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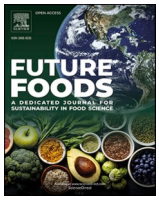

In the transition towards plant-based diets. The case of Sweden, Lithuania, Poland, Ukraine and Moldova

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ABSTRACT

A diet rich in plant-based foods and lower in animal foods is associated with a lower impact on the environment and improved public health. However, not all consumers are willing to reduce meat consumption. A challenge is to understand consumer attitudes towards the reduction of meat consumption and the replacement of meat with plant-based analogues. The present study aimed to investigate the attitudes toward the consumption/production of meat analogues among consumers in Sweden, Poland, Lithuania, Ukraine and Moldova. The survey was conducted by an online questionnaire. Participants from Sweden, Lithuania and Poland were significantly ($p < 0.05$) more interested in eating meat analogues than participants from Ukraine and Moldova, although extreme particiants were found in all countries, from those scoring 0 to those scoring 100. Overall, the healthiness and tastiness of meat analogues were considered as important factors by the participants from all countries. The participants from all participating countries were mainly negative to the use of the word "meat" in the names of plant-based analogues, and suggestions for new names included the word "plant". The results from the present study contribute to a better understanding of the barriers and drivers of the transition towards plant-based diets in Sweden, Lithuania, Poland, Ukraine and Moldova.

1. Introduction

In recent years, there has been a growing recognition of the crucial role of a healthy diet in global health (Seidelmann et al., 2018; Zeraatkar et al., 2019). One of the sustainable development goals adopted by the United Nations (No. 3) is "good health and well-being," which aims to ensure a healthy life and promote well-being for people of all ages. This should be achieved by environmentally, economically, and socially sustainable production and consumption that aligns with consumer demands and desires (Mazur-Włodarczyk and Gruszecka-Kosowska, 2022). Therefore, it is important to promote healthy and sustainable food consumption, as one way to increase public health, and at the same time, also to achieve food security (Blanco-Gutiérrez et al., 2020a).

This is also supported by the Nordic Nutrition Recommendations 2023 (NNR, 2023), which not only focus on human health, but also consider the environment and highlight the necessity of reducing meat consumption, particularly red meat. Indeed, meta-analyses have consistently shown an association between high red meat and processed meat intake and an increased risk of coronary heart disease, stroke and heart failure (Bechthold et al., 2019; Zeraatkar et al., 2019) as well as colorectal cancer (Norat et al., 2005). Thus, NNR 2023 recommends favouring a plant-based diet and reducing red meat consumption. A diet

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rich in plant-based foods and lower in animal foods (particularly red meat) is generally associated with a lower impact on the environment, such as a reduction in greenhouse gases emission, as well as a more efficient use of arable land and water (Bryant, 2022; Musicus et al., 2022; Scarborough et al., 2023).

As consumer awareness of sustainability issues and the importance of a healthy diet continue to rise (Blanco-Gutiérrez et al., 2020b; Spendrup and Hovmalm, 2022), there is a noticeable shift in the choices of food products. Health-conscious consumers increasingly select plant-based products, especially consumers with higher education levels (Klink et al., 2022; Giacalone et al., 2022). In line with this trend, the market for vegetarian alternatives has grown dramatically in recent years. Despite this trend, the pace is slow and the consumption of plant-based food still needs to increase (Klink et al., 2022), and statistics on consumption patterns show that meat and dairy foods continue to constitute a significant portion of the diets in certain countries. For instance, Ukrainian food cultures highly value animal-based foods, with fatty meat playing a crucial role in the national cuisine and culture. Consequently, transitioning to a plant-based diet may pose some challenges in such cultures. According to the FAO (2025), annual per capita meat consumption was highest in Poland (84.7 kg) and Lithuania (79.5 kg), followed by Sweden (68.5 kg). Considerably lower values were observed in Ukraine (46.4 kg) and Moldova (35.5 kg). The market share of plant-based alternatives is growing fast in Sweden (Knowledge Sourcing, 2025), where consumer awareness and product availability are highest. In contrast, the adoption of plant-based products remains limited in Ukraine and Moldova (European Comission, 2025), reflecting both lower market penetration and cultural preferences for traditional animal-based foods. Economic factors such as national GDP and disposable income have been shown to influence consumer openness to novel foods, including plant-based alternatives. Higher-income countries in Europe, such as Denmark and Sweden, tend to have greater sales and consumer trust in plant-based foods (Proveg international, 2024), while lower-income countries report slower market growth and adoption (Drewnowski, 2024).

