EXPLORATORY INVESTIGATION OF CONSUMER CONSCIOUSNESS IN THE CASE OF FOOD PURCHASE AND CONSUMPTION

A FOGYASZTÓI TUDATOSSÁG FELTÁRÓ VIZSGÁLATA ÉLELMISZER VÁSÁRLÁS ÉS FOGYASZTÁS ESETÉN

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Food waste refers to discarding food that could have been saved with a bit of caution. It can happen at any point in the food supply chain: during production and transportation, at retail outlets, and in our homes. In developing nations, food waste primarily occurs in the fields, post-harvest, and during processing due to inadequate technology. A central aspect of mindful eating habits is the relationship individuals have with the food they purchase and eat, and their efforts to minimize waste. The Food and Agriculture Organization estimates that about a third of all food produced is wasted before it gets to the consumer. A study by NEBIH researchers into the behaviors causing household food waste identified income, age, education, and location as key sociodemographic factors. Our theory suggests that consumer awareness during the buying process doesn’t significantly impact the quantity of food bought and consumed. More people discuss conscious buying decisions than actually implement them. This paper presents the findings of a preliminary study on the link between food purchases and consumer awareness, based on detailed interviews. These findings will form the foundation for future quantitative research that could offer a more comprehensive understanding of consumers’ mindful food buying and eating habits.

Kulcsszavak: élelmiszervásárlás, fogyasztói tudatosság, élelmiszer fogyasztás

Keywords: food purchase, consumer consciousness, food consumption

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1. Introduction

Food is defined as any product intended or suitable for human consumption, including vegetables, fruit, but also raw materials produced by various technological processes, such as flour, sausages or oil. Food not suitable or intended for human consumption is called food waste. Examples include food that has expired or damaged packaging, unpackaged products (if contaminated and unsuitable for consumption), products that have rotten and used cooking fats (NÉBIH, 2022).

In our country, roughly 1.8 million tonnes of food are wasted every year. About one third of this is produced by Hungarian households, but from a different perspective, this is running about to 10% of our food purchases. 48-49% of total food waste could be avoided through conscious consumer behaviour (NÉBIH, 2019). There is specific legislation on the storage of food waste, which stipulates that waste and animal by-products must be stored in a way that does not contaminate the environment or other food. Avoiding food waste, or rather reducing it, is essential to do conscious purchases. However, to make it feasible, we need to be aware of certain things. A conscious consumer is one who is informed about prices, product quality and related services and chooses the best offer.

Numerous surveys show that a large percentage of our spending are impulse buying, meaning that we buy what we think is good and appealing at the time, rather than what we absolutely need. This is mostly due to marketing and sales promotions. After all, retailers do their best to let consumer put products in their shopping basket that they don’t need and wouldn’t even think of buying (JOBBÁGY, 2019).

But there are ideas that can help you become a more conscious shopper. First and foremost, go to the store with a shopping list and try not to diverge from it. This way, we can work out in advance which products we absolutely need to buy, so we can reduce the number of unnecessary items in our shopping basket. Large retailers consciously and professionally tempt you to spend money (STOREINSIDER, 2021).

It’s also important to be conscious when it comes to sales. We often buy products that we don’t really need, just because we can get them cheaper. It’s worth paying more attention to the discounts on products that you buy regularly.

In fact, the aim of conscious purchase is to buy only the food you absolutely need and not to waste it. In other words, temperance is the key (CERTUNION, 2023).

Storing food properly is as important as preparing it. If you want the food you buy to last longer, you also need to store it correctly. This not only protects products from harmful microorganisms and bacteria, but also substantially reduces food waste (BENETT, 2023).

Various pathogenic and bacteria can be found in food. Pathogenic bacteria cause, for example, salmonella eggs or listeria, so this is particularly dangerous for consumers. The bacteria that causes spoilage destroy the organoleptic properties of food, giving it an unpleasant smell. Certainly, food in this state is still inedible, but it is less dangerous for consumers than food contaminated with pathogenic bacteria (NATIONAL GEOGRAPHIC, 2019).

Proper storage is essential to preserve the quality and nutritional value of food. It is important to have different storage conditions in every household. This includes an appropriate size fridge or freezer, but a dry storage area (pantry) or cellar can also play an important role. Certainly, keeping storage areas clean is also a key factor (MAGYARPOLC, 2021).

