Irena Ozimek

https://orcid.org/0000-0003-3430-8276

Department of Development
Policy and Marketing
Institute of Economics and Finance
Warsaw University of Life Sciences
Warsaw, Poland
irena_ozimek@sggw.edu.pl

Grzegorz Maciejewski

https://orcid.org/0000-0002-1318-0747

Department of Marketing
and Consumption
Faculty of Economics
University of Economics in Katowice
Katowice, Poland
grzegorz.maciejewski@ue.katowice.pl

Pavol Kita

https://orcid.org/0000-0001-5870-9328

Department of Trade,
Tourism and Languages
Faculty of Economics
University of South Bohemia in České
Budějovice, České Budějovice, Czechia
pkita@jcu.cz

Julita Szlachciuk

https://orcid.org/0000-0002-9742-2044

Department of Food Market
and Consumer Research
Institute of Human Nutrition
Warsaw University of Life Sciences
Warsaw, Poland
julita_szlachciuk@sggw.edu.pl

A typology of consumers by their nutritional behaviors and selected lifestyle elements

Abstract

Aim/purpose – The paper aims to present a preliminary consumer typology based on the declared nutritional behaviors and selected lifestyle elements of Polish and Slovak consumers.

Design/methodology/approach – The research was conducted in the first half of 2019, among non-randomly selected subjects representing their households from Poland and Slovakia. The empirical part of the work is based on the results of research employing a structured standardized interview. Cluster analysis was used in the analysis of the results.

Findings – The results of the research showed that the eating behaviors of Polish and Slovak consumers differ. Some Polish and Slovak consumers follow the principles of healthy eating. Among Polish consumers we distinguished four types of consumers: I – "Driven by the principles of healthy eating"; II – "Implementing the principles of healthy eating"; III – "Ordinary bread eaters"; IV – "Consciously unaware." In turn, among Slovak consumers, we distinguished also fourth types: I – "Driven by the principles of healthy eating"; II – "Exercise and drink milk!"; III – "Not attaching importance to healthy eating"; IV – "Eat tastily and healthily." The distinguished types of consumers can be the basis for the food market segmentation. Knowledge of the typology based on declared eating behaviors and selected aspects of the lifestyle may enable food producers to develop an appropriate marketing strategy.

Research implications/limitations – A certain limitation may be the non-random sample selection. An important aspect would also be to expand the analyzed research thread with additional aspects related to eating behavior and lifestyle. Another limitation is that the clusters were delivered in two separate processes for Poland and Slovakia, respectively. As a result, the clusters are different and represent two different typologies.

Originality/value/contribution – The research may be an important source of information for researchers dealing with consumer typology. The distinguished types of consumers can be the basis for the food market segmentation.

Keywords: nutritional behavior, consumer behavior, consumers, typology, cluster analysis.
JEL Classification: D11, D12.

1. Introduction

Generally, it is very difficult to be a conscious consumer in the world of consumption, especially as far as food is concerned. Eating behavior is often cited as one of many factors contributing to nutrition to improve an individual's health. Food choice among adolescents is particularly important because at this stage food influences their current and future health (Contento et al., 2006).

According to Słaby (2006, pp. 17-19), these consumers are characterized by their rational attitude toward a wide offer on the market thanks to the possibilities of accessing information coming from various sources. They highlight nutrition and health knowledge and information; cognitive and sufficient antecedents such as attitudes, perceptions and beliefs, product properties, and socio-demographic variables as important for consumer choices regarding foods (Mazalán et al., 2021; Nystrand & Olsen, 2020). On this basis, the authors decided to follow partly the approach suggested by Hodgkins et al. (2012), who compared the respondents from the UK, France, Poland, and Turkey, while constructing the presented typology. Despite the differences in their survey, we see a common idea to find out deeper insight into how consumers themselves analyze their shopping behavior in two different countries (Hodgkins et al., 2012; Kita et al., 2020).

The paper aims to present a preliminary consumer typology based on the declared nutritional behaviors and selected lifestyle elements of Polish and Slovak consumers. The authors wanted to join the international discussion on the problem of healthy eating by presenting a picture of Polish and Slovak consumers in this area. In the conducted literature review, we did not find studies comparing the nutritional behavior of Polish and Slovak consumers. Cluster analysis was used in the assessment of the results. Approaches to consumer segmentation in the food market vary depending on the criteria of studied variables (i.e., food choice factors), and the predictor variables selected (e.g., demographic characteristics) (Dana et al., 2021). Some segmentation studies investigating food choice factors have focused on certain food products (e.g., Realini et al., 2014; Verain et al., 2016). Those looking at factors affecting food choice, in general, have been mainly conducted in Europe (e.g., Maciejewski, 2018; Milošević et al., 2012; Onwezen et al., 2012). Despite a slightly different approach to presenting data on the discussed issues, the Polish and Slovak recommendations focus on the same aspects, which are so essential due to the impact of nutrition on consumers' health.

To study the eating behavior of Polish and Slovak consumers, we created an original scale of eating behavior based on the guidelines of the World Health Organization [WHO] (2018, 2020), the National Institute of Public Health NIH-National Research Institute, and the Public Health Authority of the Slovak Republic (Appendix). The scale was developed based on the recommendations of WHO, the National Institute of Public Health NIH-National Research Institute (Narodowy Instytut Zdrowia Publicznego, 2020), and the Public Health Authority of the Slovak Republic (n.d.). These recommendations are the foundation of healthy human nutrition. To the best of our knowledge, this is the first time anyone has ever constructed such a tool and conducted research based on the WHO recommendations issued in May 2018. Before using the constructed scale in the main study, a pilot study was carried out, which proved the high reliability of this tool, both in the Slovak and Polish versions. The scale allows for assessing how healthy the surveyed society is and whether it leads to a healthy lifestyle. In addition, it can be the basis for distinguishing types of consumers due to their attitude to healthy eating.

This study is focused on filling the gap in our knowledge about nutritional behavior as well as on identifying differences between countries. It can also be a reference point for further research in the area we have undertaken.

This paper is divided into six main sections. Section 1 introduces the research topic. Section 2 presents an overview of the literature. Section 3 explains the research methodology, and Section 4 presents the results of the survey. Section 5 is the discussion. The last part is the conclusions.

2. Literature review

Research conducted by scientists around the world shows that what we eat has an enormous impact on our health. Also, some researchers suggest that identifying potential dietary transitions with environmental outcomes and better health is a global scientific and policy priority (Willett et al., 2019). Regular consumption of meals in the right amount and with the correct composition affects both the physical and psychosocial functioning of the individual (Cardoso et al., 2020). Improper diet increases the risk of or causes many diseases, including obesity, cardiovascular diseases, cancer, and diabetes (Gibson et al., 2020; Kumar et al., 2021). The development of diseases may be influenced by the excess energy supplied with food or the consumption of low-quality food, as well as nutritional deficiencies (Drywień & Kuć, 2019). The consequences of improper nutrition affect not only the individual but also society (e.g., in the form of health costs) (Chen & Antonelli, 2020). In this context, lifestyle changes are a good example illustrating how providing an appropriate family background encourages children to adopt healthy behavioral models (Baskova & Baska, 2003).

People make more than 200 food decisions daily, which poses a significant challenge for measuring eating behavior (Wansink & Sobal, 2007). We can define nutritional behaviors as cultural patterns related to the handling and use of food to meet nutritional needs. According to the sociological theory, nutritional behavior is part of a lifestyle. It is a coherent whole and consists of "behaviors that people choose, but to the extent that their location in the social structure allows them" (Borowiec & Aranowska, 2018, p. 97). Cockerham (2012) developed the concept of "health" lifestyle theory popular in medical sociology. He stated that these are patterns of behaviors that are related to health. They are based on an individual's choices made from among the options available to them. Those choices are related, for instance, to eating habits, smoking, physical activity, drinking alcohol, resting, or coping with stress.

Individual food choice is determined by a variety of determinants related to the food itself, individual differences, and social influences. Furthermore, interactions between individual factors contribute directly and/or indirectly to final food choices (Chen & Antonelli, 2020).

The literature provides various classifications of factors influencing food choices. One of such divisions distinguishes three groups of factors:

1. Product-related factors (including taste, smell, appearance, product availability, convenience, and nutritional value) (Wang et al., 2019);
2. Consumer-related factors: demographic factors, body metabolic state (hunger, thirst), psychological factors (attitudes, personality, mood) (Hansen et al., 2018; Oostenbach et al., 2019);
3. Environment-related factors: culture, politics, and economic factors (Willett et al., 2019).

Voinea et al. (2019) emphasized that consumers are subject to "constant attacks" by food producers and sellers when making food choices. Such activities can encourage overconsumption and unhealthy food choices (Harris & Graff, 2012). Yadavalli and Jones (2014) noticed that the media is one of the factors influencing food choices and eating behavior. True, clear, and understandable sources of knowledge are crucial for the proper orientation of consumers. The mass media can be a source of conflicting information on food, nutrition, and health, which results in beliefs and attitudes about the healthiness of the food that differ from well-established knowledge, e.g., from recommendations of state institutions (Bølling Johansen et al., 2011).

Culinary choices can prove that one belongs to a given social circle (Higgs & Ruddock, 2020). Research by Popkin et al. (2012) confirmed that socio-cultural influence may force the individual to adopt an unhealthy lifestyle. The research conducted among Chinese consumers shows food choices were influenced by principles of traditional Chinese medicine, striving for harmony in families, perception of a healthy diet, and physical, social, and environmental factors (Wang--Chen et al., 2022). Wongprawmas et al. (2021) noticed that health and environmental factors among Italian consumers were the strongest determinants of food choices.

Based on existing literature findings, this study addressed the following research question:

RQ1: Are the nutritional habits of Polish and Slovak consumers different?

The first hypothesis was formulated:

H1: Nutritional behaviors of Polish and Slovak consumers differ.