A new research challenge is to understand consumer attitudes towards the reduction of meat consumption and its replacement with plant-based analogues. Earlier studies have shown that it is possible to support consumers in reducing their meat intake by offering plant-based meat analogues with desirable sensory features and information about nutritional quality (Bryngelsson et al., 2022; Kołodziejczak et al., 2021; Sucapane et al., 2021). It should be noted that taste, appearance and availability were far more important than environmental concerns when choosing and consuming plant-based meat analogues (Weinrich, 2019).

The present study aimed to investigate the attitudes toward the consumption/production of meat analogues among consumers in Sweden, Lithuania, Poland, Ukraine and Moldova.

2. Material and methods

2.1. Survey design and questionnaire

The survey was designed in collaboration with the academic parties from Sweden, Lithuania, Poland, Ukraine and Moldova. The survey was conducted through an online questionnaire, divided into two parts. The first part contained background information (gender, age, education, residence, and dietary habits), and the second part contained more specific questions about plant-based meat analogues (Table 1 and Table S1). English was used as a working language during construction and in the draft versions of the survey. The final version was translated from English to the respective language and distributed by researchers in the participating countries via email, WhatsApp and Viber, as well as via other social media platforms. Survey data were collected from July to October 2023 using the software EyeQuestion (Logic8, Version 5.12.12).

Table 1
Overview of questionnaire.

Category of questions	Type of questions	Target
Demographics (Q1–10)	Nationality, gender, age, education, life situation, food habits, allergy	Understanding of the participants backgrounds
Food Consumption (Q11–14)	Frequencies of consuming meat, fish, meat analogues	Illustrating consumption patterns in five European countries
Attitudes concerning meat analogues (Q15–19)	Production and ingredients, importance of characteristics, naming of meat analogues	Understanding consumer attitudes towards the reduction of meat consumption and its replacement with plant-based analogues.

2.2. Statistical analyses

The survey data were analysed using SPSS (Version 27, IBM). First, descriptive analysis was used to determine mean values, standard deviations and frequencies of categorical variables. Second, the differences between countries in continuous variables were estimated using one-way ANOVA followed by Tukey Pairwise Comparison Post Hoc test. For the analysis of frequencies (percentage), a two-tailed test according to Roessler et al. (1978) was used. The differences were considered statistically significant when $p < 0.05$. To check data robustness, sensitivity analysis by gender and education level was performed.

3. Results

3.1. Background data

Overall, 1173 participants responded to the questionnaire with the highest response frequencies in Ukraine and Lithuania, and the lowest in Poland (Table 2). In all countries, except for Moldova, a majority of the participating consumers were females. Most commonly, the participants stated that they achieved equal or above high school education, except for Lithuania, where 49 % of participants reported lower than high school education. Most participants lived in urban areas and bought everyday food in supermarkets. Self-assessment of knowledge on food greatly varied between countries. Swedish and Polish consumers considered their knowledge about food as deep (77 % and 56 %, respectively) and normal (23 % and 42 %, respectively), whereas the majority of consumers from Lithuania, Ukraine and Moldova reported normal level of knowledge.

The highest number of vegans was reported in Lithuania and Sweden, although the number of vegetarians was greater in Poland (Table 3). Regarding meat consumption, almost half of the participants from all participating countries reported that they consume meat 1–3 times per week. Only 3 % of participants from Ukraine and Moldova reported that they never consume meat. The portion of non-meat consumers in Sweden, Lithuania and Poland varied from 12 to 18 % (Table 3). The number of participants who declared that they never ate fish was the highest in Lithuania (15 %). In Sweden, 51 % of participants consume fish 1–3 times per week, and in the remaining countries, over half of the participants consume fish 1–3 times per month.

3.2. Plant based meat analogues

In the following sections, any comparisons that are denoted as significant imply a statistically significant difference ($p < 0.05$). Further, sensitivity analysis by gender and education level showed a high robustness of data with a slight impact of education level, with fewer significant differences between countries among participants with lower education. The percentage of participants who had tasted plant-based meat analogues was the highest in Sweden (92 %), followed by Poland

Table 2
Background characteristics of participants and consumption of meat and fish per country. Age is presented as mean ± standard deviation (min-max) and categorical variables as percentage (%).

