# Generation Z's consumer attitudes and purchasing intentions toward sustainable food consumption by settlement type in Hungary, 2022

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The urban population – including the members of Generation Z – has more opportunities to purchase sustainable food than those living in rural areas. Previous research highlighted that while strengthening the sustainable consumption patterns of Generation Z is particularly important, little is known about the sustainable food consumption attitudes of people living in different settlement types in Hungary. The aim of this research is to examine the most significant differences in the characteristics and purchasing intentions of young people related to sustainable food consumption by settlement type. The research was carried out in the form of a quantitative survey with a valid completion of 344 respondents. The novelty of the study is that it examines the consumer attitudes of young Hungarian Gen Zers living in different settlement types toward sustainable food consumption. The results confirm several previous findings on Gen Zers and their sustainable food consumption attitudes. Based on the examined trend elements, three segments can be identified based on which type of settlement the respondents live. The most significant differences among young people living in large cities and towns or villages can be seen in terms of their intention to buy local and domestic products, search for information about the product, and purchase healthy products. The authors identified the main purchasing intentions toward sustainable food consumption by settlement type. The study determined three relatively homogeneous groups using the method of hierarchical cluster analysis, and the segments described can serve as a base for future studies.

**Keywords:**
sustainable food consumption, Generation Z, consumption intentions, settlement types

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## Introduction

In recent decades, the centrality of urban and urban–rural linkages for food system transformation has become an important matter of concern (Tornaghi–Dehaene 2020, Vaarst et al. 2018, Van Dyck et al. 2017). Utzig (2019) provides an overview of the differences in the sustainability of food consumption between urban and rural households and concludes that food consumption patterns in rural households are less sustainable than those in urban households in Poland.

To achieve the SDG12 targets, it is essential to monitor the changes in consumption patterns of younger generations (Hume 2010, Balázsné Lendvai et al. 2021, Beke et al. 2021, Kovács et al. 2021, Kovács et al. 2022), as in the near future, they may have significant buying and spending power. Sesini et al. (2020) found that different surveys focusing on younger generations would be timely due to rapid attitude changes.

Utzig (2019) provides an overview of differences in the sustainability of food consumption between urban and rural households and concludes that food consumption patterns in rural households are less sustainable than those in urban households.

Several sources emphasize that further research into environmentally friendly and socially acceptable lifestyles is needed to establish communication directions for younger generations (Riahi et al. 2017, Ürge-Vorsatz et al. 2018, Vita et al. 2019). Urban and rural consumer segments may differ in their perceptions of sustainability issues; furthermore, significant differences in sustainable consumption patterns may result from differences in lifestyle (Satterthwaite 1997, Rees–Wackernagel 2008). According to Utzig (2019), people living in urban areas (aged 1-15 and 16+) eat fruit and vegetables more often than those living in rural areas. The study also indicates that food consumption patterns were less sustainable in rural areas in 2017, and the amount of food waste was lower in rural households than in urban households.

The main aim of our study was to examine the most significant differences in the characteristics and purchasing intentions of young people (Gen Zers) regarding sustainable food consumption. The novelty of our study is that it examines the consumer attitudes and sustainable food consumption patterns of young Hungarian Gen Zers toward sustainable food consumption by settlement type. The authors identified a research gap since they found only a limited number of recent studies on the differences between consumer attitudes of urban and rural Gen Zers.

## Literature review

### Driving forces for sustainable food consumption

Regarding the main sustainable consumer trends reported in the scientific literature, six categories were identified: 1. Authenticity, transparency, safety and trust, 2. Eco-chic (Health care, environment, desire for naturalness) 3. Experience, hedonism, 4. Local values, local exotics, 5. Comfort, 6. Awareness, information seeking. There are several factors that influence the consumer behavior of young consumers. They can be grouped into three main – often partly overlapping – categories: health, environmental and social factors.

Consumers value health, and there is a growing demand for healthy food; however, people still do little for their health, and it has not become a purchase motive (Lampek–Törőcsik 2015, cited by Törőcsik 2016). Body concern and the focus on appearance are crucial, and the effort to connect the body and mind comes to the fore (Törőcsik 2014). Safety is the new wellness, so consumers are increasingly looking for food coming from reliable sources. The fear of infection and health awareness are becoming more apparent (Gyarmati 2021). Because of the coronavirus pandemic, people spent more time indoors, and several people moved to the countryside (Gyarmati 2021). Consideration is the new fashion: conscious consumers prefer value-added, healthy products and services (Gyarmati 2021). The need for *awareness* and *being informed* can also be associated with this.

The number of people following a health-conscious and an environment-conscious lifestyle is increasing. The environment and the food that can be produced there, as well as the preparation and consumption of food that is traditionally typical of the area, are becoming more valuable. This includes the growing demand for freshness (Törőcsik 2014). The environmental factors in sustainable food consumption patterns were found to be very important for young consumers. There is a growing popularity of reducing waste to zero, for example, by shopping at nonpackaging stores or using leftover apps (Rützler 2022).

There is a growing demand for reliable information, as shown by Törőcsik (2014) and Osztovics et al. (2016). Osztovics et al. (2016) propose that entering any store, we face the 'confusion of plenty', and the amount of information and products makes decision-making more difficult for consumers, so the expectation of simplicity and transparency is becoming increasingly pronounced. Young consumers expect that companies focus not only on profit but also on health and the interests of society (Gyarmati 2021).

Experience, fun, enjoyment, 'food porn', aesthetics, individualism, and experience of indulgence related to the preparation and consumption of food can also be identified as the prevailing trend (Törőcsik 2014). In addition to the desire for local products, there is a growing need for locally produced exotics, forgotten vegetables

and culinary discoveries, and young consumers prefer culinary openness, including nontraditional foods such as offal, in vitro meat, insects, or algae (Rützler 2022).

