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ATTITUDES TOWARDS INSECT-BASED FOODS: THE POLISH CONSUMER PERSPECTIVE

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ABSTRACT: The aim of the article was to assess Polish consumers' attitudes towards insect-based products according to respondents' gender, age, place of residence, level of education and material situation. The study used a quantitative approach based on data from an online survey conducted in 2023 with 631 Polish respondents. The survey included 15 variables measured on a five-point scale describing consumers' attitudes towards insect-based food. Descriptive statistics and exploratory factor analysis were used to identify the key components that define consumer attitudes and behaviours towards insect-based food. The results suggest that Polish consumers generally lack sufficient information on this category of products and are not inclined to spend time looking for it. Instead, they show a certain level of reluctance towards this type of food. Consumers do not perceive it as healthy, safe or nutritious. The research findings suggest that the adoption of insect-based food among Polish consumers may be problematic.

KEYWORDS: consumer behaviour, consumer attitudes, insect-based food, edible insects, innovative food product

Introduction

Consumers around the world are showing increasing concern about the quality, safety, and impact of food on the environment, driven by numerous food safety incidents and growing ecological awareness. Particularly troubling are unsustainable meat production and consumption systems, which pose serious environmental and food safety risks (Dopelt et al., 2019; Migliore, 2021).

Growing concerns about industrial animal farming, development regulations, animal welfare, and changes in attitudes towards animal nutrition made consumers look for alternative ways of feeding (Ankiel et al., 2023; Starowicz et al., 2022; Popek & Pachołek, 2021). One proposed solution is entomophagy – the consumption of insects or insect-based foods. Although insects and insect-based products are part of traditional diets in many regions of the world, they remain a novelty and a challenge in European countries. In Europe, insect consumption often evokes disgust, mainly due to food neophobia. Social fears and negative perceptions further complicate their acceptance (Conway et al., 2024; Abdullahi et al., 2021; Traynor et al., 2024). Despite concerns, insects and insect-based products are gaining popularity due to their positive environmental impact and are considered one of the most sustainable sources of animal protein for human consumption (Batat & Peter, 2020; Ahmad & Xu, 2023; Zhang et al., 2024). Insect protein consumption can positively affect metabolism, although more research is needed on its health impact and potential allergenicity (Cunha et al., 2023). Moreover, insect farming has a low ecological footprint, uses resources efficiently, and supports closed-loop production (Tanga & Ekesi, 2024; Li, 2023; Cappellozza et al., 2019; Kusch & Fiebelkorn, 2019).

The development of alternative protein sources is crucial for the future of food production, which must be sustainable and safe (Sakadevan & Nguyen, 2017; Imathiu, 2020; Guiné et al., 2021; Rybicka et al., 2024). In Europe, insect consumption is regulated by the Novel Food regulations, which require passing a safety authorisation process at the EU level. Despite the approval of insect consumption in many European countries, significant information gaps remain regarding the safety and authenticity of insect-based products.

Literature review

The acceptance of insects and insect-based products consumption in Europe is influenced by various factors. Studies indicate that gender significantly affects attitudes towards entomophagy, with women generally showing greater reluctance compared to men (Tzompa-Sosa et al., 2023; Trentinaglia et al., 2024).

Age is another significant factor influencing the acceptance of insects consumption in Europe. Younger consumers are more receptive to new foods, including insects, compared to older generations, who often exhibit food neophobia. Studies suggest that age-related food preferences and behaviours are established early in life, indicating that early exposure to insects consumption may promote acceptance. Educational initiatives targeting younger demographics could increase acceptance by addressing concerns and promoting the environmental benefits of insects consumption (Petrescu-Mag et al., 2022; Mina et al., 2023; van Thielen et al., 2019; Videbæk & Grunert, 2020).

Research shows that education and knowledge significantly influence consumer attitudes (Legendre et al., 2019; de Koning et al., 2020). For example, a study conducted in France found that 69% of respondents were aware of entomophagy and 53% had tried insect-based products. Awareness of the benefits for environmental sustainability and nutritional value was a key motivating factor for acceptance (López, Ghnimi & Liu, 2023). In the study by Platta et al. (2024), the acceptance of edible insect-based foods by generation Z in Poland was associated with pleasure orientation (for men), lack of attachment to culinary traditions (for both sexes), high nutritional value and health (for women).