	All participants	Sweden	Lithuania	Poland	Ukraine	Moldova
Number of consumers	1173	207	354	109	360	143
Age (years)	35 ± 14 (15–100)	42 ± 12 (18–76)	29 ± 12 (17–100)	44 ± 14 (18–74)	35 ± 15 (15–73)	31 ± 12 (17–70)
Years of residence						
<1 year		0	0.6	1	0	1
1–3 years		3		3	0	15
4–10 years		5	0.3	3	0	6
>10 years		92	99	93	100	78
Gender						
Females	72	70	89	76	63	50
Males	27	29	10	23	36	50
Prefer not to answer	1	1	1	1	1	0
Education						
Lower than high school	26	8	49	27	18	17
Equal or above high school	74	92	51	73	82	83
Residential area						
Countryside	14	17	13	18	14	14
Village/small town	18	38	17	19	8	17
City	67	45	70	69	78	69
Place where most frequently buy everyday food						
Supermarket	75	54	91	78	75	68
Local store	16	41	6	13	12	16
Farmers market	7	1	3	6	11	12
Home Delivery	2	3	0	3	2	4
Self-assessment of knowledge on food						
No knowledge	0.4	0	0	0	1	1
Low	5	0	6	2	8	4
Normal	55	23	59	42	66	76
Deep	39	77	35	56	26	18

Table 3
Self-reported dietary habits and consumption frequency (%) of meat and fish.

	All participants	Sweden	Lithuania	Poland	Ukraine	Moldova
Reported dietary habits						
Vegan	4	4	8	3	1	2
Vegetarian	6	10	7	12	2	3
Eat everything	86	75	79	83	97	94
Pescetarian	4	11	6	2	0.3	1
Meat consumption frequency						
Never	11	16	18	12	3	3
<3 times per year	2	6	1	1	1	1
1–3 times per month	7	8	6	8	7	8
1–3 times per week	47	46	42	47	51	55
Every day	33	23	32	32	38	33
Fish consumption frequency						
Never	8	7	15	6	3	8
<3 times per year	9	8	10	17	5	11
1–3 times per month	52	34	51	50	61	59
1–3 times per week	30	51	23	27	29	21
Every day	1	0.5	0.3	0	2	1

(74 %), Lithuania (69 %), Ukraine (52 %) and Moldova (28 %). A significantly higher proportion of Swedish, Polish and Lithuanian participants had tasted plant-based meat analogues in comparison to Moldovan participants. The difference between Sweden and Ukraine was also significant (data not shown).

Swedish participants were significantly less sceptical toward tasting new foods compared to the participants from all the other countries; it should be noted that Moldovan participants were the most sceptical (Fig. 1a). Participants from Sweden, Lithuania and Poland were significantly more interested in eating meat analogues than those from Ukraine and Moldova. However, Polish participants were less interested in switching to plant-based products than the participants from Sweden and Lithuania ($p < 0.05$).

Factors that the participants considered important for eating meat analogues differed between countries (Fig. 1b). The factors "sustainability" and "decreased meat consumption" were significantly the most important for Swedish participants. "Sustainability" was considered important by significantly more Polish and Lithuanian participants compared to Ukrainian and Moldovan participants. Similarly, the "decreased meat consumption" factor was considered important by significantly more Lithuanian and Polish participants than by the fewer number of participants from Moldova, while Ukrainian participants did not differ from any of these countries. The factors "interesting to test" and "curiosity" were significantly more important to a higher share of Lithuanian and Polish participants than to Ukrainian and Moldovan participants, while Sweden did not differ from any other countries. The factor "tastiness" was considered important by significantly fewer participants from Moldova compared to all other countries. The factor "recommendations" was important to significantly more participants from Lithuania than from any of the other countries. The factor "attractive to avoid slaughter" was important to more participants in Lithuania and Poland in comparison to the number of participants from

