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Article

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FACTORS AFFECTING THE CONSUMER BEHAVIOUR OF GLUTEN SENSITIVE CONSUMERS – A PILOT STUDY

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Abstract: *The aim of this research was to assess the consumption habits of gluten sensitive individuals and to determine the factors affecting them. Owing to the development of medicine and new technologies, gluten sensitivity has been revealed in an increasing number of cases. In addition, changes in modern lifestyles, as well as associated harmful consumption habits and changes in the health environment, have increased the incidence of gluten sensitivity. In terms of these facts, it has become extremely important to examine the consumer habits of this segment. With the help of this, it is possible to learn about the influence of the disease on consumers. The present research was completed on the basis of 862 questionnaires received in the autumn of 2022; the respondents (without exception) were individuals suffering from gluten sensitivity from Slovakia and Hungary. Factor analysis was performed to identify the main factors affecting consumption. Based on the results of the present research people affected by the disease do not make decisions based on one factor alone during their purchases. The study found that the factors influencing the consumption habits of gluten-sensitive individuals can be classified into four groups: "common", "conscious", "healthy lifestyle" and "price". There are additional influencing elements within these groups. Based on the results, a revision and adjustment of tools influencing the consumption of gluten-free products should be performed. Factors affecting the consumer behaviour of gluten-sensitive consumers should be grouped ("Common", "Conscious", "Healthy lifestyle" and "Price"). The analysis showed that the majority of gluten-sensitive individuals strictly adhere to the needed diet, but it is not important for them where they obtain the individual foods or the ingredients for their preparation. The present research contributes to the understanding of the lifestyle of gluten-sensitive consumers and can provide a suitable basis for further research.*
Keywords: consumer behaviour; gluten-sensitive consumers; celiac disease; gluten-free products; affecting factors.

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1. Introduction. Few people believe that celiac disease appears simultaneously with grain cultivation. The first records already appeared in the 2nd century. Aretaeus of Cappadocia (famous for his dietetic cure) was the first to write about malabsorption, which we can assume he observed in people sensitive to flour. While several other studies (Haas, 1924) assessed coeliac disease in the 20th century and suspected the role of carbohydrates, Willem Dicke was the first to recognize the connection between specific types of grain and the disease in 1950. (Dicke, 1950; van Berge-Henegouwen & Mulder, 1993; Gyurian & Seben, 2012; Stojanovic, 2021; Anderson, 2022). Gluten sensitivity is a disease that affects the functioning of the entire body. The cause of the disease is not the flour itself but rather one of the protein groups of gluten, gliadin. Gluten sensitivity is an autoimmune disease associated with malabsorption in the small intestine. It is not possible to cure this disease; no medicine has been developed for this disease, but it can be effectively treated with a strict, lifelong gluten-free diet (Petrulakova & Valik, 2015; Virk et al., 2019; Luckose et al., 2022).

Symptoms can affect the digestive system, and infection can manifest as a deficiency caused by malabsorption. If left untreated, the disease can lead to abdominal discomfort, bloating, intestinal spasms and diarrhea, and in the long term, severe weight loss and malnutrition can occur due to intestinal damage. It can develop at any time from childhood to adulthood. The amount and degree of symptoms that appear may differ from individual to individual; for some people, products contaminated with gluten cause complaints, but for others, symptoms only appear after consuming larger amounts of gluten. (Barcziova & Balintova, 2021; Sahin, 2021; Luckose et al., 2022). This study aims to evaluate the consumption patterns of individuals with gluten sensitivity and identify the factors that influence their behaviour. Gluten sensitivity is often approached from a health point of view rather than from a marketing perspective. The number of previous studies dealing with factors affecting the behaviour of gluten sensitive consumers is limited in Slovakia, in Hungary and also in East-Central Europe. The authors were also curious if are there other factors (e.g. price, taste, product range) – besides the healthcare factors – affecting the consumption of affected people.

Studying the factors that influence the consumer behaviour of gluten-sensitive individuals is crucial for both academic and practical purposes. For academic purposes, it can help researchers understand the needs and preferences of gluten-sensitive individuals, which can lead to the development of more effective treatments and therapies. For practical purposes, it can help healthcare providers and the food industry better serve gluten-sensitive individuals. The research aims to highlight the importance of the topic and encourages researchers to investigate these effects in the future.

