

STUDENTS' PERCEPTION AND AWARENESS OF THE SIGNIFICANCE OF CONSUMER FOOD AND HEALTH CLAIMS ON FOOD LABELS

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ABSTRACT

Food manufacturers communicate with their consumers via food labels, information, and advertisement. Therefore, manufacturers are obliged to pay great attention to these elements. When it comes to information, emphasis is placed on the composition of the product, quantity, shelf life, product origin and characteristics, identity and property. Through a survey conducted among students, the paper aims to assess the level of familiarity among younger demographic with nutritional and health information on food labels and explore their perspectives on these declarations. The study involved the active participation of 262 students. The role of the label on the consumer food product is to convey information about the given product. Using various domestic and foreign literary sources, a questionnaire has been created and survey research was conducted. The obtained results were statistically processed, using descriptive statistics. The goal of the paper is to show the degree of awareness among students regarding the importance of the directives defined by the Regulation on Food labeling, marking, and advertising along with the Regulations pertaining to nutrition and health claims featured on food labels. The initial hypothesis of the research was that the respondents (students) were familiar with the nutrition and health claims on the food label. Based on the entire research and the obtained results, the initial hypothesis was not confirmed.

Keywords: food label; consumer food products; health claims.

INTRODUCTION

Multiple efforts aimed at encouraging people to make “healthy” dietary choices have been identified as one of the priorities for reducing the increasing incidence of various types of diseases that can be linked to poor diet (World Health Organization, 2013). Obesity is increasingly associated with poor nutrition and constitutes a “trigger” for other noncommunicable diseases that can be prevented/postponed by reducing body weight and changing the eating habits (Estuh and Ros, 2020). Many countries of the European Union are faced with a sudden increase in the number of obese and/or undernourished people (Odzaković et al., 2018). Consumers’ needs to choose healthier food are becoming more and more prominent. Considering that knowledge about nutrition is related to the choice of “health-safe” food (Spronk et. al., 2014), the focus of public policy is

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increasingly directed towards education and providing information about nutrition, as well as raising awareness and increasing motivation for choosing healthier food products (Capacci et al., 2012).

The labeling of nutritional information on food products is one of the main tools to help consumers choose nutritionally appropriate food. Reading and understanding labels can influence the consumer's product selection. In order to facilitate food selection and purchase, it is necessary to raise consumer awareness on the importance of reading and sharing nutritional statement (Malloy-Weir and Cooper, 2017).. Nutritional information aims to reduce the information gap between manufacturers and consumers. Informing consumers about food is in the service of protecting consumers' interests. All food producers have a responsibility to guarantee a high standard of consumer protection, ensuring that the food they manufacture is both healthy and accurately labeled in accordance with the law. This ensures that consumers receive all pertinent information about food in a transparent and comprehensible manner (Muhametbegović et al., 2018). Namely, the search for the most adequate way of displaying this information, all with the aim of making it visually attractive for the consumer, is still ongoing. In this way, consumers would be moderated to healthy food choices (Koenigstorfer et al., 2013). Rejman and Kasperska (2011) have summarized all the research on this topic that was carried out over a period of ten years in the European Union and in Poland. The authors point out that "European consumers are increasingly interested in a healthier way of life and their own health, and that awareness of food, nutrition and health has increased" (Rejman and Kasperska, 2011). The same authors in this research state that the interest in food such as fruits, vegetables and whole grain products is much higher than before. Consumers are trying to reduce their consumption of sugar, salt, fat, artificial sweeteners and additives, and increase their intake of dietary fiber, vitamins and minerals. On the other hand, however, the rate of obesity and other diseases caused by poor nutrition is increasing.

As a result of government action in several countries and the food processing industry, the international health organizations have begun to collaborate in order to find the most effective way to provide food information, in a format that would make the data as understandable as possible for consumers. The United States, Canada, and EU countries have adopted mandatory procedures of labeling certain food products, while others remain optional, but carefully regulated (EUFIC, 2016).