Studies from different countries often identify taste, price, healthiness, and convenience as the dominant food choices (Aggarwal et al., 2016; Prescott et al., 2002). Research conducted by Dana et al. (2021) shows that taste and price are the most critical factors determining consumer decisions regarding the choice of

food. While incorporating the healthiness of food into consumption decisions is essential for preventing nutrition-related health conditions, the results of this study show that this factor was ranked lower concerning taste and price.

Recent studies have applied economic theories to change eating behavior (De Clercq et al., 2017). For example, price reduction strategies promote targeted food selection by lowering costs relative to alternative food choices. Two studies by French (2003) used price reductions to promote increased purchases of targeted foods. The research results showed that lowering the prices of healthy food is a strategy that should be implemented, among others, through policy initiatives and industry collaboration. The pricing policy may be particularly appropriate to reach low-income groups (Steenhuis et al., 2011). Low--income groups have significantly shorter life expectancies than high-income groups. That can partly be explained by lifestyle behaviors such as dietary behavior. In addition, being overweight and obese too more common among low-income groups. As Pancrazi et. al. (2022) noted, it seems likely that the declining quality of people's diets and the resulting obesity epidemic are at least partly due to prices.

Hence, the following research question was addressed:

RQ2: Do the flavor and taste of food determine consumers' choices more than price?

The second hypothesis was formulated:

H2: Polish and Slovak consumers do not follow the principles of healthy eating.

National and international dietary guidelines provide rules for healthy eating patterns. However, most consumers in the Western world do not follow these recommendations (Rossum et al., 2020). According to Sharif et al. (2016), self-esteem in healthy eating habits was positively correlated with higher consumption of fruits and vegetables and negatively associated with eating fast food and drinking soda.

The research conducted by Fatrcová-Šramková et al. (2010) on Slovak consumers shows that the proportion of Slovakian adults falls short of current national dietary and physical activity recommendations for adults. According to Bartosik-Purgat and Janowska (2020), a typical Slovak consumer declares the need to live in harmony with nature, and healthy eating is an important element of this attitude. Consumers are more and more aware of their needs, analyzing the composition of the products they buy, and are skeptical about food trends but their knowledge of healthy eating may be superficial.

Polish consumers are increasingly interested in not simply sensory proper-ties but primarily in healthiness and safety (Ozimek & Żakowska-Biemans, 2011), and health is perceived as the most important value (Gutkowska, et al., 2014). The research conducted among Polish students shows that the diet of Polish students was not in line with the principles of healthy eating to the great-est extent. This was associated with large consumption of cold meats, hot dogs, white bread and bakery products, fried foods, and energy drinks. Polish students, even though they had a high level of nutritional knowledge, did not adhere to the principles of a healthy diet (Suliga et al., 2020).

Therefore, the following research question was posed.
RQ3: Do Polish and Slovak consumers follow the principles of healthy eating?

The third hypothesis was formulated:
H3: The price strongly influences the choice of food rather than its taste and flavor.

3. Research methodology

3.1. Sample and data collection

The empirical part of the paper is based on the results of primary research, designed and carried out by the authors of the study employing a standardized questionnaire. They used the personal interview technique (PAPI), which works well in consumer behavior research (Burns et. al., 2017; East et al., 2022). The performed research was quantitative. The studies were completed in the first half of 2019, i.e., before the outbreak of the COVID-19 epidemic in Poland and Slo-vakia. Pre-research, the questionnaire was piloted to eliminate possible errors in the research tool and assess its correctness and usefulness to attain the research objectives. The research tool was prepared in the Polish language. Based on the Polish questionnaire, a tool in the Slovak language was prepared. The principles of interpretative and procedural equivalence in international research were fol-lowed when developing the Slovak questionnaire (McArthur, 2007).

The research was conducted among non-randomly selected individuals rep-resenting their households from Poland and Slovakia. The decision to choose non-random sampling was justified primarily by the lack of an appropriate sam-pling frame and the need to limit the research costs. Adults who were responsi-ble for purchasing food and preparing meals were qualified for the sample. In total, 600 respondents from Poland and 300 respondents from Slovakia were recruited for the research (Table 1). Such a sample size provides results with

a measurement error of no more than 3%, with a confidence level of 0.95. At the same time, it should be remembered that the size of the sample does not depend on the size of the population but on the degree of its homogeneity. The more homogeneous the population is (in terms of selected features), the smaller the sample size (Pietrucha & Maciejewski, 2020).

Table 1. Characteristics of research samples

Item		Poland (N = 600)	Slovakia (N = 300)
Persons responsible for food purchases and meal preparation in household	Housewife	82.2 %	88.7%
	Househusband	17.8%	11.3%
Age of persons responsible for food purchases and meal preparation in household	Median age of housewife	45 year	46 year
	Median age of househusband	48 year	48 year
Number of persons in the household	1	16.0%	12.4%
	2	20.7%	26.1%
	3	20.8%	24.4%
	4	30.2%	27.8%
	5-persons and more	12.3%	9.4%
Subjective assessment of the financial situation of own household	Very bad and bad	2.8%	1.8%
	Average	34.5%	29.5%
	Good	47.5%	48.8%
	Very good	15.2%	20.4%
Place of residence	Rural area	19.0%	18.4%
	City	81.0%	81.6%

Source: Authors'own study.

The study was conducted following ethical standards, taking into account the ICC/ESOMAR International Code (ESOMAR, 2016). The research was anonymous. The data collected did not include identifying characteristics of the respondents.

The sample of Polish consumers includes respondents from various households (Table 1). Most often they were four-person households (30.2%). The sample was dominated by consumers from cities (81.0%). The survey participants were asked to assess the financial situation of their household and most often admitted that it was good or average. The vast majority of the respondents had secondary education. The median age of the housewife and the househusband was 45 and 48, respectively.

The sample of respondents from Slovakia consisted of the highest number of respondents from four-person (27.8%) households – Table 1. In the analyzed sample, consumers living in rural areas accounted for 18.4%. The survey partic-

ipants from Slovakia were asked to assess the financial situation of their households and most often admitted that it was good (48.8%). Most of the respondents had secondary education. The median age of the housewife and the househusband was 46 and 48 years of age, respectively.

3.2. Measures

The study used a scale of 19 variables describing selected consumer behaviors in the food market and their households. The used scale is an original measurement construct (Appendix). It was developed based on the recommendations of the World Health Organization (WHO, 2018, 2020), the National Institute of Public Health NIH-National Research Institute (Narodowy Instytut Zdrowia Publicznego, 2020), and the Public Health Authority of the Slovak Republic (2022). These recommendations are the foundation of healthy human nutrition. The scale was written in the form of a seven-point ordinal scale, where the number –3 meant "I strongly disagree" and +3 answer meant "I strongly agree." Before using the scale in the main study, a pilot study was conducted, which was already mentioned in the previous section of the article. The reliability of the scale used in the study was confirmed by Cronbach's alpha test. The Cronbach's alpha value was 0.793 (Polish version) and 0.711 (Slovak version). Therefore, if we assume that the permissible level of coefficient $\alpha > 0.7$, as proposed by Henson (2001, p. 180), the scale used in the study can be considered reliable.

Since there are numerous applications of cluster analysis in consumer behavior research (Milošević et al., 2012; Realini et al., 2014; Verain et al., 2016), it was used to distinguish relatively homogeneous groups (types) of consumers (Bollmann et al., 2015; Maciejewski & Lesznik, 2022).

Work on the described typologies was carried out following three stages proposed by Kusińska (2009):
1. Adopting the typology criteria, i.e., selecting a set of diagnostic variables based on which the typology will be carried out.
2. Delimitation, i.e., the grouping of households according to the adopted diagnostic criterion by adopting cluster analysis.
3. Evaluation and verification of the results obtained and profile development of selected clusters, taking into account active and descriptive variables (social, economic, and demographic characteristics).

To confirm or reject the H1 hypothesis, separate typologies were conducted for Polish and Slovak consumers. The mentioned measurement scale was used to carry out the typologies.

The types of consumers were distinguished in two steps. The first step was the Ward (hierarchical) cluster analysis applied with the square of the Euclidean distance, the second step was the non-hierarchical k-means cluster analysis. The use of both methods results from methodological limitations (Walesiak & Gatnar, 2009). The non-hierarchical analysis is less sensitive to abnormal observations and incorrect variables, providing better results. However, it requires specifying the target number of distinguished groups of units, which is not predetermined. To obtain this information, a hierarchical cluster analysis should be used first (Piekut, 2017). The analysis of the agglomeration coefficient and the dendrogram, obtained employing the stratified analysis using the Ward method, led to the selection (in both cases) of four types of consumers (the first clear jump in the agglomeration distance, cut-off point 10). After conducting a non-hierarchical analysis, objects centroids (centers of gravity) were finally determined and each of them was assigned to the group whose centroid is closest to it (Everitt et al., 2011), then the distinguished types were given subjective names that best reflect the behavioral characteristics of the studied individuals assigned to given types. As a result, two typologies of consumers were obtained according to two groups of diagnostic variables. All calculations were carried out with the use of IBM SPSS Statistics 26 software.

4. Research findings

4.1. Typology of Polish consumers according to declared nutritional behaviors and selected lifestyle elements

As a result of the conducted analyses, four relatively homogeneous types of Polish consumers were distinguished. The size of types (the number of observations in each type) and their names are presented in Table 2.

Table 2. Types of Polish consumers by declared dietary habits

Cluster/ Type	Name	No. of observations	% of observations
I	Driven by the principles of healthy eating	165	27.5
II	Implementing the principles of healthy eating	163	27.2
III	Ordinary bread eaters	131	21.8
IV	Consciously unaware	141	23.5
Significant		600	100.0
Limitations		0	0.0

Source: Authors' own study.