2. Literature Review. Consumer behaviour is an activity in which individuals make decisions about what product or service to consume (Lenart et al., 2022). The literature mostly looks for the answer to what considerations consumers buy. Their decisions can be influenced by various factors, based on which they decide on the purchase of the given product, the place of purchase, the method of use and consumption (Csiszarik-Kocsir et al., 2021; Di Giulio et al., 2022; Sudaryanto et al., 2022). Consumption is the form of activity by which we mean the use of products under appropriate conditions. Consumer behaviour can also be defined as the set of activities performed during the acquisition and use of products and services, the aim of which is to increase consumer satisfaction (Bauer et al., 2019; Csiszarik-Kocsir et al., 2021; Schmidt et al., 2022). Consumers buy products and services primarily to satisfy their needs. They buy these items for individual consumption or for their family members. It is important to note that the buyer who buys the product or service is not necessarily the consumer, nor is it necessary for the buyer to make the purchasing decision. In this way, the concepts of consumer and customer can be separated from each other (Szeberenyi, 2017; Csiszarik-Kocsir et al., 2021; Rokicki et al., 2022)

For companies to be able to successfully develop their customer base, it is essential to know the absorption capacity of the market in terms of the given products and services. It is necessary to know the purchase motives of customers, as well as how the purchase decision mechanism takes place. (Kotler & Keller, 2020). Factors influencing purchase decisions (consumer behaviour) can be divided into two major groups: sociocultural and psychological factors (Figure 1).

Based on Figure 1. Sociocultural factors that influence customer behavior include culture, social stratification, reference groups, personal influence, households and families. In terms of the analysis of consumer behaviour, the meaning of *culture* is no other than a set of positions, opinions, virtues and traditions that coordinate consumer behaviour. Many definitions of culture are known, but from the point of view of consumer behaviour analysis, the following can be accepted: Culture is the set of learned convictions/beliefs, values and customs that control the behaviour of consumers in a given society (Hofmeister-Toth, 2014; Penzes & Polya, 2019; Csiszarik-Kocsir et al., 2021; Di Giulio et al., 2022; Sudaryanto et al., 2022).

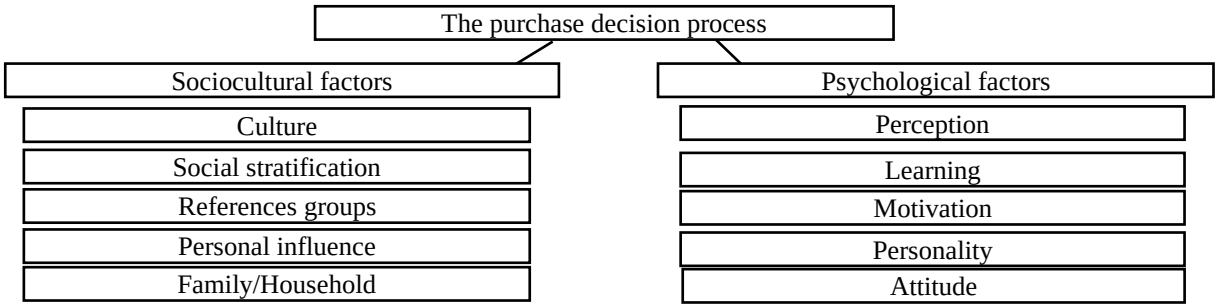

Figure 1. Factors influencing consumer behaviour
Sources: developed by the authors based on (Hofmeister-Toth, 2014).

Social stratification is a society's categorization of people. This can be interpreted at the level of property relations and differences within authority. Consumer habits, style, desire, purchase form and decision-making can be linked to certain social sections, which refer to personal status. Representatives of the lower classes put more emphasis on the price or combination of quality and price only; in contrast, those belonging to higher classes reflect their identity during their purchases. Certain products and services are consumed by all social classes. However, not all products, services and brands are attractive to all classes. (Hofmeister-Toth, 2014; Penzes & Polya, 2019; Csiszarik-Kocsir et al., 2021; Di Giulio et al., 2022; Sudaryanto et al., 2022)