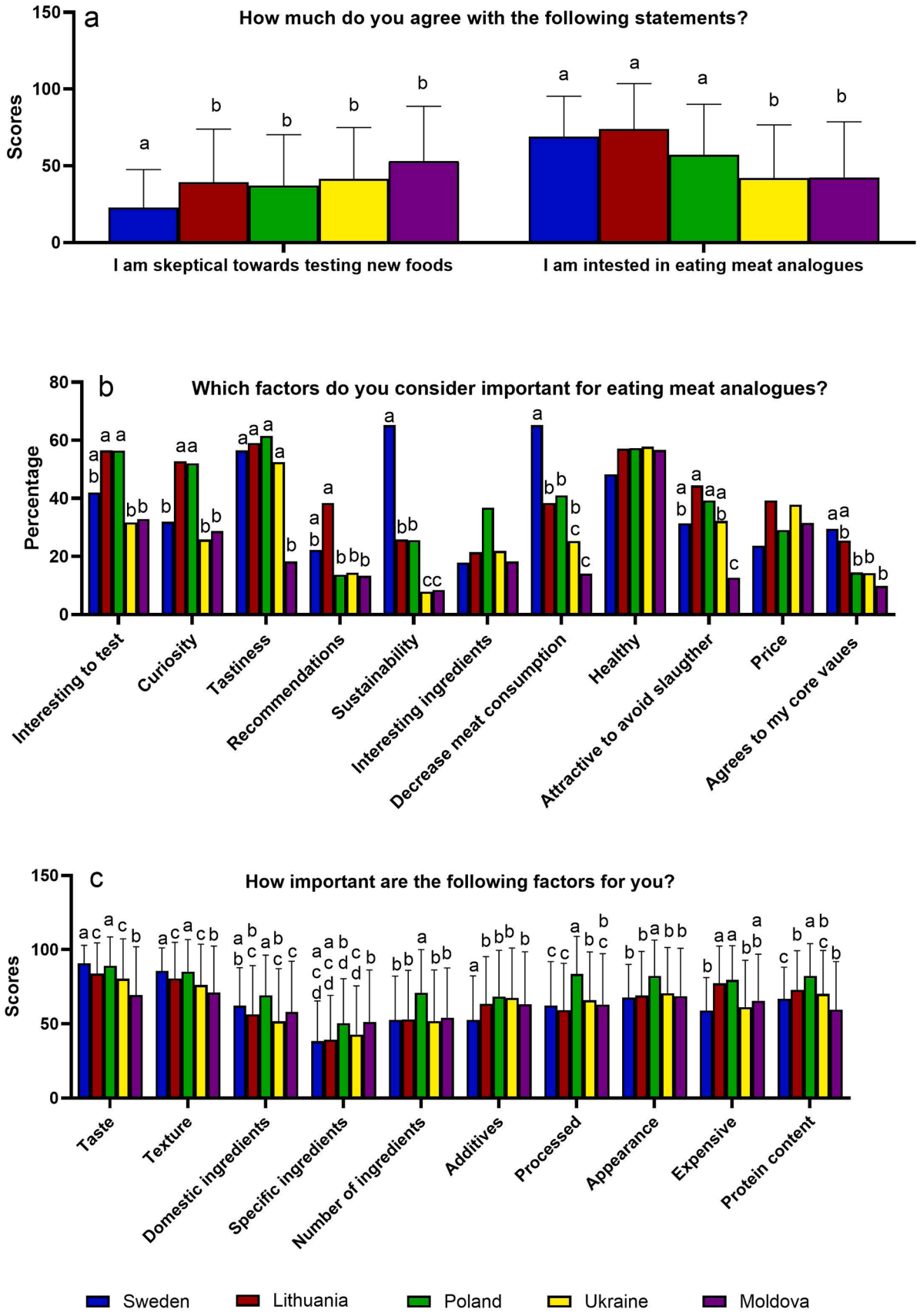

Fig. 1. A summary of factors of importance for consumers for eating meat analogues. The data represent the answers per country to the following questions: a) How much do you agree with the following statements? b) Which factors do you consider important for eating meat analogues? c) How important are the following factors for you? Different letters indicate statistically significant differences. Data on Figs. 1a and 1c are presented as scores from the scale 0–100, where 0=not at all and 100=extremely important. Data on Fig. 1b are presented as a percentage of the participants per country who marked a particular factor as important.

Moldova, while the share of Swedish and Ukrainian participants did not differ from any of the countries. The factor "agrees with my core values for food consumption" was important to significantly more Swedish participants compared to Polish, Ukrainian and Moldovan participants, while Lithuanian participants did not differ from any of the countries. For the remaining factors ("interesting ingredients", "health" and "price"), there were no significant differences between the participants from the participating countries.

"Taste" and "texture" received the highest scores by the survey participants in all countries (Fig. 1c). "Taste" and "texture" were significantly more important to the participants from Sweden and Poland, and significantly less important to those from Moldova. "Domestic ingredients" were significantly less important to participants from Lithuania, Ukraine and Moldova compared to Poland, and less important to participants from Ukraine compared to Sweden. "Specific ingredients" were significantly less important to participants from Sweden and Lithuania compared to those from Poland and Moldova, and less important to participants from Ukraine compared to those from Moldova. Moreover, the "number of ingredients", "degree of processing", "protein content" and "appearance" were significantly morer important to the participants from Poland compared to participants from the other countries. "Additives" were less important to Swedish participants compared to other countries.

