CONSUMER AWARENESS AND ATTITUDE TOWARDS NUTRITION LABELLING INFORMATION OF FOOD PRODUCTS AMONG CONSUMERS

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RESEARCH ARTICLE

Abstract

Nutrition labelling, mandatory for all food on the EU market, is a topic of interest as it is an important tool that shapes consumers' conscious food choices. The purpose of this study was to investigate consumers' knowledge of food labels and how this knowledge guides their decisions when making food purchase choices on 190 consumers. A four-section questionnaire covering demographic data, consumer use of nutrition information sources, consumer knowledge of food labeling, and determining consumer attitudes toward food labeling was used. Evidence from the study highlighted that reading, understanding of nutrition label information among consumers is not uniform and that food labels also have an impact on most people.

Keywords: nutrition labelling, consumers, information, attitude
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INTRODUCTION

In an era of increasing awareness of nutrition and the health implications of suboptimal nutrition, the World Health Organization has launched a crusade to encourage consumers to adopt healthier lifestyles and has established worldwide plans and policies to encourage healthier eating patterns. These policies help enforce strict food labeling guidelines as an essential way to present people with good nutrition information. Nutrition labelling, mandatory for all food on the EU market, is a topic of interest as it is an important tool that shapes consumers' conscious food choices. Nutrition labelling is a topical issue, as it is a vital aid that shapes consumers' food choices and could be an effective tool for preventing consumers' vulnerability to diet-related diseases such as cancer, high blood pressure, hypertension and obesity.

However, data on the public use of nutrition labels as a source of information on food nutritional properties and health claims, especially regarding Romania, are not popular in the available literature.

Nutritional information provided on food labels is considered an important tool to encourage consumers to make healthier food choices (Grunert & Fernandez-Celemin, 2010). In light of this fact, developed countries have adopted regulations that specify the information to be included on food labels, as well-designed labels can positively influence national diets (Temple, & Fraser, 2014). Since food labeling became mandatory, studies have shown that use of labeled information is correlated with improved diet quality (Lin & Yen, 2000), reduced energy intake(Krešić & Ivezić, 2009; Temple & Suders, 2010), increased consumption of fruits and vegetables (Singla, M.. 2010), and other activities of health promotion. The systematic review by Campos and colleagues (Campos, S.; & Hammond, 2011; Osei & Aidoo, 2013) showed that the consumer groups most likely to use nutrition labels are higher-income adults, young to middle-aged adults, whites, and women. The use and understanding of nutrition information provided on food labels is also affected by differences in interest in healthy eating, differences in nutrition knowledge, and social status (Andrews & Burton, 2009; Grunert & Fernandez-Celemin, 2010). Knowing the nutritional knowledge level of consumers is also a very useful tool for promoting their eating habits according to influential variables such as understanding of food labelling (Campos & Hammond, 2011; Creţu & Lascăr, 2022). Under current European legislation, the inclusion of

nutritional information is voluntary, unless a nutrition claim has been made. Only in the last few years has nutrition labeling found a wider penetration on the Romanian market, while at the same time, knowledge about nutrition, as well as the understanding and use of nutrition labels by Romanian consumers have only been sporadically investigated (Kenđel & Štefanac Nadarević, 2011; Kim & Capps, 2000; Singla, 2010). Consequently, it is important to establish the relationship between consumers' nutrition knowledge and the use of information provided on food labels, and to identify factors that influence the use of labeled information. By identifying these factors, it is possible to profile consumers who do or do not use nutrient content information.

This paper aims to examine consumers' use of labeling information: knowledge, attitude and practice. This study attempted to provide some background information on food label knowledge and consumers' understanding and use of this knowledge in food choices.

MATERIAL AND METHOD

This study adopted the quantitative survey method to examine consumers' knowledge of food labelling and their use of food labelling information sources. The study also assessed consumer attitudes towards food labelling and their practices. In order to achieve the purpose of the research, a specific online questionnaire was designed on Google forms, between May and July 2022 among the residents of Bihor County in Romania. Before the survey, all respondents were told that the data and opinions gathered through the survey were confidential and would be used for research purposes only. The distribution of the survey was done mainly by email invitation and social media. A total of 225 questionnaires were collected, of which 190 were validated for the current research from the respondents. The research instrument consisted of 4 main sections: (i) socio-demographic characteristics; (ii) consumers' use of nutrition information sources; (iii) consumer knowledge of food labelling; (iv) determine consumer attitudes towards food labelling.