In the first group (type I), there were consumers who, without much error, could be described as "Driven by the principles of healthy eating." In 13 out of 19 statements, the most frequent answers among the distinguished types were affirmative – Table 3. What is optimistic, consumers from cluster I constitute the largest group of respondents (Table 2).

Table 3. Characteristics of the types of Polish consumers by declared nutritional behaviors (N = 600; in %)

Item	Answer	Consumer types			
		I	II	III	IV
1	2	3	4	5	6
We eat meals regularly (4-5 meals every 3-4 hours)	affirmative	77.6	79.8	25.8	29.8
	neither yes nor no	7.3	11.0	12.9	14.9
	negative	15.1	9.2	61.4	55.3
We try to eat as many vegetables and fruits as possible, at least half of what we eat	affirmative	89.6	67.7	38.6	20.6
	neither yes nor no	6.1	19.6	25.0	31.2
	negative	4.3	11.7	36.4	48.2
We eat grain products, especially wholemeal products	affirmative	92.0	76.7	59.8	41.8
	neither yes nor no	4.3	17.2	17.4	23.4
	negative	3.7	6.1	22.7	34.8
We drink milk every day, alternatively replacing it with yogurt, kefir, or cheese	affirmative	68.1	73.6	42.4	44.0
	neither yes nor no	12.9	12.3	18.2	13.5
	negative	19.0	14.1	39.4	42.6
We limit the consumption of cold cuts and meat, especially red meat	affirmative	65.0	15.3	6.8	11.3
	neither yes nor no	13.5	15.3	12.9	7.8
	negative	21.5	69.3	80.3	80.9
We introduce fish, eggs, and legume seeds into our diet	affirmative	85.9	57.1	58.3	28.4
	neither yes nor no	8.0	22.7	19.7	25.5
	negative	6.1	20.2	22.0	46.1
We limit the consumption of animal fats by replacing them with vegetable oils	affirmative	85.3	36.2	54.5	23.4
	neither yes nor no	9.2	26.4	25.8	19.1
	negative	5.5	37.4	19.7	57.4
We avoid eating sugar and sweets	affirmative	75.5	21.5	41.7	7.1
	neither yes nor no	11.0	18.4	19.7	14.2
	negative	13.5	60.1	38.6	78.7
We drink at least 1.5 liters of water per person every day	affirmative	89.0	82.8	74.2	30.5
	neither yes nor no	6.7	12.9	8.3	15.6
	negative	4.3	4.3	17.4	53.9
We do not oversalt dishes	affirmative	92.6	38.7	82.6	19.1
	neither yes nor no	6.1	22.1	12.9	23.4
	negative	1.2	39.3	4.5	57.4
We buy low-salt products	affirmative	84.0	11.0	42.4	6.4
	neither yes nor no	12.3	35.0	43.9	16.3
	negative	3.7	54.0	13.6	77.3

Table 3 cont.

1	2	3	4	5	6
We use herbs to prepare dishes	affirmative	85.5	88.3	82.6	73.0
	neither yes nor no	8.4	5.5	9.8	13.5
	negative	6.1	6.1	7.6	13.5
We do not consume alcohol	affirmative	49.1	28.8	9.1	12.1
	neither yes nor no	27.0	19.0	18.2	12.8
	negative	23.9	52.1	72.7	75.2
We are physically active every day	affirmative	76.1	52.2	30.3	27.4
	neither yes nor no	15.3	28.2	31.8	19.9
	negative	8.6	16.6	37.9	51.8
My family eats healthily	affirmative	89.6	69.9	57.6	36.9
	neither yes nor no	6.7	20.2	23.5	25.5
	negative	3.7	9.8	18.9	37.6
My family's food needs are fully met	affirmative	95.7	89.6	87.1	71.6
	neither yes nor no	3.1	4.9	5.3	12.8
	negative	1.2	5.5	7.6	15.6
We use dietary advice and recommendations when preparing meals	affirmative	55.2	22.1	15.2	12.8
	neither yes nor no	16.6	17.8	25.0	8.5
	negative	28.2	60.1	59.8	78.7
We pay attention to food taste and flavor when buying it	affirmative	89.7	90.8	87.1	85.1
	neither yes nor no	7.4	4.9	5.3	8.5
	negative	2.9	4.3	7.6	6.4
We pay attention to food prices when buying it	affirmative	84.2	80.4	86.4	90.8
	neither yes nor no	6.7	9.2	7.6	7.1
	negative	9.1	10.4	6.1	2.1

Note: The respondents marked their answers on a seven-point scale, where +3 – strongly agree and -3 – strongly disagree. The "affirmative" category was created by combining the responses marked with positive numbers on the scale, while the "negative" category was created by combining the responses marked with negative points on the scale. Answers marked with 0 created a "neither yes nor no" category.

Source: Authors' own study.

Consumers qualified for cluster I are aware of their pro-health behaviors in the area of food and nutrition. This is because nearly 90% of type I respondents agreed with the statement "my family eats healthy." This is the highest percentage of this type of response among all identified types of consumers. Cluster I respondents most often also admitted that their food needs are fully met (95.7%) and that they use dietary advice and recommendations when preparing meals (55.2%) – Table 3. More often than others respondents, type I consumers make up two-person households where the housewife is aged 36-49. This group of respondents also includes the relatively largest group of consumers dissatisfied with their financial situation – Table 4.

The second distinguished type of consumers are individuals who, in certain areas, follow the principles of healthy eating. They more often than other types of consumers declare eating regular meals, and daily consumption of milk and dairy products. They also respect other rules, but not to such extent as type I consumers. Examples include purchasing low-salt products (only 11.0% of positive answers), or limiting the consumption of meat and cold cuts (15.3%). Most of all types of consumers, they pay attention to the taste and flavor (over 90%), and the least often to the price of food (80.4%) when buying it – Table 3. The consumers of this cluster declared a relatively lower interest in price than other groups which may result from their financial situation. Satisfaction with their financial situation is declared by more than 2/3 of type II consumers, which is the highest proportion among all identified clusters. Households of type II consumers are most often three-person households, run by housewives aged 36-49 – Table 3. In the analyzed sample, they constitute the second largest cluster (27.2%). This group could be described as "implementing the principles of healthy eating" – Table 2.

In turn, the third of the distinguished types of consumers could be described as "ordinary bread eaters" because it is difficult to point to any of their particular distinguishing features. They are the least frequently to declare regular eating habits of all types (25.8%), and the least frequently – abstinence from alcoholic beverages (9.1%) – Table 3. This type is the smallest of all distinguished groups (21.8%) – Table 2. Due to the characteristics of a household, cluster III seems to be the closest to the type of metropolitan singles (Table 4).

Table 4. Characteristics of Polish consumer households (N = 600; in %)

Item	Response	Consumer types			
		I	II	III	IV
Households by age of housewife	up to 35 year	25.2	23.4	35.2	27.7
	36-49 year	40.1	42.2	37.6	40.9
	50+ year	34.4	34.4	27.2	31.4
Households by number of persons	1	15.3	14.1	19.7	16.3
	2	28.2	16.0	22.0	16.3
	3	20.9	23.9	18.9	17.7
	4	25.2	33.1	26.5	36.2
	5	10.4	12.9	12.9	13.5
Households by the financial situation	non-satisfactory	42.3	32.5	39.4	36.2
	satisfactory	57.7	67.5	60.6	63.8
Households by place of residence	up to 50 K	32.5	44.2	41.7	46.1
	50-100 K	14.1	7.4	12.9	12.8
	101-200 K	28.2	19.0	15.2	18.4
	200+ K	25.2	29.4	30.3	22.7

Source: Authors' own study.

Consumers grouped in the last type IV are characterized by the most negative attitude toward the principles of healthy eating. In as many as 13 statements out of 19, the consumers of cluster IV gave the most negative answers. More than 3/4 of the respondents admitted that they do not limit the consumption of meat and cold cuts, do not avoid sugar and sweets, buy products with a high salt content, and consume alcohol. Consumers in this cluster are also the least physically active among all the respondents. This type could be called "consciously unaware" consumers. Consciously, because most of the consumers surveyed provided a negative response to the statement "My family eats healthy," and they least often confirmed it. Unaware, as nearly 80% of these respondents admitted that they do not use dietary advice and recommendations when preparing meals (Table 3). Cluster IV consumers usually live in small towns, and represent the most numerous households, four and more persons, run by the housewife aged 36-49 (Table 4). They constituted the third largest group in the studied sample, representing 23.5% of all the respondents (Table 2).

4.2. Typology of Slovak consumers according to declared nutritional behaviors and selected lifestyle elements

A similar cluster analysis was also carried out for the surveyed consumers from Slovakia. In this case, it was also decided to divide consumers into four types (cut-off point 10). The size of the identified types and their names are presented in Table 5.

Table 5. Types of Slovak consumers by declared nutritional behaviors and selected lifestyle elements

Cluster/ Type	Name	No. of observations	% of observations
I	Driven by the principles of healthy eating	84	28.0
II	Exercise and drink milk!	68	22.7
III	Not attaching importance to healthy eating	60	20.0
IV	Eat tastily and healthily	88	29.3
Significant		300	100.0
Limitations		0	0.0

Source: Authors' own study.

Slovak consumers who found themselves in the first selected group could be described as "driven by the principles of healthy eating," and in this respect, they are just as respondents from the first group of Polish consumers. In 12 out of 19 items of the scale constituting the basis of the conducted typology, they most often selected affirmative responses from all selected groups. It can therefore be said that they generally followed the principles of healthy eating. It was particularly visible in such matters as introducing fish, eggs, and legume seeds into the diet (95.0% of the answers in the affirmative) or eating as many vegetables, fruit, and cereal products as possible (88.8% each) – Table 6. In the studied sample, the respondents of cluster I constitute the second largest group of consumers – 28.0% (Table 5).