Within society, people gather in certain groups whose members have the same vision, perception, values and similar habits in the field of consumption. In particular, reference groups play a prominent role in consumer behaviour. The reference group is the collective name for a group of people whom the individual treats as a point of reference in the formation of his own values, attitudes or behaviour. These communities can exert pressure on individuals. Through the group, the individual encounters new lifestyles and behaviours and creates such a need for conformity in him or her that it truly affects his or her choice of product or brand. Groups of which they are not members can also influence individuals. Based on this, we distinguish two groups: the aspirational group, which people want to be a part of, and the dissociating group, which people do not want to be a part of, as they reject, its values and behaviour. (Hofmeister-Toth, 2014; Penzes & Polya, 2019; Kotler & Keller, 2020; Csiszarik-Kocsir et al., 2021; Di Giulio et al., 2022; Sudaryanto et al., 2022)

The individual's occupation also significantly affects consumption, as everyone will buy according to their occupation; for example, a manual worker buys work clothes and work shoes, and a lawyer prefers a suit and a briefcase. In addition to occupation, the choice of product is also determined by the individual's economic circumstances, as income strongly influences demand. Therefore, marketing professionals constantly monitor economic indicators, and if they notice a discrepancy, they immediately change their strategy and start replanning. Occupation contributes to social stratification, and often, coworkers can also be treated as reference groups. (Penzes & Polya, 2019; Csiszarik-Kocsir et al., 2021). In addition to the factors mentioned thus far, personal influence is also very authoritative since one’s personality and habits are shaped by everyone else who surrounds the individual. The essence of personal influence is that an individual, either consciously or against his will, reshapes his own behaviour during a conversation with another individual. Families and households are also crucial to marketers, as they consume most products or services. Consumer habits may differ within the family, so any member of the family can have a say in the purchase decision. (Hofmeister-Toth, 2014; Penzes & Polya, 2019; Penzes & Polya, 2019; Di Giulio et al., 2022; Sudaryanto et al., 2022). The group of psychological factors influencing consumer behaviour includes perception, learning, motivation, personality and attitude. Psychological factors strongly influence an individual's consumer behaviour.

The individual uses perception to interpret information from the environment. Perception is not only based on stimuli but also significantly influenced by an individual's personality. We distinguished three groups of perceptions: selective attention, selective distortion and selective remembering. Selective attention means that the individual cannot focus on all stimuli at the same time. For companies to remain successful, they must do everything they can to win the attention of consumers. The essence of selective distortion is that the consumer retains characteristics different from those of a certain product. These characteristics largely depend on his or her relationship with the particular product or brand. During selective remembering, people forget information about the product and remember only those that have a positive effect on them. People learn with each of their actions.

Learning increases an individual's experience, thus causing changes in his or her behaviour. Forms of behaviour can mostly be acquired through learning. The learning process can be understood as an interaction

of incentives, impulses, and responses. (Hofmeister-Toth, 2014; Penzes & Polya, 2019; Penzes & Polya, 2019; Kotler & Keller, 2020; Csiszarik-Kocsir et al., 2021; Di Giulio et al., 2022; Sudaryanto et al., 2022)

Motivation is an internal stage with a stimulating effect that urges individuals to realize a set goal, thus demonstrating determined behaviour. Theories dealing with motivation and personality are significantly connected. The majority of motivation theories focus on people being samistic, while personality theories focus on the differences between people. An important aspect is that the motivation must be of sufficient magnitude to encourage the individual to act. Over the past few decades, there have been many theories about motivation, the three best known of which are the classic theories of Sigmund Freud, Abraham Maslow and Frederick Herzberg. (Hofmeister-Toth, 2014; Penzes & Polya, 2019; Penzes & Polya, 2019; Kotler & Keller, 2020; Csiszarik-Kocsir et al., 2021; Di Giulio et al., 2022; Sudaryanto et al., 2022)

Personality plays a prominent role in purchase decisions, as individuals want to buy products and services that reflect their personality. Individuals belonging to the same society and culture may have different lifestyles. Personality is manifested in people's activities, behaviour and interests. (Hofmeister-Toth, 2014; Penzes & Polya, 2019; Penzes & Polya, 2019; Kotler & Keller, 2020; Csiszarik-Kocsir et al., 2021; Di Giulio et al., 2022; Sudaryanto et al., 2022)