The 15 questions were related to information known or unknown about the nutrition label (use of food labeling information sources, consumer knowledge of food labelling, attitudes toward food labelling, food labelling practices). Each of the 15 items was rated on a scale from 1 to 5, where 1 means total disagreement and 5 means total agreement. A study of 30 consumers was conducted to test the feasibility of the research instrument, in order to ensure that the statements were clear and to identify redundant variables and questions that were difficult to understand. According to this pre-test, some questions were removed, others were modified. Another benefit of the pre-test was that it provided a clear idea of the time needed to complete the questionnaire. The final questionnaire includes 22 questions. Based on the pilot study, the research instrument was revised. The justification of the survey method is based on its power to obtain the opinions of the large target population of consumers in Bihor County. The research topic focuses on primary and secondary data.

Moreover, the conceptual framework and literature were researched to be used as a framework to analyze the primary and secondary data of the research. Questionnaire method is the cheapest way to collect data from a potentially large number of respondents. Therefore, we used the questionnaire as the main tool to collect the quantitative data of the target audience in Bihor County. Data were collected through a self-administered online survey, in which participants were informed about the purpose of the research and gave their consent to the processing of their personal data in accordance with the General Data Protection Regulation of the European Union. Ethical review and approval was waived for this study due to the fact that participation was voluntary and all data were anonymous. When it comes to informed consent, it was obtained from all respondents involved in the study. Using a questionnaire-based method, all respondents had to give their consent to proceed to the actual set of questions. Data were analyzed using the SPSS 26.0 software package. The socio-demographic profile of the respondents as well as Data were analyzed using the SPSS 26.0 software package (SPSS Inc., Chicago, IL, USA). The socio-demographic profile of the respondents as well asconsumer knowledge of food labelling, attitudes towards food labelling, food labelling practices, were evaluated using descriptive statistics. Regarding the dimensionality of the 15 questions, principal component analysis (PCA) was performed to assess the influence that each question had on the nutrition label. The validity and reliability of the research route were established using the pre-test reliability method and Cronbach's

alpha.The two retained factors had an eigenvalue above one with Cronbach's alpha coefficient of 0.975, indicating good internal validity.

RESULTS AND DISCUSSIONS

Out of the total number of respondents, the vast majority were women (78.95%), compared to men (21.05%). Regarding the level of education, more than half of the respondents had a university degree (39.5%) or a postgraduate degree (34.20%). In addition, the proportion of participants belonging to the age groups 26–35 (28.94%), 36–45 (15.78%) and 46–55 years (26.31%) was fairly distributed. Regarding the income levels of the respondents, most of them reported household incomes of more than 4,000 lei per month, 10.52% reporting more than 5,000 lei per month, while only 5.29% of the households in question reported more less than 2,000 lei per month.The socio-demographic characteristics of the respondents are illustrated in Table 1.

Table 1.

The socio-demographic profile of the respondents

Characteristics	Variables	Number of Respondents (N = 190)	% of Respondents
Gender	Women	150	78.95
	Men	40	21.05
Education	High school	50	26.30
	University degree	65	34.20
	Postgraduate degree	75	39.50
Age	18-25	45	23.68
	26-35	55	28.94
	36-45	30	15.78
	46-55	50	26.31
	Over 56	10	5.29
Monthly income	<2000 RON	10	5.29
	2001-3000	45	23.68
	3001-4000	50	26.31
	4001-5000	65	34.20
	>5001	20	10.52
Weight	45-50 kg	25	13.15
	51-55 kg	35	18.42
	56-60 kg	40	21.08
	61-65 kg	25	13.15
	Over 71 kg	65	34.20

Table 2 shows how consumers use sources of nutrition information. It was found that the majority (36%) of respondents agree that they read the information presented on nutrition labels. In second place are respondents who strongly agree that they read the information presented on nutritional labels, about allergens, representing 48% of respondents. This implies that most consumers read food labels for a number of reasons related to their health, beauty or weight. The data also shows that 28% of respondents understand the information displayed on nutrition labels. A total of 33% strongly agreed with this statement. However, 44 respondents, 23% of respondents, disagreed. This indicates that almost half of the respondents understand or claim to understand the information displayed on food labels. This may be because of their level of education.