Although some countries have invested a lot of effort in various campaigns aimed at raising consumer awareness about the choice of healthier food products, consumers are still faced with the problem of interpreting the given information. Several studies on this topic have been carried out in different countries (Cowburn and Stockley, 2005; Grunert et al., 2010; Sharf et al., 2012; Shrestha et al., 2023). The saturation of information found on the market and the possibility of choosing between them are cited as some of the reasons (Mick et al., 2004). Consumers tend to draw conclusions about health and healthy diet from marketing campaigns (Abrams et al., 2015; Lahteenmaki et al., 2010; Sütterlin and Siegrist, 2015). In addition, the purchase of food products is often encouraged and guided by some of the sensory characteristics of the product itself. (Koenigstorfer et al., 2013).

Regardless, the nutritional claim on the consumer food products has become one of the most important instruments for the promotion of healthy eating habits. Its aim is to provide consumers with all important information about the food product when purchasing. Nutrition information can influence consumer behavior by allowing them to make a judgment about the health benefits of that product, and to make their own right choices based on the collected information. The nutrition label is an attractive tool because it promotes the concept of healthy diet and leaves the consumer with freedom of choice (Cannoosamy et al., 2014).

Food labeling is a very powerful marketing tool. Marketing-based claims, however, can lead consumers to make decisions based on unwarranted and biased statements. Due to the wide use of nutrition labels in stores, fast food chains, canteens, and other restaurants, it is necessary to continuously improve both national and international legislation in this area (Campos et al., 2011).

Marking and labeling of food products in Serbia is regulated by the Food Labeling, Marking and advertising Regulation (Official Gazette of RS, RS 19/2017, 16/2018, 17/2020, 118/2020, 30/2022). There are 14 mandatory elements that every label must contain. Mandatory information must be easily accessible and visible on all food. It is very important that the label is legible. The 14 mandatory elements include the name under

which the food is marketed, the list of ingredients, all ingredients or additives in the production process that can cause allergies and/or intolerances, net quantity, shelf life, special conditions for storing and/or using the food should it affect the properties of the food and shelf life, name and address/headquarters of the food company, country of origin or country and place of origin, instructions for use, actual alcohol content, nutritional label, batch or breakage mark, food quality category or classification.

A nutrition claim (Regulation, 2017) is defined as any claim that states, suggests or leads to the conclusion that the food has favorable properties due to: the energy value it provides (because of the presence of proteins, carbohydrates and lipids) and due to nutritional ingredients, it contains (vitamins and minerals). While a health claim refers to any statement indicating or suggesting that there is a link between a particular food or its ingredients and health. Nutritional information must be displayed for 100 g/ml of product, where the energy value is expressed in kJ/kcal, while other nutrients are displayed in grams (g).

METHODOLOGY

The questionnaire was comprised of three sections. The initial set of questions focused on gathering information about the socio-demographic characteristics of the students. The second set referred to the questions from which the data on students' opinions and awareness in regard to food labeling were obtained. The questions were offered in the statements form. Using a Likert scale, they were asked to rate their level of agreement with the given statement, with 1 representing complete disagreement and 5 strong agreement. In the third part, the students responded to the questions through the provided answers, from which we obtained data on their understanding of the nutritional and health statements on the food declaration. The questionnaire was compiled based on the directives defined by the Regulation on Food labeling, marking and advertising as well as the Regulation on nutrition and health claims stated on the food label.

The study was conducted between June 15th and July 15th, 2022, employing both electronic and in-person data collection methods. Participants in the research included students from various academic levels and fields of study at the University of Novi Sad. Throughout the study, responses from a total of 264 participants were gathered. The research methodology encompassed the utilization of various methods such as: domestic and foreign literature sources, survey research and statistical data processing (application of descriptive statistics).