## Generation Z and sustainability

Our research focuses on Generation Z, i.e., a cohort born between the mid-1990s and early 2000s, i.e., between 1995 and 2012 (Bumbac et al. 2020) or after 1997 (Merriman 2015).

Generation Z is a unique generation in many respects. The "scarred generation", also referred to as the "pandemics" or the "double lost generation of the 21st century", experienced two major global crises, the nearly decade-long financial crisis (Kocziszky et al. 2018, Duran–Karahasan 2022, Bethlendi–Mérő 2022, Zhurauliou et al. 2023) and the COVID-19 pandemic (Kincses–Tóth 2020, Nyikos et al. 2021, WEF 2021, Antalóczy et al. 2022, Aritenang 2022, Kapás 2022, Fitriani et al. 2022, Thakur–Das 2022, Chernova–Gridnev 2023). They faced several economic, environmental, and societal challenges (WEF 2021), which resulted in specific behaviors among the members of this generation. It has an impact on their purchase decisions and their concerns about environmental issues.

According to a recent study by Pichler (2021), four main groups of factors shaped the values and behaviors of Generation Z: Technology, Mental health, Individualism & teamwork and Diversity. Technology plays a central role in the lives of the members of Generation Z, who are often referred to as "digital natives" or "iGeneration".

Pichler (2021), in line with the results of WEF (2021) and Duffy et al. (2019), reported that Gen Zers suffer from worsening mental health, depression and anxiety Pichler (2021). This generation grew up constantly connected, which harmed the Generation's ("iGen") ability to interact with others (Dabija et al. 2020). Regarding individualism and teamwork, Pichler (2021) suggests that Generation Z struggles with working in groups and that in-person communication can be a challenge for this generation.

Gen Zers can have a weaker work ethic than previous generations, as they tend to focus on hedonistic outcomes (Baum 2019). In regard to diversity, Gen Zers have strong tolerance for others with different beliefs and backgrounds and are more open to inclusivity (Pichler 2021).

Several international studies show that the members of Generation Z have a strong sense of social responsibility and sincere interest in sustainable development (Choi–Feinberg 2021, Osztovics 2016, Wightman-Stone 2022), and they are very environmentally conscious (CGS 2019). The state of our planet is one of the most frequent concerns among the examined young people (Origo.hu 2021, Tyson et al. 2021).

According to Dabija et al. (2020), Gen Zers are open-minded and interested in incorporating sustainability into most of their activities. The literature suggests that this generation has a strong awareness of ethical and environmental issues. Djafarova–Foots (2022) reported that Gen Zers tend to have sustainable lifestyle choices, they find reduced consumption of clothing important, and they pay attention to sustainable diet choices.

## Main consumer trends and sustainable food consumption of Generation Z

In this study, we give an overview of the results reported in the literature in line with the main sustainable consumer trends. The six categories identified are as follows: 1. Authenticity, transparency, safety and trust, 2. Eco-chic (Health care, environment, desire for naturalness) 3. Experience, hedonism, 4. Local values, local exotics, 5. Comfort, 6. Awareness, information seeking.

Table 1

**Generation Z consumers' characteristics and their food consumption patterns related to sustainable consumer trends**

| Categories | References |
|---|---|
| Authenticity, transparency, safety and trust | |
| More than one-fifth of Generation Z considered manufacturing procedures important in addition to price and quality in their purchases. They want to know where the products are made, who made them and using what materials. | CGS (2019) |
| They prefer restaurants where the origin of food is transparently shown. | McSweney (2019) |
| 65% of them try to determine where the purchased product comes from, what ingredients it contains and how it was made. | Francis–Hoefel (2018) |
| 30.0% stated that they have checked information about sustainability on the packaging or in the ads. | Reda–Kapoor (2021) |
| They expect brands to support issues important for the customers: 70.0% of them purchase goods from companies they deem ethical, and 80.0% of them never purchase anything from a company involved in misconduct or scandal. | Francis–Hoefel (2018) |
| They test the trustworthiness of companies and holds them accountable for their marketing promises. | Francis–Hoefel (2018) |
| Health concern, a healthy lifestyle and environmental concern are determinant attributes. | Lago et al. (2020) |

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| Categories | References |
|---|---|
| Eco-chic (Health care, environment, desire for naturalness) | |
| The most important aspect when buying food is good quality and price. | Nábrádi et al. (2017) |
| The demand for healthy food is evident, e.g., they reject additives (artificial coloring, preservatives). | Nábrádi et al. (2017) |
| 61% of them take the amount of packaging into account when buying products. | Reda–Kapoor (2021) |
| Two thirds of Generation Z in Germany deem sustainability more important than quality and price. | Osztovics et al. (2016) |
| They are willing to pay more for products emphasizing their individuality. | Francis–Hoefel (2018) |
| They want to be special (unique individuals), therefore they look for innovative and special products. | Noh et al. (2014) |
| They prefer fresh and healthy foods, 65.0% of them want a plant-based diet, while 79.0% would eat meat-free once or twice a week. | Campisi (2020) |
| Experience, hedonism | |
| They show curiosity as they strive to try new flavors. | Manning (2021) |
| They are willing to try different types of local cuisines, flavors and tastes. | Maynard et al. (2020) |
| Local values, local exotics | |
| They prefer restaurants that offer organic, sustainable and locally produced products on their menu. | McSweney (2019) |
| Research among young people in Kaposvár, Hungary, identified the following as the main attitudes toward local products: 1. fresh; 2. evokes homemade flavors, traditional; 3. safe, healthy; 4. trustworthy; 5. environmentally friendly. | Sántosi–Böröndi-Fülöp (2014) |
| Comfort | |
| According to the American Egg Board White Paper, health, comfort and social media all play an important role in Gen Zers food choices. | Campisi (2020) |
| They are driven by value consciousness and convenience when shopping. | Nikoli´c et al. (2022) |
| Awareness, information seeking | |
| As they are conscious consumers, there is a greater demand even for healthier snacks. | Manning (2021) |
| According to a Finnish study, young people in Finland expressed a strong motivation to reduce food waste. | Kymäläinen et al. (2021) |
| Recyclability plays a rather marginal role in their purchasing behavior regarding groceries. | Nikoli´c et al. (2022) |

This study adds to the existing body of literature in two ways. First, it describes young customers' attitudes toward sustainable food choices; second, it aims to explore the differences between segments based on attitudes and settlement types.