Table 2.

Consumers' use of food labeling information sources

	Strongly Disagree	Disagree	Agreed	Strongly Agreed
Reading the nutritional information on labels before buying a product.	13%	21%	30%	36%
Understanding the information displayed on nutrition labels.	16%	2. 3%	28%	33%
Reading food nutrition labels for allergen information.	8%	16%	28%	48%
Reading nutrition labels on food products to monitor my weight.	28%	36%	26%	10%
Only looking at the ingredients when they buy prepackaged foods.	29%	27%	2. 3%	21%

Table 3 shows the relationship between respondent characteristics and consumers' use of information sources. Age group is significantly associated with the use of information sources (p value < 0.001). Consumers in the age group 18–25 and 36–45 are more likely to use the information presented on food labels than consumers in other age groups, while consumers in the age group over 46 are less likely to use the information presented on food labels. Occupation is also significantly associated with information use. Also, education is significantly associated with the use of information sources (p value=0.365). Consumers who are highly educated are more likely to use information sources than consumers with a secondary education.

Table 3.

Relationship between participant demographic characteristics and consumers' use of information sources on food labelling

Characteristics	Variables			*p-values*
		Mean	*Standard Deviation*	
Gender	Women	2.9	0.9	0.159
	Men	2.6	0.6	
Education	High school	2.1	1.4	0.365
	University degree	2.4	0.7	
	Postgraduate degree	2.7	0.8	
Age	18-25	2.9	0.6	<0.001
	26-35	2.4	0.6	
	36-45	2.8	0.4	
	46-55	2.3	0.7	
	Over 56	2.3	0.7	
Weight	45-50 kg	2.5	0.7	0.529
	51-55 kg	2.5	0.8	
	56-60 kg	2.4	0.7	
	61-65 kg	2.6	0.7	
	Over 71 kg	2.6	0.7	

Table 4 shows respondents' knowledge of the availability of nutrition labels on prepackaged foods and their knowledge of the location of the nutrition information panel on the food label. Most respondents (62; 35%) agreed that food labels are available on prepackaged food products, while 18% disagreed with this statement. This shows that most consumers know that food labels exist, but do not necessarily use them. Almost half of respondents (39%) agree to know where the nutrition information panel is located on a food label, while 25% and 15% of respondents disagree and strongly disagree about the placement of the nutrition information panel.

68 (36%) respondents know how to calculate gram intake based on serving size of a food product, while 40 (21%) do not know how to calculate gram intake based on serving size. A total of 14% strongly agreed with the statement and 21% strongly disagreed. Despite the fact that most consumers know about food labels, some do not know how to calculate their intake in grams. The result shows that 36% of respondents agree to know which nutrients are listed on food labels. Respondents who strongly agreed with the statement amounted to 32%. In addition, more than half of all respondents, 32% disagreed and strongly disagreed that the information presented on a food label should be

written first in English before any other language. A total of one hundred and eight respondents (28.9%) agreed with the statement and 56% of the respondents strongly agreed with the statement. This means that almost half of all respondents do not know the regulatory rules on food labels.

Table 4.

Consumers' knowledge of food label

	Strongly Disagree	Disagree	Agreed	Strongly Agreed
Know about the availability of nutrition labels on prepackaged foods	14%	18%	35%	33%
Know where the nutrition panel is on a label.	15%	25%	39%	21%
Know how to calculate intake in grams based on the portion shown on the food nutrition label.	21%	29%	36%	14%
Know what the nutrients on food nutrition labels mean.	12%	20%	36%	32%
Know that the information on food product labels must be written in Romanian, before other languages.	18%	14%	56%	12%

Table 5 indicates the relationship that exists between participants' characteristics and consumer knowledge of food labels. Age group has statistical significance with knowledge of food labels (p value < 0.001). Consumers in the 18–25 and 36–45 age group tend to be more knowledgeable about the information presented on food labels than consumers in other age groups. Consumers in the over 56 age group tend to be unaware of the information presented on food labels. Also, the level of education has a statistical significance for knowledge about food labels (p-value 0.037). Consumers with higher education have more knowledge than consumers with only primary or secondary education. The table shows that consumers with primary education have more knowledge, but this is not statistically possible because only 5 respondents said they have only primary education. Finally, age is significantly associated with knowledge of food labels (p value 0.001). Consumers with higher education tend to be more knowledgeable about the information that is presented on food labels.