Food waste is when you throw food in the bin that could have been avoided with just a little care. Food waste can occur at any and all stages of the food chain: during production and transport, in supermarkets and in our own households as well. In developing countries, due to the lack of appropriate technology, most of the food waste is generated in the fields, after harvesting and during processing, while in developed countries, including Hungary, 40% of food waste is generated in households (SAS, 2020). This massive food waste is a global challenge. According to the UN Food and Agriculture Organization (FAO), around one third of all food produced is wasted before...
it reaches the consumer's table (FAO, 2022).
In our country, half of the food thrown away falls into the avoidable category, with ready meals, fruit and vegetables, bread and other bakery products being the most common (BALOGH, 2021). Food waste is a serious and very complex problem, which is influenced by changes in society and our individual habits. Food shortages were a real problem many years ago, but in today’s world we can now choose our food as we like, regardless of the season or geographical location. With a rapidly growing population and rising food prices, we are almost on the brink of a food crisis, yet a third of the food we produce is wasted. According to the FAO, 1.3 billion tonnes of food are wasted every year and with it all the resources (energy, water) needed to produce it (SAS, 2020).

This food loss is exacerbating food insecurity, the subsequent and related problems, and is accompanied by an increase in hunger worldwide. It would certainly make sense for both individuals and consumers to pay attention to these issues, as reducing food waste also contributes to the fight against climate change (BORBÁTH, 2022).

Looking for the behavioural patterns behind food waste in domestic households, Nébih researchers identified income, age, education and place of residence as the most important sociodemographic factors (BALOGH, 2021). One of the most important sources of this secondary research is Szűcs’ 2019 research, which found that the level of real consumer knowledge on consumer consciousness is rather low, with only 10-20% of the respondents showing an acceptable level of awareness supported by real knowledge (SZÜCS, 2019). However, despite this, consumers claim to be much more self-aware, showing that there is a significant gap between perceived consumer consciousness and actual consumer consciousness. This is interesting because there are certain sayings in traditional family patterns at home that try to educate children to use food consciously. For example, "Food is not a toy"," We don't throw it away, other people don’t even have that much." The question is how this influences behaviour and how much of an impact it has on the subsequent thinking and actions of the individual as they grow up.

The Nébih quarantine research (NÉBIH, 2020) found that the pandemic had an overall positive effect on reducing food waste, due to people taking more time to plan their meals and shopping and buying more durable food. Another important finding from the research is that people have become much more concerned about food safety during this period.

However, a German study (RAO and de BOER, 2020) suggests that, regardless of whether these were durable foods, large quantities of food can still end up in landfills as they approach their expiry date.

Food purchase and consumption patterns can vary greatly depending on a variety of factors such as location, culture, income, and personal preferences. Here are some insights based on recent studies and data:

1. Changes during COVID-19: Food purchase activities have undergone significant changes since the outbreak of the COVID-19. A study conducted among 211 individuals in communities in Harris and Waller Counties, Texas, found that during the COVID-19 pandemic, the majority of the participants used more of large supermarkets, restaurant/fast food, and online grocery but food consumption seemed to remain the same for the majority of participants. There was a significant association between single person household and higher restaurant/fast foods purchase (PLOS ONE, 2023).

2. European Food Consumption Database: The EFSA Comprehensive European Food Consumption Database is a source of information on food consumption across the European Union (EU). It contains detailed information for a number of EU and pre-accession countries. The database plays a key role in the evaluation of the risks related to possible hazards in food in the EU and allows estimates of consumer exposure to such hazards (USDA, 2022).

3. USDA ERS - Food Consumption: The USDA Economic Research Service tracks the supply of food available for consumption in the United States and examines consumer food preferences by age, income, region, race, whether people eat at home or away, and other characteristics (USDA, 2021).
4. FoodAPS National Household Food Acquisition and Purchase Survey: This survey collects detailed information about foods purchased or otherwise acquired for consumption at home and away from home, including foods acquired through food and nutrition assistance programs (USDA, 2023).

A further problem identified is that shops and brands do not offer reasonably priced packs of products that are suitable for consumption in time for a single person. Standard sizes of pre-packed food are generally too large for single-person households, while the cost of smaller formats is disproportionately expensive (MALLINSON et al., 2016).

According to an article in The Times (WEBSTER, 2013), a study by the government’s Waste Reduction Advisory Council found that single-person households are largely responsible for throwing away £12.5 billion worth of food each year and that single people throw away 40% more food and drink than their peers.