Attitude is one of the cornerstones of the study of consumer behaviour. Attitude controls the customer's decision, which either shapes the customer's attitude or results in change (Hofmeister-Toth, 2014; Penzes & Polya, 2019; Penzes & Polya, 2019; Kotler & Keller, 2020; Di Giulio et al., 2022; Sudaryanto et al., 2022). Appropriate attention given to consumer attitudes as a constituent of a company's brand can significantly affect the results of the company's activity (Samoliuk et al., 2022). Consequently, companies are constantly trying to develop corporate social responsibility programs that are aligned with consumers' behavioral changes (Musova et al., 2021; Rybaczewska et al., 2021).

The economic aspects of consumer behaviour among gluten-sensitive consumers are influenced by various factors. Over the past ten years, the gluten-free food market in Europe has grown enormously. Disease can currently be treated only with a life-long diet; thus, to those affected, what they can buy and at what price and taste are important. Despite the growing interest, there are few companies that produce gluten-free foods from reliable and quality materials. Some people do not necessarily consume gluten-free products because of illness but live in the misconception that these products help them lose weight or are healthier. However, gluten-free products are not always healthy, and it is recommended that the ingredients be checked (Gaesser & Angadi, 2015; Taetzsch et al. 2018; Tomcík &Rosenlacher, 2018; Graa & Abdelhak, 2021).

It is expected that consumer demand for gluten-free products will increase even more in the coming years, so the market for gluten-free products will expand. In the European Union, gluten sensitivity is currently one of the most common diseases, affecting approximately 5,000,000 people (Siminiuc & Turcanu, 2022). According to a report by Mordor Intelligence, the European market for gluten-free products is expected to grow by 11.1 percent by 2027 (Mordor Intelligence, 2022). According to the Nielsen retail index, the market for gluten-free products in Hungary accounted for 4% of the total value of retail sales, i.e., nearly HUF 80 billion between 2018 and 2019. Gluten-free tortillas and frozen pizza are among the most sought-after gluten-free products. Due to the growing demand, the number of gluten-free products on the market is increasing, and these products are becoming increasingly accessible to all people. These products are becoming increasingly popular among people who are not gluten intolerant. There is demonstrably greater interest in gluten-free products, and their turnover can increase by up to 20-30% per year (Tisza, 2019). Most patients – if they can afford it, of course – are forced to buy such products to preserve their health. Unfortunately, great interest has also been given to this topic. Some manufacturers do not even comply with basic hygiene conditions and are able to consider a gluten-free product when it is exposed to contamination (Shanker, 2016; Falcomer et al., 2020; Wieser et al., 2021). In Slovakia, it is assumed that 0.5-1% of the population suffers from this disease. Traders gradually began to offer food intolerance products in specialized retail stores. The price of products is still an important issue for consumers since, in Slovakia, the difference in price between standard food and healthier alternatives is much greater than that in Western European countries. In Slovakia, as in Hungary, manufacturers and restaurant operators irresponsibly label food gluten free, hoping for the highest possible income (Kabatova, 2014; Lackova, 2016; Nagyova, 2016; Rimarova, 2018).

The social aspects affecting the consumer behaviour of gluten-sensitive consumers can be grouped into several groups: lifestyle adaptations, identity and awareness and education. Lifestyle adaptations: Most people with gluten sensitivity were sick after eating gluten-free food, or the host looked at them in confusion when they were asked about cross-contamination with food that was basically gluten free. However, it is important that a product can be said to be completely free only after complying with strict regulations (Lee et al., 2014; Guennouni, 2022; Przybylska et al., 2022).

According to the final regulation adopted by the Codex Alimentarius Commission (2007), a joint organization of the WHO and FAO, the following foods are considered gluten-free foods:

- gluten-free foods with a gluten content of no more than 20 mg/kg;
- foods with a very low gluten content, with a gluten content of 21-100 mg/kg.