Table 5.

Relationship between participant dem ographic characteristics and consumers' knowledge of food labels

Characteristics	Variables			*p-values*
		Mean	*Standard Deviation*	
Gender	Women	2.7	0.8	0.268
	Men	2.6	0.8	
Education	High school	3.3	0.8	0.037
	University degree	2.6	08	
	Postgraduate degree	2.8	0.8	
Age	18-25	3.1	0.7	<0.001
	26-35	2.5	0.7	
	36-45	2.7	0.4	
	46-55	2.4	0.7	
	Over 56	2.2	0.7	
Weight	45-50 kg	2.6	0.8	0.538
	51-55 kg	2.6	0.8	
	56-60 kg	2.5	0.9	
	61-65 kg	2.6	0.8	

	Over 71 kg	2.6	0.8	

Table 6 shows the attitudes of prepackaged food consumers towards nutrition labels. Some consumers agree with the statement: "I consciously look for nutrition information before buying a food product." These respondents amount to 42%, while 33% of respondents strongly agree with this statement. However, 26 respondents, 14%, disagree with this statement and 11% of respondents strongly disagree with the statement. This means that most consumers check the information displayed on food labels, which means that they have a positive attitude towards food labels. 116 respondents agree and strongly agree that they consciously understand the content of a nutrition information panel. These respondents represent 61%, over half of all respondents. A total of 23% disagree with this statement and 16% strongly disagree with the statement.

Table 6.

Consumers' attitudes towards food labels

	Strongly Disagree	Disagree	Agreed	Strongly Agreed
consciously look for nutritional information before buying a food product.	11%	14%	42%	33%
looking to understand what's on nutrition labels.	16%	2. 3%	38%	2. 3%

Table 7 represents the relationship between respondents' characteristics and consumer attitudes towards food labels. Age group is significantly associated with attitude towards labels than consumers in other age groups. food labels (p value 0.001). Consumers in the 18–25 and 36–45 age group have a more positive attitude toward food

Table 7

Relationship between participant characteristics and consumers' attitude towards food labels

Characteristics	Variables				*p*-value
		Mean	Standard Deviation		
Gender	Women	2.8	0.9		0.779
	Men	2.8	0.8		
Education	High school	3.4	0.1		0.067
	University degree	2.7	0.8		
	Postgraduate degree	2.9	0.8		
Age	18-25	3.3	0.7		<0.001
	26-35	2.8	0.5		
	36-45	3.4	0.7		
	46-55	2.3	0.9		
	Over 56	2.1	0.9		
Weight	45-50 kg	2.7	0.8		0.405
	51-55 kg	2.7	0.7		
	56-60 kg	2.5	0.9		
	61-65 kg	2.4	0.8		
	Over 71 kg	2.3	0.9		

The results in Table 8 show that 38% of respondents' purchase decisions are influenced by nutritional information about food products. This shows that these respondents check nutrition labels before buying a prepackaged food product. This means that 43% of respondents buy prepackaged food products without necessarily checking the nutrition label. 31% agreed to look at dietary guidelines before making a purchase, while 26% disagreed with this statement. A total of 25% of respondents strongly agreed and 14% of respondents strongly disagreed.

Table 8.

Consumers' practice towards food labels

	Strongly Disagree	Disagree	Agreed	Strongly Agreed
purchasing decisions are influenced by the nutritional information on the products.	14%	29%	38%	19%
taking into account the food rules before buying.	14%	26%	35%	25%

Table 9 shows the relationship that exists between participants´ characteristics and consumer practice towards food labels. Age group is statistically significant with the practice towards food labels (p value 0.001). Consumers in the age group 18–25 and 36–45 use the information presented on food labels more than consumers in other age groups. Furthermore, education is significantly associated with food label practice.

Table 9.