RESULTS

Analysis of socio-demographic characteristics of respondents

Based on the data regarding the socio-demographic characteristics of the respondents presented in Table 1, it can be inferred that 264 respondents that participated in the research, 142 respondents were female (53.8%), while 122 respondents were male (46.2%). According to the age structure, the majority of the respondents belonged to the age group between 18-24 years (53%), followed by a smaller group between 24-30 (37.5%), while the smallest group of respondents were over 30 years of age (9.5 %).

One of the most significant elements of this research was the educational structure of the respondents. According to the collected data (Table 2), the majority of respondents (56.1%) were undergraduate students. This result was expected, given that the University of Novi Sad has the highest number of students enrolled in undergraduate study programs. In second place, 20.8% attended master's studies, while 16.3% attended basic vocational studies. The smallest number of respondents (only 6.8%) were working on their PhDs.

A more in-depth analysis of socio-demographic characteristics (table 1) focused on the respondents' field of study. Of the total number of respondents, 23.9% studied social sciences, 22.7% natural sciences, 21.6% technical sciences, 17.8% medical sciences, while 14% studied art. Based on these data, it is possible to determine within which field of study respondents are most informed about the nutritional and health claims on food labels.

Table 1. Gender and age structure of the respondents (n=264)

	Number of respondents	Share %
GENDER		
Male	122	46,2
Female	142	53,8
AGE		
From 18 to 24 years old	144	53
From 24 to 30 years old	99	37,5
More then 30 years old	25	9,5

Table 2. Respondents' level of education and field of study

Level of education	Number of respondents	Share %	Field of study	Number of respondents	Share %
Basic vocational studies	43	16.3	Natural Sciences and Mathematics	60	22.7
Undergraduate studies	148	56.1	Medical sciences	47	17.8
Master studies	55	20.8	Social and human sciences	63	23.9
Master Studies	/	0	Art studies	37	14
PhD studies	18	6,8	Technical Sciences	57	21.6

The question “Have you taken any courses on food labelling, marking and advertising during your studies?” provided an insight as to whether the surveyed students had the opportunity to listen to lectures related to nutrition. If so, has this perhaps had an impact on better understanding of nutrition and health claims on the food labels? Based on the results obtained, it can be concluded that the majority of students, 59.8%, did not attend courses on food labeling, marking and advertising. Only 28.5% had attended the lectures on this subject. The remaining 11.7% of respondents were unsure of the answer. These results are not unexpected, given that some fields of study do not usually include nutrition courses in their curricula.

It's very important to raise young people's awareness of health care. An unbalanced diet has a direct impact on young people's health. According to the data of the national study on the health status of the population of Serbia in 2019, 57.1% of adults over 15 years old were overweight, 20.8% were obese (Republican Institute of Statistics, 2021). It is estimated that by 2030, nearly two million people in Serbia will be obese. Monitoring the eating habits of children and young people can be a prognostic factor for their future health. Educating young people, including students, about balanced nutrition, food labels and marking will prove important if we consider the consequences of a lack of education in this area.

Analysis of students' views and awareness of food product labelling

In the second part of the survey, respondents were presented with certain statements relating to consumer food labeling. The number of responses to the given statement is shown in Table 3. Based on the data collected, the conclusion can be drawn that students mainly read the labels when purchasing food products (92 students agreed with the statement, while 82 students strongly agreed with the statement). They also believe that

the information on the labels is useful, but not easy to understand. Given that the majority of respondents felt that the information was not easy to understand, it was to be expected that incorrect answers would be more numerous when it came to health claims. Respondents were informed that nutrition labelling is a mandatory part of the food product label, as 148 respondents strongly agreed with the given statement. According to the Regulation, the mandatory elements of the nutrition label are energy value, fat, carbohydrate, protein, salt, saturated fatty acids and sugar. The manufacturer is not obliged to list other elements. In this respect, respondents gave incorrect answers when it came to specifying mandatory elements. They believe that the amount of vitamins and fiber content is a mandatory element of the nutrition label. Respondents were also confused by the question concerning the addition of very small quantities of ingredients, such as flavorings, colorings and others. 101 of them strongly disagreed with the proposed statement, indicating that they believe that even if these substances are added in very small quantities, they should be highlighted on the label, as defined by Regulation (2017). No fewer than 80 respondents disagreed with this statement, which testifies to their lack of knowledge.