## Research methodology

The main research question of the present study is how different consumer groups have different intentions in regard to sustainable food consumption. The first stage of the research process was a literature review. The main purpose of the exploratory

qualitative research was to provide a basis for the current quantitative research, to pretest the quantitative research tool and to prepare the questionnaire and the research questions. To meet the research objective, a structured survey (online questionnaire) was conducted. The main objective of the quantitative research was to explore the differences between the consumption patterns of the segments of young consumers by settlement type.

Three research areas were examined: how respondents relate to basic sustainable consumption patterns, consumption intentions, and demographics. A 6-point Likert scale was used for the purpose of data collection on motivational factors. We were able to reach 366 respondents, of which 344 responses were suitable for data analysis after cleaning the data. Quota sampling was used where the four settlement types were included in the sample in a balanced manner, i.e., 25.9% of the respondents were from the capital city, 19.9% lived in cities, 26.7% lived in towns, and 26.2% lived in villages or municipalities.

Among the respondents, 235 were women (68.0%), and 109 were men (32.0%). A significant majority of the respondents (86.6%) were born between 1995 and 2001, and 13.4% were born between 2002 and 2009. Almost the same number of respondents were from each type of settlement. Most of the respondents (79.9%) still live with their parents in the same household, whereas 11.6% rent an apartment, 1.7% stay at dormitories, and 6.7% live with their partners or alone.

Approximately 50% of the respondents reported that they take part in food purchase decisions with more than 60% share. This was true for 49.7% of them, whereas the other nearly 50% reported that they only partially take part in food purchase decisions.

Regarding the distribution of the respondents by region, 41.0% came from Western Transdanubia, approximately 25.0% from Budapest, and 8.0% from Central Hungary. Only relatively few (5.0%) of the respondents live in other regions of Hungary.

A total of 49.7% of the respondents stated that their participation in food purchase decisions was more than 60.0%, while the others stated that their contribution was lower than 60.0%. Three segments were examined that were separated on the basis of settlement size: people living in the capital, in cities and smaller towns, and in villages/municipalities.

SPSS Statistics 28.0 was used for the data analysis. To analyze the data, descriptive statistical methods, descriptive statistical indicators and ANOVA were used. A 5% margin of error was adopted for the significance tests.

## Results and discussion

### Descriptive statistics

Tables 2–7 summarize the relative frequencies of the respondents showing the self-reported environmental consciousness, health consciousness, how much they learned about sustainability, their concern about environmental issues and sustainability challenges, and the commitment to sustainable food consumption by settlement type. The gray color in the tables highlights the most frequently selected responses on the 6-point Likert scale.

The young consumers surveyed are more likely to be environmentally conscious and health conscious as well. In the case of the inhabitants of larger and small towns, it shifts toward neutral responses, while in villages, environmental consciousness is stronger compared to the other types of settlements (Table 2). Inhabitants of the capital city and of villages tend to consider themselves more health-conscious (Table 3). In response to the question "How concerned are you about environmental issues and sustainability challenges over the next 5–10 years?" all the respondents reported a significant level of concern (Table 4).

Table 2

**Relative frequencies of the number of respondents – environmental consciousness of the respondents by settlement type, 2022**

(%)

| Settlement type | 1 | 2 | 3 | 4 | 5 | 6 | Total |
|---|---|---|---|---|---|---|---|
| Capital city | 0.0 | 2.2 | 21.3 | 53.9 | 19.1 | 3.4 | 100.0 |
| City | 1.4 | 4.1 | 20.5 | 54.8 | 11.0 | 8.2 | 100.0 |
| Town | 0.0 | 4.3 | 25.0 | 46.7 | 19.6 | 4.3 | 100.0 |
| Village/municipality | 0.0 | 5.6 | 23.3 | 40.0 | 25.6 | 5.6 | 100.0 |
| Total | 0.3 | 4.1 | 22.7 | 48.5 | 19.2 | 5.2 | 100.0 |

*Notes:* Cramer's V 0.118, p. 0.495.
How environmentally conscious do you feel? (1: not at all, 6: extremely).

Table 3

**Comparison of health consciousness of the respondents by settlement type, 2022**

(%)

| Settlement type | 1 | 2 | 3 | 4 | 5 | 6 | Total |
|---|---|---|---|---|---|---|---|
| Capital city | 1.1 | 7.9 | 19.1 | 36.0 | 32.6 | 3.4 | 100.0 |
| City | 2.7 | 2.7 | 23.3 | 46.6 | 23.3 | 1.4 | 100.0 |
| Town | 0.0 | 6.5 | 34.8 | 38.0 | 15.2 | 5.4 | 100.0 |
| Village/municipality | 0.0 | 7.8 | 21.1 | 37.8 | 26.7 | 6.7 | 100.0 |
| Total | 0.9 | 6.4 | 24.7 | 39.2 | 24.4 | 4.4 | 100.0 |

*Notes:* Cramer's V 0.147, p. 0.100.
How health conscious are you? (1. not at all, 6 extremely).

Table 4

## Comparison of how concerned respondents are about environmental issues and sustainability challenges over the next 5–10 years by settlement type, 2022

(%)

| Settlement type | 1 | 2 | 3 | 4 | 5 | 6 | Total |
|---|---|---|---|---|---|---|---|
| Capital city | 0.0 | 2.2 | 13.5 | 20.2 | 31.5 | 32.6 | 100.0 |
| City | 1.4 | 2.7 | 12.3 | 23.3 | 30.1 | 30.1 | 100.0 |
| Town | 1.1 | 4.3 | 14.1 | 20.7 | 35.9 | 23.9 | 100.0 |
| Village/municipality | 0.0 | 7.8 | 11.1 | 22.2 | 30.0 | 28.9 | 100.0 |
| Total | 0.6 | 4.4 | 12.8 | 21.5 | 32.0 | 28.8 | 100.0 |

*Notes:* Cramer's V 0.091, p.0.904.

