svesti potrošača i promeni njegove strukture javila se i potreba za kvalitetnijim namirnicama. U radu će se analizirati uticaj nivoa obrazovanja ispitanika na njihova odnos prema funkcionalnoj hrani. Istraživanje je sprovedeno putem upitnika, metodom slučajnog uzorka na teritoriji Novog Sada i obuhvatilo je 500 ispitanika. Ispitanici su podeljeni u četiri grupe po nivou obrazovanja. Istraživanje je pokazalo da nivo obrazovanja značajno utiče na mišljenje potrošača o funkcionalnoj hrani i da se podizanjem nivoa znanja tj. edukacijom potrošača može značajno uticati na promene njihovih mišljenja i stavova.

Cljučne reči: funkcionalna hrana, stepen obrazovanja, potrošačka percepcija.

INTRODUCTION

Food, as a result of numerous and various activities within the long and complex food chain, is associated with three major requirements: safety, quality and certainty in supplying. These aspects are the major right of every human being as food is one of the three conditions necessary for life (Radovanović, 2007). Diseases and health disorders of modern men have been more and more related to dietary habits and the quality of food. Food has become a major factor affecting human health (Živković et al., 2010). Increased awareness for health and well-being in line with developing food industry and medicine as well as other natural sciences that search the relations between health and diet, boosted the popularity of food with scientifically proven health-promoting effects. This kind of food has been also related to various other benefits (Alzamora et al., 2005). The official definition for functional food still does not exist but, in 1998, the European Union, in coordination with the "International Life Science Institute Europe", has adopted the following definition: "Food can be considered functional if it has been adequately proven to exert beneficial effects on one or more targeted functions in human organism, beyond the usual nutritive effects and in a way which is important for the general well-being and health prevention" (Diplock et al., 1999). However, most research works on functional food focus on its health-promoting effects, whereas consumers' reactions concerning this type of food are still a subject to be more thoroughly elaborated. In this moment, little is known about the psychosocial factors influencing the consumers' attitudes towards functional foods (Devcich et al., 2007). In the modern world dominated by service activities, consumer should be on the first place because he buys the products and services which are the products of economic system. In numerous situations consumers cannot understand the information on the labeling (Palfi and Barna, 2010). However, understanding of motives influencing consumers' food choices is necessary for the development of promotion campaigns and efficient strategies concerning diet and health (Honkanen and

Frewer, 2009). That is why studies on consumers' behavior is an important step in the development of functional food products (Ares and Gámbaro, 2007). Consumer's interest or attitude for certain foods depend on many factors: habits, personality type, environment, age, gender, educational and social level, lifestyle and sources of information.

MATERIAL AND METHOD

The method of interviewing was found to be the most appropriate method for testing. Questionnaires were presented to 500 randomly chosen subjects. This is the most widely used method in data collection from primary data sources. For the analysis of responses, multivariate methods of analysis MANOVA and discriminant analysis were used. From univariate methods, Roy's test, Pearson's coefficient of contingency (χ), and multiple coefficient of correlation (R) were used. Data were classified depending on the frequency and to each class a real number was given. Data scaling did not exclude the application of non-parametric tests. Scaled data were further analyzed by the aforementioned methods to deliver coefficients of discrimination which helped in the selection of properties defining the specificity of subsamples and those to exclude from analyses.

RESULTS AND DISCUSSION

The study was performed using questionnaires on the population of 500 randomly chosen subjects on the territory of Novi Sad, Serbia. The subjects were divided into four groups regarding their educational level: subjects with elementary school education; subjects with high-school education; subjects with college education; subjects with university education. The inquiry also included the respondents' answers to questions such as: "how do you recognize which food is functional and which is not?"; "do you buy products that belong to the category of functional food?"; "how often do you buy functional food products?"; "where do you get information about functional foods from?"

Table 1. Distribution of responses concerning the recognition of functional food products in stores

Educational level	No answer		Product is being soled in health stores		On the basis of a sign for health food or similiar		On the basis of health claim		On the basis of nutrition facts printed on the label		Producer is known as the producer of health food	
	number of respondents	%	No.	%	No.	%	No.	%	No.	%	No.	%
Elementary	2	1.9	25	24.3	28	27.2	7	6.8	15	14.6	26	25.2
High-school	2	0.6	43	13.5	163	51.3	33	10.4	43	13.5	34	10.7
Colege	0	0	5	13.2	18	47.4	7	18.4	3	79	5	13.2
University	0	0	7	14.3	20	40.8	9	18.4	12	24.5	1	2.0

Respondents with elementary school education showed difficulties in recognizing functional food products (Tab. 1). In contrast, respondents with higher educational level had less trouble in recognizing functional food products and 41-51% of the respondents make their purchase decision on the basis of sign "health food" shown on the label. It was further concluded that only few respondents do not read the labels. Most of them read the labels but with diffremt frequency. It was also noted that respondents with higher educational levels are linked with a higher frequency in reading the labels. Thus, within the group of respondents who always read the food labels, the majority had a university degree, whereas most of respondents with high-school education only occasionally seem to read the food labels.