In addition, there are seeds that fundamentally contain gluten, which should be completely eliminated from their diet. Barley, wheat, rye, triticale (a hybrid of rye and wheat) and oats are also recommended for complete avoidance, as they basically do not contain gluten but are often cross-contaminated with various gluten-containing seeds (Wieser et al., 2021; Mohammadi et al., 2022` van Noy, 2023). Due to the health of the diagnosed patient, it is important to buy food based solely on this. The procurement conditions of gluten-free products have improved recently; among others, many supermarkets have launched their own gluten-free products on the market, but the additional cost is still considerable. A gluten-free diet is associated with a 1.5-4-fold increase in costs compared to a traditional diet (Juhasz-Kovacs, 2012). Not everyone can afford these expenses, which is why many people with dementia cannot follow a gluten-free diet. (Capacci et al., 2018; Lee et al., 2019; Gorgitano & Sodano, 2019).

Identity and Belonging: Gluten-sensitive individuals often form communities and support networks where they can share experiences, tips, and information related to their dietary restrictions. This sense of belonging provides social support and can help alleviate the challenges of living with gluten sensitivity.

Gluten-sensitive individuals often seek support and form communities with others who share similar dietary restrictions. These communities provide a sense of belonging and enable individuals to share experiences, recipes, and advice. Online platforms, such as social media groups and forums, play a significant role in connecting gluten-sensitive consumers. Gluten-sensitive individuals often form communities to connect and share their experiences. These communities provide a sense of belonging and support for individuals who face similar dietary challenges. The importance of online communities in facilitating information exchange and emotional support among gluten-sensitive individuals is significant (Hameed & Sondhi, 2022).

Awareness and Education: Increased awareness of gluten sensitivity has led to improved understanding among the general population. This heightened awareness has prompted food establishments and hospitality services to offer gluten-free choices, making it easier for gluten-sensitive individuals to navigate social situations without feeling excluded. The increased awareness of gluten sensitivity has led to improved understanding among the general population. Restaurants, food establishments, and hospitality services have responded by offering gluten-free menu options to cater to this growing consumer segment. This expansion of gluten-free options has been driven by both consumer demand and increased education about gluten-related disorders (Zis et al., 2018; Alhussain, 2021; De Iulio & Kovacs, 2022)

3. Methodology and research methods. In the two countries examined (Slovakia, Hungary), the proportion of people with gluten sensitivity was estimated to be approximately 1%. The population of Slovakia is 5.46 million, while the population of Hungary is 9.67 million. Thus, there are likely fewer than 1.5 million people with gluten sensitivity in these two countries. During the survey, nearly 10,000 users of a joint Slovak-Hungarian closed Facebook group received the questionnaire, nearly 10% of whom sent back evaluable answers.

With the help of the questionnaire survey, 862 responses were received, and the relatively large sample size provided an opportunity to apply statistical methods. SPSS software was used during the analysis. During the statistical tests, due to the types of questions, relationship numbers and relationship indicators were scrutinized. Based on the results of the descriptive statistical methods, it was possible to conclude that consumers do not typically make decisions based on just one factor. To reveal several influencing factors, we performed a factor analysis.

$$C = \sqrt{\frac{\chi^2}{n \times \min[s-1, o-1]}} \quad (1)$$

where C is Cramer's V; χ^2 is Pearson's chi-square test; n is the number of observations; s is the number of columns; and o is the number of rows.

Through factor analysis, variables affecting consumption were included in the study (Table 1) to identify the factors causing the combined effect (Kemeny et al., 2021). During the analysis, we started from the traditional basic mathematical model, during which each new variable can be written as a linear combination of factors, where common and unique factors can be distinguished.

$$X_i = A_{ij}F_1 + A_{i2}F_2 + A_{i3}F_3 + \cdots + A_{im}F_m + V_iU_i \quad (2)$$

where X_i = the i-th standardized variable; A_{ij} = the multiple standardized partial regression coefficient of the i-th variable on the j-th common factor; F = the common factor; V_i = the multiple standardized partial regression coefficient of the i-th variable on the j-th common factor; U_i = the unique factor of the i-th variable; and m = the number of common factors.

During the determination of the factors, we did not take into account a prior number of factors; therefore, instead of an a priori determination, we used a determination based on eigenvalues, where we considered as a common factor those factors where the eigenvalue met the Kaiser criterion, i.e., exceeded 1. The reliability of the factor analysis was examined using three different indicators: Cronbach's alpha, KMO, and Bartlett's test.