How concerned are you about environmental issues and sustainability challenges over the next 5–10 years? (1. not at all, 6 extremely).

Table 5

## Comparison of how much respondents learned about sustainability during their studies by settlement type, 2022

(%)

| Settlement type | 1 | 2 | 3 | 4 | 5 | 6 | Total |
|---|---|---|---|---|---|---|---|
| Capital city | 5.6 | 20.2 | 20.2 | 22.5 | 23.6 | 7.9 | 100.0 |
| City | 5.5 | 15.1 | 17.8 | 31.5 | 23.3 | 6.8 | 100.0 |
| Town | 5.4 | 9.8 | 22.8 | 28.3 | 28.3 | 5.4 | 100.0 |
| Village/municipality | 4.4 | 15.6 | 22.2 | 27.8 | 21.1 | 8.9 | 100.0 |
| Total | 5.2 | 15.1 | 20.9 | 27.3 | 24.1 | 7.3 | 100.0 |

*Notes:* Cramer's V 0.830 p.0.954.

How much have you learned about sustainability during your studies? (1: I did not learn about it, 6: I specifically learned a lot about it).

Table 6

## Comparison of the respondents' opinions on how society supports sustainable food consumption by settlement type, 2022

(%)

| Settlement type | 1 | 2 | 3 | 4 | 5 | 6 | Total |
|---|---|---|---|---|---|---|---|
| Capital city | 4.5 | 25.8 | 42.7 | 23.6 | 3.4 | 0.0 | 100.0 |
| City | 5.5 | 27.4 | 45.2 | 19.2 | 2.7 | 0.0 | 100.0 |
| Town | 2.2 | 18.5 | 46.7 | 28.3 | 3.3 | 1.1 | 100.0 |
| Village/municipality | 2.2 | 18.9 | 46.7 | 25.6 | 6.7 | 0.0 | 100.0 |
| Total | 3.5 | 22.4 | 45.3 | 24.4 | 4.1 | 0.3 | 100.0 |

*Notes:* Cramer's V 0.102, p.0.764.

In your opinion, to what extent does society support sustainable food consumption? (1: not at all, 6: to a great extent).

Table 7

**Comparison of how committed respondents are to sustainable food consumption by settlement type, 2022**

(%)

| Settlement type | 1 | 2 | 3 | 4 | 5 | 6 | Total |
|---|---|---|---|---|---|---|---|
| Capital city | 1.1 | 2.2 | 24.7 | 40.4 | 24.7 | 6.7 | 100.0 |
| City | 0.0 | 8.2 | 20.5 | 45.2 | 16.4 | 9.6 | 100.0 |
| Town | 0.0 | 5.4 | 17.4 | 48.9 | 25.0 | 3.3 | 100.0 |
| Village/municipality | 0.0 | 5.6 | 15.6 | 40.0 | 24.4 | 14.4 | 100.0 |
| Total | 0.3 | 5.2 | 19.5 | 43.6 | 23.0 | 8.4 | 100.0 |

*Notes:* Cramer's V 0.132, p.0.268.
How committed are you to sustainable food consumption? (1: not at all, 6: to a great extent).

All the respondents reported that society does not truly support sustainable food consumption: 46.7% of those living in villages and small towns, 45.2% of those living in larger cities, and 42.7% of those living in the capital disagree with the statement (Table 6).

However, they reported that they themselves are more committed than other people. In response to the question "To what extent does society support sustainable food consumption", 48.9% of the respondents living in towns, 40.4% of those living in cities, 40.4% of those living in the capital and 40.0% of those living in villages said that they support sustainable food consumption. Fifty-seven percent of the respondents did not follow any alternative diet. Among the alternative diets, the most common were the lactose-free diet, the low-carbohydrate diet, and the sugar-free diet, which all accounted for 10-10%.

## Segment structure based on purchasing intentions

In our study, we determined three main groups using hierarchical cluster analysis. We identified the key attitudes and criteria related to sustainable food consumption by settlement type. The results of the cluster analysis by settlement type (means) are shown in Table A1.

To make the characteristics of Generation Z more visible, we identified three groups based on the methodology of hierarchical cluster analysis:

The first cluster was named "**Striving for awareness**". It includes 124 respondents (36%) who are living in villages or municipalities. Most of them (71.8%) are women, and 52.4% participate in food purchase decisions with less than 60%. They are committed to sustainable food consumption (mean 4.19), and they indicated that they are health- and environment-conscious (mean 4.08 and 4.06). They are very concerned about environmental issues and sustainability challenges (mean 4.57).

The second cluster was named **"Sustainability Trend Follower and Advocate**". In this cluster, there are 77 young people living in urban areas (city and town), most of whom are females (71.4%). A total of 58.4% of them stated that their participation

in food purchase decisions was more than 60.0%. They are committed to sustainable food consumption (mean 4.25), and they rated their environmental awareness at a mean of 4.10 and their health awareness at 3.91. They are very concerned about environmental issues and sustainability challenges (mean 4.94). In comparison with the other two clusters, they rated most of the factors examined significantly or highly relevant for them (mean 4.51).

Cluster 3 was named **"Passive, less action-oriented**". In this group, there are 143 respondents – most of them are males – who are living in the capital city. A total of 53.1% of them stated that their participation in food purchase decisions was more than 60.0%, which is because 82.5% of them live with their families. Of the three clusters, they are the least concerned with sustainable food consumption (mean 3.87), and they feel the least environmentally and health conscious (means 3.79 and 3.78, respectively). However, they are concerned about environmental issues and sustainability challenges – the mean (4.54) is close to that of the other 2 clusters. They seem to not follow the latest trends in healthy and sustainable food consumption. They show some degree of awareness in some areas, and they seem to be open to sustainability; however, their knowledge is not yet put into practice.