Consumers forming cluster I are aware of their pro-health behaviors in the area of food and nutrition. This is because nearly 90% of type I respondents agreed with the statement "My family eats healthy." This is the highest percentage of this type of response among all selected consumer groups. Cluster I respondents most often also admitted that they use dietary advice and recommendations when preparing meals (58.2%) – Table 6.

Table 6. Characteristics of the types of Slovak consumers by the declared nutritional behaviors and selected lifestyle elements (N = 300, in %)

Item	Response	Consumer types			
		I	II	III	IV
1	*2*	*3*	*4*	*5*	*6*
We eat meals regularly (4-5 meals every 3-4 hours)	affirmative	71.3	48.5	29.8	48.8
	neither yes nor no	6.3	16.7	19.3	12.8
	negative	22.5	34.8	50.9	38.4
We try to eat as many vegetables and fruits as possible, at least half of what we eat	affirmative	88.8	71.2	29.8	82.6
	neither yes nor no	5.0	13.6	21.1	7.0
	negative	6.3	15.2	49.1	10.5
We eat cereal products, especially wholemeal products	affirmative	88.8	74.2	29.8	60.5
	neither yes nor no	7.5	9.1	26.3	16.3
	negative	3.8	16.7	43.9	23.3
We drink milk every day, alternatively replacing it with yogurt, kefir, or cheese	affirmative	70.0	77.3	15.8	74.4
	neither yes nor no	8.8	4.5	12.3	10.5
	negative	21.3	18.2	71.9	15.1
We limit the consumption of cold cuts and meat, especially red meat	affirmative	83.8	25.8	31.6	14.0
	neither yes nor no	11.3	18.2	12.3	8.1
	negative	5.0	56.1	56.1	77.9
We introduce fish, eggs, and legume seeds into our diet	affirmative	95.0	71.2	33.3	79.1
	neither yes nor no	1.3	19.7	19.3	10.5
	negative	3.8	9.1	47.4	10.5

Table 6 cont.

1	2	3	4	5	6
We limit the consumption of animal fats by replacing them with vegetable oils	affirmative	75.0	21.2	49.1	36.0
	neither yes nor no	12.5	30.3	21.1	26.7
	negative	12.5	48.5	29.8	37.2
We avoid eating sugar and sweets	affirmative	75.0	22.7	35.1	22.1
	neither yes nor no	11.3	10.6	22.8	14.0
	negative	13.8	66.7	42.1	64.0
We drink at least 1.5 liters of water per person every day	affirmative	86.3	53.0	61.4	95.3
	neither yes nor no	7.5	9.1	19.3	2.3
	negative	6.3	37.9	19.3	2.3
We do not oversalt dishes	affirmative	86.3	27.3	54.4	80.2
	neither yes nor no	8.8	18.2	24.6	10.5
	negative	5.0	54.5	21.1	9.3
We buy low-salt products	affirmative	70.0	1.5	26.3	55.8
	neither yes nor no	16.3	16.7	38.6	27.9
	negative	13.8	81.8	35.1	16.3
We use herbs to prepare dishes	affirmative	80.0	51.5	43.9	88.4
	neither yes nor no	8.8	16.7	14.0	1.2
	negative	11.3	31.8	42.1	10.5
We do not consume alcohol	affirmative	58.8	10.6	23.6	40.7
	neither yes nor no	16.3	13.6	19.3	17.4
	negative	25.0	75.8	54.4	41.9
We are physically active every day	affirmative	72.5	78.5	40.4	72.1
	neither yes nor no	13.8	18.2	15.8	9.3
	negative	13.8	33.3	43.9	18.6
My family eats healthily	affirmative	87.5	51.5	45.0	75.6
	neither yes nor no	3.8	22.1	28.2	14.0
	negative	8.8	26.4	26.8	10.5
My family's food needs are fully met	affirmative	92.4	95.5	82.5	88.4
	neither yes nor no	3.8	3.0	5.3	3.5
	negative	3.8	1.5	12.3	8.1
We use dietary advice and recommendations when preparing meals	affirmative	58.2	21.2	21.1	18.8
	neither yes nor no	13.9	18.2	24.6	20.0
	negative	27.8	60.6	54.4	61.2
We pay attention to food taste and flavor when buying it	affirmative	82.5	72.7	66.7	84.7
	neither yes nor no	11.3	10.3	15.8	4.7
	negative	6.3	17.0	17.5	10.6
We pay attention to food prices when buying it	affirmative	80.0	78.8	73.7	82.4
	neither yes nor no	7.5	1.5	14.0	9.4
	negative	12.5	19.7	12.3	8.2

Note: As in Table 3.

Source: Authors' own study.

Furthermore, more often than the other respondents, the respondents of cluster I form two- or four-person households run by a housewife aged 36-49. This group of respondents also includes the relatively largest group of consumers from cities with 100,000 or more inhabitants – Table 7.

The second separated cluster is made up of consumers who seem to follow the motto "Exercise and drink milk!" They constitute 22.7% of the studied sample (Table 5). More often than consumers from other clusters, they declared that they drink milk every day, possibly replacing it with other dairy products, and that they are physically active every day. They are cautious about other aspects of a healthy lifestyle, especially when it comes to buying low-salt products and not oversalting food, not consuming alcohol, avoiding sweets and sugar, or restricting the consumption of animal fats. This is because most of the respondents declared negative answers in these areas (Table 6).

Consumers of cluster II more often than others declared that their food needs were fully satisfied (95.5% of the answers in the affirmative), being aware that their diet is not healthy. Only every second surveyed consumer from this cluster claimed that their family eats healthy food (Table 6).

When analyzing the characteristics of the surveyed consumer households, it can be said that consumers forming cluster II more often than others come from single-person households, living in cities of up to 50,000 inhabitants, run by housewives, who are under 35 years of age (Table 7).

The third group of distinguished clusters gathers consumers who are far from taking into healthy eating. This is confirmed by the analysis of the data summarized in Table 6. The respondents from cluster III declared the least affirmative and the most negative responses in 12 out of 19 principles of healthy eating among all the selected groups. This is particularly visible in areas such as regularity of eating meals, striving to eat as much fruit and vegetables as possible, eating cereal products, daily consumption of milk and dairy products, introducing fish, eggs, or legumes into the diet, using herbs in the preparation of dishes, and daily physical activity.

Cluster III consumers least frequently agreed with the statement "My family eats healthily" (45.0% of the positive answers). The least often of all, they seem to pay attention to what they eat at all (66.7%) – Table 6. Their households most often consist of four persons and are run by a housewife aged 50 and more. They more often than others live in cities with 51,000 to 100,000 inhabitants. They relatively most often assess their financial situation as unsatisfactory – Table 7. They constituted the smallest cluster in the studied sample, accounting

for 20.0% of the surveyed individuals. They could be described as "Not attaching importance to healthy eating."

Table 7. Characteristics of Slovak consumers' households (N = 300; in %)

Item	Response	Consumer types			
		I	II	III	IV
Households by age of housewife	up to 35 year	24.3	35.2	26.0	26.6
	36-49 year	48.6	38.9	38.0	38.0
	50+ year	27.0	25.9	36.0	35.4
Households by number of persons	1	8.8	18.2	12.3	11.6
	2	31.3	25.8	24.6	25.6
	3	22.5	24.2	24.6	26.7
	4	32.5	19.7	31.6	25.6
	5	5.0	12.1	7.0	10.5
Households by the financial situation	non-satisfactory	31.0	30.2	42.3	26.3
	satisfactory	69.0	69.8	57.7	73.7
Households by place of residence	rural area	21.3	21.2	14.0	16.3
	50 K	15.0	37.9	26.3	30.2
	51-100 K	26.3	15.2	33.3	29.1
	100+ K	37.5	25.8	26.3	24.4

Source: Authors' own study.

However, the fourth and last of the distinguished clusters consists of consumers who like to eat "tastily and healthily." This is the most numerous cluster of consumers (29.3%) – Table 5. At least at the declarative level, they respect the principles of healthy eating right after the consumers of cluster I. They most often declared, among all the groups identified, drinking large amounts of water (95.3% of the answers) and using herbs to prepare meals (88.4%), thanks to which they displace salt from their diet (80.2%) – Table 6.

They most often of all the respondents, paid attention to the taste and flavor of the food they buy (84.7%). Over ¾ of respondents from cluster IV believe that their families eat healthy food – Table 6.

Households of type IV consumers usually consist of three persons. They are usually run by housewives aged from 36 to 49. They relatively most often assessed their financial situation as satisfactory (73.7% of affirmative answers) – Table 7.

5. Discussion

As the food system becomes more and more complex, consumers in the Western world are faced with food choices from a wide range of food products, and their consumption behaviors become more heterogeneous (Verain et al., 2015).

From the point of view of business practice, sectoral typologies of consumers are of particular importance because they can be used in the process of market segmentation as well as when the company chooses the target market. "In market practice, the typology should precede segmentation because it gives an overview of the typological groups of consumers on the general consumer market or on a specific industry market, and based on the previously conducted typology, it is possible to more accurately determine the segmentation criteria and carry out a proper assessment of the attractiveness of market segments. This also creates the basis for inference regarding the preferences of types of consumers in terms of product types by means of outcome variables (market attitudes and behaviors) and causal variables (demographic, economic variables, etc.)" (Kieżel, 2010). Segmentation entails the identification of smaller, homogeneous types (segments) within a wider, more heterogeneous population (Wedel & Kamakura, 2012). Once identified, the segments can be assessed in various respects, e.g., responsiveness to targeted educational programs, taking into account marketing activities, product positioning on the market, or positioning of a specific company.