Among the types of plant-based protein sources, the most attractive options varied between countries (Fig. 2). Beans were significantly more attractive to Swedish participants compared to those from Ukraine and Moldova, while Lithuania and Poland did not differ from any of the participating countries. Lentils were more attractive to participants from Sweden and Poland, and chickpeas were more attractive to participants from Sweden and Lithuania, while the interest in legumes was generally lower in Ukraine and Moldova. Overall, soy, as a plant protein source, was less attractive compared to other legumes. Soy was significantly more attractive to the participants in Lithuania compared to those from Ukraine and Moldova, while participants from Sweden and Poland did not differ from any of the countries. Cereals were more attractive to Swedish and Polish consumers compared to consumers from Moldova, while Lithuanian and Ukrainian participants did not differ from those in any of the countries. The pseudocereal quinoa was more attractive to the participants from Sweden, Lithuania and Poland compared to those from Moldova, while Ukrainian participants did not differ from participants form the rest of the participating countries.

3.3. Naming of plant based meat analogues

The participants from all countries were mainly negative about the use of the word "meat" in the names of plant-based analogues (Fig. 3). No significant differences were observed between countries in the percentage of participants who were positive about the word "meat". The percentage of participants who were negative about the word "meat" was also similar among countries. A significantly larger percentage of the Swedish participants stated that they had no opinion about the name compared to those from Poland, but not compared to those from other countries.

The participants were also asked to suggest a new name of the plant-based meat analogues, which does not include the word "meat". Fig. 4 shows the frequency of suggested titles in each category. The participants from Sweden and Ukraine suggested using "Plant protein product" or naming the product according to the raw material (the name of the legumes or cereals that were used as the main ingredients). The participants from Lithuania also suggested naming the products according to the raw material or using the name of the original product that the plant-based is designed to imitate (soy sausages, chickpea patties, lentil steak etc.). In Poland, the participants mainly suggested the name "plant product". Suggestions from the category "Based on original products" were also attractive for some Polish participants. The participants from Moldova selected "Substitute" and "Plant protein product", as the most attractive names instead of using the term "plant-based meat analogues". Other suggestions included: "animal-free", "fake meat", "bio-meat", "green", "vegreen", "planties", "plant yummy" etc. (Fig. 4). It is noteworthy that unpleasant names were also suggested by several participants from two countries but were not included in Fig. 4. It should be noted that the differences in terminology (e.g., "plant protein product") identified in the open-ended responses were based on observed frequencies and were not statistically tested. Therefore, these findings should be interpreted as anecdotal and exploratory rather than statistically significant.

4. Discussion

To the best of our knowledge, this is the first study to compare the attitudes of consumers in the Baltic region towards plant-based meat analogues. These countries, although, geographically close to each other, differ in culture, have unique historical roots in culinary traditions and attitude to food. Access to agricultural resources and historical events, such as conquests and occupations, have affected food cultures and traditions in many ways. Nowadays, the global movement towards a more sustainable plant-based diet offers new perspectives for cultural exchange in food traditions. Globalisation and integration promote the exchange of agricultural technologies and innovations that support plant-based diets. However, in some countries meat and other animal

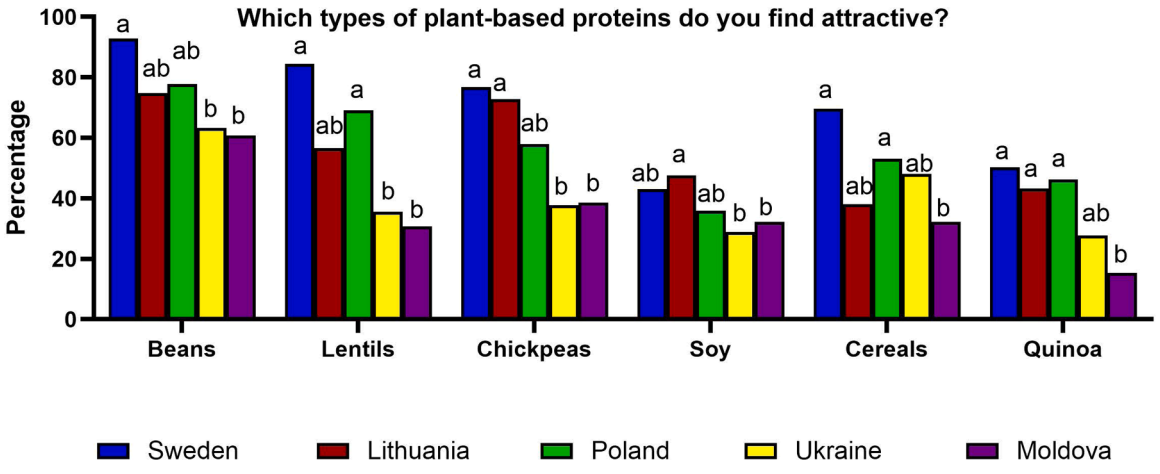

Fig. 2. Attractiveness of different of plant-based protein sources to participants. Data on Bars represent a percentage of the participants per country who marked a protein source as attractive. Different letters indicate statistically significant differences.