After that, we highlighted the attitudes that can be linked to the defining trends and the main criteria of sustainable food consumption by settlement type.

Table 8

**Clusters adapted to sustainable food consumption trends by settlement type, 2022**

| Scale items adapted to trends | Cluster 1. (village/ municipality) | Cluster 2. (town/ city) | Cluster 3. (capital city) | Total sample | ANOVA p value |
|---|---|---|---|---|---|
| | mean | | | | |
| Reliability/reliable information | | | | | |
| I trust more products from companies that are committed to sustainability. | 4.05 | 5.05 | 3.66 | 4.11 | 0.000 |
| I trust the information on the product labels. | 3.89 | 4.56 | 4.06 | 4.11 | 0.000 |
| Information on food products is difficult to read and interpret. | 3.29 | 3.18 | 2.69 | 3.02 | 0.000 |
| Eco-shick | | | | | |
| I avoid prepackaged and semiprepared foods. | 3.52 | 4.31 | 2.76 | 3.38 | 0.000 |
| I strive to buy products free of preservatives, additives and flavor enhancers. | 3.78 | 4.81 | 3.04 | 3.70 | 0.000 |
| I prefer fresh and seasonal foods. | 5.18 | 5.51 | 4.63 | 5.02 | 0.000 |
| Price-related dimensions | | | | | |
| Lower food price is most important to me. | 3.83 | 3.39 | 3.76 | 3.70 | 0.042 |
| I am willing to pay a higher price if a product is healthy. | 4.19 | 4.94 | 3.82 | 4.20 | 0.000 |
| I would buy healthy and sustainable foods, but they are too expensive. | 4.24 | 3.77 | 4.01 | 4.04 | 0.074 |

*(Table continues on the next page.)*

*(Continued.)*

| Scale items adapted to trends | Cluster 1. (village/ municipality) | Cluster 2. (town/ city) | Cluster 3. (capital city) | Total sample | ANOVA p value |
|---|---|---|---|---|---|
| | mean | | | | |
| Time factor | | | | | |
| I mostly do my grocery shopping online. | 1.53 | 1.29 | 1.38 | 1.42 | 0.165 |
| Purchasing healthy and sustainable food is very time-consuming. | 3.52 | 3.25 | 3.13 | 3.30 | 0.041 |
| Local food/local value | | | | | |
| I have more confidence in products from local producers. | 4.99 | 5.34 | 3.90 | 4.61 | 0.000 |
| I buy directly from the producer more often. | 3.31 | 3.68 | 2.00 | 2.85 | 0.000 |
| I prefer local food to imported food. | 4.64 | 5.27 | 3.36 | 4.25 | 0.000 |
| Consciousness | | | | | |
| I tend to consciously plan my purchases. | 4.68 | 4.86 | 4.17 | 4.51 | 0.000 |
| I consciously strive to avoid food waste. | 5.12 | 5.35 | 4.22 | 4.80 | 0.000 |
| I strive not to waste leftovers. | 5.10 | 5.05 | 3.94 | 4.60 | 0.000 |
| I am consciously looking for origin, ingredients and quality labels on products. | 3.60 | 4.52 | 2.43 | 3.32 | 0.000 |
| I am constantly following the latest trends in healthy and sustainable food consumption. | 2.94 | 4.51 | 2.36 | 3.05 | 0.000 |
| I compost what I can. | 3.74 | 2.94 | 1.64 | 2.69 | 0.000 |
| Safety/trust | | | | | |
| I trust the Hungarian food safety institutions and authorities. | 3.99 | 4.48 | 4.01 | 4.11 | 0.009 |
| It is important for me to receive information about the production of food products. | 3.83 | 5.01 | 2.95 | 3.73 | 0.000 |
| Sharing knowledge and experience | | | | | |
| I am happy to share my knowledge and experience of sustainable food consumption with others. | 3.34 | 4.90 | 2.55 | 3.36 | 0.000 |
| I try to raise awareness about sustainable food consumption. | 3.71 | 5.14 | 2.95 | 3.72 | 0.000 |
| Experience dimension | | | | | |
| It feels good to be able to buy and consume healthy and sustainable foods. | 4.70 | 5.61 | 4.31 | 4.74 | 0.000 |

*Note:* 6-point Likert scale 1= strongly disagree 6=highly agree.

The Tukey post hoc test was also used to identify the differences between the settlement types, i.e., the clusters. There is a significant difference between each settlement type in the case of the statement "I avoid prepackaged and semifinished goods", which means that this is the most important factor for those living in the city. It is important for those living in a village/municipality, while for those living in the capital city, this statement is not typical at all.

The statement "I strive to buy products free of preservatives, additives and flavor enhancers" also shows similar tendencies, i.e., the avoidance of these foods is most common for those living in cities, while for those living in villages/municipalities, this factor is of mean importance.

People living in small towns and villages/municipalities are much more likely to buy food from local producers than residents of the capital, as there was a significant difference between these types of settlements.

In the case of the statement "I compost what I can", there is a significant difference between all types of settlements. It is not surprising that composting is the most common for those living in villages/municipalities, while this factor is less common for those living in cities and not at all important for those living in the capital city.

In the statement "I am consciously looking for origin, ingredients and quality labels on products", there was a significant difference between those living in cities (small town and city) and those living in villages/municipalities and the capital, i.e., those living in cities are more consciously looking for the origin and the quality labels on products than those living in the other two types of settlements. There was a significant difference between those living in villages/municipalities and in the capital city, i.e., this factor is the least characteristic in the case of those living in the capital.

In the following two statements ("I trust products of companies committed to sustainability and I trust the information on the product labels"), people living in the city differ significantly from those living in the capital and in villages/municipalities, i.e., they have the best trust in companies that are committed to sustainability and in the information on product labels.