It can also be useful to know how long certain foods can be stored. While meat will only preserve their quality for 3-5 days in the fridge, eggs will keep for 3-5 weeks. The amount of food you store in your fridge can also be a factor. It’s worth to avoid overcrowding so that cold air can circulate freely (KENDALL and DIMOND, 2012).

Food waste is a global problem. According to the FAO (Food and Agriculture Organization of the United Nations), one third of all food produced becomes food waste before it reaches the consumer (EUROPEAN UNION, 2021). So a significant amount of waste, despite the beliefs, is not due to a lack of conscious purchases, it is just an additional problem.

According to a survey carried out in the European Union in 2016, more than 89 million tonnes of food waste is produced each year, which is an average of 173 kg of food waste per person. By country, the Netherlands leads with 541 kg of food waste per capita per year. This figure is indeed outstanding, as Belgium, in second place, shows a decrease of about 200 kg, an average of 345 kg/person/year. From there downwards, EU countries follow each other with smaller differences, with Cyprus producing 327 kg per person per year. Among the least wasteful countries are Malta and Romania, both of which throw away just 76 kg of food a year. And the absolute lowest wasting country is also our neighbour, Slovenia, with 72 kg (EUROPEAN UNION, 2021).

These statistics provide a snapshot of the trends in food purchase and consumption:

1. Global Food Supply: The most widely used and comprehensive data on food supply and consumption is published by the UN Food and Agriculture Organization (FAO). This data shows that the average daily supply of calories (measured in kilocalories per person per day) has been increasing consistently at a global level. However, these trends vary across the world’s regions. There has been a significant rise in caloric supply across Asia and Africa in recent decades (OURWORLDINDATA, 2021).

2. U.S. Food Shopping Behavior: Nearly half of U.S. consumers reported spending more on groceries than they did in the previous year as of March 2022. High inflation can lead to reduced purchasing power, as prices tend to rise before wages. Among the various ways to fight inflation and save on groceries, the one that stood out most among consumers was switching to cheaper brands (STATISTA, 2023).


4. Inflation-Adjusted Food Spending: Real, or inflation-adjusted, annual food spending in the United States increased 70 percent from 1997 to 2022 to the highest level recorded (WORLD BANK, 2022).

Hungary is about in the middle of the EU countries in terms of food waste. To be precise, we are the 12th most food-wasteful country out of 27 (the UK was still part of the EU when the survey was conducted). This means that 175 kg of food per person in our country ended up in the trash in 2016. Exactly the same figure was measured in Luxembourg and slightly more in Italy. Out of the 89 million tonnes of food waste produced in the EU in 2016, the Netherlands had the highest figure at 541 kg per person per year, while the least wasteful countries were Malta and Romania, both of which throw away just 76 kg of food a year. And the absolute lowest wasting country is also our neighbour, Slovenia, with 72 kg (EUROPEAN UNION, 2021).
food waste at EU level mentioned above, our country produces 1.8 million tonnes. Of this, 400 000 tonnes, or just over 20%, comes from households (EUROPEAN UNION, 2021).

So food waste is present in both developed and developing countries. However, there is a significant difference: while in developing countries the losses occur at the beginning of the food chain (due to infrastructure deficiencies), in developed countries the opposite is true. Here, the large amount of food waste and food wastage in households at the end of the food chain is a cause of severe problems. They show that European households are responsible for more than half of the losses in the entire food chain (SZAKOS et al., 2021).

2. Material and Method

The exploratory research was carried out using qualitative methodology, with four interviewees from the consumer segment. Within the framework of a semi-structured interview, individuals from different households were interviewed about their purchasing habits. The aim of the survey was to examine their purchasing habits, how conscious they are when shopping, how much they are influenced by the marketing communication activities of each store, and their views on food waste as a global problem. We also asked people about their perceptions of how their living conditions influence them to be wasteful. Due to the covid situation, we were not able to interview everyone in person, and the elderly couple only answered our questions via video call.

3. Results and Discussion

3.1. The Default Test Situation

Interviewers:

- Respondent 1: female, born 1949, village resident, living with her spouse, matriculated, retired, 2 adult children, 3 older grandchildren.
- Respondent 2: male, born 1945, resident of the village, living with his spouse, school-leaving certificate, retired, 2 adult children, 3 older grandchildren.
- Respondent 3: female, born 1980, urban resident, lives alone, graduated from high school, event organiser, 1 adult child.
- Respondent 4: Female, born 1983, city resident, living with partner, university, homemaker, 3 children.