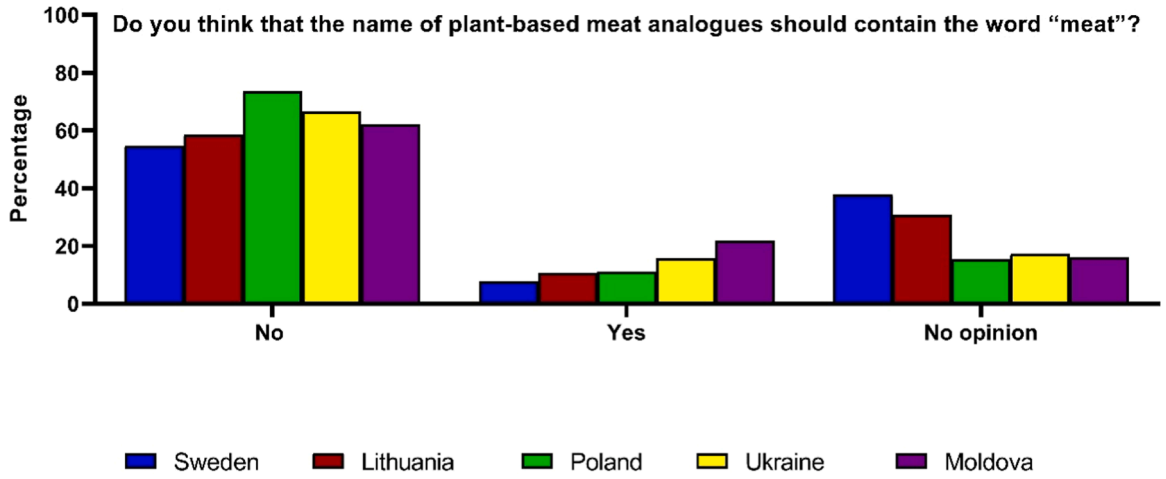

Fig. 3. Attitudes of the participants to the using the word "meat" in the names of plant-based analogues. Bars represent a percentage of the participants per country who answered positively, negatively or did not have an opinion.

products may be central to cultural identity, leading to resistance to changing long-standing traditions. A recent study by Tan et al. (2025) on familiarity and satisfaction with plant-based meat alternatives around the world showed that women, younger individuals, and those with lower meat consumption levels were more positive towards plant-based meat alternatives. The associations between age, meat intake, and acceptance were less pronounced in Asian countries compared to Western nations, reflecting cultural differences in dietary practices. Findings like this underscore the relevance of demographic and geographical factors in shaping attitudes toward plant-based meat analogues and uncerscore the relevance of the current insights into attitudes towards meat analogue among consumers across Sweden, Lithuania, Poland, Ukraine and Moldova. Furthermore, it examined factors affecting the desire to consume plant-based analogues, and preferred plant protein sources.

The demographic questions revealed a predominance of female respondents, except in Moldova. This aligns with established patterns in survey-based research. There may be several explanatory factors. Nuzzo (2021), as an example, referes to women scoring higher on personality traits associated with social responsibility, agreeableness, and conscientiousness, all linked to a greater willingness to respond to survey invitations. Other factors may relate or greater interest in the subject matter (Forsberg et al., 2025). The higher male participation observed in Moldova is an exception that warrants further investigation, potentially involving cultural norms, recruitment methods, or survey design.Our study demonstrated large variations in meat and fish consumption frequency, with Sweden consuming less meat and more fish often compared to other countries. The average reported meat intake in the Nordic and Baltic countries varies between 100 and 200 g/day, with significant within-country variations (Lemming and Pitsi, 2022). The average meat intake across the Nordic and Baltic regions was generally higher among men. Nevertheless, challenges arise in making meaningful comparisons due to variations in reporting practices and the definition of meat among different countries. Recent studies in Germany and Poland revealed that the majority of consumers would like to reduce meat consumption (Seffen and Dohle, 2023; Mazur-Włodarczyk and Gruszecka-Kosowska, 2022), while a majority of Danish consumers had no intention to reduce their meat intake (Hielkema and Lund, 2021).