Studies show that people with higher levels of education are generally more open to new diet concepts, including entomophagy, which may be related to greater awareness of environmental and health issues, as well as easier access to reliable information. People with higher education are more likely to understand the benefits of insects consumption, such as their sustainable production and high nutritional value (Morris et al., 2023; Boustani & Guiné, 2024). Research by Hartmann et al. (2015) indicates that educated consumers are more inclined to accept entomophagy.

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The acceptance of insects consumption is also significantly influenced by place of residence, shaped by cultural, social, and economic factors. Studies have shown that people living in urban areas are generally more open to try new and unconventional food products, such as insects. This may be due to greater exposure to diverse cuisines from around the world, better access to information, and a tendency to embrace innovative food trends. City dwellers tend to exhibit greater acceptance of insects consumption, although the ultimate influence of location also depends on cultural factors and local culinary traditions (Mishyna et al., 2023). Research also indicates that in regions where insects consumption is not a part of local culinary traditions, acceptance of its consumption faces greater resistance, regardless of whether a person lives in rural or urban areas. However, in regions where insects are traditionally consumed, even rural inhabitants may be more readily willing to accept this type of food (Abdullahi et al., 2021; Ghosh et al., 2020).

Research Design

The study was conducted in April 2023 and involved a sample of adult Poles. Quota sampling was used to select participants, ensuring that the sample structure (Table 1) reflected the demographics of the adult population in Poland as reported in the latest national census. A total of 631 respondents participated in the research, which was carried out using the Ariadna nationwide research panel. The data was analysed using IBM SPSS 27.

Table 1. Structure of the research sample

Respondent characteristics		N	%
Sex	Female	329	52.1
	Male	302	47.9
	Total	631	100.0
Age	up to 29 years old	117	18.5
	30-49 years old	246	39.0
	50+	268	42.5
	Total	631	100.0
Place of residence	Village	234	37.1
	Small towns (up to 99,000 inhabitants)	208	33.0
	Large cities (over 100,000 inhabitants)	189	30.0
	Total	631	100.0
Material status	Below average	121	19.2
	Average	223	35.3
	Above average	287	45.5
	Total	631	100.0
Education	Primary, middle school, or vocational education	77	12.2
	Secondary, post-secondary, or technical education	272	43.1
	Higher education	282	44.7
	Total	631	100.0

The attitudes of Polish consumers towards insect-based food were examined using 15 variables adapted from studies by other researchers: Legendre et al. (2019), de Koning et al. (2020), Orsi et al. (2019), Videbæk and Grunert (2020). Table 2 presents the results of the assessments of these variables. Analysis suggests that Polish consumers do not dedicate their time to gathering information about insect-based food ($\bar{x}$=2.11) and are rather uninformed about the subject ($\bar{x}$=2.32). It is impor-

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tant to note that insect-based food is a relatively new product entering the Polish market, which may undoubtedly affect the level of knowledge about it. Respondents generally do not perceive the discussed food to be healthy, safe or nutritious. The relatively low assessment of eco-friendliness of insect-based food ($\bar{x}$=2,90) may indicate a low level of awareness among consumers about the characteristics of this food. Analysis of other variables clearly demonstrates that the participants had a predominantly negative attitude towards the consumption of insect-based food, which was most clearly reflected in the disgust they would experience when eating such products ($\bar{x}$=3.87). The research findings suggest that the adoption of this type of food among Polish consumers may be problematic.

Table 2. Mean importance of factors determining consumer attitudes towards insect-based food

Variable	$\bar{x}$	σ
I spend time to gathering information about insect-based food	2.11	1.080
I am very familiar with information on insect-based food	2.32	1.103
I am more familiar than my friends and family regarding insect-based food	2.48	1.102
Insect-based food is healthy	2.67	1.049
Insect-based food is safe to eat	2.78	1.112
Insect-based food is nutritious	2.82	1.083
Insect-based food is environmentally friendly	2.90	1.073
Insects are unhygienic and transmit diseases	3.66	1.042
Eating insects is risky	3.49	1.111
Eating insects poses a risk to human health	3.20	1.136
Insects are not suitable for human consumption	3.25	1.238
I would be disgusted to eat any dish with insects	3.87	1.106
Thinking about the flavour that a bug might have sickens me	3.74	1.183
If I ate a dish and then came to know that there were insects among the ingredients, I would be disgusted	3.75	1.136
I would avoid eating a dish with insects among the ingredients, even if it was cooked by a famous chef	3.73	1.208

Legend: $\bar{x}$ – mean; σ – standard deviation

To compare the significance of factors determining consumer attitudes towards insect-based food in terms of selected characteristics of respondents, the analysis of variance was conducted. The results obtained are presented in Table 3.