3.2. General Observations on Food Waste and Experiences

The first two respondents are an elderly couple. This issue has completely disappeared from their lives, as their lives are lived without food waste. As we are talking about an older generation, they have a different perspective on these situations. The lady has always lived modestly with her husband, children and grandchildren and has always taught her offspring not to waste because others may be starving or cannot afford to eat like them. But they feel that this situation is not being brought to people's attention or communicated properly to consumers. In their household, they only buy food that is sure to run out within a given period of time and fortunately this is also the case in their children's families.

The third respondent does not often think about the importance of the problem of food waste in his or her everyday life, but believes that nowadays more and more emphasis should be paid to it, if only because of the environmental pollution, as the energy used to produce food is wasted, or, for example, more packaging material is thrown away without being reused. According to the respondent, this is a much more important problem now than it used to be, because people now have so many opportunities to do their shopping and there is too much choice and supply. In addition, while there is increasing awareness of environmental pollution, there is almost no awareness of food waste, and in fact there is a lot of pressure on consumers to buy more food, with advertising and promotions. He sees the reason for this in the highly competitive market.

According to the fourth respondent, they have also been in situations where they have had to throw food away, for example during the festive season, but instead of throwing it in the bin, some people have given it to people in need or to the pet. Respondents said that they shop
consciously and sometimes write a shopping list. When asked how much of a difference this makes to her awareness, the answer was that she is conscious, but she cannot change the world's perception of wastefulness on her own.

3.3. Habits Formed by Parental Patterns

The first and second respondents, in the introduction, already started to tell us that they were trying to pass on to their children and grandchildren to waste as little or almost nothing as possible, because it is important that the food they buy is eaten. Very rarely do they give the leftover vegetables to pets, such as chickens, as they are not edible, but the chickens eat them, although they do not see this as a waste, as they are slaughtered and eaten later. From their mother, both male and female respondents have learned not to waste, because if they spend money on something, it is of value, and value must always be taken care of. Especially when they saw that others were from poor financial backgrounds, they were happy to help them, more often than not bringing them ready-made meals, which they were grateful for.

The third respondent can relate some of his conscientious habits to his parents’ raising, as he grew up with four siblings and therefore did not always have enough to go for everything, which made his parents more aware of food waste, not for social or environmental reasons, but for their own livelihood. When she was a child her parents grew certain foods in their own garden and also raised animals for the family, this was a lot of work so they valued food more and were more mindful of waste, in fact there was almost no waste as the leftovers from the kitchen were fed to the animals. Thanks to these roots, not only do they not waste much food for their own better livelihood and to save money, but also for reasons of principle. Following the pattern of his parents, typical phrases such as "Eat everything you have, because other people don’t even have that much" have stuck with him to this day. However, despite these parental patterns and experiences, it can be said that the respondent rated her food wastage and consumer consciousness as medium.

The fourth respondent warns those around them to be more conscious and throw out less food and advises the same to the family/children in her immediate environment, as the parental pattern is inherited, what they see at home is what they transmit.

3.4. Factors Affecting Food Waste

The first two respondents confessed that the woman is always the one who goes shopping when she considers prices, sometimes special offers, but only buys special offers when she needs them. She always goes to the store with money calculated in advance and consciously buys only the products she needs. When the grandchildren visit them, she always buys them something small that she knows will quickly run out, but usually prefers to make something, as she and the children prefer it. Perhaps if she buys more food because it’s on sale or at a good price, she often puts it in the freezer because she doesn’t have to buy it the next time she goes shopping. Salaries are thought to have an influence in people's lives, as those who earn more are more likely to buy more branded products and they tend to be more expensive. Alternatively, if they see something they like, they don’t pay attention to the price, they just buy it because they want it.

The third respondent, also referring to the example of her parents, said that when someone has to manage her expenses on less income, they are more careful about what she buys and what she throws away, but nowadays, for example, when she has a more secure income, she is not as careful about wasting food as she used to be. Going deeper into the subject, the conclusion that emerged in the respondent’s mind is that people who have had a lower income and later have a more secure high income are more wasteful than those who have always had a high income: 'they can't appreciate the sudden money, they think it will never run out, so they buy everything, even what they don’t really need'. As a result, those with an income below the average spend the least. In many cases they are also affected by discounts and promotions. These promotions and discounts are least followed formally
through newspapers and television and are mostly decided on the basis of stimuli and promotions on the internet and in the store. Most of the time, for example, they are tempted to overbuy by the 'buy one, get two' offer, but by their own admission they tend to use around 70% of these products later.

