

VILNIUS UNIVERSITY

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**LINKS BETWEEN FOOD INFORMATION
AND CHOICE OF FOODSTUFFS
FROM A PUBLIC HEALTH VIEWPOINT**

Summary of the Doctoral Dissertation
Biomedical Sciences, Public Health (10B)

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VILNIAUS UNIVERSITETAS

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**INFORMACIJOS APIE MAISTĄ SAŠAJOS
SU MAISTO PRODUKTŲ PASIRINKIMU
VISUOMENĖS SVEIKATOS POŽIŪRIU**

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1. INTRODUCTION

Currently it has been generally accepted in Europe that foodstuff labelling is an efficient tool of information provision to consumers, enabling them to choose healthy foodstuffs to suit individual dietary needs. In European White Paper on Strategy for Europe on Nutrition, Overweight and Obesity related health issues which was based on World Health Organization Global strategy on diet, physical activity and health it is noted that consumers must be given an access to clear, accurate and scientific evidence-based information as regards foods they consume. The main purpose of foodstuff labelling is to protect consumer health and to provide consistent and correct information about foods. Knowledge of the basic principles of nutrition and appropriate nutrition information on foods would contribute significantly towards enabling the consumer to choose healthier foods and to eat healthy.

Research of consumer awareness on foodstuff labelling, needs for labelling information and their links with nutrition show that most of consumers consider such information to be unclear, difficult to understand, illegible and not suiting consumer needs. Information provided on labels of foods can be the only source of information available at the place of food choice, therefore, it is crucial to ensure that consumers were able to understand such information and to use it properly. If consumers would not be able to understand such information or would misunderstand it, that can effect their diet and health. Therefore the studies on food information and its links with choice of foodstuffs and nutrition from a public health viewpoint are very relevant.

The aim of the study is to investigate and evaluate the links between food information and Lithuanian adult residents' choice of foodstuffs from a public health viewpoint.

Tasks of the study are the following:

1. To evaluate the views of Lithuanian adult residents on foodstuff labelling.
2. To investigate the views of Lithuanian adult residents on the impact of foodstuff labelling information on their food choice.
3. To analyse the needs of Lithuanian adult residents of nutrition labelling of foodstuffs, according to sociodemographical determinants.
4. To analyse the links between Lithuanian adult residents' dietary habits and the needs of food information.

1.1. Relevance of the study

Appropriate provision of information regarding food, including foodstuff labelling, is considered to be an important tool to promote healthy lifestyle and ensure a safe use of foods. Second World Health Organization European action plan for food and nutrition policy noted that rules of foodstuff labelling and information provision about food should be targeted to make consumer awareness on food and nutrition better and to assist them to eat healthy. Research conducted in Lithuania indicate that just a small percentage of Lithuanian residents choose foods in order to improve their health status or to prevent disease, however, there is a lack of data concerning consumer views on food information, needs of it, obstacles preventing from use of such information and links between food information and Lithuanian adult residents' choice of foods.

1.2. Novelty of the study

A comprehensive representative study, from the public health viewpoint covering the links between food information and choice of foodstuffs, consumer views on foodstuff labelling, needs of labelling information according to sociodemographical determinants and possible ways to improve the provision of food information to consumers was conducted for the first time in Lithuania. European Commission, taking into account the lack of data about consumer awareness and use of food labelling information and the impact of such information on choice of foods in Europe, encourages to perform such studies in pursuance to determine possible ways to improve legislation on food information provision to consumers and provision of information as such, so as they would better suit consumer needs and assist them to eat healthy.

1.3. Practical significance of the study

The data of the study will be used to develop nutrition education programmes, to make provision of food labelling information better suiting Lithuanian consumers' needs and to encourage residents of Lithuania to eat healthier. Results of the study will assist in identifying population groups which need education about food labelling information and its importance. The data of the study will be useful to identify the obstacles preventing from understanding and use of foodstuff labelling information. The findings of the study were used to accomplish the legislation on food information provision to consumers.

1.4. Defensive statements of the dissertation

1. Too little proportion of Lithuanian adult residents is interested in food labelling information.
2. Foodstuff labelling doesn't satisfy the needs of Lithuanian adult residents.
3. Dietary habits of Lithuanian adult residents, who are interested in food information, are not healthier.

2. METHODS OF RESEARCH

2.1. The sample of research

The target population – Lithuanian adult residents of both sexes, aged from 18 to 65 years.

This study was a part of the research on Lithuanian residents' actual nutrition, lifestyle and attitudes towards health and nutrition. Random sample of 3000 Lithuanian residents aged 18-65 representing all counties of Lithuania, in proportion to the number of population in each county, was specially compiled for the above mentioned research by Population Register Service under Ministry of Internal Affairs. 2418 people from the sample were surveyed from April to June, 2007 by an anonymous questionnaire (response rate – 80.6 %).

2.2. Research instrument

For the purpose of this study original questionnaire was developed and was joined to the Questionnaire on residents' actual nutrition, lifestyle and attitudes towards nutrition and health. Original questionnaire covered questions on views on foodstuff labelling, needs of such information, views on food information impact on choice of foods, etc.

For the evaluation of links between dietary habits and food information respondents according to the reported consumption of fresh vegetables, cereals, milk and dairy products, habits of adding salt to ready-to-eat foods were categorized as either 'those who follow Recommendations on Healthy Nutrition (that were approved by Ministry of Health of the Republic of Lithuania in 2005)' or 'those who do not follow the Recommendations'.

A 15-day test-retest survey was conducted with 56 Lithuanian adult residents to determine the reliability of the research instrument.

2.3. Statistical analysis of the data

The Statistical Package for the Social Sciences (SPSS) computer software, version 12.0 and Win Pepi 1.94 (2008) computer software were used to analyse the data. For the analysis of categorical data Chi square criterion (χ^2) and Fisher exact tests were applied. The level of significance $\alpha = 0.05$ was used to test hypothesis. In case of p value equal to 0.05 or less, results were considered to be significant statistically.

Odds ratio (OR) and confidence intervals (CI) were calculated to assess the links between respondents' dietary habits and needs of food information.

3. RESULTS

3.1. Description of respondents

1348 (56.9 %) females and 1019 (43.1 %) males were surveyed. 51 did not specify their gender. The mean age of respondents was 40.91 years (median – 41, mode – 47, standard deviation – 12.914). Sociodemographical data of respondents are indicated in Table 1.

Table 1. Sociodemographical description of male and female respondents

Sociodemographical determinants	Males		Females	
	N	Percentage	N	Percentage
<i>Age, years*</i>	1007	100.0	1342	100.0
≤20	53	5.3	63	4.7
21–30	249	24.7	247	18.4
31–40	239	23.7	274	20.4
41–50	231	22.9	369	27.5
51–60	172	17.1	286	21.3
≥61	63	6.3	103	7.7
<i>Education**</i>	980	100.0	1288	100.0
Primary	37	3.8	28	2.2
Secondary	317	32.3	342	26.6
Vocational	391	39.9	536	41.6
Higher	235	24.0	382	29.7
<i>Place of residence***</i>	979	100.0	1297	100.0
Urban	824	84.2	1128	87.0
Rural	155	15.8	169	13.0
<i>Occupation****</i>	979	100.0	1320	100.0
Workers	534	54.5	371	28.1
Clerks	237	24.2	530	40.2
Pensioners	37	3.8	85	6.4
Housewives	2	0.2	137	10.4
Pupils	21	2.1	28	2.1
Students	74	7.6	97	7.3
Unemployed	74	7.6	72	5.5

* 71 (2.9 %) did not specify their gender and age

**152 (6.3 %) did not specify their gender and education

***144 (6.0 %) did not specify their gender and place of residence

****121 (5.0 %) did not specify their gender and occupation

3.2. Lithuanian adult residents' views on food labelling

3.2.1. Views on food labelling information legibility

Most of respondents (63.2 %) reported that labelling information provided on food labels was just sometimes legible. Just one in four respondents (25.7 %) reported that such information was legible and 11.1 % mentioned that such information was illegible.

Women (28.4 %) were more likely than men (22.0 %) to indicate that such information was legible ($p < 0.001$) ($\chi^2 = 31.513$, $df = 2$, $p < 0.001$).

Respondents with higher education (31.9 %) were more likely compared to those with secondary education (24.2 %) to mention that information provided on food labels was legible ($p < 0.05$).

Our findings show that as age of respondents increases, the proportion of respondents reporting that food labelling information was legible, decreases ($\chi^2=51.030$, $df=10$, $p<0.001$).

The views on food labelling information legibility varied among different occupation groups ($\chi^2=78.438$, $df=12$, $p<0.001$). Only one in four pensioners (24.0 %) and each seventeenth student (5.8 %) indicated that information provided on food labels was illegible. Statistically significant differences were not found between respondents' from rural and urban areas views about legibility of food labels ($\chi^2=1.497$, $df=2$, $p=0.47$).

Under one-tenth (9.8 %) of individuals who reported to be responsible for all of the food shopping for their family claimed that information provided on food labels was illegible, whereas among respondents over 61 years of age such individuals made up 18.9 %.

Most of respondents (75.3 %) wished legibility of food labels to be improved. Such wish was reported by women (79.7 %) more frequently than by men (69.0 %, $p<0.001$) and by rural residents (76.2 %) more frequently than by urban residents (74.3 %, $p=0.015$). Respondents of various education groups had similar views on the need of legibility improvement ($\chi^2=4.528$, $df=3$, $p=0.210$).

Individuals who were responsible for all of the food shopping (80.5 %) were more likely compared to those who were partly or not responsible (73.0 % and 70.1 % respectively, $p<0.001$) to indicate that the legibility of food labels should be improved.

Our findings show that as age increases, the proportion of respondents wishing legibility of food labels to be improved, decreases ($\chi^2=108.031$, $df=5$, $p<0.001$).

Pensioners (87.8 %) were more likely than workers (74.7 %, $p<0.05$), clerks (78.3 %, $p<0.05$), pupils (46.0 %, $p<0.05$), students (63.2 %, $p<0.05$) and those unemployed (77.1 %, $p<0.05$) to mention that legibility of food labels should be improved.

3.2.2. Views on labelling information legibility improvement measures

More than half of respondents (56.6 %) mentioned that legibility of food labels should be improved through introduction of the minimum font size and one-fourth of respondents (24.9 %) claimed that the contrast between the print and background should be introduced. 16.8 % of respondents reported that product promotion information should be placed separately from the mandatory labelling information.

Fewer respondents from urban areas (55.4 %) claimed that legibility of labels should be improved through introduction of minimum font size compared to those from rural areas (65.8 %, $p<0.001$). Respondents living in urban areas (17.3 %) were more likely than those living in rural areas (12.5 %) to report that product promotion information should be placed separately from the mandatory labelling information. Women from rural areas (71.0 %) were significantly more likely than men from rural areas and urban areas (59.1 % and 53.7 % respectively, $p<0.05$) and women from urban areas (56.3 %, $p<0.05$) to claim that legibility of food labels should be improved through introduction of the minimum font size.