Table 3. Mean importance of factors determining consumer attitudes towards insect-based food based on respondent characteristics

Variable	$\bar{x}$ overall	Age ≤29 | 30-49 | ≥50	ANOVA
No statistically significant differences were identified based on the respondents' age			
		Place of residence V | T<100 | C≥100	
Eating insects is risky	3.49	$3.63^{2}>3.46^{1}\approx3.34^{1}$	3.779*
Eating insects poses a risk to human health	3.20	$3.38^{2}\approx3.20^{2}>2.97^{1}$	7.162***
Insects are not suitable for human consumption	3.25	$3.34^{2}\approx3.30^{2}>3.06^{1}$	2.996*
I would be disgusted to eat any dish with insects	3.87	$3.98^{2}\approx3.87^{2}>3.72^{1}$	2.983*
Thinking about the flavour that a bug might have sickens me	3.74	$3.85^{2}\approx3.78^{2}>3.58^{1}$	2.944*

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Variable	$\bar{x}$ overall	Age ≤29 | 30-49 | ≥50	ANOVA
		Material status ↙ | ↔ | ↗	
I spend time to gathering information about insect-based food	2.11	$2.34^{2}>2.12^{1}\approx2.01^{1}$	3.980*
Insect-based food is nutritious	2.82	$2.90^{2}>2.61^{1}<2.94^{2}$	6.348**
Insect-based food is environmentally friendly	2.90	$3.03^{2}>2.71^{1}<2.98^{2}$	5.160**
		Education P | S | H	
Insect-based food is healthy	2.67	$2.44^{1}\approx2.61^{1}<2.79^{2}$	4.347*
Insect-based food is safe to eat	2.78	$2.60^{1}\approx2.68^{1}<2.92^{2}$	4.561*
Insect-based food is nutritious	2.82	$2.64^{1}\approx2.71^{1}<2.98^{2}$	5.726**
Insect-based food is environmentally friendly	2.90	$2.66^{1}\approx2.81^{1}<3.04^{2}$	5.225**
Eating insects poses a risk to human health	3.20	$3.60^{2}>3.23^{1}\approx3.06^{1}$	6.950***
Insects are not suitable for human consumption	3.25	$3.53^{2}>3.31^{1}\approx3.11^{1}$	4.251*

Legend:
Statistical significance (p-value): ***p≤0.001, **p≤0.01, *p≤0.05.
Age: ≤29 – up to 29 years old; 30-49 – from 30 to 49 years old; ≥50 – 50 years old or older.
Place of residence: V – village; T<100 – town with less than 100,000 inhabitants; C≥100 – city with 100,000 inhabitants or more.
Material status: ↙ – below average; ↔ – average; ↗ – above average.
Education: P – primary/vocational; S – secondary/post-secondary; H – higher education.
$\bar{x}$ – mean.
$^{1, 2, 3}$ – group membership – the higher the value, the higher the mean in the group.

The presentation of results in the table has been limited to statistically significant differences in consumer attitudes towards insect-based food. These results allow understanding of consumption barriers, as well as educational and marketing opportunities in promoting insect-based food. In terms of place of residence, village inhabitants perceive eating insects as riskier and a threat to health compared to residents of smaller towns and larger cities. Respondents with higher material status view insect-based food as more nutritious and environmentally friendly. Individuals with lower education perceive insect-based food as less healthy and safe, which may indicate greater scepticism towards new food products. No statistically significant differences were identified in terms of age. The results obtained indicate the need to tailor marketing communication and its educational dimension to different demographic groups. In this area, efforts should focus on dispelling health risk concerns and emphasising the nutritional value and environmental benefits of insect-based food. Understanding the differences in perception between the analysed groups can help to design products that better meet the expectations of specific market segments. In this regard, understanding the reasons for the differences in attitudes towards insect-based food is crucial for its effective promotion as a sustainable nutritional alternative.

The subsequent stage of the research involved applying exploratory factor analysis (EFA) to the dataset. These extracted factors are independent of each other while preserving key information from the original variables, allowing the identification of potential hidden relationships within the dataset (Walesiak & Bąk, 1997; Malarska, 2005; Watkins, 2018).