However, there are obstacles concerning production of plant-based meat analogues and several studies have found that the main reason for the low popularity of these products may be attributed to their low similarity to meat (Blanco-Gutiérrez et al., 2020a; Kołodziejczak et al., 2021; Varela-Ortega et al., 2022). Our study indicates that in countries where daily meat consumption is a part of culture, aspiring to dramatically reduce meat consumption is challenging, which is in line with research results from studies on consumers from different parts of the world (Shin et al., 2024). Enhancing knowledge of consumers' opinions and views regarding meat reduction and the consumption of meat analogues helps in creating new plant-based products with high consumer acceptance.

Overall, "healthiness" and "tastiness" were considered important factors by participants from all countries. This is in line with Giacalone et al. (2022), who concluded that improving the sensory profiles of plant-based meat analogues and their resemblance to meat is critical to meeting consumers' demand and a recent review addressing challenges like taste, texture, and nutritional adequacy are considered as vital factors for enhancing consumer acceptance and fostering a more sustainable food system (Jang and Lee, 2024). However, it should be noted that for Moldovan participants the "tastiness" was of lower importance. Participants in all countries agreed that healthiness of plant-based meat analogues is highly important, similar to US and Swiss consumers' opinion on plant-based products (Giacalone et al., 2024; Shin et al., 2024).

When looking at the differences between countries, both Sweden and Moldova can be considered extreme cases. Swedish participants considered to a significantly higher extent "sustainability" and "decrease of meat consumption" than participants from other counties, while most participants from Moldova considered only health, but no other factors, as important for eating plant based. This phenomenon may be explained by culture and traditions of both countries (Bosona and Gebresenbet, 2018; Pocol et al., 2020; Shin et al., 2024; Kim et al. 2024).

Our results showed that bean, lentil and chickpea proteins had generally a higher level of acceptance when compared to other ingredients, while soy had overall the lowest acceptance. This is not surprising. Europe is an important producer of legumes (beans, peas, and lentils), and a recent study has demonstrated that kidney beans, lentils, and chickpeas were the most popular legumes among European consumers (Henn et al., 2022). Specifically, faba beans have recently gained widespread popularity in Scandinavian countries (Auer et al., 2024; Augustin and Cole, 2022; Johansson et al., 2024) even though faba beans as a potential source of food proteins wer discussed in Scandinavia as early as the 1970s (Olsen, 1978).

Beans are important part of the traditional foods in Moldova and Lithuania (Podėnas et al., 2023; Sturza and Ghendov-Moşanu, 2021). Despite the overall low bean consumption in Poland (Henn et al., 2022; Śmiglak-Krajewska and Wojciechowska-Solis, 2021), Polish participants also listed legumes as their preferable ingredient in meat analogues. The lower acceptance of the soybeans is likely due to the concerns about environmental impact and deforestation associated with soy production (Da Silva et al., 2021) as well as the use of genetically modified seeds

Fig. 4. Word cloud of common words and phrases in responses to the open-ended question regarding the names for the plant-based meat analogues. The larger font size means that larger number of participants selected the word. The answers "I do not know" and answers, containing inappropriate words, were not considered in the figure.

(Ichim, 2024). Even in Ukraine, the largest producer of soybeans in Europe, soy was not appreciated as a protein source. Traditional Ukrainian cuisine did not typically include soy-based products withthe diet more centered around staple foods like potatoes, meat, dairy, and cereals. This is also reflected in our results, where Ukrainian participants showed higher preferences for cereals compared to lentil and chickpea (Bondar and Golikova, 2022).

Generally, the name and labelling of the food products are important factors that affect consumer acceptance and choices. This was demonstrated in the study on the acceptability of insect-based food (Deroy et al., 2015) whole grain foods (Kissock et al., 2022) and cultivated meat (Hallman et al., 2023). Ye et al. (2023) showed that a name with positive associations can improve consumers' willingness to try planted-based meat analogues. Concerning plant-based products, scientific and popular articles have used various names including meat analogues, meat substitutes and plant-based meat. Proposing and using proper branding of meat analogues are also important aspects in the standardization and legalization processes, which vary significantly between countries (Abbaspour et al., 2023; Caputo et al., 2024; Zhang et al., 2023).