On the basis of the obtained results, it was revealed how educational level affected the reading of labels:

- Respondents with high-school education occasionally read the labels;
- Respondents with college education frequently or ocaasionally read the labels;
- Respondents with university degree frequently read the labels.

Table 2. Distribution of responses concerning the purchase of functional food products

Educational level	No answer		Answer YES		Answer NO		Answer SOMETIMES	
	No.	%	No.	%	No.	%	No.	%
Elementary	1	1.0	12	11.7	31	30.1	59	57.3
High-school	3	0.9	79	24.8	47	14.8	189	59.4
Colege	0	0	18	47.4	0	0	20	52.6
University	0	0	29	59.2	1	2.0	19	38.8

The most frequent answer (52.6-59.6% of respondents) to question whether the respondent buys functional food products (Tab. 2) is "sometimes" for respondents with educational levels below academic. Around 40% of respondents with university degree would buy functional food product. This shows an increased interest for functional foods among consumers with higher educational level.

Table 3. Distribution of responses concerning the frequency of purchasing functional food products

Educational level	No answer		Every day		Sometimes		Rarely	
	No.	%	No.	%	No.	%	No.	%
Elementary	22	21.4	7	6.8	40	38.8	34	33.0
High-school	41	12.9	51	16.0	185	58.2	41	12.9
Colege	1	2.6	10	26.3	20	52.6	7	18.4
University	2	4.1	19	38.8	25	51.0	3	6.1

Respondents with elementary school education rarely buy these products. In addition, many of them did not answer this question presumably because of their inability to recognize what the functional products are all about. In contrast, it is encouraging that a higher level of consumer education is linked with increased frequency of purchasing. Hence, about 40% of the respondents regularly purchase these products.

Table 4. Significance of variation among various educational levels concerning their attitude regarding the sources of information about functional food

Analysis	n	F	p
MANOVA	7	4.150	< .001
Discriminative	7	4.256	< .001

Legend: n – variables; F – Fisher's distribution; p – Confidence interval

From Table 4 it can be concluded that there is significant variability in information routes of consumers regarding functional food among respondents belonging to different educational classes. Also, a distinct boundary can be drawn among various educational levels regarding information sources.

CONCLUSION

The survey confirmed that it is possible to predict requirements and behaviour models for consumers. The study showed that educational level significantly affect consumers' attitude and opinion about functional foods.

- Educated consumers think that information on the label is important for making intelligent decisions for purchasing food products.
- Consumers with a higher educational level know more facts about functional food products.
- Consumers with a higher educational level pay more attention to label contents and more frequently buy functional food products.
- Consumers with higher educational level check more frequently the name of producer, nutritive facts and health claims given on labels.

The general conclusion of this survey is that it is necessary to educate consumers about functional foods. More knowledge and increased awareness about the importance of consuming functional food products can have a positive impact on consumers' food choices and protect them from false products, fraudulent advertisements or product labels with delusive content.

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REFERENCES

Alzamora S., Salvatori D., Tapia M., López-Malo A., Welti-Chanes J., Fito P. (2005). Novel functional foods from vegetable matrices impregnated with biologically active compounds. *Journal of Food Engineering*, 67 (1-2), 205-214.

Ares G. and Gámbaro J. (2007). Influence of gender, age and motives underlying food choice on perceived healthiness and willingness to try functional foods. *Appetite* 49, 148-158.

Devcich D., Pedersen L., Keith J. (2007). You eat what you are: Modern health worries and the acceptance of natural and synthetic additives in functional foods. *Appetite*, 48 (3), 333-337.

- Diplock A.T., Aggott P.J., Ashwel M. (1999). Scientific concept of functional foods in Europe: Concensus document. *British Journal of Nutrition*, 81, 1-27.
- Honkanen P. and Frewer L. (2009). Russian consumers, motives for food choice. *Appetite*, 52 (2), 363-371.
- Palfi E., i M. Barna. (2010). Označavanje alergenata u hrani - uloga u zaštiti potrošača. *Journal on Processing and Energy in Agriculture*, 14, (1), 19-22.
- Radovanović R. (2007). Bezbednost hrane - globalni problem kao izazov za buduće aktivnosti, *Savremena poljoprivreda*, 56 (5), 1-11, Novi Sad, Srbija.
- Živković Jasmina, Nježić Z., Cvetković Biljana, Košutić M.: Deklarisanje domaće hrane, u susret EU, XIV Symposium Feed Technology 2nd workshop Feed-To-Food FP7 REGPOT-3, ISBN 978-86-7994-021-6, Novi Sad, October, 2010, 222-226.

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