The correlation matrix analysis conducted between the variables provided a basis for using exploratory factor analysis (EFA) in the research procedure due to the presence of statistically significant correlations. To determine the appropriateness of employing this method for data analysis, Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) measure of sample adequacy were applied. The result of the first test did not support the null hypothesis that the correlation matrix of the variables is an identity matrix ($p<0.001$), and the KMO measure was as high as 0.929. These results indicate that EFA can be conducted on this dataset.

To extract new factors, the principal component analysis (PCA) method was used, which transformed uncorrelated primary variables into components and ranked them according to the explained

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variance. To determine the number of new factors (components) to be included in the subsequent analysis, the Kaiser criterion was utilised, which stipulates that a factor should be considered only if it explains a greater variance than a single variable, meaning it should have an eigenvalue greater than 1 (Braeken & van Assen, 2017). According to this criterion, three components were retained, collectively accounting for 72.38% of the variance, with 47.94% attributed to the first component.

The next step in the research procedure involved calculating the factor loadings. In the literature, there is no consensus on the minimum acceptable value of a factor loading. The threshold value for significant factor loadings is somewhat arbitrary and, in this case, was set at 0.6. All factors met this criterion, so none were removed from further analysis. The new components and the variables that constitute them are presented in Table 4. The first component relates to knowledge about insect-based food in the context of information gathering and the level of awareness about this topic. The second component can be characterised as pertaining to the perception of insect food concerning health, value, safety, and ecology. The final component addresses the aversions and concerns associated with insect-based food.

The analysis of the results indicated that Polish consumers generally have limited knowledge of insect-based food ($\bar{x}$=2.30). This is understandable as this type of food is just beginning to enter the Polish consumer market. The respondents exhibited a rather negative (albeit moderately) perception of the health benefits, value, safety, and ecological aspects of the discussed food ($\bar{x}$=2.79). Although the participants demonstrated a certain degree of aversion to this type of food ($\bar{x}$=3.59), it is important to note that this value does not clearly indicate a categorical rejection of insects as an edible alternative.

Table 4. Results of EFA in the set of factors determining consumer attitudes towards insect-based food

Component	$\bar{x}$ overall	Factor loading	Variables
Awareness and knowledge of insect-based food	2.30	.839	I spend time to gathering information about insect-based food
		.850	I am very familiar with information on insect-based food
		.862	I am more familiar than my friends and family regarding insect-based food
Perception of insect-based food as healthy and sustainable	2.79	.846	Insect-based food is healthy
		.806	Insect-based food is safe to eat
		.811	Insect-based food is nutritious
		.829	Insect-based food is environmentally friendly
Aversion to and concerns about consuming insect-based food	3.59	.646	Insects are unhygienic and transmit diseases
		.675	Eating insects is risky
		.617	Eating insects poses a risk to human health
		.604	Insects are not suitable for human consumption
		.833	I would be disgusted to eat any dish with insects
		.828	Thinking about the flavour that a bug might have sickens me
		.834	If I ate a dish and then came to know that there were insects among the ingredients, I would be disgusted
		.827	I would avoid eating a dish with insects among the ingredients, even if it was cooked by a famous chef

The next step in the research procedure involved analysing the significance of the new components based on the characteristics of the respondents (Tables 5-6). In terms of gender (Table 5), statistically significant differences were observed in the assessment of all new components. Men are somewhat more aware of and have greater knowledge about insect-based food than women, which may contribute to their perception of this food as a healthier and more sustainable alternative. It is important to emphasise that despite these differences, representatives from both genders rated both components at a relatively low level. In contrary, women exhibit a greater aversion to this type of food than men.

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Table 5. Mean importance of components determining consumer attitudes towards insect-based food based on respondents' gender

Variable	$\bar{x}$ overall	Sex F | M	test-t
Awareness and knowledge of insect-based food	2.30	2.20<2.41	-2.835**
Perception of insect-based food as healthy and sustainable	2.79	2.73<2.86	-1.762*
Aversion to and concerns about consuming insect-based food	3.59	3.69>3.48	2.859**

Legend:
Statistical significance (p-value): ***p≤0.001, **p≤0.01, *p≤0.05.
Sex: F – Female; M – Male.
$\bar{x}$ – mean.