The formula used for calculating the Cronbach's alpha value was as follows:

$$\alpha = \frac{n}{n-1}\left(1 - \frac{\sum s^2(X_i)}{s^2(Y)}\right) \quad (3)$$

where α = the value of Cronbach's alpha, n = the number of scale items, s^2 (X_i) = the variance associated with the item, and s^2 (Y) = the variance associated with the observed total scores.

The formula for the Kaiser–Meyer–Olkin (KMO) test was as follows:

$$KMO_j = \frac{\sum_{i \neq j} r_{ij}^2}{\sum_{i \neq j} r_{ij}^2 + \sum_{i \neq j} u_{ij}^2} \quad (4)$$

where r_{ij} = the correlation matrix and u_{ij} = the partial covariance matrix.

Bartlett's test was used to verify whether the variances were equal across samples:

$$B = (\mathrm{n} - \mathrm{K}) \ln s^2 - \sum (n_j - 1) \ln s_j^2 / c \quad (5)$$

where B = the value of Bartlett's test; n = the number of observations (across all groups); k = the number of groups; s^2 = the pooled variance; n_j = the number of observations (in group "j"); and s_j^2 = the variance of group "j".

4. Results. The distribution of the applicants by age is relatively consistent, with the largest proportion (more than 50%) of the applicants coming from the age group between 30 and 50 years old; on the other hand, the gender distribution is very inconsistent, as the vast majority of applicants (92.3%) are women. More than half of those who provided support (54.1%) and more than half suffered from additional allergies or intolerances (51.2%). When patients suffer from multiple allergies, the probability of support is greater, but the strength of the relationship is lessened (Cramer's V value=0.211). A quarter of those who completed the survey had a gluten-sensitive person living in the household (26.8%). Households where several gluten-sensitive people live together have a higher probability of support, but the strength of this relationship is also weak (Cramer's V: 0.144). At the same time, 99.4% of the respondents followed their diet strictly, and even 85.0% of them followed their diet very strictly; the possible reason for noncompliance was temptation.

Due to gluten sensitivity, shopping habits can also differ in many respects from the habits of the average consumer. Regarding the specifics of shopping, it can be said that the primary location is the hypermarket; a quarter of the respondents shopped only here, while nearly 90% of them partially shopped here. In addition, at least 300 people (34.8%) buy in organic/herbal stores and on the Internet. Nearly 85% of those filling out the form shop weekly or more often, but daily shopping is less common (10.0%). The purchase amount is also adjusted to this value. Although almost two-thirds of the respondents did not answer this question, the relationship was of medium strength (Cramer's V: 0.551).

The availability of special products is a key consideration. The respondents were moderately satisfied with the product range (average, 3.25; mode, 3; standard deviation, 0.957), and the proportion of those who were less than average satisfied did not reach 20% (17.7%). A total of 72.3% of the respondents could obtain everything domestically. The more satisfied they are with the product range, the greater the proportion they can purchase everything domestically. The strength of the relationship is weak (Cramer's V: 0.176). According to more than three quarters of the respondents (76.1%), procuring products during the COVID-19 epidemic did not cause any difficulties. In this case, the difficulty of purchasing increases in relation to the decrease in product satisfaction. Typically, several aspects are taken into account when shopping. Sixty-five percent of respondents considered 4 or more factors. Moreover, the price is an important consideration. Seventy-two percent of the respondents considered the price, and 5.3% watched the price exclusively. The most typical

purchase combination is when price, quality and taste all influence the decision. This combination was characteristic of 17.2% of the respondents. Since the questionnaire raised several questions related to price and because price has proven to be an outstanding factor in purchasing, we therefore carried out further analyses. The price of the products is considered expensive by 95% of the respondents, so it can be seen that according to 98%, this means additional costs. As a result, the assessment of the price reached a low value on the scale from 1 to 4. The average is 1.78, the median is 2, and the mode is 1. Hence, it is understandable why price is among the factors influencing purchases. At the same time, it is somewhat surprising that while the purchase of gluten-free products is an additional cost for almost all of the respondents and 95% of them think that the products are expensive, when asked if they are willing to travel extra to get the product cheaper, only 72.2% gave an affirmative answer. This discrepancy is presumably due to the extra travel costs and time lost since a significant percentage of the respondents (85%) shop weekly or more often. There is no significant difference in this regard even in the case of price assessment. The result of the price assessment corresponds to the monthly food costs since more than half (50.3%) of the respondents spend more than 130 euros per month, and almost 80% spend more than 100 euros. There is a significant relationship between costs and price perception, but the strength of the relationship (eta squared: 0.018) is weak. The previously expected correlations were partially confirmed, but at the same time, the relationship frequency indicators often fell short of the expected value; therefore, we concluded that consumers do not make decisions based on just one factor, so it may be worthwhile to further examine the data using factor analysis.