Several approaches can be used to distinguish segments of target populations to create smaller groups with similar needs and behaviors. One of the most critical steps in segmentation is selecting one or more variables (bases) to be used to segment consumers (Wedel & Kamakura, 2012). This is related to the application of the chosen rules. In segmentation analysis, four basic factors are adopted for the segments to be created – geographic, demographic, psychographic, and behavioral. One of the basic assumptions of segmentation studies is that there are differences in populations due to different individual characteristics, lifestyles, and behaviors (Moss et al., 2009). The analysis carried out by Kitunen et al. (2019) showed that demographic factors are most often used for segmentation. However, a different approach can be found more and more often in the literature, which indicates an increase in the importance of psychographic and behavioral factors in segmentation analysis and a decrease in the importance of demographic factors (Dietrich et al., 2015). In the conducted analyses, the identification of homogeneous subgroups was based on the declared eating habits and not on descriptive variables (e.g., sociodemographic). According to some authors (van Raaij & Verhallen, 1994), food-related motivations are more closely related to behavior and therefore are more preferred in segmentation.

Food selection depends on related determinants and each of these sources of variation has the potential to serve as the basis for segmentation (Moschis, 1992). In consumer research related to segmentation by food choices, three ref-

erences are regularly used: person level, domain level (in our case – food), and product level (Ansari et al., 2000). In the first case, we distinguish types due to the differences between people (age, gender, personality). Based on "food" we distinguish types of consumers due to differences in the approach to food, e.g., general beliefs and motives regarding food. Classification by "product" is based on product-specific differences that consumers perceive, such as benefits and attributes, as well as their purchasing behaviors.

In this paper, it was decided that the typology would be based on nutritional behaviors and selected lifestyle elements. Consumers gain experiences related to food throughout their lives that influence their beliefs about food, e.g., what kind of food they should/should not eat, or what is the role of food in their lives (Locher et al., 2009).

Researchers who advocate using the domain approach to market segmentation usually argue that there is no room for generalization, such as at the person level, or too detailed factors (such as at the product level) (Geeroms et al., 2008).

Own research provides insights that can be used to change the nutritional behaviors of both Polish and Slovak consumers. The typology conducted among Polish consumers allowed us to distinguish four clusters: I – "driven by the principles of healthy eating," II – "implementing the principles of healthy eating," III – "ordinary bread eaters," and IV – "consciously unaware." However, the following segments were identified among Slovak consumers: I – "driven by the principles of healthy eating," II – "exercise and drink milk!" III – "not attaching importance to healthy eating" and IV – "eat tastily and healthily" (Figure 1).

Figure 1. Types of Polish and Slovak consumers
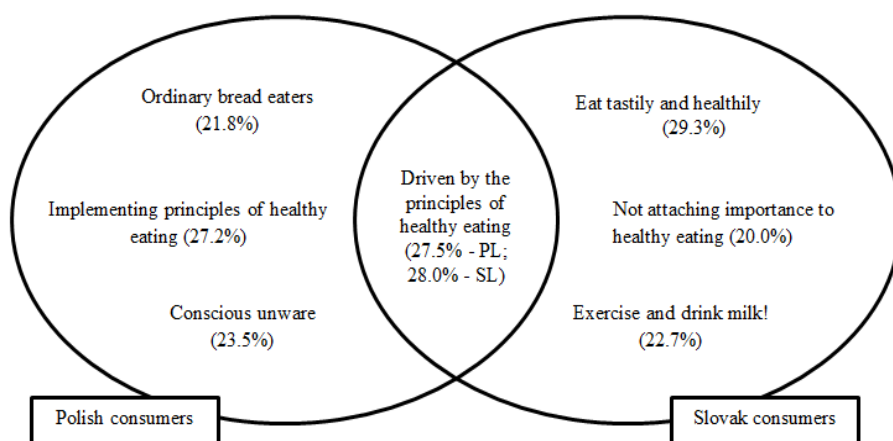
Source: Authors' own study.

A cluster was distinguished, both in the case of Polish and Slovak consumers, which was called "Driven by the principles of healthy eating." In the case of Polish respondents, consumers who belong to this cluster constituted 27.5% of the total sample, and Slovak consumers 28.0%. Polish consumers from cluster I comprised the largest group of respondents. The consumers qualified for this cluster were the most aware and most often declared pro-health nutritional behaviors. Both Polish and Slovak consumers displayed behaviors that were in line with Polish and Slovak dietary recommendations. This is indicated, among others, by the high percentage of declarations of compliance with such statements as: "we do not oversalt the dishes" (Polish – 92.6%; Slovak – 86.3%), "we introduce fish, eggs, and legume seeds into our diet" (Polish – 85.9%; Slovak – 95.0%), "we eat cereal products, especially wholemeal products" (Polish – 92.0%; Slovak – 88.8%), "we avoid eating sugar and sweets" (Polish – 75.5%; Slovak – 75.0%), or "we try to eat as many vegetables and fruit, at least half of what one eats" (Polish – 89.6%; Slovak – 88.8%).

In Poland, new "Recommendations for healthy eating" were developed as part of the tasks carried out by the National Health Program in 2020. They are illustrated graphically in the form of a plate on which there are portions of various products recommended in the daily diet. Around the plate there are the recommendation categories "Eat Less," "Eat More," and "Swap." Individual product groups are listed for each recommendation. The graphic also contains information about the need to practice physical activity and maintain healthy body weight. The plate is supplemented with the material "In three steps to health," which presents nutritional recommendations on three levels that enable a gradual change in nutrition habits (Narodowy Instytut Zdrowia Publicznego, 2020).

In Slovakia, as in Poland, the nutritional recommendations have been illustrated in the form of the so-called healthy plate. The document called "Ten rules of a healthy plate" was prepared with the financial and expert support of WHO as part of a two-year cooperation agreement with the Ministry of Economy of the Slovak Republic. In the first part of the document, one will find 10 tips for proper nutrition. The authors of the document indicate, among others, the need to eat five meals a day, eat a minimum of five portions of vegetables and fruit a day, or eat smaller portions. In the second part of the document, one can find the so-called a healthy plate that has been divided into four parts – fiber, fat, fruit and vegetables, and proteins. Each of these sections provides recommendations on how to consume specific foods. The plate is complemented by an indication of daily physical activity, min. of 30 minutes, and a reminder not to consume more than 5 g of salt per day.

The second group distinguished among Polish consumers is "Implementing the principles of healthy eating." As previously noted, this cluster included people who implemented the principles of healthy eating in some areas. It manifested itself, among others, in such behaviors as regular consumption of meals, daily consumption of milk and dairy products, or daily consumption and use of herbs in food preparation. More often than people classified into other types, they pay attention to the taste and flavor of food.

Nevertheless, among Slovak consumers, the second identified type of consumer was called "Exercise and drink milk!" They declared more often than consumers from other clusters that they drink milk every day, possibly replacing it with other dairy products, and that they are physically active every day. However, they are cautious about other recommendations related to healthy eating. This is indicated by the highest percentage of negative responses to statements regarding, among others: purchasing low-salt products and not oversalting food, avoiding sweets and sugar, not consuming alcohol, and limiting the consumption of animal fats. Consumers from this cluster declared more often than others that the food needs of their families were met. Though, every second respondent declared that their family eats healthily.

The third type distinguished among Polish consumers was defined as "ordinary bread eaters." Consumers who belong to this type cannot be attributed any "distinctive features." The least frequently of all types, they declare regular eating and abstinence from alcoholic beverages. However, they declare limiting the consumption of animal fats and replacing them with vegetable oils, or avoiding sugar and sweets. This was the smallest identified cluster (21.8% of the surveyed consumers).

Slovak consumers who found themselves in cluster III were called "Not attaching importance to healthy eating." In the case of 11 out of 19 statements, they declared the least positive answers out of all the identified types. Their nutritional behaviors are characterized by, among others, irregular consumption of meals, low consumption of vegetables and fruit, and a small amount of fish, eggs, or legume seeds in the diet.

Polish consumers in cluster IV were described as "consciously unaware." Of all the types, they most often declared a negative attitude toward the principles of healthy eating (16 negative responses out of 19). They were aware that their families did not eat healthily. Nevertheless, they saw no need to take advantage of dietary advice and recommendations. They most often declared behaviors such as: not limiting the consumption of meat and cold cuts, not avoid-

ing the consumption of sugar and sweets, or buying products with high salt content. They were also the least physically active of all the subjects. In the studied sample, they constituted the third largest group (23.5% of all respondents).

However, the fourth group of Slovak consumers was called "Eat tastily and healthily." This is the most numerous cluster among Slovak consumers (29.3%). They respect the principles of healthy eating right after the consumers of the first cluster. Of all the groups identified, they most often declare drinking large amounts of water and using herbs to prepare dishes. They also pay attention to the taste and flavor of the purchased food and the price.

Over ¾ of the respondents in the cluster in question believe that their families eat healthily.

Based on the results achieved, the first hypothesis was confirmed. The other two have been partially confirmed. Some research results show an increase in consumers' awareness of the need to take care of their health and increased interest in the impact of nutrition on health. Since health is becoming an increasingly important personal and social value, it is not surprising that some consumers have begun to pay more attention to the health benefits of food (Barauskaite et al., 2018; Vecchio et al., 2016). In addition, some research results show that combining selected resources in the form of economic, cultural, and social capital can increase or decrease inequalities in healthy food consumption (De Clercq et al., 2017). Individuals determine their lifestyles and ways of consumption according to their own decisions.

Numerous studies showed that consumers more and more often make food choices not only based on the taste or appearance of food, but also based on other factors, such as health impact or environmental impact (Rana & Paul, 2017; Wang et al., 2018). As our study showed, the degree of importance of such factors as taste, smell, or price varied among the respondents. For some respondents, taste and smell were more essential aspects of choice than, e.g., price (Tables 3 and 6). Financial considerations can be a barrier to healthy eating. The perception that healthy food is expensive is consistent with previous research that has indicated that financial considerations are an important barrier to health behaviors (Davis et al., 2013; Williams et al., 2010). Also, in line with previous research, "financial stress" is associated with poorer eating behavior (Bratanova et al., 2016).