In the present study, the majority of participants stated that the word "meat" should be avoided in the names of plant-based products because it does not adequately communicate the nature of the product to the consumers. When asked to suggest a better name for plant-based meat analogues, "plant protein product" was a frequent suggestion that is in line with a majority of Swedish consumers finding the name "plant-based protein" attractive (Forsberg et al., 2025) Favalli et al.(2013) recommended that when innovations are applied to a food product, its

name should also be also changed. The interaction between the product and its name is an important feature as the sound of the product name conveys sensory and conceptual associations to consumers. In this light, it is questionable whether "plant protein product" is an appropriate name and further national market analyses are warranted. Transparent and standardised naming conventions benefit both consumers and producers by fostering trust, supporting informed choice, and ensuring regulatory compliance in the evolving plant-based food sector. Recent regulatory developments emphasised the need for clear and consistent naming conventions for plant-based products. Policymakers are encouraged to establish guidelines that prevent consumer confusion about the nature or source of these foods. For example, the U.S. FDA's 2025 draft guidance (FDA, 2025) suggests using both the term "plant--based" and the main plant ingredient in product names (e.g., "soy-based sausage"), a principle also being considered in the EU to support consumer trust and regulatory compliance. The European Union's Regulation (EU) No 1169/2011 requires that food labels must not mislead consumers and reserves certain names (e.g., "milk," "cheese," "butter," "meat") for animal-derived products (European Commission, 2011). The Court of Justice of the European Union (CJEU) has confirmed that dairy terms such as "milk" and "cheese" cannot be used for plant-based alternatives (CJEU, 2017). For meat analogues, while terms like "beef" or "chicken" are restricted, the use of names such as "burger," "sausage," or "steak" for plant-based products remains permitted, as the European Parliament found no evidence that these terms mislead consumers (European Parliament, 2020).

A limitation of this study was that the sample may not be fully representative of the general population in each country. Participants were recruited via online survey platforms, social media, university mailing lists, WhatsApp and Viber, which may have led to an overrepresentation of certain demographic groups, such as individuals with higher education or greater interest in health and nutrition topics. However, the robustness of data was proven high due to the sensitivity analysis which showed only a slight impact of education level. As a result, the findings should be interpreted with caution and may not be generalizable to the entire population. Future studies using probability-based sampling methods would be valuable to confirm and extend these results.

5. Conclusion

The attitudes toward the consumption andproduction of meat analogues differed among consumers from Sweden, Lithuania, Poland, Ukraine and Moldova. Overall, the participants from Sweden, Lithuania and Poland were positive about consumption of meat analogues, while Ukraine and Moldova showed lower interest. Bean, lentil and chickpea proteins had generally a higher level of acceptance when compared to other ingredients, whilesoys had overall the lowest acceptance. The majority of participants from all countries stated that the word "meat" should be avoided in the names of plant-based products. The results from the present study contribute to a better understanding of the barriers and drivers of the transition towards plant-based diets in Sweden, Lithuania, Poland, Ukraine and Moldova.

Ethical statement

According to the Swedish Ethics Review Act (SERA) (Swedish Ethical Review Authority, 2003) ethical approval is not required to conduct a consumer study. Due to this regulation, no human ethics committee was consulted and/or formal documentation process is available. This study includes questions about food perception which, according to the Data Protection Ordinance, are not classified as sensitive personal data. According to the General Data Protection Regulation, none of the responses to the questionnaire used in this study include information that can be traced to or used to identify any individual. All participants received written information about the test and gave their informed consent to participate. Additionally, the participants could withdraw from the survey at any time without giving a reason.

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CRediT authorship contribution statement

K Wendin: Writing – original draft, Investigation, Formal analysis, Conceptualization. **V Olsson:** Writing – review & editing, Writing – original draft, Investigation, Conceptualization. **S Karkehabadi:** Writing – review & editing, Funding acquisition. **M Knicky:** Writing – review & editing, Investigation. **M Korzeniowska:** Writing – review & editing, Investigation, Conceptualization. **A Kabasinskiene:** Writing – review & editing, Investigation, Conceptualization. **Z Miknienė:** Writing – review & editing, Investigation, Conceptualization. **A Getya:** Writing – review & editing, Investigation, Conceptualization. **M Matvieiev:** Writing – review & editing, Investigation, Conceptualization. **N Hryshchenko:** Writing – review & editing, Investigation, Conceptualization. **E Scripnic:** Writing – review & editing, Investigation, Conceptualization. **L Caisin:** Writing – review & editing, Investigation, Conceptualization. **G Zamaratskaia:** Writing – original draft, Investigation, Funding acquisition, Formal analysis, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.fufo.2025.100731.

Data availability

Data will be made available on request.

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