As age increases, the proportion of respondents wishing that minimum font size should be introduced, increases too ($\chi^2=59.223$, $df=15$, $p<0.001$).

Significant differences between respondents' of various education groups views on measures for legibility improvement were not found ($\chi^2=5.339$, $df=9$, $p=0.804$).

Significant differences were found between respondents' views on legibility improvement measures, according to the level of responsibility for the shopping for their family ($\chi^2=26.020$, $df=6$, $p<0.001$). As level of the responsibility decreases, proportion of those reporting that contrast between the print and background should be regulated, increases, while the proportion of respondents claiming that minimum font size should be introduced, decreases.

3.2.3. Views on comprehensibility of food labelling information

Just one third of respondents (33.2 %) claimed that they are able to understand food labelling information. Most of respondents (60.8 %) reported that information provided on food labels was partly understandable and 6.0 % stated that such information was opaque.

Significant differences between respondents' views on comprehensibility of food labelling information, according to their gender ($\chi^2=5.460$, $df=2$, $p=0.65$) and reported level of responsibility for the food shopping ($\chi^2=8.962$, $df=4$, $p=0.63$) were not found.

Respondents from urban areas (34.7 %) were more likely than those from rural areas (27.6 %) to claim that information provided on food labels was comprehensible ($p=0.011$), while respondents living in rural areas were more likely than those living in urban areas (8.5 % and 5.6 % respectively, $p=0.044$) to state that such information was opaque.

Respondents over 61 years of age were most likely of all the age groups to claim that food labelling information was opaque. Compared to them respondents under 20 years (5.1 %, $p<0.001$), 21-30 year-olds (5.0 %, $p=0.034$) and 41-50 year-olds (5.0 %, $p=0.028$) were significantly less likely to mention that labelling information was difficult to understand.

Analysis of respondents' answers concerning comprehensibility of food labelling information, according to the occupation, shows statistically significant differences ($\chi^2=62.778$, $df=12$, $p<0.001$). Fewer pensioners (21.1 %) stated that information provided on food labels was comprehensible compared to clerks (39.0 %, $p<0.05$), pupils (40.0 %, $p<0.05$) and students (46.0 %, $p<0.05$). Unemployed respondents (13.3 %) were significantly more likely than workers (7.1 %, $p<0.05$), pupils (6.0 %, $p<0.05$), housewives (5.6 %, $p<0.05$) and clerks (3.3 %, $p<0.05$) to claim that such information was opaque. Retired respondents were significantly more likely (8.1 %) than clerks (3.3 %) to report that food labelling information was opaque ($p=0.012$).

As level of education increases, the proportion of respondents who reported that food labelling information was comprehensible, increases too ($\chi^2 = 4.435$, $df = 6$, $p<0.05$).

62.2 % of respondents who reported that information provided on food labels was legible and just 23.7 % of those who claimed that such information was partly legible stated that such information was comprehensible.

Respondents who reported that information provided on food labels was opaque or partly comprehensible were asked about obstacles preventing from understanding of such information. The use of unclear abbreviations (53.7 %) and difficult terms (44.3 %) were reported to be the main obstacles making food labelling information difficult to understand. The latter obstacle was reported more frequently by respondents who claimed that information provided on food labels was opaque (60.8 %) compared to those who consider such information to be partly comprehensible (42.8 %, $p<0,001$).

Significant differences between distribution of answers relating to obstacles making food labelling information difficult to understand, according to gender and age groups were not found ($\chi^2 = 0.164$, $df = 2$, $p=0.921$ and $\chi^2=17.210$, $df = 10$, $p=0.70$ respectively).

More than half of respondents from urban and rural areas (53.4 % and 55.0 % respectively) stated that use of unclear abbreviations makes labelling information difficult to understand.

As the level of education increases, proportion of respondents claiming that information provided on food labels was difficult to understand due to the use of difficult terms decreases, while proportion of those stating that information was difficult to understand due to the use of unclear abbreviations, increases ($\chi^2 = 26.920$, $df = 6$, $p<0.001$).

Of all the occupation segments clerks (62.2 %) and students (60.0 %) were most likely to cite use of unclear abbreviations, while unemployed persons (58.5 %) were most likely to mention use of difficult terms.

3.3. Lithuanian adult residents' views on labelling information impact on food choice

3.3.1. Views on labelling information particulars' impact on choice of foods

Answering to the question “Which information particulars provided on food labels influence your food choice?” respondents had to indicate up to 3 particulars, therefore, our analysis was based on answers and not on respondents as such.

Respondents mostly indicated that their food choice was influenced by the minimum durability date. This particular comprised the largest part (32.8 %) of the structure of the totality of answers, whereas the price and country of origin comprised 21.9 % and 15.5 % respectively. Respondents' food choice was less influenced by the quantity of the food, the list of ingredients and food additives, which comprised 8.4 %, 7.5 % and 5.0 % of the totality of answers respectively. Respondents claimed nutrition labelling information particulars influencing their food choice least commonly. Among particulars of nutrition labelling information the energy value and the amount of fat were most commonly mentioned and comprised 3.9 % and 2.7 % of the totality of answers received. The least commonly reported particulars of food labelling information influencing choice of foods were the amount of carbohydrate, protein, fibre and alcohol content.

Females were significantly more likely than males to claim that their food choice was influenced by the list of ingredients, price, energy value, amount of fat, while males compared to females were significantly more likely to mention alcohol content (Table 2).

Table 2. Distribution (in percent) of male and female answers on particulars of food labelling information influencing the choice of foods

Particulars of food labelling information	Males*	Females**	p value
The minimum durability date	33.0	32.7	>0.05
The list of ingredients	5.5	8.8	<0.001
Country of origin/Manufacturer	16.1	15.1	>0.05
The amount of fat	1.9	3.2	<0.05
The amount of carbohydrate	0.4	0.8	>0.05
The amount of protein	0.5	0.5	>0.05
The amount of fibre	0.3	0.4	>0.05
Energy value	3.0	4.5	<0.05
Food additives	4.6	5.3	>0.05
Alcohol content	0.9	0.2	<0.001
The quantity of the food	9.8	7.4	<0.05
Price	23.8	20.6	<0.05
Other	0.2	0.5	>0.05

*2448 answers received

**3486 answers received

Significant differences were not found between the structure of answers on food labelling information influencing food choice received from respondents with primary and secondary education. However, respondents with higher education were significantly more likely than those with secondary education to state that their food choice was influenced by the list of ingredients ($p<0.05$), energy value ($p<0.05$), food additives ($p<0.05$), while those with secondary education more commonly compared to those with higher education to mention that the quantity of the food ($p<0.05$) and the price ($p<0.05$) influence their food choice (Table 3).

Table 3. Distribution (in percent) of respondents' answers on particulars of food labelling information influencing the choice of foods, according to the education

Particulars of food labelling information	Education			
	Primary*	Secondary**	Vocational***	Higher****
The minimum durability date	30.2	32.2	32.8	33.4
The list of ingredients	6.5	6.6	6.5	10.0
Country of origin/Manufacturer	12.9	14.6	15.6	16.4
The amount of fat	3.6	3.3	1.9	3.4
The amount of carbohydrate	0	0.5	0.7	0.8
The amount of protein	0.7	0.5	0.4	0.5
The amount of fibre	0	0.2	0.3	0.5
Energy value	1.4	3.9	2.9	5.4
Food additives	2.9	4.4	4.8	6.4
Alcohol content	0	0.6	0.5	0.4
The quantity of the food	11.5	0.8	8.9	6.7
Price	30.2	24.3	24.0	15.5
Other	0	0	0.5	0.5

* 139 answers received

** 1649 answers received

*** 2373 answers received

**** 1666 answers received

Respondents living in urban areas were significantly more likely than those from rural areas to claim that the list of ingredients ($p=0.027$), the amount of fat ($p=0.013$) has an impact on their food choice, while the price was mentioned more commonly by those living in rural areas compared to respondents from urban areas ($p<0.007$) (Table 4).

Table 4. Distribution (in percent) of respondents' answers on food labelling information particulars influencing the choice of foods, according to the place of residence

Particulars of food labelling information	Urban*	Rural**	p value
The minimum durability date	32.8	32.6	0.843
The list of ingredients	7.7	5.4	0.027
Country of origin/Manufacturer	15.6	14.2	0.294
Amount of fat	2.9	1.4	0.013
Amount of carbohydrate	0.71	0.6	0.796
Amount of protein	0.5	0.4	0.348
Amount of fibre	0.34	0.4	0.698
Energy value	4.1	2.8	0.074
Food additives	5.1	4.9	0.801
Alcohol content	0.6	0.1	0.101
The quantity of the food	8.1	10.0	0.072
Price	21.3	25.6	0.007
Other	0.32	0.5	0.401

* 5042 answers received

** 792 answers received

3.4. Needs of Lithuanian adult residents on nutrition labelling information, according to the sociodemographical determinants

3.4.1. Needs related to presentation of nutrition labelling information

More than half of respondents (58.4 %) claimed that they wish nutrition labelling information to be provided on food labels. However, one of three respondents (33.1 %) reported that they do not know whether they wish such information and 8.5 % reported that they do not wish nutrition labelling information.

Females (69.1 %) were more likely than males (43.5 %) to claim that they wish nutrition labelling information ($p < 0.001$).

Significantly more individuals living in urban areas compared to those living in rural areas (59.7 % and 52.9 % respectively, $p = 0.021$) wished nutrition labelling information to be provided on food labels.

Significant differences among respondents' answers relating to presentation of nutrition labelling, according to the age groups ($\chi^2 = 6.398$, $df = 10$, $p = 0.781$) were not found.

The findings of our research show that as the level of education increases, the need of nutrition labelling information increases too (Table 5).

Table 5. Distribution (in percent) of respondents' answers to the question "Would you like the provision of nutrition information on the food labels?", according to the education

Groups of respondents, according to the education	Answers						In total	
	Yes		No		Do not know		N	%
	N	%	N	%	N	%		
Primary	25	57.6	3	4.5	38	57.6	66	100.0
Secondary	355	53.1	70	10.5	243	36.4	668	100.0
Vocational	525	56.4	80	8.6	326	35.0	931	100.0
Higher	427	69.4	41	6.7	147	23.9	615	100.0

$$\chi^2 = 58.986, df=6, p < 0.001$$

Significant differences were found analysing respondents' needs of nutrition labelling information, according to the occupation (Table 6). Housewives (12.2 %) were significantly more likely than clerks (7.0 %, $p = 0.034$) to claim that they don't wish nutrition labelling information, while those unemployed were more likely than housewives to indicate the answer "Do not know" (43.2 % and 28.1% respectively, $p < 0.05$).