Relationship between participant characteristics and consumers' practice towards food labels

Characteristics	Variables			*p*-value
		Mean	Standard Deviation	
Gender	Women	2.7	0.9	0.824
	Men	2.7	1.0	
Education	High school	2.3	0.4	0.094
	University degree	2.6	0.9	
	Postgraduate degree	2.8	0.9	
Age	18-25	3.2	0.7	<0.001
	26-35	2.7	0.9	
	36-45	3.2	0.7	
	46-55	2.5	0.8	
	Over 56	2.4	0.9	
Weight	45-50 kg	2.9	0.9	0.136
	51-55 kg	2.8	0.8	
	56-60 kg	2.5	1.0	
	61-65 kg	2.8	0.8	
	Over 71 kg	2.6	1.0	

CONCLUSIONS

The study examined consumer awareness and attitudes towards label information. Evidence from the study highlighted that reading, understanding of nutrition label information among consumers is not uniform and that food labels also have an impact on most people.

The importance of nutritional data sources cannot be overstated. According to Osei et al., information on food labels is vital for consumers because it allows them to evaluate a food product before purchasing it. Most respondents read the information on food labels, according to the findings of this study. This is most likely due to the importance of food labels in helping people make healthier and better food choices. Consumers read, understand, trust authenticity, and are considerably aware of nutrition labeling, according to Oghojafor et al. and correlate the impact of nutritional information on their health. It was also found that compared to other age groups, consumers between the ages of 18 and 36 use the information on food labels. This indicates that consumers who use nutrition labels are between 18 and 36 years old, with a focus on middle-aged consumers who are more likely to use labels than younger or older consumers. According to Andrews et al., the lower use of nutrition labels among older consumers is because they found it less understandable. On the contrary, studies by Govindasamy and Italia, Coulson and Drichoutis et al., found that the use of nutrition labels was proportional to an increase in age. These studies have observed that consumers in the 45+ age category are becoming more cautious about what they eat for various medical reasons compared to younger consumers.

Gender has a significant but indirect effect on food label use, according to Grunert et al., because women are more involved in healthy eating. This is because women tend to be more aware of their weight than men, and women are also aware of the ingredients that make up a food product and how the ingredients affect

their health. Most respondents have a good understanding of food labels, according to the findings. This suggests that more than half of respondents use the information on food labels and understand what the information means, which has a long-term impact on consumers' willingness to use food labels. According to Shine et al., there is a relationship between respondents' perceived nutritional knowledge and their use of nutrition labels. On the other hand, Grunert et al. found that nutrition education did not affect nutrition label use. According to the study, nutrition information was mainly used for healthy eating rather than nutritional expertise. According to the findings, most respondents with higher education had more awareness of food labels than those who stopped at primary school. This means that the more educated a person is, the more nutritional information they know and understand.

Singla also observed that educational level has a substantial impact on the ease of use of nutrition labels, with consumers with a higher level of education finding food labels easier to read and understand than those with a lower level of education. Consumers without a college degree complained that they did not understand the terminology used in the study, indicating that higher education is needed to make nutrition information more accessible. The researchers cited nutrition labels as a valuable source of information. However, the importance of ingredients and health claims can be overstated. Also, consumers' perceptions of food healthiness did not always depend on label information

According to the survey, most respondents had a good attitude towards understanding the contents of food labels and purposefully looking for nutritional information before buying a food product. This shows that customers are aware of food labels and do their best to find and understand nutritional information. The data also showed that a consumer's level of education has a strong correlation with their attitude. According to Susan Fullmer MS, consumers with a higher level of education have a better understanding of diet-related disease risk and, as a result, have a more positive attitude toward food labels. According to Campos et al., consumers have negative views of food labels when the information provided on the labels is misleading and the labels violate regulatory regulations. This theory describes the influences on behaviors that involve making conscious decisions regarding the theoretical framework “theory of rational action and the theory of planned behavior”. Using both attitude and normative elements, the theory also predicts behavioral intention. Therefore, the consumer's positive or negative attitude towards food labels influences the consumer's intention to use food labels,

The findings demonstrated that nutritional information on a food product label has an influence on respondents' purchasing decisions. This means that when considering whether or not to buy a product, consumers consider the nutritional information. As a result, nutrition information has a visible impact on customers' purchase decisions, as seen by Borra's findings that consumers study the nutrition information panel on food labels, which includes the number of calories, fat, carbohydrates and sugars.

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