Certainly, the types of consumers mentioned should be made aware of the consequences of inappropriate behaviors in the field of food consumption. As noted by Drewnowski and Shultz (2001), health problems become more im-

portant with age. The vast majority of consumers from the analyzed segments did not declare limiting the consumption of cold cuts and meat. To reduce the consumption of these types of products, the advantages and positive effects of plant-based diets on health can be emphasized (Funk et al., 2021). However, consumers from the group "Driven by the principles of healthy eating" (both Polish and Slovak consumers) declared that they would take such actions. Such behaviors can be classified as environmentally friendly (Aschemann-Witzel, 2018). However, this behavior does not have to be the result of environmental concerns. Economic factors or social pressures can also have an impact in this case.

Incorrect food choices may also result from a hedonistic focus on food benefits (Brillat-Savarin, 2004; Kita et al., 2021). As noted by van Strien et al. (2009) such values become particularly important for consumers, e.g., in stressful situations. However, incorrect choices may be caused, for example, by the lack of access to "healthy food," the price of "healthy food" in relation to "unhealthy food," or social norms regarding nutritional patterns (Munt et al., 2017).

An important implication of this study is educating consumers on the importance of regular eating. Manoogian et al. (2019) noted that mobile applications that monitor people's eating habits showed that many of them had irregular eating patterns (e.g., eating at different times on weekdays and weekends). Scientific discoveries showed that mealtime can be an effective strategy in the fight against obesity, type 2 diabetes, and cardiovascular disease.

Current lifestyles and even economic conditions can drive people toward inappropriate food choices, despite being aware of the risks associated with these choices. That is why it is so important to understand the factors influencing the food choices of particular consumer segments. In the future, this may enable the construction of the right message about food and its impact on health. This section is the pivotal section of the paper.

6. Conclusions

This study presents an initial typology based on the declared nutritional behaviors and selected lifestyle elements of Polish and Slovak consumers. The assumed research hypotheses were verified. The first hypothesis was confirmed. In the case of the second and third hypotheses, the authors' assumptions were partially confirmed.

Learning about the differences between consumers based on their nutritional habits is particularly important, among others, due to the way of communicating information related to the principles of proper nutrition. The benefits of

consuming fewer animal products, avoiding sugar consumption, or practicing physical activity are just some of the behaviors that should be promoted among consumers around the world.

This study has some important implications, both practical and managerial. Knowing the typology based on declared eating behaviors and selected aspects of lifestyle elements of Polish and Slovak consumers makes it possible for food producers to develop an appropriate marketing strategy. The distinguished types of consumers can be the basis for the food market segmentation and meet all the conditions of a good segment. A correctly identified market segment should have four features: 1) It should enable obtaining the necessary information about individual consumer characteristics that distinguish them from the entire market (measurability). 2) Be extensive enough to justify an individual sales strategy (extension). 3) Be accessible by enabling the effective use of action instruments, mainly those related to distribution and activation of sales (availability). 4) Reflect the likelihood of a positive reaction of consumers to an adequately prepared marketing mix structure (sensitivity).

Nevertheless, such an approach aims to meet the needs of consumers better; although it may allow for the development of promotional campaigns. As we mentioned earlier, we have created a proprietary scale of eating behavior based on the guidelines of the WHO, The National Institute of Public Health NIH--National Research Institute, and the Public Health Authority of the Slovak Republic (mentioned earlier in the article). The scale may be the basis for distinguishing types of consumers due to their attitudes to healthy eating. Moreover, the tool can be used in other countries.

Our text also has some limitations. A certain limitation is the non-random sample selection. However, there is evidence that the differences between the various probability-based samples can be as great as the differences between probability-based and non-probability-based samples.

An important aspect would also be to extend the analyzed research thread with additional aspects related to nutritional behaviors and lifestyle. Extending the study to topics related to, for example, the presence/exclusion from the diet of nutrients such as different types of fats (e.g., saturated vs. unsaturated) or carbohydrates (added vs. natural sugars) would also provide useful information. It could also be interesting to add questions about the preferences of a country's nutrition policy. Including additional threads on consumer perceptions of the role of state bodies/institutions in nutrition education could also provide valuable research material. More research is also needed to generalize the results to other

populations, including studies conducted in other countries. In addition, the obtained results indicate a further need to shape proper eating behaviors through educational activities, especially those related to the choice of food.

To sum up, the conducted data analysis showed that despite the differences there is a trend toward the unification of the dominant consumption patterns.

7. Disclosure statement

No potential conflict of interest was reported by the authors.

8. Funding

References

Aggarwal, A., Rehm, C. D., Monsivais, P., & Drewnowski, A. (2016). Importance of taste, nutrition, cost and convenience in relation to diet quality: Evidence of nutrition resilience among US adults using National Health and Nutrition Examination Survey (NHANES) 2007-2010. *Preventive Medicine, 90*, 184-192. https://doi.org/10.1016/j.ypmed.2016.06.030

Ansari, A., Essegaier, S., & Kohli, R. (2000). Internet recommendation systems. *Journal of Marketing Research, 37*(3), 363-375. https://doi.org/10.1509/jmkr.37.3.363.18779

Aschemann-Witzel, J. (2018). Consumer perception and preference for suboptimal food under the emerging practice of expiration date based pricing in supermarkets. *Food Quality and Preference, 63*, 119-128. https://doi.org/10.1016/j.foodqual.2017.08.007

Barauskaite, D., Gineikiene, J., Fennis, B. M., Auruskeviciene, V., Yamaguchi, M., & Kondo, N. (2018). Eating healthy to impress: How conspicuous consumption, perceived self-control motivation, and descriptive normative influence determine functional food choices. *Appetite, 131*, 59-67. https://doi.org/10.1016/j.appet.2018.08.015

Bartosik-Purgat, M., & Jankowska, B. (2020). Exploiting e-commerce trends for international market expansion: The perspective of Polish fashion firms. *European Journal of International Management, 14*(6), 1049-1069. https://doi.org/10.1504/EJIM.2020.10019859

Baskova, M., & Baska, T. (2003). Lifestyle of a women–mother and health of members of the family. *Bratislavské Lekárske Listy, 104*(6), 205-207. http://bmj.fmed.uniba.sk/2003/10406-06.pdf

Bollmann, S., Hölzl, A., Heene, M., Küchenhoff, H., & Bühner, M. (2015). *Evaluation of a new k-means approach for exploratory clustering of items* (Technical Report No. 182). Department of Statistics, University of Munich. https://epub.ub.uni-muenchen.de/24519/1/tr182.pdf

Borowiec, A. A., & Aranowska, A. E. (2018). Style żywieniowe Polaków i ich społeczno-demograficzne uwarunkowania [Dietary styles of Poles and their socio-demographic determinants]. *Pomeranian Journal of Life Sciences, 64*(2), 93-98. https://doi.org/10.21164/pomjlifesci.413

Bølling Johansen, S. B., Næs, T., & Hersleth, M. (2011). Motivation for choice and healthiness perception of calorie-reduced dairy products. A cross-cultural study. *Appetite*, *56*(1), 15-24. https://doi.org/10.1016/j.appet.2010.11.137

Bratanova, B., Loughnan, S., Klein, O., Claassen, A., & Wood, R. (2016). Poverty, inequality, and increased consumption of high calorie food: Experimental evidence for a causal link. *Appetite, 100*, 162-171. https://doi.org/10.1016/j.appet.2016.01.028

Brillat-Savarin, J.-A. (2004). *The physiology of taste*. Penguin.

Burns, A. C., Veeck A., & Bush, R. F. (2017). *Marketing research* (8th ed.). Pearson.

Cardoso, A. P., Ferreira, V., Leal, M., Ferreira, M., Campos, S., & Guiné, R. P. F. (2020). Perceptions about healthy eating and emotional factors conditioning eating behaviour: A study involving Portugal, Brazil and Argentina. *Foods, 9*(9), 1-14. https://doi.org/10.3390/foods9091236

Cockerham, W. C. (2012). The intersection of life expectancy and gender in a transitional state: The case of Russia. *Sociology of Health & Illness, 34*(6), 943-957. https://doi.org/10.1111/j.1467-9566.2011.01454.x

Contento, I. R., Williams, S. S., Michela, J. L., & Franklin, A. B. (2006). Understanding the food choice process of adolescents in the context of family and friends. *The Journal of Adolescent Health: Official Publication of the Society for Adolescent Medicine, 38*(5), 575-582. https://doi.org/10.1016/j.jadohealth.2005.05.025

Dana, L. M., Chapman, K., Dixon, H., Miller, C., Neal, B., Kelly, B., Ball, B., & Pettigrew, S. (2021). The relative importance of primary food choice factors among different consumer groups: A latent profile analysis. *Food Quality and Preference, 94*, 104199. https://doi.org/10.1016/j.foodqual.2021.104199

Davis, A. M., Befort, C., Steiger, K., Simpson, S., & Mijares, M. (2013). The nutrition needs of low-income families regarding living healthier lifestyles: Findings from a qualitative study. *Journal of Child Health Care : For Professionals Working with Children in the Hospital and Community, 17*(1), 53-61. https://doi.org/10.1177/1367493512446715

De Clercq, B., Abel, T., Moor, I., Elgar, F. J., Lievens, J., Sioen, I., Braeckman, L., & Deforche, B. (2017). Social inequality in adolescents' healthy food intake: The interplay between economic, social and cultural capital. *European Journal of Public Health, 27*(2), 279-286. https://doi.org/10.1093/eurpub/ckw236

Chen, P-J., & Antonelli, M. (2020). Conceptual models of food choice : Influential factors related to foods. *Foods, 9*(12), 1898. https://doi.org/10.3390/foods9121898

Dietrich, T., Rundle-Thiele, S., Leo, C., & Connor, J. (2015). One size (never) fits all: Segment differences observed following a school-based alcohol social marketing program. *Journal of School Health, 85*(4), 251-259. https://doi.org/10.1111/josh.12244

Drewnowski, A., & Shultz, J. M. (2001). Impact of aging on eating behaviors, food choices, nutrition and health status. *Journal of Nutrition, Health & Aging, 5*(2),75-79.