Table 6. Distribution (in percent) of respondents' answers to the question "Would you like the provision of nutrition information on the food labels?", according to the occupation

Groups of respondents according to the occupation	Answers						In total	
	Yes		No		Do not know		N	%
	N	%	N	%	N	%		
Workers	449	49.6	88	9.7	369	40.7	906	100.0
Clerks	544	70.4	54	7.0	175	22.6	773	100.0
Pensioners	70	56.9	7	5.7	46	37.4	123	100.0
Housewives	83	59.7	17	12.2	39	28.1	139	100.0
Pupils	32	64.0	4	8.0	14	28.0	50	100.0
Students	105	60.3	11	6.3	58	33.3	174	100.0
Unemployed	67	45.9	16	11.0	63	43.2	146	100.0
In total	1350	58.4	197	8.5	764	33.1	2311	100.0

$$\chi^2 = 92.696, df=12, p < 0.001$$

Our findings show that as the level of reported responsibility for the food shopping increases, the proportion of individuals wishing nutrition labelling information to be provided on food labels increases too ($\chi^2 = 92.037$, $df=4$, $p<0.001$). Respondents who were responsible for all of the food shopping (66.5 %) were more likely than those not responsible for the food shopping (42.6 %) to claim that nutrition labelling information should be provided on food labels ($p<0.001$). Respondents who were not responsible for the food shopping (46.9 %) were more likely to indicate the answer “Don’t know” compared to those who were responsible for all of the food shopping for their family (26.0 %, $p<0.001$).

Almost half of respondents (49.4 %), who reported that food labelling information is illegible, did not have an opinion whether nutrition labelling information should be provided on food labels. Respondents who claimed that labelling information is legible (30.1 %) were significantly more likely than those who reported that such information is partly legible or illegible (24.5 % and 17.5 % respectively, $p<0.001$) to report that they wish nutrition labelling information to be always provided on food labels.

Respondents who indicated that food labelling information is comprehensible or partly comprehensible (63.1 % and 58.9 % respectively) were significantly more likely than those who stated that such information is opaque (34.8 %) to report that nutrition labelling information should be provided on food labels ($p<0.001$). More than half of respondents (51.8 %) who indicated that food labelling information is opaque did not know whether nutrition information should be provided.

Most of respondents (63.2 %) claimed that nutrition labelling should be always placed on the most visible side of the food package. Less than one-third of them (30.0 %) did not know whether they wish such a placement of the nutrition labelling information and the remaining 6.8 % stated that such information should not be always placed on the visible side of the package.

The vast majority of respondents (85.5 %) wishing nutrition labelling information to be always provided on the food labels stated that they wish it to be placed on the most visible side of the package.

Significant differences were found between males’ and females’ views on the placement of the nutrition labelling on the front of the food package ($\chi^2 = 106.814$, $df = 2$, $p<0.001$). Women (71.8 %) were more likely than men (51.4 %) to claim that nutrition labelling should be always placed on the most visible side of the food package ($p<0.001$). Significant differences were not found between proportions of males (7.6 %) and females (6.3 %) who did not wish nutrition labelling information to be always placed on the most visible side of the package ($p=0.204$).

Similar proportions of respondents living in rural areas (63.9 %) and those living in urban areas (62.8 %) indicated that nutrition declaration should be placed on the most visible side of the package ($p=0.684$). However, the respondents living in urban areas (7.3 %) were more likely to claim that such information should not be always placed on the most visible side compared to those living in rural areas (3.9 %, $p = 0.025$).

Respondents of various occupation groups had different views about nutrition declaration placement in the most visible side of the food package ($\chi^2 = 54.339$, $df=12$, $p<0.001$). Clerks (70.7 %) were more likely than workers (58.8 %, $p<0.001$), students (58.7 %, $p=0.002$) and those unemployed (54.5 %, $p<0.001$) to wish such kind of placement of nutrition labelling. Unemployed respondents (40.7 %) were significantly more likely compared to housewives (24.1 %, $p=0.003$), clerks (22.0 %, $p<0.001$) and pupils (22.0 %, $p=0.018$) to indicate the answer “Don’t know”.

As age increases, the proportion of respondents who did not wish that nutrition labelling information was presented on the most visible side of the food package, decreases, while as the level of education increases, the proportion of those wish that nutrition labelling information should be placed in a such way, increases and the proportion of those who did not know whether they wish that, decreases (Table 7).

Table 7. Distribution (in percent) of respondents' answers to the question "Would you like the nutrition labelling information to be always placed on the most visible side of the food package?", according to the age groups (in years) and education

Groups of respondents, according to the variable			Answers			In total
			Yes	No	Do not know	
Age groups ($\chi^2=23.635$, $df=10$, $p=0.09$)	≤20	N	61	14	42	117
		%	52.1	12.0	35.9	100.0
	21-30	N	289	38	167	494
		%	58.5	7.7	33.8	100.0
	31-40	N	322	39	157	518
		%	62.2	7.5	30.3	100.0
	41-50	N	386	34	172	592
		%	65.2	5.7	29.1	100.0
	51-60	N	311	26	118	455
		%	68.4	5.7	25.9	100.0
Education ($\chi^2=32.089$, $df=6$, $p<0.001$)	≥61	N	114	6	47	167
		%	68.3	3.6	28.1	100.0
	Primary	N	31	0	32	63
		%	49.2	0	50.8	100.0
	Secondary	N	395	50	215	660
		%	59.8	7.6	32.6	100.0
	Vocational	N	586	57	282	925
		%	63.4	6.2	30.5	100.0
	Higher	N	420	50	144	614
		%	68.4	8.1	23.5	100.0

As the reported level of responsibility for the shopping of the food for the family increases, the proportion of respondents wishing nutrition declaration to be always placed on the most visible side of the package increases and proportion of those who don't know whether information should be provided in such a way, decreases ($\chi^2=73.526$, $df=4$, $p<0.001$).

Respondents who stated that information provided on food labels is legible (72.8 %) compared to those that take the view that information is partly legible or illegible (63.2 %, $p<0.001$ and 42.2 %, $p<0.001$ respectively) were more likely to claim that nutrition labelling information should be always provided on the most visible side of the food package.

Significant differences were found analysing respondents' needs of the placement of the nutrition declaration in the most visible side of the food package, according to their views on comprehensibility of the food labelling information ($\chi^2=51.719$, $df=9$, $p<0.001$). Respondents who consider information provided on food labels to be comprehensive or partly comprehensive (65.8 % and 64.4 %) compared to those who consider such information to be opaque (42.1 %, $p<0.001$) were more likely to wish the placement of the nutrition declaration on the most visible side of the package. Almost half of persons surveyed who consider information provided on food labels to be opaque (45.7 %) indicated that they do not know whether nutrition labelling should be always placed in such a way.

3.4.2. Reasons for not wishing presentation of the nutrition labelling information

All those who did not wish presentation of nutrition declaration were asked what the reasons relating to such an attitude are. The most frequently stated reason was lack of interest, mentioned by over a half (52.6 %) of them. Less than one-third (28.1 %) of respondents mentioned lack of time and the remaining 19.4 % mentioned lack of confidence.

Men (55.7 %) were more likely than women (40.1 %) to indicate lack of interest, while women (30.6 %) were more likely than men (21.2 %, $p=0.045$) to mention lack of confidence. Significant differences were not found between proportions of men (23.2 %) and women (28.6 %) that indicated the lack of time ($p=0.251$).

Analysing the distribution of respondents' from rural and urban areas answers relating to the absence of wish that nutrition labelling information was always provided on food labels significant differences were not found ($\chi^2=1.677$, $df=3$, $p=0.543$).

There was variation by age groups in the reasons given, however, just a few significant differences were found ($\chi^2=19.214$, $df=15$, $p=0.204$). 21-30 year-old group (36.5 %) were most likely to cite lack of time as their reason for not wishing provision of nutrition labelling, however, significant difference was found between proportions of 21-30 year-olds and 31-40 year-olds (21.3 %, $p=0.038$). The age group over 61 years (41.7 %) were most likely of all age segments to mention lack of confidence, while the 31-40 olds (58.5 %) were most likely compared to other age groups to give lack of interest as a reason for not wishing provision of nutrition labelling information.

Respondents (34.9 %) of higher education were more likely than those of vocational or secondary education (23.8 % and 24.8 % respectively) to mention lack of time, while respondents with vocational education (28.6 %) were more likely compared to those with primary, higher and secondary education (18.2 %, 23.8 % and 20.5 % respectively) to cite lack of confidence, however, these differences were not significant ($p>0.05$). None of respondents with primary education mentioned lack of time as a reason for not wishing provision of nutrition labelling. The vast majority of them (81.8 %) cited as a reason lack of interest.

Of all the occupation segments clerks and students (34.6 % and 31.0 % respectively) were most likely to cite lack of time, while unemployed respondents (70.0 %) most commonly claimed lack of interest and retired persons (61.5 %) were most likely to mention lack of confidence.

3.4.3. Respondents' needs on nutrition labelling information particulars

Respondents were asked which of the main nutrition labelling information particulars (energy value, fat, protein, carbohydrate, vitamins and minerals) in their opinion should be necessarily declared on food labels. The most frequently stated information particular was energy value, mentioned by 60.4 %. Over half of those surveyed (53.4 %) mentioned that information on fat should be declared. 41.3 % of respondents consider that information on vitamins should be necessarily indicated on food labels. Equal proportions of respondents (32.7 %) mentioned that information on carbohydrate and protein should be declared and less than a fifth of respondents (17.3 %) consider that information on minerals should be provided.

Women were significantly more likely than men to wish information on most of the nutrition labelling information particulars to be indicated on food labels (Table 8).

Table 8. Proportion (in percent) of male and female respondents wishing information on the main nutrition labelling information particulars

Main nutrition labelling information particulars	Males (in total 954)		Females (in total 1302)		p value
	N	%	N	%	
Energy value	546	57.2	824	63.3	0.004
Fats	481	50.4	725	55.7	0.013
Vitamins	376	39.4	563	43.2	0.068
Carbohydrates	283	29.7	454	34.9	0.009
Proteins	304	31.9	432	33.2	0.511
Minerals	130	13.6	263	20.2	<0.001

Persons with higher education were significantly more likely than those with primary, secondary and vocational education to report that information on energy value, fats, carbohydrates and proteins ($p < 0.05$) should be provided necessarily on food labels (Table 9).