Table 6. Mean importance of components determining consumer attitudes towards insect-based food based on respondent characteristics

Variable	$\bar{x}$ overall	Age ≤29 | 30-49 | ≥50	ANOVA
Awareness and knowledge of insect-based food	2.30	2.39^{1}≈2.36^{1}≈2.22^{1}	1.988
Perception of insect-based food as healthy and sustainable	2.79	2.82^{1}≈2.78^{1}≈2.78^{1}	.082
Aversion to and concerns about consuming insect-based food	3.59	3.56^{1}≈3.64^{1}≈3.55^{1}	.575
		Place of residence V | T<100 | C≥100	
Awareness and knowledge of insect-based food	2.30	2.22^{1}≈2.41^{1}≈2.29^{1}	2.187
Perception of insect-based food as healthy and sustainable	2.79	2.71^{1}≈2.79^{1}≈2.89^{1}	1.958
Aversion to and concerns about consuming insect-based food	3.59	3.70^{2}≈3.59^{2}>3.44^{1}	3.710*
		Material status ↙ | ↔ | ↗	
Awareness and knowledge of insect-based food	2.30	2.44^{1}≈2.28^{1}≈2.26^{1}	1.621
Perception of insect-based food as healthy and sustainable	2.79	2.86^{2}>2.63^{1}<2.88^{2}	4.807**
Aversion to and concerns about consuming insect-based food	3.59	3.59^{1}≈3.60^{1}≈3.58^{1}	.036
		Education P | S | H	
Awareness and knowledge of insect-based food	2.30	2.37^{1}≈2.29^{1}≈2.30^{1}	.255
Perception of insect-based food as healthy and sustainable	2.79	2.58^{1}≈2.70^{1}<2.93^{2}	6.269**
Aversion to and concerns about consuming insect-based food	3.59	3.69^{1}≈3.58^{1}≈3.56^{1}	.580

Legend:
Statistical significance (p-value): ***p≤0.001, **p≤0.01, *p≤0.05.
Age: ≤29 – up to 29 years old; 30-49 – from 30 to 49 years old; ≥50 – 50 years old or older.
Place of residence: V – village; T<100 – town with less than 100,000 inhabitants; C≥100 – city with 100.000 inhabitants or more.
Material status: ↙ – below average; ↔ – average; ↗ – above average.
Education: P – primary/vocational; S – secondary/post-secondary; H – higher education.
$\bar{x}$ – mean.
$^{1, 2, 3}$ – group membership – the higher the value, the higher the mean in the group.

It may be somewhat surprising that no statistically significant differences were observed in the evaluation of the new components based on age (Table 6). The attitudes of the respondents in this regard are very similar. Insect-based products are only being introduced to the market, and their adoption depends, among other factors, on the level of consumer innovativeness. Worldwide studies on consumer innovativeness, including those conducted in Poland (Michalak & Bartkowiak, 2021), generally show variation in consumer innovativeness by age. However, based on the analysed results,

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it can be concluded that the adoption of insect-based food may not be related to inherent innovativeness, but rather to domain-specific innovativeness, which seems logical given the somewhat controversial product category.

In the analysis of data based on place of residence, the only statistically significant difference was observed in the assessment of aversion and concerns towards insect-based products. The respondents living in rural areas or smaller towns exhibited a higher degree of aversion (Table 6). The material status did not differentiate the level of awareness or knowledge about insect-based food products, or the aversion or concerns about them. Only statistically significant differences were observed in relation to the second component. The respondents with higher and lower material status perceived this type of food as healthier and more environmentally friendly compared to other participants. Analysing the results according to education level, it can be observed that for the first and the third components, there are no statistically significant differences in respondents' evaluations. However, in terms of the perception of insect-based food as healthy and sustainable, the respondents with higher education levels demonstrate more positive attitudes compared to representatives of the other two segments.

Discussion

The research contributed to expanding knowledge about the attitudes of Polish consumers towards an innovative category of food products, namely insect-based products. The results suggest that Poles generally lack sufficient information on this category of products and are not inclined to spend time looking for it. Instead, they show a certain level of reluctance towards this type of food.