Drywień, M. E., & Kuć, A. (2019). Specyfika zachowań żywieniowych osób starszych pochodzących ze środowiska wiejskiego. *Kosmos, 68*(2), 303-310. https://doi.org/10.36921/kos.2019_2544

East, R., Singh, J., Wright, M., & Vanhuele, M. (2022). *Consumer behaviour: Applications in marketing* (4th ed.). Sage Publications.

ESOMAR. (2016). *ICC/ESOMAR: International code on market, opinion and social research and data analytics*. ESOMAR World Research/International Chamber of Commerce. https://iccwbo.org/content/uploads/sites/3/2016/12/ICC-ESOMAR-International-Code-on-Market-Opinion-Social-Research-and-Data-Analytics.pdf

Everitt, B., Landau, S., Leese, M., & Stahl, D. (2011). *Cluster analysis* (5th ed.). Wiley.

Fatrcová-Šramková, K., Chlebo, P., & Dudriková, E. (2010). Risk in nutrition habits of Slovak population. *Ecological Chemistry and Engineering. A, 17*(1), 17-20. https://yadda.icm.edu.pl/baztech/element/bwmeta1.element.baztech-article-BPG8-0034-0020

French, S. A. (2003). Pricing effects on food choices. *The Journal of Nutrition, 133*, 841S-843S. https://doi.org/10.1093/jn/133.3.841S

Funk, A., Sütterlin, B., & Siegrist, M. (2021). Consumer segmentation based on Stated environmentally-friendly behavior in the food domain. *Sustainable Production and Consumption, 25*, 173-186. https://doi.org/10.1016/j.spc.2020.08.010

Geeroms, N., Verbeke, W., & Van Kenhove, P. (2008). Health advertising to promote fruit and vegetable intake: Application of health-related motive segmentation. *Food Quality and Preference, 19*(5), 481-497. https://doi.org/10.1016/j.foodqual.2008.02.004

Gibson, D. C., Prochaska, J. D., Yu, X., & Kaul, S. (2020). An examination between census tract unhealthy food availability and colorectal cancer incidence. *Cancer Epidemiology, 67*, 101761. https://doi.org/10.1016/j.canep.2020.101761

Gutkowska, K., Jankowski. P., Sajdakowska, M., Żakowska-Biemans, S., & Kowalczuk, I. (2014). Kryteria różnicujące zachowania konsumentów wobec produktów żywnościowych na przykładzie mięsa i przetworów mięsnych [Criteria differentiating behavior in relation to food products into ingredients of origin and meat products]. *Żywność Nauka Technologia Jakość, 21*(5), 85-100. https://doi.org/10.15193/ZNTJ/2014/96/085-100

Hansen, T., Sørensen, M. I., & Riewerts Eriksen, M.-L. (2018). How the interplay between consumer motivations and values influences organic food identity and behavior. *Food Policy, 74*, 39-52. https://doi.org/10.1016/j.foodpol.2017.11.003

Harris, J. L., & Graff, S. K. (2012). Protecting young people from junk food advertising: Implications of psychological research for first amendment law. *American Journal of Public Health, 102*(2), 214-222. https://doi.org/10.2105/AJPH.2011.300328

Henson, R. K. (2001). Understanding internal consistency reliability estimates: A conceptual primer on coefficient alpha. *Measurement and Evaluation in Counseling and Development, 34*(3), 177-189. https://doi.org/10.1080/07481756.2002.12069034

Higgs, S., & Ruddock, H. (2020). Social influences on eating. In H. L. Meiselman (Ed.), *Handbook of eating and drinking: Interdisciplinary perspectives* (pp. 277-291). Springer International Publishing. https://doi.org/10.1007/978-3-030-14504-0_27

Hodgkins, C., Barnett, J., Wasowicz-Kirylo, G., Stysko-Kunkowska, M., Gulcan, Y., Kustepeli, Y., Akgungor, S., Chryssochoidis, G. Fernández-Celemin, L., Storcksdieck genannt Bonsmann, S., Gibbs, M. & Raats, M. (2012). Understanding how consumers categorise nutritional labels: A consumer derived typology for front-of-pack nutrition labelling. *Appetite, 59*(3), 806-817. https://doi.org/10.1016/j.appet.2012.08.014

Kieżel, E. (2010). *Konsument i jego zachowania na rynku europejskim.* PWE.

Kita, P., Križan, F., Bilková, K., Zeman, M., & Siviček, T. (2020). Comparison of grocery shopping behaviour of Slovak residents on the Slovak-Austrian border: An empirical study – Hainburg an der Donau. *E a M: Ekonomie a Management, 23*(1), 215-230. https://doi.org/10.15240/tul/001/2020-1-015

Kita, P., Maciejewski, G., Žambochová, M., Strelinger, J., & Kitová Mazalánová, V. (2021) Nutritional behaviour of households: An analysis of Slovak consumers. *Forum Scientiae Oeconomia, 9*(2), 73-94. https://doi.org/10.23762/FSO_VOL9_NO2_4

Kitunen, A., Rundle-Thiele, S., & Carins, J. (2019). Segmenting young adult university student's eating behaviour: A theory-informed approach. *Nutrients, 11*(11), 2793. https://doi.org/10.3390/nu11112793

Kumar, S., Behl, T., Sachdeva, M., Sehgal, A., Kumari, S., Kumar, A., Kaur, G., Yadav, H. N., & Bungau, S. (2021). Implicating the effect of ketogenic diet as a preventive measure to obesity and diabetes mellitus. *Life Sciences, 264*(1), 118661. https://doi.org/10.1016/j.lfs.2020.118661

Kusińska, A. (2009). *Segmentacja rynku i typologia konsumentów* [Market segmentation and consumer typology]. Instytut Badań Rynku, Konsumpcji i Koniunktur.

Locher, J. L., Ritchie, C. S., Roth, D. L., Sen, B., Vickers, K. S., & Vailas, L. I. (2009). Food choice among homebound older adults: Motivations and perceived barriers. *JNHA-The Journal of Nutrition, Health and Aging*, *13*(8), 659-664. https://doi.org/10.1007/s12603-009-0194-7

Maciejewski, G. (2018). Food consumption in the Visegrad Group Countries – towards a healthy diet model. *Studia Ekonomiczne. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach, 361*, 20-32. https://cejsh.icm.edu.pl/cejsh/element/bwmeta1.element.cejsh-1087dd5b-cbb7-419d-b159-f1ee8f3dde05

Maciejewski, G., & Lesznik, D. (2022). Consumers towards the goals of sustainable development: Attitudes and typology. *Sustainability, 14*(17), 10558. https://doi.org/10.3390/su141710558

Manoogian, E. N. C., Chaix, A., & Panda, S. (2019). When to eat: The importance of eating patterns in health and disease. *Journal of Biological Rhythms, 34*(6), 579-581. https://doi.org/10.1177/0748730419892105

Mazalán, P., Kita, P., Kita, J., Žambochová, M., Hasan, J., & Prochotzký, A. (2021). Slovakians' adversarial attitude towards consumption of functional food. *Central European Journal of Public Health, 29*(2), 122-129. https://doi.org/10.21101/cejph.a6431

McArthur, D. (2007). Construct equivalence in international business research: The first and the last of it. *The Journal of Business Inquiry, 6*(1), 28-38. https://journals.uvu.edu/index.php/jbi/article/view/143

Milošević, J., Žeželj, I., Gorton, M., & Barjolle, D. (2012). Understanding the motives for food choice in Western Balkan Countries. *Appetite, 58*(1), 205-214. https://doi.org/10.1016/j.appet.2011.09.012

Moschis, G. P. (1992). Gerontographics: A scientific approach to analyzing and targeting the mature market. *Journal of Services Marketing, 6*(3), 17-26. https://doi.org/10.1108/08876049210035890

Moss, H. B., Kirby, S. D., & Donodeo, F. (2009). Characterizing and reaching high-risk drinkers using audience segmentation. *Alcoholism: Clinical and Experimental Research, 33*(8), 1336-1345. https://doi.org/10.1111/j.1530-0277.2009.00963.x

Munt, A. E., Partridge, S. R., & Allman-Farinelli, M. (2017). The barriers and enablers of healthy eating among young adults: A missing piece of the obesity puzzle: A scoping review. *Obesity Reviews: An Official Journal of the International Association for the Study of Obesity, 18*(1), 1-17. https://doi.org/10.1111/obr.12472

Narodowy Instytut Zdrowia Publicznego [The National Institute of Public Health NIH--National Research Institute]. (2020). *Talerz zdrowego żywienia* [Healthy plate]. https://ncez.pzh.gov.pl/abc-zywienia/talerz-zdrowego-zywienia

Nystrand, B. T., & Olsen, S. O. (2020). Consumers' attitudes and intentions toward consuming functional foods in Norway. *Food Quality and Preference, 80*, 103827. https://doi.org/10.1016/j.foodqual.2019.103827

Onwezen, M. C., Reinders, M. J., van der Lans, I. A., Sijtsema, S. J., Jasiulewicz, A., Dolors Guardia, M., & Guerrero, L. (2012). A cross-national consumer segmentation based on food benefits: The link with consumption situations and food perceptions. *Food Quality and Preference, 24*(2), 276-286. https://doi.org/10.1016/j.foodqual.2011.11.002

Oostenbach, L. H., Slits, E., Robinson, E., & Sacks, G. (2019). Systematic review of the impact of nutrition claims related to fat, sugar and energy content on food choices and energy intake. *BMC Public Health, 19*(1), 1296. https://doi.org/10.1186/s12889-019-7622-3

Ozimek, I., & Żakowska-Biemans, S. (2011). Determinants of Polish consumers' food choices and their implication for the national food industry. *British Food Journal, 113*(1), 138-154. https://doi.org/10.1108/00070701111097394

Pancrazi, R., van Rens, T., & Vukotić, M. (2022). How distorted food prices discourage a healthy diet. *Science Advances, 8*(13), eabi8807. https://doi.org/10.1126/sciadv.abi8807

Piekut, M. (2017). *Wzorce konsumpcji według typów wiejskich gospodarstw domowych w latach 2004-2014* [Consumption patterns by types of rural households in 2004-2014]. Difin.