Table 3: Presentation of students' views/assessments on the food labels.

Statement response	1*	2*	3*	4*	5*
When buying, I always read the food label	16	35	39	92	82
The label contains useful information	7	19	29	115	94
Labels are not easy to understand	17	27	37	109	74
The nutrition label is a mandatory part of the food label.	6	14	23	73	148
The fiber content of the food must appear on the product label.	10	24	30	84	116
The amount of vitamins in a food is mandatory information on the product label	7	25	27	76	129
Ingredients such as flavorings, colorings, etc., which are present in very small quantities in the product, do not have to be included on the label.	80	47	36	57	44

*1 - I strongly disagree; 2 - I partially disagree; 3 - I neither agree nor disagree; 4 - I partially agree; 5 - I strongly agree;

Table 4: Tabular presentation of specific health and nutrition claims from the survey questionnaire

Question/claim	Options and correct* answer	Number of respondents**	Share %**
Health claims can be made for food products:	a) If they are based on accepted scientific evidence b) If they appear on all identical or similar products c) if they refer to the recommendations of individual doctors or nutritionists d) If they refer to the rate of body mass loss or the extent of body mass loss	208	78,8
What does the nutrition claim "low energy" mean?	a) Product containing no more than 30 kcal (130 kJ) / 100 g in solid or no more than 15 kcal (65 kJ) / 100 ml liquid form b) Product whose energy value is reduced by at least 30% compared to an identical or related food c) Product containing no more than 40 kcal (170 kJ)/100 g in solid or no more than 20 kcal (80 kJ)/100 ml in liquid form.	93	35
What does the claim "no energy value" mean?	a) That the energy value of the given product is 0 kcal (0 kJ) b) That the product does not contain more than 4 kcal (17 kJ) / 100 ml c) That the product contains only sweeteners	137	52
What does the claim "low fat" mean?	a) That the product does not contain more than 0.5 g of fat per 100 g of product b) That the content of saturated fatty acids and trans-fatty acids does not exceed 1.5 g per 100 g of product c) That the product does not contain more than 3 g of fat per 100 g of product	92	34,8

Question/claim	Options and correct* answer	Number of respondents**	Share %**
The claim "rich in omega-3 fatty acids" means:	a) That the product contains at least 0.6 g of alpha-linolenic acid per 100 g of product b) That the product contains at least 0.3 g of alpha-linolenic acid per 100 g of product c) That the product contains at least 0.9 g of alpha-linolenic acid per 100 g of product	122	46,2
What does the nutrition claim "source of fiber" mean?	a) Product containing at least 12 g of fiber per 100 g or at least 6 g of fiber per 100 kcal. b) Product containing at least 6 g of fiber per 100 g or at least 3 g of fiber per 100 kcal. c) Product containing at least 3 g of fiber per 100 g or at least 1.5 g of fiber per 100 kcal.	62	23,5

*the correct answer is marked in italic font

**number and share of respondents who gave the correct answer

In the third part of the survey, respondents were presented with certain statements related to knowledge of nutrition and health claims on the food labels (Table 4). Examining the responses received, we can conclude that the majority of respondents, 78.8%, gave a correct answer to the statement that health claims can be made if they are based on the accepted scientific evidence. Only 35 respondents gave the correct answer to the health claim "low calorie" meaning that the product contains no more than 40 kcal (170 kJ)/100 g in solid form or no more than 20 kcal (80 kJ)/100 ml in liquid form. Therefore, the conclusion is that students are not aware of this information. However, the statement "no calories" is more familiar to students, as 52% of respondents gave the correct answer. Fats have very important beneficial effects on the human body; however, the quantity and type of intake must be taken into account. Low fat means that the product contains no more than 3g of fat per 100g of product (Regulation on health claims stated on the label, 51/2018, 103/2018). This is the only question on the survey questionnaire for which respondents ticked all three proposed answers in almost equal numbers. The results indicate that students are not familiar with this statement either. Omega 3 fatty acids are often described as valuable fats. The reason for this is its preventive effect on health. Numerous clinical studies have revealed its positive impact on health (protection of the heart and blood vessels), child development, prevention of malignant and cardiovascular diseases, and mental illness (depression, dementia, attention deficit disorder)