Furthermore, they trust the food safety authorities the most; however, there is a significant difference compared to those living in the capital, which means that respondents living in the capital city trust food safety authorities the least in Hungary.

The same trend can be seen in the case of the last three statements "I am constantly following the latest trends in healthy and sustainable food consumption, I am happy to share my knowledge and experience of sustainable food consumption with others, I try to raise awareness about sustainable food consumption", as in the statement "I am consciously looking for origin, ingredients and quality labels on products". These are the most characteristic for those living in cities (mean 5). There was a significant difference between the other two groups as well. The main difference is that for those living in villages, these are moderately important factors, while for those living in the capital, they are not at all decisive.

There is no significant difference between the clusters (type of settlements) in the statements "I would like to buy healthy and sustainable food, but they are too expensive" and "I mostly do my grocery purchases online".

In the case of the statement "I prefer domestic products over imported ones", there was a significant difference between all types of settlements, i.e., for those living

in towns and cities, this is a much more important factor than for those living in villages/municipalities, while it is the least important for those living in the capital city.

Similar tendencies can also be seen in the case of the statement "It feels good to be able to buy and consume healthy and sustainable foods", i.e., this is also the most typical for people living in cities. In the case of the statement "Purchasing healthy and sustainable food is very time-consuming", a significant difference can be seen only for those living in villages/municipalities and in the capital city. There is no significant difference between the other types of settlements.

However, this can be explained by the fact that people living in villages/municipalities have to travel the most if they want to buy sustainable, healthy products, as they might not be available in the village. The statement "I am willing to pay a higher price if a product is healthy" is the most typical for those who live in cities. It is rather typical for the villagers, while it is the least typical for those living in the capital. Therefore, there was a significant difference between all types of settlements.

In regard to buying from local producers, there was also a significant difference between the capital and the city/village, i.e., people in the capital buy less often from local producers than those living in the countryside. However, this can also be explained by the fact that both in cities and in villages, there is a greater opportunity to buy from local producers, and it is much more preferred than in the capital.

There was a significant difference between the village/municipality and city in the case of the statement "Lower food price is most important to me.", but no significant difference was seen in the other types.

In the case of the statement "It is difficult to read and interpret the information on food products", a significant difference can be seen for people living in the capital city compared to those living in villages/municipalities and in cities, as it seems to be less difficult for them than for those living in the countryside.

## Discussion

The results of our survey, on the one hand, support and confirm several previous research results on the topic of Generation Z and sustainability, as well as sustainable food consumption. On the other hand, in the breakdown by settlement type, novel results were also identified regarding the attitudes of Hungarian Gen Zers toward sustainable food consumption. In this chapter, we highlight our main findings based on the six identified consumer trends that were detailed at the beginning of this paper, namely, 1. Authenticity, transparency, safety and trust, 2. Eco-chic (Health care, environment, desire for naturalness) 3. Experience, hedonism, 4. Local values, local exotics, 5. Comfort, 6. Awareness, information seeking.

With regard to the first identified consumer trend **'Authenticity, transparency, safety and trust'**, our results confirmed the following:

The results of a survey by Osztovics et al. (2016) show that sustainability is important for young generations. Our study on the emergence of the LOHAS value system shows a similar result, according to which 54.3% of young people in Generation Z prefer the products of companies that are characterized by a responsible and sustainable approach (Balázsné Lendvai et al. 2022). A similar result was confirmed in our current research, according to which more than 60% of young people trust the products of companies that are committed to sustainability more. We found that people living in large and small towns trust the products of companies that are committed to sustainability the most, and those living in the capital the least.

Regarding the second consumer trend '**Eco-chic (Health care, environment, desire for naturalness**)', we found that 48.5% of the respondents declared themselves to be very environmentally conscious, and 24.4% were significantly or particularly environmentally conscious. CGS's 2019 research shows similar results, according to which members of Generation Z are the most environmentally conscious (68%). Research by CGS (2019) shows similar results: the members of Generation Z are the most environmentally conscious (68%).

Our research shows that environmental awareness is stronger in villages than in other settlement types. The respondents who are residents of large and small towns tend to be more neutral. Residents of all three settlement types prefer fresh and seasonal food products, especially the residents of large and small towns. Most respondents living in large and small cities try to buy products that are free of preservatives, flavor enhancers and additives. Those surveyed in Budapest are less likely to avoid prepackaged and semiprepared foods.

**In regard to 'awareness, information seeking'**, Francis–Hoefel (2018) found that 65% of young people want to determine where the purchased product comes from and what ingredients it contains. This is also confirmed by CGS's (2019) study, which found that young people want to know where products are made, who makes them and from what materials. Our online survey also shows that 43% of young people are consciously looking for origin, ingredient, and quality labels on products, and 25.3% of them consider these to be very important or highly important. More than half of the respondents (57.5%) strive to buy products free of preservatives, additives and flavor enhancers. Our recent study on Generation Z and LOHAS values shows a similar result: 34.1% of young people are thoroughly or accurately informed before making purchases, and 18% are consciously looking for origin and quality labels on the products (Balázsné Lendvai et al. 2022).

The need for awareness (information about the production conditions of food products) appears to be more apparent among the residents of large and small towns and least apparent among the residents of the capital. Based on the answers, the purchasing decisions and customer behavior of the residents of large and small towns

are mostly characterized by a higher level of awareness, and they also follow the latest trends the most. Members of the first cluster who live in villages or municipalities also strive for awareness, but they follow the latest trends in healthy and sustainable food consumption to a lesser extent.

Composting is mainly used in rural areas. The majority of young people (approximately 70%) living mostly in large and small cities and in rural areas examined in this research try very hard or especially hard to reduce food waste. Moreover, 58.3% of them consciously strive to reuse leftovers. All this confirms the results of a Finnish study, which points out that young people in Finland expressed a strong motivation to reduce food waste (Kymäläinen et al. 2021).