Table 9. Proportion (in percent) of respondents wishing information on the main nutrition labelling information particulars, according to the education

Groups of respondents, according to the education		Main nutrition labelling information particulars					
		Energy value	Fats	Vitamins	Carbohydrates	Proteins	Minerals
Primary	N (in total 60)	19	28	29	10	11	11
	%	31.7	46.7	48.3	16.7	18.3	18.3
Secondary	N (in total 638)	373	320	314	176	180	102
	%	58.5	50.1	49.2	27.6	28.2	16.0
Vocational	N (in total 909)	543	447	337	276	271	147
	%	59.7	49.2	37.1	30.4	29.8	16.2
Higher	N (in total 603)	402	387	255	270	269	132
	%	66.7	64.2	42.3	44.8	44.6	21.9

Students (68.0 %) were more likely than other occupation groups to indicate that energy value should be declared on food labels, however, significant differences were found just comparing proportion of students to that of retired persons (40.7 %, $p < 0.001$) and of workers (58.9 %, $p = 0.027$) (Table 10). Students (47.7 %) were also significantly more likely than individuals from other occupation groups to indicate that it should be necessary to provide an information on minerals ($p < 0.05$). Retired persons (60.2 %) were more likely than those from other occupation segments to wish provision of information on fats, however, significant differences were found comparing proportion of retired persons to that of unemployed (46.6 %, $p = 0.040$) and of housewives (47.1 % ($p = 0.043$)). Students were significantly more likely to wish declaration of information on carbohydrates and proteins (42.4 % and 45.9 % respectively) compared to those from other occupation groups, excluding clerks (38.5 %, $p = 0.343$ and 38.3 %, $p = 0.070$ respectively). Students were also more likely than individuals from other occupation groups to mention that information on vitamins should be provided on food labels, however, significant difference was found just between proportions of students and clerks (47.1 % and 39.7 % respectively, $p = 0.048$).

Table 10. Proportion (in percent) of respondents wishing information on the main nutrition labelling information particulars, according to the occupation

Groups of respondents, according to the education		Main nutrition labelling information particulars					
		Energy value	Fats	Vitamins	Carbohydrates	Proteins	Minerals
Workers	N (in total 871)	513	427	350	259	255	136
	%	58.9	49.0	40.2	29.7	29.3	15.6
Clerks	N (in total 767)	492	456	297	295	294	154
	%	64.1	59.4	39.7	38.5	38.3	20.1
Pensioners	N (in total 113)	46	68	53	30	27	21
	%	40.7	60.2	46.9	26.5	23.9	18.6
Housewives	N (in total 138)	89	65	57	41	40	24
	%	64.5	47.1	41.3	29.7	28.9	17.4
Pupils	N (in total 49)	27	28	23	13	16	7
	%	55.1	57.1	46.9	26.5	32.6	14.3
Students	N (in total 172)	117	98	81	73	79	82
	%	68.0	56.9	47.1	42.4	45.9	47.7
Unemployed	N (in total 131)	70	61	54	28	33	14
	%	53.4	46.6	41.2	21.4	25.2	10.7

Significant differences among distribution of respondents' living in rural and urban areas answers relating to the indication of certain nutrition labelling information particulars were not found ($p>0.05$).

Significantly fewer respondents over 61 years of age (41.0 %) compared to younger age groups (≤ 20 – 62.1 %, 21-30 – 65.4 %, 31-40 – 61.9 %, 41-50 – 59.5 % and 51-60 – 61.5 %). considered that it should be necessary to declare information about energy value ($p<0.001$). Significant differences among various age groups concerning indication of other nutrition labelling particulars were not found.

3.4.4. Other particulars of nutrition labelling information

Three-fifths (60.4 %) of respondents wished information on other nutrition labelling particulars besides that on energy value, fats, carbohydrates, proteins, minerals and vitamins to be provided on food labels.

Among the women such wish was claimed significantly more frequently than among the men (67.6 % and 51.2 % respectively, $p<0.001$).

Respondents living in rural and urban areas had similar views concerning the declaration other information particulars ($\chi^2=0.354$. $df=3$. $p=0.552$).

Our findings show that as age and the level of education increases, the need of provision of other nutrition labelling information particulars increases too (Table 11).

Table 11. Distribution (in percent) of respondents' answers to the question whether other nutritional labelling information particulars should be declared on food labels, according to the age groups (in years) and the education

Groups of respondents, according to the variable			Answers		In total
			Yes	No	
Age groups ($\chi^2=29.726$, $df=5$, $p<0.001$)	≤ 20	N	59	58	117
		%	50.4	49.6	100.0
	21-30	N	266	223	489
		%	54.4	45.6	100.0
	31-40	N	297	211	508
		%	58.5	41.5	100.0
	41-50	N	358	224	582
		%	61.5	38.5	100.0
	51-60	N	300	146	446
		%	67.3	32.7	100.0
	≥ 61	N	115	47	162
		%	71.0	29.0	100.0
Education ($\chi^2 = 29.176$, $df=3$, $p<0.001$)	Primary	N	25	37	62
		%	40.3	59.7	100.0
	Secondary	N	362	282	644
		%	56.2	43.8	100.0
	Vocational	N	549	359	908
		%	60.5	39.5	100.0
	Higher	N	413	196	609
		%	67.8	32.2	100.0

Significant differences were found analysing respondents' from various occupation groups needs of provision of other nutrition labelling information particulars ($\chi^2 = 68.195$, $df=6$,

p<0.001). Retired persons (70.1 %) and clerks (70.0 %) were significantly more likely to wish the provision of information on other particulars compared to students (54.7 %, p<0.05), workers (53.2 %, p<0.001) and unemployed respondents (48.5 %, p<0.001).

Those who reported to be responsible for all of the food shopping (66.4 %) were more likely compared to those who claimed to be partly responsible or not responsible for the food shopping (60.6 %, p=0.012 and 50.3 %, p<0.001 respectively) to indicate need of declaration of other nutrition labelling information particulars.

Respondents who wished information on other nutrition labelling particulars were given the list of such particulars and asked to specify which of them should be declared on food labels. Almost half of respondents (48.3 %) wish provision of information on cholesterol. Other substances according to the indication frequency ranged as following: sugar (35.4 %), salt (26.3 %), potassium (12.7 %), saturated fatty acids (11.6 %), fibre (9.3 %), selenium (8.2 %), polyunsaturated fatty acids (6.3 %), transfatty acids (5.3 %) and monounsaturated fatty acids (5.0 %).

Significant differences between respondents' living in rural and urban areas needs concerning indication of any of listed substances were not found.

Women were significantly more likely than men to claim that they wish information on saturated fatty acids, sugar, salt, monounsaturated fatty acids, polyunsaturated fatty acids, fibre, potassium, selenium, cholesterol, fibre, just similar proportions of men and women stated that information about transfatty acids should be declared on food labels (Table 12).

Table 12. Proportion (in percent) of male and female respondents wishing declaration of information on other nutrition labelling information particulars

Other nutrition labelling information particulars	Males		Females		p value
	N	%	N	%	
Saturated fatty acids	95	9.3	180	13.4	0.002
Sugar	288	28.3	552	40.9	<0.001
Salt	213	20.9	409	30.3	<0.001
Monounsaturated fatty acids	37	3.6	81	6.0	0.008
Polyunsaturated fatty acids	46	4.5	105	7.8	0.001
Fibre	63	6.2	160	11.9	<0.001
Potassium	99	9.7	204	15.1	<0.001
Selenium	56	5.5	140	10.4	<0.001
Cholesterol	400	39.3	745	55.3	<0.001
Transfatty acids	54	5.3	69	5.1	0.845

Significant differences were not found analysing distribution of respondents' answers from various age groups concerning declaration of information on saturated fatty acids ($\chi^2 = 1.951$, df=5, p<0.856), monounsaturated fatty acids ($\chi^2 = 6.481$, df=5, p<0.262), polyunsaturated fatty acids ($\chi^2 = 5.641$, df=5, p<0.343), selenium ($\chi^2 = 4.423$, df=5, p<0.490) and transfatty acids ($\chi^2 = 2.894$, df=5, p<0.716). Respondents over 51 years of age (40.6 %) were significantly more likely than 18-30 year-olds (34.0 %) to claim that they wish information on sugar to be provided on food labels (p=0.017), while 51-60 year-old group (30.0 %) were significantly more likely compared to 41-50 year-olds (23.4 %) to report that they wish the declaration of information on salt (p=0.014).

Respondents over 61 years of age (4.7 %) were significantly less likely than 21-30 and 31-40 olds (12.1 % and 10.2 % respectively) to state that information on fibre should be provided when labelling foodstuffs (p=0.06 and p=0.029 respectively).

Respondents aged 51-60 years (15.6 %) were significantly more likely than those over 61 years to claim that information on potassium should be declared ($p=0.048$), while respondents under 20 years of age (16.9 %) were significantly more likely than 31-40 year-olds (10.4 %) to report the need of information on potassium ($p=0.044$).

Our findings show as age increases, proportion of respondents who wish information on cholesterol to be provided on food labels increases too.

Respondents with higher education were significantly more likely than those with primary, secondary or vocational education to claim that information on saturated fatty acids ($p<0.05$), polyunsaturated fatty acids ($p<0.05$), salt ($p<0.05$), fibre ($p<0.05$) and sugar ($p<0.05$) should be declared on food labels (Table 13). As the level of education increases, the proportion of respondents who claimed that information about cholesterol should be declared on food labels, increases too (Table 13).

Table 13. Proportion (in percent) of respondents wishing information on other nutrition labelling information particulars, according to the education

Education		Other nutrition labelling information particulars					
		Sugar	Salt	Fibre	Saturates	Polyunsaturates	Cholesterol
Primary	N	17	10	4	5	5	20
	%	25.8	15.2	6.1	7.6	7.6	30.3
Secondary	N	223	169	52	72	35	302
	%	32.9	25.0	7.7	10.6	5.2	44.6
Vocational	N	314	224	71	90	46	470
	%	33.2	23.7	7.5	9.5	4.9	49.6
Higher	N	277	211	94	106	64	337
	%	44.3	33.8	15.0	17.0	10.2	53.9

Respondents with higher education were significantly more likely than those with vocational and secondary education to claim that information on monounsaturated fatty acids ($p=0.028$ and $p<0.001$ respectively) and selenium should be declared on food labels ($p=0.011$ and $p=0.045$ respectively).

Significant differences were not found analysing distribution of respondents' answers about the need of declaration of information about potassium ($\chi^2 = 5.192$, $df=3$, $p=0.158$) and trans fatty acids ($\chi^2 = 2.815$, $df=3$, $p=0.421$), according to the level of education.