Pietrucha, J., & Maciejewski, G. (2020). Precautionary demand for cash and perceived risk of electronic payments. *Sustainability, 12*(19), 7977. https://doi.org/10.3390/su12197977

Popkin, B. M., Adair, L. S., & Ng, S. W. (2012). Global nutrition transition and the pandemic of obesity in developing countries. *Nutrition Reviews, 70*(1), 3-21. https://doi.org/10.1111/j.1753-4887.2011.00456.x

Public Health Authority of the Slovak Republic. (n.d.). *Healthy plate*. https://www.uvzsr.sk/en/docs/info/Letak_Zdravy_tanier_EN.pdf

Prescott, J., Young, O., O'Neill, L., Yau, N. J. N., & Stevens, R. (2002). Motives for food choice: A comparison of consumers from Japan, Taiwan, Malaysia and New Zealand. *Food Quality and Preference, 13*(7), 489-495. https://doi.org/10.1016/S0950-3293(02)00010-1

Rana, J., & Paul, J. (2017). Consumer behavior and purchase intention for organic food: A review and research agenda. *Journal of Retailing and Consumer Services, 38*, 157-165. https://doi.org/10.1016/j.jretconser.2017.06.004

Realini, C. E., Kallas, Z., Pérez-Juan, M., Gómez, I., Olleta, J. L., Beriain, M. J., & Sañudo, C. (2014). Relative importance of cues underlying Spanish consumers' beef choice and segmentation, and consumer liking of beef enriched with n-3 and CLA fatty acids. *Food Quality and Preference, 33*, 74-85. https://doi.org/10.1016/j.foodqual.2013.11.007

van Raaij, W. F., & Verhallen, T. M. M. (1994). Domain-specific market segmentation. *European Journal of Marketing, 28*(10), 49-66. https://doi.org/10.1108/03090569410075786

van Rossum, C. T. M., Buurma-Rethans, E. J. M., Vennemann, F. B. C., Beukers, M., Brants, H. A. M., de Boer, E. J., & Ocké, M. C. (2020). The diet of the Dutch: Results of the Dutch National Food Consumption Survey 2012-2016 (RIVM Letter report 2016-0082. National Institute for Public Health and the Environment. https://www.rivm.nl/bibliotheek/rapporten/2016-0082.pdf

Sharif, M. Z., Rizzo, S., Marino, E., Belin, T. R., Glik, D. C., Kuo, A. A., Ortega, A. N., & Prelip, M. L. (2016). The association between self-rated eating habits and dietary behavior in two Latino neighborhoods: Findings from Proyecto MercadoFRESCO. *Preventive Medicine Reports, 3*, 270-275. https://doi.org/10.1016/j.pmedr.2016.03.002

Słaby, T. (2006). *Konsumpcja: Eseje statystyczne*. Difin.

Steenhuis, I. H. M., Waterlander, W. E., & Mul, A. (2011). Consumer food choices. The role of price and pricing strategies. *Public Health Nutrition, 14*, 2220-2226. https://doi.org/10.1017/S1368980011001637

van Strien, T., Herman, C. P., & Verheijden, M. W. (2009). Eating style, overeating, and overweight in a representative Dutch sample. Does external eating play a role? *Appetite, 52*(2), 380-387. https://doi.org/10.1016/j.appet.2008.11.010

Suliga, E., Cieśla, E., Michel, S., Kaducakova, H., Martin, T., Śliwiński, G., Braun, A., Izova, M., Lehotska, M., Kozieł, D., & Głuszek, S. (2020). Diet quality compared to the nutritional knowledge of Polish, German, and Slovakian university students – preliminary research. *International Journal of Environmental Research and Public Health, 17*(23), 9062. https://doi.org/10.3390/ijerph17239062

Vecchio, R., Van Loo, E., & Annunziata, A. (2016). Consumer willingness to pay for conventional, organic and functional yogurt: Evidence from experimental auctions. *International Journal of Consumer Studies, 40*(3), 368-378. https://doi.org/10.1111/ijcs.12264

Verain, M. C. D., Dagevos, H., & Antonides, G. (2015). Sustainable food consumption. Product choice or curtailment? *Appetite, 91*, 375-384. https://doi.org/10.1016/j.appet.2015.04.055

Verain, M. C. D., Sijtsema, S. J., & Antonides, G. (2016). Consumer segmentation based on food-category attribute importance: The relation with healthiness and sustainability perceptions. *Food Quality and Preference, 48*(Part A), 99-106. https://doi.org/10.1016/j.foodqual.2015.08.012

Voinea, L., Vrânceanu, D. M., Filip, A., Popescu, D. V., Negrea, T. M., & Dina, R. (2019). Research on food behavior in Romania from the perspective of supporting healthy eating habits. *Sustainability, 11*(19), 5255. https://doi.org/10.3390/su11195255

Walesiak, M., & Gatnar, E. (2009). *Statystyczna analiza danych z wykorzystaniem programu R* [Statistical data analysis using the R program]. WN PWN.

Wang-Chen, Y., Kellow, N. J., & Choi, T. S. T. (2022). Exploring the determinants of food choice in Chinese mainlanders and Chinese immigrants: A systematic review. *Nutrients, 14*(2), 346. https://doi.org/10.3390/nu14020346

Wang, R., Liaukonyte, J., & Kaiser, H. M. (2018). Does advertising content matter? Impacts of healthy eating and anti-obesity advertising on willingness to pay by consumer body mass index. *Agricultural and Resource Economics Review, 47*(1), 1-31. https://doi.org/10.1017/age.2018.1

Wang, Q. J., Mielby, L. A., Junge, J. Y., Bertelsen, A. S., Kidmose, U., Spence, C., & Byrne, D. V. (2019). The role of intrinsic and extrinsic sensory factors in sweetness perception of food and beverages: A review. *Foods, 8*(6), 211. https://doi.org/10.3390/foods8060211

Wansink, B., & Sobal, J. (2007). Mindless eating: The 200 daily food decisions we overlook. *Environment and Behavior, 39*(1), 106-123. https://doi.org/10.1177/0013916506295573

Wedel, M., & Kamakura, W. A. (2012). *Market segmentation: Conceptual and methodological foundations* (International Series in Quantitative Marketing, Vol. 8). Springer.

Willett, W., Rockström, J., Loken, B., Springmann, M., Lang, T., Vermeulen, S., Garnett, T., Tilman, D., DeClerck, F., Wood, A., Jonell, M., Clark, M., Gordon, L. J., Fanzo, J., Hawkes, C., Zurayk, R., Rivera, J. A., de Vries, W., Sibanda, L. M., …, & Murray, C. J. L. (2019). Food in the Anthropocene: The EAT–*Lancet* Commission on healthy diets from sustainable food systems. *The Lancet, 393*(10170), 447-492. https://doi.org/10.1016/S0140-6736(18)31788-4

Williams, L., Ball, K., & Crawford, D. (2010). Why do some socioeconomically disad-vantaged women eat better than others? An investigation of the personal, social and environmental correlates of fruit and vegetable consumption. *Appetite, 55*(3), 441-446. https://doi.org/10.1016/j.appet.2010.08.004

Wongprawmas, R., Mora, C., Pellegrini, N., Guiné, R. P. F., Carini, E., Sogari, G., & Vittadini, E. (2021). Food choice determinants and perceptions of a healthy diet among Italian consumers. *Foods, 10*(2), 318. https://doi.org/10.3390/foods10020318

World Health Organization [WHO]. (2018). *Thirteenth general programme of work, 2019-2023*. https://www.who.int/about/what-we-do/thirteenth-general-programme-of-work-2019---2023

World Health Organization [WHO]. (2022). *Healthy diet*. https://www.who.int/news-room/fact-sheets/detail/healthy-diet

Yadavalli, A., & Jones, K. (2014). Does media influence consumer demand? The case of lean finely textured beef in the United States. *Food Policy, 49*(P1), 219-227. https://doi.org/10.1016/j.foodpol.2014.08.002

Appendix: The measuring scale

Please rate how much you agree with the following statements by placing an "X" in each row of the table, where the number −3 meant "I strongly disagree" and +3 answer meant "I strongly agree."

Specification	−3	−2	−1	0	+1	+2	+3
We eat meals regularly (4-5 meals every 3-4 hours)							
We try to eat as many vegetables and fruits as possible, at least half of what we eat							
We eat grain products, especially whole-meal products							
We drink milk every day, alternatively replacing it with yogurt, kefir, or cheese							
We limit the consumption of cold cuts and meat, especially red meat							
We introduce fish, eggs and legume seeds into our diet							
We limit the consumption of animal fats by replacing them with vegetable oils							
We avoid eating sugar and sweets							
We drink at least 1.5 liters of water per person every day							
We do not over-salt dishes							
We buy low-salt products							
We use herbs to prepare dishes							
We do not consume alcohol							
We are physically active every day							
My family eats healthily							
My family's food needs are fully met							
We use dietary advice and recommendations when preparing meals							
We pay attention to food taste and flavor when buying it							
We pay attention to food price when buying it							

Source: Authors' own study based on the World Health Organization (2018; 2020), Narodowy Instytut Zdrowia Publicznego (2020), the Public Health Authority of the Slovak Republic (n.d.).