**Knowledge-sharing** and awareness-raising activities are mostly typical of people living in large and small towns. Among the food trends of 2022, in addition to the increasing role of **local products and values**, the desire for **local exotics** and culinary discoveries appears (Rützler 2022). Our primary research proved that respondents living in large and small towns have significant trust in products from local producers and prefer Hungarian products to foreign ones. However, the citizens of the capital city, Budapest, have less trust in local products and prefer Hungarian products less, and they buy directly from the producer the least often.

Regarding the trend '**Experience seeking, hedonism**', exotics and experimenting lead consumers toward the dimensions of experiences, entertainment and spectacles; therefore, Törőcsik (2014) refers to the pleasure, aesthetics, individualism and feeling of indulgence related to the preparation and consumption of food as food porn.

In the case of all three clusters in our online survey, young people usually feel good if they are able to buy healthy and sustainable food, but the highest mean value can be observed for those living in large and small towns.

**Favorable prices** are moderately important for all three clusters. Residents of large and small towns are mostly willing to pay a higher price for a healthier product.

Two of the clusters identified in our current research show similarities in terms of gender and place of residence with the results of the previous Hungarian research examining the attitude of Generation Z toward sustainability, the comparison of which is illustrated in Table 9.

The abovementioned Hungarian research results related to sustainability confirm the existence of the two Generation Z profiles: the one that is committed to sustainability and the more indifferent, less action-oriented one, in which the proportions within the sample are also very close.

Out of the 3 clusters identified in our research, there are predominantly more women in the advocacy groups striving for awareness and following sustainability trends, which is also confirmed by the studies of Bakewell–Mitchell (2004). Previous research on consumer decision-making styles has focused mostly on female buyers, as shopping is still largely seen as a feminine activity.

Table 9

**Clusters showing similarities with Hungarian research results and their main characteristics by gender and type of settlement, 2022**

| **The characteristics of the clusters that show similarities with the findings of Hungarian research results** | **Research results and the clusters typified in them** | | |
|---|---|---|---|
| | Study of sustainable value system among students of Debrecen (Balsa-Budai–Szakály 2018) | Generation Z according to the LOHAS model (Balázsné Lendvai et al. 2022) | Generation Z Sustainable Food Consumption Attitudes (authors' current study) |
| **Name of the clusters that show similarities** | "**Ambitious trend-follower**" **(25.1%)** | **"Value-creating" (27.7%)** | "**Sustainability Trend Follower and Advocate**" **(22.4%)** |
| Features of Cluster 1. (gender, place of residence) | Mostly women (60.0%), 47.7% live in a city with county status | Mostly women (82.8%), 55.6% live in County seats and the capital. | Mostly women (71.4%), most of them live in cities and towns. |
| **Name of the clusters that show similarities** | **Not a trend follower passive (35.4%)** | **Indifferent cluster (29.1%)** | **Passive, less ready to act (41.6%)** |
| Features of Cluster 2. (gender, place of residence) | In this segment there are slightly more men (52.3%), most of them live in settlements of less than 10,000 inhabitants (29.1%) | In this segment there are more men, (63.5%), 33.6% live in villages/ municipalities | Most of them are men, 32.2% live in capital city |

*Source:* authors' own compilation based on Balsa-Budai–Szakály (2018), Balázsné Lendvai et al. (2022).

## Conclusions

In this study, we aimed to look at whether there are differences between the attitudes of the members of Generation Z living in different settlement types in Hungary toward sustainable food consumption.

We identified the key attitudes and intentions toward sustainable food consumption by settlement type, and we managed to determine three relatively homogeneous groups using hierarchical cluster analysis: Cluster 1 was named "**Striving for awareness**", Cluster 2 was named **"Sustainability Trend Follower and Advocate**", and Cluster 3 was named "**Passive, less action-oriented**". The novelty of our study is that it examines the attitudes of the Hungarian Generation Z toward sustainable food consumption by settlement type; there seems to be a research gap regarding the examination of differences by settlement type.

Based on the examined trend elements, three segments can be identified based on the type of settlement the respondents live. The most significant differences among young people living in large cities and towns or villages can be seen in terms of the intention to buy local and domestic products, searching for information about the product, and purchasing healthy products.

This study has two main limitations. The first is related to the size of the sample: 344 young people (i.e., Generation Z) living in Hungary is relatively small; however, compared to the size of the total population of the country, it is still adequate. Geographical limitation: the majority of the respondents are from only three regions of Hungary: Western Transdanubia, Budapest, the capital city, and Central Hungary. The other regions (out of the 7 regions in Hungary) were not reached.

The practical implication of our research lies in the fact that the members of Generation Z might have significant purchasing power in the coming decades, so it is crucial that businesses better understand their attitude toward sustainability and sustainable food consumption, their expectations, motivation, attitude and buying habits.

On the other hand, our results, highlighted in the context of the six identified consumer trends, can be a good basis for businesses for the strategy creation and implementation stages, especially for situation analysis or sector-specific market research (e.g., baking industry, meat industry). Furthermore, our results can support target market marketing, product development, the creation of the communication mix, and the formulation of messages and competitive advantages that can significantly contribute to the successful and innovative positioning of the brand.

In addition, we believe that a better understanding of consumers' needs is key to the sustainability of the businesses of small-scale agricultural producers. Even in the short food supply chain, producers should look at their own activities from a business perspective, they should be familiar with the basic strategic management techniques and innovative solutions, and they must be able to adapt their business ideas to the given situation. Our research might provide support for this as well.

Regarding academic implications, the authors of this article would like to emphasize that the results of this current study confirm the findings of previous research examining the attitude of Generation Z toward sustainability and sustainable food consumption. We strove for a novel approach where we presented our research results in line with the trends that are driving sustainable food consumption and identified the perceptions of young consumers by settlement type.