Clerks (15.5 %) were most likely to report that information about saturated fatty acids should be provided on food labels, however, significant differences were found between proportions of clerks and those unemployed (7.9 %, $p=0.015$) and proportions of clerks and workers (8.9 %, $p<0.001$). Clerks (43.2 %) were most likely to claim that information about sugar should be declared, however, significant differences were found between proportions of clerks and students (33.7 %, $p=0.022$), proportions of clerks and workers (29.3 %, $p<0.001$) and proportions of clerks and unemployed persons (27.2 %, $p<0.001$). Clerks (14.4 %) were significantly more likely compared to workers (7.5 %, $p<0.001$), retired individuals (2.4 %, $p<0.001$), students (8.0 %, $p=0.026$) and unemployed persons (2.0 %, $p<0.001$) to report that they wish provision of information about fibre.

Housewives (34.3 %) were most likely from all occupation groups to state that information about salt should be provided, however, significant differences were found between proportions of housewives and workers (21.6 %, $p<0.001$) and proportions of housewives and unemployed persons (17.9 %, $p<0.001$). Housewives (9.1 %) were also most likely to indicate the need of declaration of information about polyunsaturated fatty acids, however, significant differences were found between proportions of housewives and workers (4.9 %, $p=0.048$).

Retired persons (57.7 %), compared to those from other occupation groups, except clerks (57.3 %, $p=1.000$) and housewives (55.2 %, $p=0.711$), were significantly more likely to state that information about cholesterol should be provided on food labels.

3.4.5. Respondents attitudes towards possible ways of the improvement of nutrition labelling

The most frequently stated measure to improve nutrition labelling was use of clear terms, mentioned by over a half of respondents (51.1 %). The second most commonly mentioned measure was use of a bigger font size (35.6 %). Reduction of amount of information and use of special symbols as measures to improve nutrition declaration were mentioned by fewer respondents (6.9 % and 4.8 % respectively). Minority of respondents (0.4 %) indicated the answer “Other”, specifying that energy value should be always declared on food labels. The remaining 1.2 % of those surveyed claimed that they don't know how nutrition labelling information should be improved.

Women (54.5 %) were more likely than men (46.5 %, $p<0.001$) to mention use of clear terms, while men were more likely than women to mention the use of special symbols (6.1 % and 3.9 % respectively, $p=0.021$) and reduction of amount of information (10.4 % and 4.5 % respectively, $p<0.001$).

Respondents living in rural areas (59.0 %) were more likely compared to those living in urban areas (49.7 %, $p<0.004$) to mention use of clear terms as a measure to improve nutrition labelling, while persons living in urban areas (5.5 %) were more likely than those living in rural areas (1.4 %, $p<0.003$) to mention use of special symbols. Similar proportions of respondents living in urban and rural areas (36.2 % and 31.9 %, $p=0.146$) mentioned use of a bigger font size.

Significant differences were found analysing distribution of respondents' from various age groups answers concerning measures of nutrition labelling improvement ($\chi^2=59.363$, $df=20$, $p<0.001$). Respondents over 51 years of age (42.6 %) were more likely compared to those under 30 years of age (28.2 %, $p<0.001$) to mention that a bigger font size should be used for nutrition labelling.

Students (24.8 %) were significantly less likely than clerks (34.7 %, $p=0.017$), workers (35.5 %, $p<0.02$), retired persons (36.4 %, $p=0.008$), unemployed individuals (41.9 %, $p<0.004$) and housewives (43.4 %, $p<0.002$) to claim that a bigger font size should be used for nutrition labelling.

Respondents who reported to be not responsible for the food shopping (44.6 %) were significantly less likely than those fully or partly responsible for the food shopping (53.4 % and 53.1 % respectively) to claim that nutrition labelling should be improved through the use of clear terms ($p<0.002$ and $p<0.004$).

Our findings show, as the level of education increases, the proportion of those considering that special symbols should be used increases, while proportion of those mentioning the reduction of the amount of information, decreases ($\chi^2=23.298$, $df=12$, $p=0.025$).

3.5. Links between respondents' dietary habits and needs on food information

Analysing the links between respondents' dietary habits and needs on nutrition labelling information, it was found that respondents' needs were not significantly related to the consumption frequency of fresh vegetables ($\chi^2 = 1.055$, $df=2$, $p=0.590$), cereal products ($\chi^2 = 0.112$, $df=2$, $p=0.945$), milk and dairy products ($\chi^2 = 0.640$, $df=2$, $p=0.726$), habits of salting ready-to-eat foods ($\chi^2 = 2.042$, $df=2$, $p=0.360$), consumption of food supplements ($\chi^2 = 2.009$, $df=2$, $p=0.366$).

Analysing respondents' needs on presentation of nutrition labelling information on the most visible side of the label of foodstuff, according to the consumption frequency of fresh vegetables ($\chi^2 = 3.604$, $df=2$, $p=0.165$), cereal products ($\chi^2 = 0.619$, $df=2$, $p=0.734$), milk and dairy products ($\chi^2 = 0.041$, $df=2$, $p=0.980$), habits of salting ready-to-eat foods ($\chi^2 = 3.955$, $df=2$, $p=0.138$), consumption of food supplements ($\chi^2 = 2.615$, $df=2$, $p=0.270$) significant differences were not found.

However, significant differences were found comparing needs relating to the presentation of nutrition labelling information ($\chi^2 = 7.412$, $df=2$, $p=0.025$) and its placement on the most visible side of the package ($\chi^2 = 4.413$, $df=2$, $p=0.110$), according to the reported regularity of eating. Those who reported to eat irregularly were more likely than those who reported to eat regularly (59.9 % and 54.3 % respectively, $p=0.013$) to wish provision of nutrition labelling and its placement on the most visible side of the package (64.3 % and 59.7 % respectively, $p=0.038$).

Analysing the distribution of respondents' answers about particulars of labelling information which they consult when evaluating the nutritional value of foods, according to consumption frequency of fresh vegetables ($\chi^2 = 1.033$, $df=3$, $p=0.793$), cereal products ($\chi^2 = 0.689$, $df=3$, $p=0.876$), milk and dairy products ($\chi^2 = 1.334$, $df=3$, $p=0.721$) significant differences were not found. However, respondents who claimed to use food supplements, were more likely compared to those who do not use food supplements to report the use of nutrition labelling information (42.3 and 37.5 % respectively, $p=0.026$) and less likely to use health claims (33.4 % and 37.5 % respectively, $p=0.053$) for evaluation of the nutritional value of foods.

Similar proportions of respondents who reported to put salt to ready-to-eat foods and those who do not put salt to foods (41.5 % and 40.3 % respectively, $p=0.770$) claimed that when evaluating nutritional value of foods they use nutrition declaration. Individuals who put salt to ready-to-eat foods were more likely than those who do not put salt to foods to use health claims (41.5 % and 40.3 % respectively, $p=0.088$), while those do not add salt were more likely compared to those who add salt to use information on ingredient list when evaluating nutritional value of foodstuffs (24.0 % and 15.5 % respectively, $p=0.021$).

Respondents who reported to eat irregularly were more likely compared to those who reported to eat regularly (38.2 % and 41.6 % respectively) to use nutrition labelling information and less likely to use health claims (37.2 % and 34.0 %) when evaluating the nutritional value of foodstuffs, however, these differences were not significant ($p=0.152$ and $p=0.164$).

The links between respondents' needs of declaration of other nutrition labelling particulars, besides information on energy value, fats, carbohydrates, proteins, vitamins, minerals and dietary habits such as eating regularity, consumption frequency of milk and dairy products, fresh vegetables, consumption of food supplements (OR=1.175, CI=0.990–1.395, $p=0.065$) and subjective evaluation of own nutrition (OR=0.976, CI = 0.815–1.168, $p=0.818$) were not found (Table 14).

Table 14. Proportion (in percent) of respondents wishing information on other nutrition labelling information particulars, according to the evaluation of the dietary habits

Dietary habits	Evaluation of dietary habits according to Recommendations on Healthy Eating	Proportion of respondents wishing provision of other nutrition declaration particulars	OR	95% CI	p value
Consumption of fresh vegetables, excluding potatoes	Those following Recommendations	58.8	1.094	0.900–1.329	0.369
	Those not following Recommendations	60.9			
Consumption of cereals	Those following Recommendations	58.5	1.217	1.026–1.443	0.024
	Those not following Recommendations	63.2			
Consumption of milk and dairy products	Those following Recommendations	64.0	0.810	0.674–0.975	0.026
	Those not following Recommendations	59.0			
Adding salt to ready-to-eat foods	Those following Recommendations	60.5	1.042	0.742–1.463	0.862
	Those not following Recommendations	59.5			
Eating regularity	Those following Recommendations	58.4	0.895	0.742–1.079	0.249
	Those not following Recommendations	61.1			

Significant differences were not found analysing respondents' needs of declaration of nutrition labelling particulars other than information on energy value, fat, carbohydrate, protein, minerals and vitamins, according to reported consumption frequency of fresh vegetables ($\chi^2=1.033$, $df=3$, $p=0.793$), habits of salting ready-to-eat foods ($\chi^2=0.057$, $df=1$, $p=0.862$) and consumption of food supplements ($\chi^2=3.410$, $df=1$, $p=0.66$).

Our research demonstrated that respondents who consume milk and dairy products following Recommendations on Healthy Eating (64.0 %) were significantly more likely than those whose consumption of milk and dairy products was not corresponding to the Recommendations (59.0 %) to wish declaration of information on other nutrition labelling particulars ($p=0.026$), while individuals who do not consume cereals as recommended (63.2 %) were more likely compared to those who consume cereals as recommended (58.5 %) to wish information on other nutrition declaration particulars ($p=0.024$). However, respondents who consumed cereals following Recommendations on Healthy Eating were significantly more likely than those whose consumption of cereals was not in accordance with Recommendations to wish information on monounsaturated fatty acids (6.1 % and 4.3 % respectively, $p=0.047$), selenium (10.1 % and 6.9 %, $p=0.005$) and potassium (15.3 % and 11.0 %, $p=0.003$).

Significant differences were not found between proportions of respondents who claimed that they wish declaration of information on saturated fatty acids ($p=0.718$), sugar ($p=0.496$), salt ($p=0.657$), monounsaturated fatty acids ($p=0.193$), polyunsaturated fatty acids ($p=0.613$), fibre ($p=0.221$), potassium ($p=0.635$), selenium ($p=0.249$), cholesterol ($p=0.370$) and transfatty acids ($p=0.961$), depending if they consume fresh vegetables as recommended or not.

Similar proportions of those, whose consumption of milk and dairy products corresponds to the Recommendations and those who do not follow the Recommendations, stated that information on saturated fatty acids ($p=0.263$), sugar ($p=0.120$), monounsaturated fatty acids ($p=0.195$), polyunsaturated fatty acids ($p=0.281$), potassium ($p=0.136$), selenium ($p=0.462$), cholesterol ($p=0.215$) and trans fatty acids ($p=0.153$) should be declared on food labels. However, those who consume milk and dairy products following Recommendations on Healthy Eating were significantly more likely than those who do not follow the Recommendations to wish declaration of information on salt (29.2 % and 25.0 % respectively, $p=0.032$) and fibre (11.7 % and 8.2 % respectively, $p=0.007$).