(Pavlović i sar., 2020; Nordgren et.al, 2017; Bender, 2011). A product is considered rich in omega-3 fatty acids as long as it contains at least 0.6 g of alpha-linolenic acid per 100 g of product (Regulation, 2018). Less than half of the respondents, 46.2%, gave the correct answer. Dietary fibers have multiple roles in our body. Research has shown that a sufficient intake of dietary fiber has a positive effect on maintaining health for example a decreased low-density lipoprotein cholesterol level (Fuller, Beck, Salman, & Tapsell, 2016). For a processed product to be a good source of fiber, it must contain at least 12 g of fiber per 100 g of product or 6 g per 100 kcal (Regulation, 2018). Only 23.5% of respondents gave the correct answer. Energy requirements vary according to gender, age and work intensity. The energy intake for an average adult is 2000 kcal/8400kJ. It's important to pay attention to energy intake, to avoid obesity and many other diseases. Today's market offers products with little or no energy value. Most respondents (43.6%) believe that the term "low energy" refers to a product that contains no more than 30 kcal (130 kJ) / 100 g in solid form, or no more than 15 kcal (65 kJ) / 100 ml in liquid form, which is incorrect. While 35.2% of respondents gave the correct answer. In fact, these are products that contain no more than 40 kcal (170 kJ) / 100 g in solid form or more than 20 kcal (80 kJ) / 100 ml in liquid form (Regulation, 2018). Based on the data, we can state that students are not aware of this claim.

The claim, which has almost equal responses, refers to the harder small amount of fat. Although 34.8% answered that the product contains no more than 3g of fat per 100g of product, which is the correct answer, we consider that students' awareness is not satisfactory.

CONCLUSION

From the analyzed data, it can be concluded that a significant number of respondents have not participated in lectures related to food labeling, marking, and advertising. This may have contributed to the lack of information among students. Emphasizing the importance of educating individuals about reading and comprehending food product labels becomes increasingly crucial, especially when considering the projection that by 2030, Serbia is expected to have two million obese individuals. .

Overall, the research found that students' general awareness, use and understanding of nutrition and health claims found on food labels were low. More precisely, although the vast majority of respondents read the declarations on food products, they point out that the information on them is useful but not easy to understand. The existence of nutritional information on food products is a prerequisite for the consumer to make an adequate choice of food, but not always sufficient. The consumer, namely, must be able to find, read, understand and correctly interpret the information presented on the declaration or health declaration of the food product. Regulation on Food labeling, marking and advertising defines the mandatory elements of the nutritional declaration. Nutrients such as vitamins, minerals, fiber content are not required to be listed by the manufacturer. In this regard, the respondents gave the wrong answer. Namely, they believe that the manufacturer is obligated to indicate the amount of vitamins and fiber content.

When it comes to health statements, based on the obtained and analyzed data, we can conclude that they are incomprehensible and unclear to students. One of the health claims was "low energy value". Only 35% of respondents gave the correct answer. The only health statement that we can say is somewhat more familiar to the respondents, compared to the others, was "no energy value". The correct answer was given by 52% of respondents. For other health statements, the percentage of correct answers was much lower.

Based on the obtained and analyzed data, we can conclude that the initial hypothesis was not confirmed. For these reasons, permanent education would be needed, especially for the younger population of all ages, in order to massively apply the principles of healthy nutrition.

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