Our research results and the revealed limitations simultaneously point the way to further research, such as increasing the size of the sample, involving other generations or other regions of the country, or even making international comparisons. Further research would enable a deeper study of consumer behavior and the identification and analysis of the differences between individual regions, areas and countries.

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# Appendix

Table A1

## Scale element response frequencies and TOP3 frequency values, 2022

(%)

| Statements in the questionnaire | 1-I strongly disagree | 2-I disagree | 3-I rather disagree | 4-I rather agree | 5-I agree | 6-I highly agree | TOP 3 scale |
|---|---|---|---|---|---|---|---|
| In your opinion, to what extent does society support sustainable food consumption? | 2.91 | 21.22 | 45.35 | 25.87 | 4.36 | 0.29 | 30.52 |
| How committed are you to sustainable food consumption? | 0.27 | 5.74 | 18.58 | 45.08 | 22.40 | 7.92 | 75.41 |
| I avoid prepackaged and semifinished foods. | 11.05 | 16.57 | 28.49 | 20.06 | 15.12 | 8.72 | 43.90 |
| I strive to buy products free of preservatives, additives and flavor enhancers. | 7.56 | 12.50 | 22.38 | 28.20 | 18.31 | 11.05 | 57.56 |
| I strive to buy products free of preservatives, additives and flavor enhancers. | 0.58 | 1.16 | 5.81 | 20.35 | 31.98 | 40.12 | 92.44 |
| I prefer fresh and seasonal foods. | 2.62 | 6.10 | 11.05 | 20.35 | 27.33 | 32.56 | 80.23 |
| I have more confidence in products from local producers. | 2.33 | 4.36 | 12.21 | 24.13 | 35.17 | 21.80 | 81.10 |
| I tend to consciously plan my purchases. | 0.58 | 3.49 | 10.47 | 17.73 | 36.34 | 31.40 | 85.47 |
| I consciously strive to avoid food waste. | 1.45 | 4.65 | 12.79 | 21.80 | 31.69 | 27.62 | 81.10 |
| I compost what I can. | 39.24 | 16.86 | 11.92 | 11.92 | 7.85 | 12.21 | 31.98 |
| I am consciously looking for origin, ingredients and quality labels on products. | 13.37 | 18.90 | 24.71 | 17.73 | 15.70 | 9.59 | 43.02 |
| I trust the Hungarian food safety institutions and authorities. | 3.20 | 4.65 | 22.38 | 29.94 | 27.33 | 12.50 | 69.77 |
| I have more confidence in the products of companies that are committed to sustainability. | 2.03 | 4.36 | 25.00 | 30.81 | 24.42 | 13.37 | 68.60 |
| I trust the information on the product labels. | 1.74 | 5.81 | 20.35 | 33.43 | 29.07 | 9.59 | 72.09 |
| I am constantly following the latest trends in healthy and sustainable food consumption. | 4.94 | 14.24 | 25.29 | 24.42 | 20.64 | 10.47 | 55.52 |
| I am happy to share my knowledge and experience of sustainable food consumption with others. | 17.73 | 19.19 | 27.03 | 17.15 | 14.24 | 4.65 | 36.05 |
| I try to raise awareness about sustainable food consumption. | 13.95 | 15.99 | 21.51 | 25.00 | 15.99 | 7.56 | 48.55 |
| I try to raise awareness in my environment. | 7.27 | 13.08 | 23.26 | 25.58 | 18.90 | 11.92 | 56.40 |
| Information on food products is difficult to read and interpret. | 12.21 | 25.58 | 27.33 | 20.93 | 11.05 | 2.91 | 34.88 |
| Lower food price is most important to me. | 4.65 | 12.50 | 24.71 | 32.27 | 18.02 | 7.85 | 58.14 |
| I buy directly from the producer more often. | 18.31 | 27.62 | 20.93 | 20.64 | 9.01 | 3.49 | 33.14 |
| I mostly do my grocery shopping online. | 78.49 | 9.88 | 5.52 | 4.07 | 1.74 | 0.29 | 6.10 |

*(Table continues on the next page.)*

*(Continued.)*

(%)

| Statements in the questionnaire | 1-I strongly disagree | 2-I disagree | 3-I rather disagree | 4-I rather agree | 5-I agree | 6-I highly agree | TOP 3 scale |
|---|---|---|---|---|---|---|---|
| I am willing to pay a higher price if a product is healthy. | 0.58 | 6.40 | 20.93 | 30.52 | 27.33 | 14.24 | 72.09 |
| Purchasing healthy and sustainable food is very time-consuming. | 8.14 | 19.77 | 30.52 | 22.97 | 13.08 | 5.52 | 41.57 |
| It feels good to be able to buy and consume healthy and sustainable foods. | 0.58 | 3.78 | 10.47 | 21.80 | 32.56 | 30.81 | 85.17 |
| I prefer local food to imported food. | 5.52 | 6.40 | 17.15 | 22.38 | 25.87 | 22.67 | 70.93 |
| I would buy healthy and sustainable foods, but they are too expensive. | 4.65 | 9.59 | 23.55 | 24.13 | 15.41 | 22.67 | 62.21 |
| How transparent do you consider sustainable labeling systems in Hungary to be? | 4.07 | 12.21 | 29.07 | 39.24 | 12.50 | 2.91 | 54.65 |
| How environmentally conscious do you feel? | 0.29 | 4.07 | 22.67 | 48.55 | 19.19 | 5.23 | 72.97 |
| How health conscious are you? | 0.87 | 6.40 | 24.71 | 39.24 | 24.42 | 4.36 | 68.02 |
| How much have you learned about sustainability during your studies? | 5.23 | 15.12 | 20.93 | 27.33 | 24.13 | 7.27 | 58.72 |
| How concerned are you about environmental issues and sustainability challenges over the next 5–10 years? | 0.58 | 4.36 | 12.79 | 21.51 | 31.98 | 28.78 | 82.27 |

*Note:* 6-point Likert scale 1= strongly disagree 6=highly agree.

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