Respondents who consume milk and dairy products following Recommendations on Healthy Eating were more likely than those who do not follow the Recommendations to claim that they wish declaration of information about saturated fatty acids ($p=0.263$), sugar ($p=0.120$), monounsaturated fatty acids ($p=0.195$), polyunsaturated fatty acids ($p=0.281$), potassium ($p=0.136$), cholesterol ($p=0.215$) and trans fatty acids ($p=0.153$), however, these differences were not significant. Our findings also show, that those who consume milk and dairy products following Recommendations on Healthy Eating were significantly more likely than those who do not follow the Recommendations to claim that information on salt (29.2 % and 25.0 % respectively, $p=0.032$) and fibre (11.7 % and 8.2 % respectively, $p=0.153$) should be provided on food labels.

Similar proportions of respondents who reported to add salt to ready-to-eat foods (26.8 %) and those who do not salt foods (26.4 %) wish provision of information on salt ($p=0.926$). Respondents who reported to add salt to ready-to-eat foods were more likely compared to those who reported not to add salt to those foods to wish declaration of information on saturated fatty acids ($p=0.984$), sugar ($p=0.935$), monounsaturated fatty acids ($p=0.677$), polyunsaturated fatty acids ($p=0.978$), fibre ($p=0.457$), potassium ($p=0.626$), selenium ($p=0.355$) and trans fatty acids ($p=0.493$), however, these differences were not significant.

Respondents who reported to eat irregularly were more likely than those who reported to eat regularly to indicate that they wish declaration of information about saturated fatty acids ($p=0.072$), sugar ($p=0.218$), salt ($p=0.594$), monounsaturated fatty acids ($p=0.763$), polyunsaturated fatty acids ($p=0.482$), fibre ($p=0.403$), potassium ($p=0.997$) and cholesterol ($p=0.717$), while those who reported to eat regularly were more likely compared to those eating irregularly to indicate that they wish information on selenium ($p=0.656$) and trans fatty acids ($p=0.791$) to be indicated on food labels, however, these differences were not significant.

Respondents who reported never taking food supplements were more likely compared to those who reported to take food supplements to claim that information on saturated fatty acids ($p=0.921$), salt ($p=0.872$), monounsaturated fatty acids ($p=0.011$), polyunsaturated fatty acids ($p=0.064$) fibre ($p=0.226$), selenium ($p=0.570$) and trans fatty acids ($p=0.161$) should be declared on food labels, while respondents who reported to take food supplements were more likely than those who do not take food supplements to wish declaration of information about sugar ($p=0.710$), potassium ($p=0.168$) and cholesterol ($p=0.075$).

CONCLUSIONS

1. Most of Lithuanian adult residents (66.8 %) consider that food labelling information is opaque or partly understandable. Just a quarter of Lithuanian residents (25.7 %) stated that information provided on food labels is legible. Most of them (75.3 %) wish label legibility to be improved. More than half of Lithuanian adult residents (56.6 %) consider that legibility of food labels should be improved through introduction of the minimum font size. The use of unclear abbreviations and difficult terms were the main obstacles preventing from understanding of food labelling information.

2. Lithuanian adult residents mostly reported that their food choice is influenced by the minimum durability date, price and country of origin. These particulars of food labelling information comprised respectively 32.8 %, 21.9 % and 15.5 % of the totality of answers about labelling information, influencing choice of foods, while the list of ingredients and food additives comprised respectively 7.5 % and 5.0 %.

3. More than half of Lithuanian adult residents (58.4 %) wish nutrition labelling information to be always presented on food labels and most of them (85.5 %) wish that information to be placed on the most visible side of the food package. More than half of Lithuanian adult residents (52.6 %), who did not wish declaration of nutrition information, claimed that they are not interested in it, while 28.1 % stated that they lack time to read it. Females more than males, higher educated persons more than lower educated persons are interested in nutrition labelling information and wish that information to be always indicated on foodstuffs labelling.

4. Lithuanian adult residents mostly wished information about energy value (60.4 %), fat (53.4 %), cholesterol (48.3 %), vitamins (41.3 %) and least – information on transfatty acids (5.3 %) and monounsaturated fatty acids (5.0 %).

5. From a public health viewpoint, significant links between Lithuanian adult residents' dietary habits and their attitudes towards information about food were not found, however, those who had a healthier diet were more likely to wish nutrition labelling, its placement on the most visible side of the food package and information not only about fats, carbohydrates, proteins, vitamins, minerals and energy value, but also about other particulars of nutrition labelling information.

LIST OF PUBLICATIONS

1. I. Chmieliauskaitė, R. Bartkevičiūtė, R. Stukas, A. Barzda, S. Kornyšova. Study on Lithuanian adult people views on foodstuff labelling. *Visuomenės sveikata (Public Health)* 2009, 1(44):43-49.
2. I. Chmieliauskaitė, R. Bartkevičiūtė, R. Stukas, A. Barzda. Study on Lithuanian adult people views on foodstuff nutritional labelling. *Sveikatos mokslai (Health Sciences)* 2009, 3(63):2399-2405.

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REZIUMĖ

Šiuo metu Europoje visuotinai pripažįstama, kad maisto produktų ženklėjimas yra veiksminga informacijos teikimo priemonė, kuria sudaroma galimybė gyventojams rinktis jų mitybai naudingus produktus. Pasaulinės mitybos, fizinio aktyvumo ir sveikatos strategijos pagrindu priimtoje Europos Komisijos Baltojoje knygoje dėl Europos strategijos su mityba, antsvoriu ir nutukimu susijusioms sveikatos problemoms spręsti pabrėžiama, kad vartotojams būtina sudaryti sąlygas susipažinti su aiškia, nuoseklia ir moksliniais įrodymais pagrįsta informacija apie maistą. Pagrindinis maisto produktų ženklėjimo tikslas – apsaugoti vartotojų sveikatą bei pateikti išsamią ir teisingą informaciją apie maisto produktus. Sveikos mitybos principų žinojimas ir tinkama maisto produktų maistingumo informacija labai palengvintų vartotojo galimybes pasirinkti sveikatai naudingus maisto produktus ir sveikiau maitintis.

Informacija, pateikiama ženklėjant maisto produktus, gali būti vienintelis informacijos šaltinis apie maisto produktus, prieinamas vartotojui maisto produkto pasirinkimo vietoje, todėl labai svarbu, kad vartotojai suprastų ženklėjimo informaciją ir gebėtų ja tinkamai naudotis. Jei vartotojai informacijos nesupras ar supras klaidingai, tai gali paveikti jų mitybą, o kartu ir sveikatos būklę. Todėl informacijos apie maistą ir jos sąsajų su maisto produktų pasirinkimu ir mityba visuomenės sveikatos požiūriu moksliniai tyrimai yra labai aktualūs.

Darbo tikslas

Ištirti ir įvertinti informacijos apie maistą sąsajas su Lietuvos suaugusių gyventojų maisto produktų pasirinkimu visuomenės sveikatos požiūriu.

Darbo uždaviniai

1. Įvertinti Lietuvos suaugusių gyventojų nuomonę apie maisto produktų ženklėjimą.
2. Ištirti Lietuvos suaugusių gyventojų nuomonę apie maisto produktų ženklėjimo informacijos įtaką maisto produktų pasirinkimui.
3. Išanalizuoti Lietuvos suaugusių gyventojų maisto produktų maistingumo ženklėjimo poreikius, atsižvelgiant į sociodemografinius veiksnius.
4. Išanalizuoti Lietuvos suaugusių gyventojų mitybos įpročių ir informacijos apie maistą poreikio sąsajas.

Darbo aktualumas

Tinkamas informacijos apie maistą pateikimas, įskaitant maisto produktų ženklėjimą, yra svarbi priemonė propaguoti sveikatą stiprinantį gyvenimo būdą ir užtikrinti saugų maisto produktų vartojimą. Antrajame Pasaulio sveikatos organizacijos Europos regiono veiksmų plane dėl maisto ir mitybos veiksmų pabrėžiama, kad maisto produktų ženklėjimo taisyklės ir informacijos apie maistą perdavimas turi būti nukreipti į vartotojų sampratą apie maistą ir mitybą gerinimą ir pagalbą jiems sveikai maitintis. Lietuvoje atliktų tyrimų duomenys rodo, kad sveikatos gerinimo ir ligų profilaktikos tikslais maisto produktus renkasi tik nedidelė dalis gyventojų, tačiau trūksta duomenų apie tai, kokios yra Lietuvos suaugusių gyventojų maisto produktų pasirinkimo sąsajos su informacija apie maistą, kokia yra vartotojų nuomonė, poreikiai ir priežastys, trukdančios naudotis tokia informacija, renkantis maisto produktus.

Mokslinis darbo naujumas

Lietuvoje pirmą kartą atliktas išsamus reprezentatyvus mokslinis tyrimas, kuris visuomenės sveikatos požiūriu apima informacijos apie maistą sąsajas su maisto produktų pasirinkimu, gyventojų maisto produktų ženklavimo poreikius, atsižvelgiant į sociodemografinius veiksnius bei gyventojų nuomonę apie maisto produktų ženklavimą ir galimas ženklavimo informacijos pagerinimo priemones. Tokius tyrimus atlikti skatina Europos Komisija, siekdama nustatyti, kaip reikėtų patobulinti informacijos apie maistą pateikimą reglamentuojančius teisės aktus ir tokios informacijos pateikimą, kad jie labiau atitiktų gyventojų lūkesčius ir padėtų jiems sveikiau maitintis, juolab kad visuomenės naudojimas maisto produktų ženklavimo informacija ir jos supratimas bei įtaka maisto produktų pasirinkimui Europoje nėra pakankamai ištyrinėti.

Ginamieji disertacijos teiginiai

1. Per mažai Lietuvos suaugusių gyventojų domisi maisto produktų ženklavimo informacija.
2. Maisto produktų ženklavimas neatitinka Lietuvos suaugusių gyventojų poreikių.
3. Lietuvos suaugusių gyventojų, besidominčių informacija apie maistą, mitybos įpročiai nėra sveikesni.