The fourth respondent did not want to talk about material goods, because he believes that it is everyone's private matter. When making purchases, she often looks out for special offers and takes note of surprising offers when it comes to buying food.

### 3.5. Conscious Purchase

Our elderly respondent confessed that she does not leave her house without writing everything down, usually going through every room in the house and writing down exactly what she needs: 'it's the only way I remember everything when I go into the room, kitchen, bathroom'. She used to ask her children if they needed anything because she was going on a bulk shopping trip, and she always bought more items because they were better value. With these bulk purchases, there was never a time when he had to throw anything away. And she never goes shopping when she's hungry, but even if she did, it wouldn't affect her.

The third respondent, after being asked, replied that it was a mistake not to write a list. We asked her why she thought this was a mistake. Her answer was that she would be more conscious if she wrote a list and organised her purchases in advance. She said that it was a bad habit, that she was always in a hurry and didn't plan in advance when she was going to the store, that she didn't do bulk shopping at weekends, that shopping was a momentary thing for her: "I'm always in a hurry and I'm in a time pressure, I hardly have time to even run to the store". She admits that she often goes shopping hungry, and that she often thinks about going to the shops when she is hungry, so she doesn't think too much ahead. She says that this has a very big impact on the products she ends up buying, and that she tends to overbuy.

According to the fourth respondent, many users waste food because when they go shopping they also buy a lot of things that their eyes want but don't need.

### 3.6. Marketing Activities in Stores, Reasons for Waste

The first and second respondents do not notice any of this because they go shopping consciously, so they do not look around while shopping. They usually check the date, but they consume everything before the expiry date: "no one in our family consumes products after the expiry date, so we make sure that we eat or drink the products we buy in time". The third respondent thinks that the marketing activities of stores and incentives for people to overbuy are more to do with food waste than the individual, the consumer: "to encourage sales, stores will do anything to make more money". But she also believes the responsibility of the shopper is important. In general, if food is wasted, the main reason is that it spoils at home, then the other main reason is that it is left on the plate and thrown away, the least common, but it still happens that long-life food expires in the pantry, and often much later you realise that the product is long past its expiry date.

The fourth respondent doesn't pay much attention to these, but you can often read articles on the internet, or advertisements for "seasonal" promotions in stores, even on the shelves of stores during a holiday.

### 3.7. Summary

The following conclusions were drawn from the in-depth interviews:

Food waste is quite prevalent today, but still many individuals are not paying attention and conscious purchasing is not present in these households. However, according to our respondents, they strive to waste as little as possible, although this is not so easy for everyone. Our research also showed that the older generation is less wasteful than the younger generation. This is not necessarily to protect their environment, but to ensure their own better livelihoods and set a good example for future generations. In contrast, today's youth, in this fast-paced world, find it harder to keep up, plan ahead less and for them shopping is a momentary thing, so they are more likely to fall into the trap of wasting food.
Promotions, the amount of time we can spend on them and the amount of income we can earn are the most important factors that influence the outcome and process of a purchase, and can often have a more detrimental than positive effect on the purchase of products.

4. CONCLUSIONS, SUMMARY, CONCLUDING COMMENTS, FINAL REFLECTIONS

As a result of our secondary and primary research, we found that certain methods could reduce food waste.

During our interviews, it became clear to us that purchase habits may vary from household to household. Based on our research, the importance of the shopping list came up several times on this topic. Several literature sources and interviewees mentioned the role it can play in conscious shopping and, in turn, in the fight against food waste. Some of our respondents also admitted the its importance, especially if they are short of money. However, using a shopping list is not enough to avoid waste. As consumers are heavily influenced by promotions, impulse purchases are often made, which means that we buy food that we do not need. All of our respondents found food waste problematic and something they would like to avoid, however their efforts are not always achieved and compensated, marketing activities, being in a rush, lack of planning and time shortage can distract them from their goals.

In addition to conscious purchases, our research also raised the issue of proper storage. The more types of storage space we have, the more options we have. It is also important to organise and keep storage areas tidy. Using FIFO principle would save a lot of food and reduce food waste. Also avoiding overbuying is a possible solution to this problem. We could also realize a difference among different generations: older people tend to waste less food the younger ones.

The storage of food waste is also crucial to ensure that it does not pollute the environment. Used cooking oil came up several times during the interviews, it is the first thing that generally comes to mind when people hear the word food waste.

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