In the factor analysis, 14 consumption-influencing variables were included; in these cases, the respondent had to answer on a scale. The reliability of the factor analysis was examined for 3 different indicators. The value of Cronbach's alpha is 0.706, the value of KMO is 0.783, and the significance value of Bartlett's test is 0.000. Therefore, the data are suitable for analysis. Based on the analysis, 4 factors can be determined since the eigenvalue of the first factor exceeds one, and in the case of the 5th factor, the value of the explained variance exceeds 60%. The results of the factor analysis are presented in Table 1.

Table 1. Factor analysis - Rotated component matrix*

Consumption factors	Variables	1	2	3	4
Common	Selection	**0.777**	0.075	-0.028	0.239
	Taste	**0.668**	-0.061	0.171	-0.144
	Health	**0.649**	-0.098	0.182	-0.151
	Availability	**0.632**	0.102	-0.089	0.342
	Product range	**0.570**	0.129	-0.200	0.190
Conscious	Nutrient content	0.094	**0.806**	0.262	-0.087
	Ingredients	0.100	**0.780**	0.350	-0.080
	Healthy diet	0.095	**0.635**	0.421	0.013
	Avoiding semifinished products	-0.076	**0.620**	-0.091	0.140
Healthy lifestyle	Fluid intake	0.033	0.086	**0.791**	0.092
	Vitamin intake	0.047	0.268	**0.744**	-0.027
	Eating fresh fruits and vegetables	-0.069	0.360	**0.448**	0.044
Price	Additional cost	0.031	0.066	-0.146	**-0.803**
	Price assessment	0.390	0.096	-0.045	**0.596**

*Extraction Method: Principal Component Analysis; Rotation Method: Varmiax with Kaiser Normalization; * Rotation converged 9 iterations.*

Sources: developed by the authors.

Common consumption factors: These factors include selection, availability, range, taste and perception of health, which are typically general factors.

Conscious consumption factors: In this factor, the more conscious consumption resulting from gluten sensitivity appears, where the ingredients and nutrients play a much greater role.

Healthy lifestyle: This factor includes vitamin, liquid and fruit/vegetable intake, which are essential elements of a healthy diet.

Price: Previous studies have revealed that price is a prominent factor, so it is not surprising that it also appears to be a separate factor.

5. Conclusions. The aim of this research was to assess the consumption habits of gluten-sensitive individuals in Slovakia and Hungary. Due to gluten sensitivity, the shopping habits of affected people differ in many ways from average consumer habits. Based on these results, gluten-sensitive individuals strictly adhere to a gluten-free diet to avoid the negative side effects of their disease. According to the results of our

analysis, people affected by the disease do not make decisions based merely on one factor during their purchases. According to the above, a factor analysis was justified. As a result, 4 factors were defined: "common", "conscious", "healthy lifestyle" and "price". Factors that are not only characteristic of gluten-sensitive individuals have been added to the group of classic consumption factors. This can also be said of the "healthy lifestyle" cluster because the individuals in this group primarily take into account factors that contribute to leading a healthy lifestyle during their purchases. The group of "conscious consumption factors" already includes those that may be more important for a gluten-sensitive person than for a healthy person. However, further research is needed to establish this mechanism. The elements belonging to the "price" group can also be important for a healthy individual, but at the same time, gluten-free products generally represent a higher price level, so they can be an extremely important decision point for people with gluten sensitivity. Based on our results, it is clear that the majority of them strictly adhere to the needed diet, but it is not important where they obtain the individual foods or the ingredients for their preparation. Large differences can occur in the prices of certain gluten-free products.