Tyrimo metodika

Šis tyrimas buvo Lietuvos žmonių faktiškos mitybos, gyvenamos, požiūrio į sveikatą ir mitybą tyrimo dalis. Gyventojų registro tarnyba prie Vidaus reikalų ministerijos šiam tyrimui atlikti sudarė atsitiktinę 3000 Lietuvos 18–65 m. amžiaus gyventojų imtį, reprezentuojančią visas Lietuvos apskritis, proporcingai gyventojų skaičiui kiekvienoje apskrityje. Iš šios imtį patekusių asmenų vienu momentiniu pjūvio tyrimo anoniminės anketinės apklausos būdu buvo apklausta 2418 respondentų (atsako dažnis – 80,6 proc.). Tyrimas atliktas 2007 m. balandžio – birželio mėnesiais, panaudojant originalų klausimyną apie Lietuvos suaugusių gyventojų nuomonę apie maisto produktų ženklavimą, ženklavimo informacijos poreikius, nuomonę apie informacijos apie maistą įtaką maisto produktų pasirinkimui ir kt., kuris buvo Lietuvos žmonių faktiškos mitybos, gyvenamos, požiūrio į sveikatą ir mitybą tyrimo anketos dalis.

Statistinė duomenų analizė

Statistinė duomenų analizė atlikta panaudojant SPSS (*Statistical Package for Social Sciences*) 12 versijos programinę įrangą ir WinPepi 1.94 (2008 m.) kompiuterinę programą.

Kategorinių duomenų analizei taikytas chi kvadrato (χ^2) kriterijus ir Fišerio tikslusis metodas. Statistinio hipotezių tikrinimo reikšmingumo lygmuo $\alpha = 0,05$. Rezultatai buvo vertinami kaip statistiškai reikšmingi, kai p reikšmė buvo mažiau arba lygi 0,05.

Informacijos apie maistą sąsajos su mitybos įpročiais ir tam tikromis nuostatomis apie mitybą įvertinta apskaičiuojant šansų santykį (ŠS) ir pasikliautinį intervalą (PI).

Rezultatai

Buvo apklausta 1348 (56,9 proc.) moterų ir 1019 (43,1 proc.) vyrų. 51 respondentas nenurodė lyties. Apklaustųjų amžiaus vidurkis – 40,91 m. (mediana – 41, moda – 47, standartinis nuokrypis – 12,914).

Analizuojant apklaustųjų nuomonę apie maisto produktų ženklavimo informacijos įskaitomumą, nustatyta, kad tik ketvirtadalis apklaustųjų (25,7 proc.) aiškiai perskaito, o dauguma (63,2 proc.) tik kartais aiškiai perskaito ženklavimo etiketėje apie maisto produktus pateikiamą informaciją. Daugiau moterų negu vyrų ($p < 0,001$), aukštąjį negu vidurinį išsilavinimą turinčių respondentų ($p < 0,05$) nurodė, kad aiškiai perskaito maisto produktų ženklavimo informaciją. Nustatyta, kad didėjant amžiui, mažėja dalis nurodžiusių, kad maisto produktų ženklavimo etiketėse pateikiama informacija yra įskaitoma. Dauguma respondentų, nepriklausomai nuo lyties, išsilavinimo, gyvenamosios vietovės, atsakomybės už maisto produktų pirkimą šeimai, netgi nuo to, ar jie aiškiai perskaito maisto produktų ženklavimo informaciją, mano, kad maisto produktų etiketės turėtų būti lengviau įskaitomos. Didėjant apklaustųjų amžiui, didėjo tokią nuomonę pateikusiųjų dalis. Daugiau kaip pusė tyrime dalyvavusių (56,6 proc.) mano, kad maisto produktų etiketės būtų lengviau įskaitomos nustačius minimalų šrifto dydį, o ketvirtadalis (24,9 proc.) – nustačius šrifto ir fono spalvų kontrastą. Minimalaus šrifto dydžio nustatymą įvardijo daugiau kaimo negu miesto gyventojų ($p < 0,001$), vyresnio negu jaunesnio amžiaus bei už maisto produktų pirkimą šeimai atsakingų respondentų. Kas trečio respondento (33,2 proc.) nuomone, maisto produktų ženklavimo informacija yra suprantama, o daugumai (60,8 proc.) ji suprantama tik iš dalies. Daugiau miesto negu kaimo gyventojų ($p = 0,011$), aukštąjį negu žemesnį išsilavinimą turinčių, jaunesnio negu vyresnio amžiaus apklaustųjų nurodė, maisto produktų ženklavimo informacija yra suprantama. Nustatyta, kad didėjant respondentų išsilavinimui, didėja dalis nurodžiusių, kad maisto produktų etiketėse pateikiama suprantama informacija. Mažesnė respondentų pensininkų negu kito užimtumo asmenų dalis mano, kad maisto produktų ženklavimo informacija yra suprantama. Daugiau kaip pusė respondentų, kuriems maisto produktų etiketėse pateikiama informacija yra nesuprantama arba suprantama tik iš dalies (53,7 proc.), nurodė, kad maisto produktų ženklavimo informaciją sunku suprasti dėl neaiškių sutrumpinimų, o 44,3 proc. – dėl sudėtingų terminų vartojimo. Tokių atsakymų pasiskirstymas pagal respondentų lytį ir amžiaus grupes statistiškai reikšmingai nesiskyrė. Didėjant įgytam išsilavinimui, mažėjo dalis respondentų, kurie kaip priežastį, trukdančią suprasti maisto produktų etiketėje pateikiamą informaciją įvardijo sudėtingų terminų vartojimą, ir daugėjo nurodžiusių, kad informaciją sunku suprasti dėl joje pateikiamų neaiškių sutrumpinimų.

Nustatyta, kad dalyvavusieji tyrime, nepriklausomai nuo lyties, gyvenamosios vietovės ir išsilavinimo, kaip labiausiai maisto produktų pasirinkimą veikiančią ženklavimo informaciją nurodė maisto produktų tinkamumo vartoti terminą. Respondentų pateiktų atsakymų struktūroje šis ženklavimo informacijos rodiklis sudarė didžiausią dalį – 32,8 proc., o maisto produktų kaina ir kilmės šalis – atitinkamai 21,9 proc. ir 15,5 proc. Be šios informacijos, respondentų maisto produktų pasirinkimą veikia informacija apie maisto produkto kiekį, sudedamųjų dalių sąrašą ir maisto priedus, kurie sudarė atitinkamai 8,4 proc., 7,5 proc. ir 5,0 proc. pateiktų atsakymų. Apklaustieji rečiau nurodė, kad maisto produktų pasirinkimą veikia maistingumo ženklavimo informacijos rodmenys, iš kurių dažniausiai nurodyti – energinė vertė ir riebalų kiekis.

Statistiškai reikšmingai dažniau moterys negu vyrai, miesto negu kaimo gyventojai, aukštąjį negu vidurinį išsilavinimą turintys asmenys nurodė, kad maisto produktus renkasi pagal sudėtį ir riebalų kiekį. O kainą kaip labiausiai maisto produktų pasirinkimą veikiančią ženklavimo informacijos rodiklį dažniau įvardijo vyrai negu moterys, kaimo negu miesto gyventojai, vidurinio negu aukštojo išsilavinimo apklaustieji. Moterys statistiškai reikšmingai dažniau negu

vyrai, o aukštojo išsilavinimo dažniau negu vidurinio išsilavinimo asmenys nurodė, kad maisto produktus renkasi pagal ženklinimo informacijoje nurodytą energinę vertę.

Daugiau kaip pusė (58,4 proc.) apklaustųjų pageidauja maistingumo ženklinimo informacijos, o dauguma tokios informacijos pageidaujančiųjų (85,5 proc.) mano, kad ji visada turėtų būti nurodoma matomiausioje maisto produkto pakuotės dalyje. Tokius pageidavimus nurodė daugiau moterų negu vyrų, aukštesnio negu žemesnio išsilavinimo respondentų, tarnautojų negu kito užimtumo asmenų, už maisto produktų pirkimą šeimai atsakingų, aiškiai maisto produktų etiketėse pateikiamą ženklinimo informaciją perskaitančių bei apklaustųjų, kuriems tokia informacija suprantama. Nors skirtingų amžiaus grupių respondentų poreikiai dėl maistingumo informacijos nurodymo reikšmingai nesiskyrė, tačiau nustatyta, kad didėjant amžiui, didėjo tokios informacijos pateikimo matomiausioje maisto produkto pakuotės dalyje pageidavusių apklaustųjų dalis. Didesnė miesto negu kaimo gyventojų dalis ($p=0,021$) pageidauja informacijos apie maistingumą, o tarp miesto ir kaimo gyventojų poreikių dėl jos nurodymo matomiausioje maisto produkto pakuotės dalyje pasiskirstymo statistiškai reikšmingų skirtumų nenustatyta. Apie trečdalis apklaustųjų neturi nuomonės, ar pageidauja maistingumo informacijos nurodymo (33,1 proc.) ir jos pateikimo matomiausioje maisto produkto pakuotės dalyje (30 proc.). Tokių yra daugiau tarp vyrų, kaimo gyventojų, pradinio išsilavinimo asmenų, bedarbių ir darbininkų. Daugiau kaip pusė (52,6 proc.) apklaustųjų, kurie nepageidauja informacijos apie maistingumą, nurodė, kad jų nedomina tokia informacija, o daugiau kaip ketvirtadalis (28,1 proc.) pažymėjo, kad neturi laiko jos skaityti. Daugiau vyrų negu moterų, žemesnio negu aukštesnio išsilavinimo, 31-40 m. amžiaus negu kitų amžiaus grupių respondentų, darbininkų ir bedarbių negu kito užimtumo asmenų nurodė, kad nesidomi maistingumo informacija. Iš maistingumo informacijos rodiklių, kurie būtinai turi būti nurodomi ženklinant maisto produktus, dažniausiai buvo įvardyta energinė vertė (60,4 proc.). Informacijos apie energinę vertę dažniausiai pageidavo moterys, studentai, asmenys, turintys aukštąjį išsilavinimą bei respondentai iki 60 m. amžiaus. Daugiau kaip pusė respondentų (53,4 proc.) pažymėjo, kad maisto produktų ženklinimo etiketėse turi būti nurodyta informacija apie riebalus. Tokios informacijos dažniausiai pageidavo moterys, aukštojo išsilavinimo respondentai, pensininkai bei apklaustieji nuo 61 m. amžiaus. Mažiau kaip pusės (41,3 proc.) respondentų nuomone, ženklinant maisto produktus turėtų būti nurodoma informacija apie vitaminus, o informacijos apie mineralus pageidavusiųjų buvo mažiau (17,3 proc.).

Iš visų apklaustųjų, suskirstytų pagal užimtumą, studentai dažniausiai pageidavo informacijos apie energinę vertę (68,0 proc.), mineralus (47,7 proc.), vitaminus (47,1 proc.), baltymus (45,9 proc.) ir angliavandenius (42,4 proc.), o informacijos apie riebalus – pensininkai (60,2 proc.). Palyginus kaime ir mieste gyvenančių respondentų atsakymų pasiskirstymą apie energinės vertės, riebalų, angliavandenių, baltymų, vitaminų ir mineralų nurodymą ženklinant maisto produktus, statistiškai reikšmingų skirtumų nenustatyta. Dauguma (60,4 proc.) apklaustųjų pageidauja, kad ženklinant maisto produktus būtų pateikiama informacija ne tik apie riebalus, angliavandenius, baltymus, vitaminus, mineralus, energinę vertę, bet ir kitus maistingumo rodiklius. Tokį pageidavimą daugiau nurodė moterų negu vyrų ($p<0,001$), pensininkų ir tarnautojų negu kito užimtumo asmenų, už maisto produktų pirkimą atsakingų, maistingumo ženklinimo informacijos pageidaujančių, ženklinimo informaciją aiškiai perskaitančių bei respondentų, kuriems tokia informacija suprantama. Palyginus mieste ir kaime gyvenusių tyrime dalyvavusių asmenų atsakymų apie informacijos apie kitus maistingumo rodiklius poreikį pasiskirstymą, statistiškai reikšmingų skirtumų nenustatyta ($\chi^2=0,354$, $lls=3$, $p=0,552$). Nustatyta, kad didėjant respondentų amžiui ir išsilavinimui, didėjo kitų maistingumo informacijos rodiklių nurodymo poreikis. Apklaustųjų nuomone, iš kitų maistingumo informacijos rodiklių ženklinant maisto produktus turėtų būti nurodomi informacija apie cholesterolį (48,3 %), cukrų (35,4 %), valgomąją druską (26,3 %), kalį (12,7 proc.), sočiąsias riebalų rūgštis (11,6 proc.), skaidulines medžiagas (9,3 proc.), seleną (8,2 proc.), polinesočiąsias riebalų rūgštis (6,3 proc.), riebalų rūgščių transizomerus (5,3 proc.) ir mononesočiąsias riebalų rūgštis (5,0 proc.). Didesnė dalis moterų negu vyrų pageidavo informacijos pateikimo apie

daugumą šių rodiklių, išskyrus riebalų rūgščių transizomeras, o daugiau aukštąjį negu žemesnį išsilavinimą turinčių asmenų pageidavo informacijos apie visus šiuos rodiklius. Palyginus miesto ir kaimo gyventojų atsakymų pasiskirstymą apie informacijos apie minėtų maistingumo informacijos rodiklių poreikį, statistiškai reikšmingų skirtumų nenustatyta. Didėjant amžiui, didėjo informacijos apie cholesterolį nurodymo pageidaujančiųjų apklaustųjų dalis. Daugiau nuo 51 m. nei iki 51 m. amžiaus apklaustųjų nurodė, kad ženklinant maisto produktus, turi būti pateikiama informacija apie cukrų ir valgomąją druską. Iš visų respondentų, suskirstytų pagal užimtumą, tarnautojai dažniausiai pageidavo informacijos apie sočiausias riebalų rūgštis (15,5 proc.), cukrų (43,2 proc.), skaidulines medžiagas (14,4 proc.), namų šeimininkės – informacijos apie valgomąją druską (34,3 proc.), polinesočiasias riebalų rūgštis (9,1 proc.), o pensininkai (57,7 proc.) – informacijos apie cholesterolį. Daugiau kaip pusės (51,1 proc.) apklaustųjų nuomone, nurodant maisto produktų maistingumą, reikėtų vartoti aiškesnius terminus, o daugiau kaip trečdalis (35,6 proc.) respondentų mano, kad tokia informacija turėtų būti pateikiama didesnio šrifto rašmenimis. Daugiau moterų negu vyrų ($p < 0,001$), kaimo negu miesto gyventojų ($p < 0,004$), už maisto produktų pirkimą šeimai atsakingų, ženklinimo etiketėse pateikiamą informaciją aiškiai perskaitančių respondentų pageidauja, kad maistingumo informacijoje būtų vartojami aiškesni terminai. Maistingumo informacijos pateikimo didesnio dydžio rašmenimis dažniausiai pageidavo respondentai nuo 51 m. amžiaus, namų šeimininkės, bedarbiai bei aiškiai maisto produktų ženklinimo informacijos neperskaitantys apklaustieji.

Nors daugumoje atvejų nenustatyta reikšmingų sąsajų tarp respondentų nuomonės apie informaciją apie maistą ir jų mitybos įpročių, tačiau nustatyta, kad statistiškai reikšmingai didesnė dalis nereguliariai besimaitinančių respondentų, palyginus su reguliariai besimaitinančiais, pageidavo maistingumo informacijos nurodymo ženklinant maisto produktus bei tokios informacijos pateikimo matomiausioje maisto produkto pakuotės dalyje. Taip pat nustatyta, kad į informaciją apie sudedamąsias dalis, vertindami maisto produktų mitybinę vertę, dėmesį atkreipia statistiškai reikšmingai didesnė dalis maisto patiekalų nesūdančių nei juos sūdančių apklaustųjų. Daugiau vartojančiųjų maisto papildus, palyginus su niekada jų nevartojančiais, siekdami įvertinti maisto produktų mitybinę vertę, domisi maistingumo ženklinimo informacija. Didesnė dalis pienu ir pieno produktus pagal sveikos mitybos rekomendacijas vartojančių negu nevartojančių ($p = 0,026$) apklaustųjų pageidavo, kad ženklinant maisto produktus būtų pateikiama informacija ne tik apie riebalus, angliavandenius, baltymus, vitaminus, mineralus ir energinę vertę, bet ir apie kitus maistingumo informacijos rodiklius bei informacijos apie valgomąją druską ($p = 0,032$) ir skaidulines medžiagas ($p = 0,007$). Nors didesnė dalis grūdinių produktų pagal sveikos mitybos rekomendacijas nevartojančių nei juos vartojančių apklaustųjų pageidavo informacijos apie kitus maistingumo rodiklius ($p = 0,024$), tačiau informacijos apie mononesočiasias riebalų rūgštis ($p = 0,047$), seleną ($p = 0,005$) ir kalį ($p = 0,003$) pageidavo daugiau tų, kurių grūdinių produktų vartojimas atitinka sveikos mitybos rekomendacijas, palyginus su rekomendacijų nesilaikančiais respondents. Daugiau respondentų, niekada nevartojančių maisto papildų, palyginus su maisto papildus vartojančiais, nurodė, kad ženklinant maisto produktus, turi būti nurodoma informacija apie mononesočiasias riebalų rūgštis ($p = 0,011$).

Išvados

1) Daugumos Lietuvos suaugusių gyventojų (66,8 proc.) nuomone, maisto produktų ženklavimo informacija yra nesuprantama arba tik iš dalies suprantama. Tik kas ketvirtas respondentas (25,7 proc.) nurodė, kad visada aiškiai perskaito ženklavimo etiketėje apie maisto produktus pateikiamą informaciją. Dauguma (75,3 proc.) apklaustųjų pageidauja, kad būtų lengviau išskaitomos maisto produktų etiketės, o daugiau kaip pusė (56,6 proc.) mano, kad to būtų galima pasiekti nustačius minimalų šrifto dydį. Pagrindinės priežastys, trukdančios suprasti maisto produktų ženklavimo etiketėje pateikiamą informaciją – neaiškių sutrumpinimų ir sudėtingų terminų vartojimas.

2) Lietuvos suaugę gyventojai kaip labiausiai maisto produktų pasirinkimui darančią įtaką ženklavimo informaciją nurodė maisto produktų tinkamumo vartoti terminą, kainą ir kilmės šalį. Ši informacija respondentų pateiktų atsakymų struktūroje atitinkamai sudaro 32,8 proc., 21,9 proc. ir 15,5 proc., o maisto produktų sudėtis ir maisto priedai sudaro atitinkamai 7,5 proc. ir 5,0 proc.

3) Daugiau kaip pusė (58,4 proc.) Lietuvos suaugusių gyventojų pageidauja, kad ženklinant maisto produktus būtų pateikiama maistingumo informacija, o dauguma tokios informacijos pageidaujančiųjų (85,5 proc.) mano, kad ji visada turėtų būti nurodoma matomiausioje maisto produkto pakuotės dalyje. Daugiau kaip pusė (52,6 proc.) respondentų, kurie nepageidauja informacijos apie maistingumą, nurodė, kad jų nedomina tokia informacija, o 28,1 proc. pažymėjo, kad neturi laiko jos skaityti. Daugiau moterų negu vyrų, aukštesnį išsilavinimą negu žemesnį išsilavinimą turinčių respondentų domisi informacija apie maisto produktų maistingumą ir pageidauja, kad ji būtų visada nurodoma ženklinant maisto produktus.

4) Lietuvos suaugę gyventojai labiausiai pageidauja informacijos apie maisto produkto energinę vertę (60,4 proc.), riebalus (53,4 proc.), cholesterolį (48,3 proc.) ir vitaminus (41,3 proc.), o mažiausiai – apie riebalų rūgščių transizomerus (5,3 proc.) ir mononesočiąsias riebalų rūgštis (5,0 proc.). Daugiau kaip pusės apklaustųjų (51,1 proc.) nuomone, nurodant maisto produktų maistingumą, reikėtų vartoti aiškesnius terminus.

5) Vertinant visuomenės sveikatos požiūriu, nenustatyta reikšmingų sąsajų tarp Lietuvos suaugusių gyventojų nuomonės apie informaciją apie maistą ir jų mitybos įpročių, tačiau sveikiau besimaitinantys dažniau pageidauja maistingumo ženklavimo informacijos nurodymo, tokios informacijos pateikimo matomiausioje maisto produkto pakuotės dalyje ir informacijos ne tik apie riebalus, angliavandenius, baltymus, vitaminus, mineralus ir energinę vertę, bet ir kitus maistingumo rodiklius.

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2001 m. baigė Vilniaus universiteto Medicinos fakulteto pagrindinių studijų visuomenės sveikatos programą. Suteiktas visuomenės sveikatos bakalauro kvalifikacinis laipsnis.

2003 m. su pagyrimu baigė Vilniaus universiteto Medicinos fakulteto magistrantūros studijų visuomenės sveikatos programą. Suteiktas visuomenės sveikatos magistro kvalifikacinis laipsnis.

2003–2009 m. – Vilniaus universiteto Medicinos fakulteto Visuomenės sveikatos instituto biomedicinos mokslų srities visuomenės sveikatos krypties doktorantė.

Profesinė patirtis:

2003–2004 m. – Valstybinio aplinkos sveikatos centro Visuomenės sveikatos vadybos ir Vaikų aplinkos sveikatinimo skyrių visuomenės sveikatos administratorė.

2005–2008 m. – Respublikinio mitybos centro Geriamojo vandens skyriaus visuomenės sveikatos specialistė, nuo 2007 m. – Geriamojo vandens skyriaus vedėja.

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