This study has several limitations that negatively affect the results. Among these, the peculiarity of self-completed questionnaire research can be highlighted because the respondents answered the questions according to their own best knowledge. Therefore, the collected data can be subject to biases or inaccuracies. For example, respondents may overstate or understate their adherence to a gluten-free diet or may not accurately remember their past purchasing habits. Furthermore, in the case of online self-completed questionnaires, there is a risk of misunderstanding since there is no interviewer whom the respondents can ask if something is not clear to them. Another limitation could be the unbalanced sex ratio in the research sample. Previous research (Ivarsson et al., 2003; Bardella et al., 2005) has also shown that women are at greater risk of developing gluten sensitivity, and the symptoms are also more significant in women (Galli et al., 2022). Therefore, we can conclude that women consult a doctor sooner with their symptoms, while in the case of men, the disease remains hidden in many cases. However, this does not fully explain the significant difference in participation between the two genders in our sample. However, the researchers did not have any direct influence on the results because (based on what has already been outlined above) the questionnaire was completed in a closed group, the members of which voluntarily participated in the research. This result can also be explained by the fact that the proportion of women in the group itself may have been greater, but the researchers did not have access to data on the sex ratio. Thus, this statement can be treated only as an assumption and not as a statement. Gluten sensitivity can range from mild to severe, with varying symptoms and dietary restrictions. It is possible that individuals with more severe gluten sensitivity have different consumption habits than those with mild sensitivity. Additionally, the research does not differentiate between those who have been diagnosed with celiac disease and those with nonceliac gluten sensitivity, which could have different implications for their consumption habits.

Regarding the future directions of the research, it can be stated that the researchers' plans include a deeper understanding of the consumption habits of gluten-sensitive individuals. In addition, the expansion of the research to gluten-sensitive consumers in other countries is also mentioned as a possible future direction. Furthermore, comparing the consumption habits of gluten-sensitive individuals to those of nongluten-sensitive individuals should help to determine whether the identified consumption habits are unique to gluten-sensitive individuals or if they are common among all consumers.

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Споживча поведінка людей з непереносимістю глютену: дослідження факторів впливу

Це дослідження спрямоване на вивчення того, як люди із непереносимістю глютену обирають та споживають продукти, і які чинники впливають на їхні рішення. Зміни в сучасному способі життя, негативні звички у харчуванні та екологічні зміни в природному середовищі призводять до значного зростання поширеності непереносимості глютену. Цей тренд демонструє зростаючу кількість осіб, які виявляють реакції на глютен, що є компонентом багатьох продуктів. Прогрес у галузі медицини та технологій відкриває нові можливості для діагностики та виявлення непереносимості глютену. Завдяки сучасним методам дослідження та розвитку медичних технологій, встановлення цієї проблеми стає більш доступним та точним. Враховуючи це, зростає чисельність осіб, які отримують діагноз непереносимості глютену та змушені звертати увагу на своє харчування. Дослідження базувалося на відповідях 862 осіб із непереносимістю глютену зі Словаччини та Угорщини, отриманих осінню 2022 року. Методичним інструментарієм проведеного дослідження стали методи факторного аналізу для визначення основних чинників, які впливають на вибір споживачів з непереносимістю глютену. В статті представлено результати емпіричного аналізу, який засвідчив, що люди із непереносимістю глютену при придбанні продуктів не роблять рішень лише на підставі одного фактору. Згідно зі здобутими даними, фактори, які впливають на їхні звички споживання, можна розділити на чотири групи: "загальні", "усвідомлені", "здоровий спосіб життя" та "ціна", кожна з яких включає додаткові елементи. Дослідження емпірично підтверджує та теоретично доводить, що більшість людей із непереносимістю глютену строго дотримуються дієти, проте для них не є важливим те, де вони отримують окремі продукти чи інгредієнти для їх приготування. Отримані дані сприяють розумінню способу життя цільової аудиторії та можуть послужити ефективною основою для подальших досліджень. Рекомендовано фахівцям у галузі підприємництва, продовольства чи суміжних галузей внести корективи у засоби впливу на споживання безглютенових продуктів.

Ключові слова: споживча поведінка; особи із непереносимістю глютену; безглютенові продукти; впливові фактори.