Analysis of the results according to the characteristics revealed statistically significant differences in attitudes towards the discussed category of products. Although such differences were observed between men and women, which is consistent with the findings of other authors (Trentinaglia et al., 2024; Tzompa-Sosa et al., 2023; Cicatiello et al., 2016), no significant differences were observed between age groups. However, the results of other studies (Petrescu-Mag et al., 2022; Mina et al., 2023; Videbæk & Grunert, 2020) indicate that younger consumers in Europe are more willing to accept insect-based products. It is possible that the traditional lifestyle of Poles may result in a lack of statistically significant differences in the perception of insect-based products between demographic groups. However, educational initiatives targeting younger demographic groups can increase the level of acceptance by addressing doubts and promoting the environmental benefits of consuming insects or insect-based products.

Regarding the component related to awareness and knowledge about insect-based food, attitudes are not differentiated by other characteristics of the respondents, such as place of residence, income level, or education. The place of residence plays a role in the reluctance and concerns regarding this type of food, while income level and education level influence the perception of insect-based products as healthy and environmentally friendly. Consumer awareness plays a key role in the acceptance of insect-based products, especially in terms of sustainable environmental and human benefits (López, Ghnimi & Liu, 2023; Platta et al., 2024), particularly for consumers with higher education (Morris et al., 2023; Boustani & Guiné, 2024). Research by Mishyna et al. (2023) showed that consumers from urban areas exhibit greater acceptance of consuming insect-based products, but the ultimate impact of place of residence depends primarily on factors of cultural, economic, and local tradition (Abdullahi et al., 2021; Ghosh et al., 2020). Public education (Aguilar-Toalá et al., 2022) and reliable holistic marketing (Mikulec et al., 2024; Puteri et al., 2023; Platta et al., 2024; Orsi et al., 2019) are necessary to increase acceptance of various alternative meat products.

Conclusion

Insect-based food is perceived by consumers in Poland as an innovative and relatively unfamiliar product category. The conducted study identifies sociodemographic, cultural, and psychological factors that shape the attitudes of Polish consumers towards eating insects. Three main components that determined consumers' attitudes towards this food were identified. The first was called awareness and knowledge of insect-based food, the second – perception of insect-based food as healthy and

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sustainable, and the third – aversion to and concerns about consuming insect-based food. Interestingly, while statistically significant differences were observed in the assessment of these factors based on gender, marital status, education level, and place of residence of the respondents, no such statistically significant differences were found when analysing the results based on the age of the research participants.

The findings of the research indicate that the level of consumer awareness regarding insect-based food products is low and that insects are not perceived positively as a source of nutrition by Polish consumers. Both conclusions suggest that food market stakeholders who plan to introduce this product category into their offerings must undertake decisive actions in the realm of informational campaigns. These efforts should focus on increasing consumer awareness and then on reshaping perceptions of insect-based food as a healthy alternative to traditional protein products. Market stakeholders must also be aware that the process of changing the attitudes of Polish consumers towards insect-based food is likely to be both time-consuming and costly. This is partly because marketing efforts will need to target all age groups, necessitating the creation of diverse marketing content and the use of various marketing channels tailored to specific demographic segments. Therefore, it is essential to leverage both traditional and modern methods to reach the target group.

In educational efforts aimed at expanding consumer knowledge about insect-based food, a particular emphasis should be placed on information regarding the safety of consuming such products and their health benefits. Polish society demonstrates an aversion to trying these foods, which may be due to cultural factors and a stronger attachment to "traditional" cuisine. The results indicate that the respondents expressed disgust at the mere thought of eating a meal based on insects. Therefore, businesses should focus on implementing appropriate marketing measures to overcome this fundamental barrier. Identifying the type of actions required will necessitate further and, above all, in-depth research using qualitative methods (e.g., individual in-depth interviews or focus group interviews) to thoroughly analyse the psychological and emotional barriers to entomophagy. Perhaps incorporating insects into familiar food products could help mitigate psychological resistance and facilitate gradual acceptance.

This study offers several empirical contributions, but also has limitations that future researchers may address. First, the study was conducted exclusively among Polish consumers, which means that due to cultural differences, the findings should not be generalised to design marketing activities in other countries. Comparative studies among consumers from different countries would be an interesting avenue for further exploration. Second, the scope of this study focused on selected factors related to attitudes and barriers concerning the consumption of insect-based food. Future research should place greater emphasis on a wider range of psychological factors which can influence the adoption of this product innovation. Third, the research conducted was quantitative in nature; therefore, the authors suggest complementing it with qualitative studies to better understand the attitudes of Polish consumers towards insect-based food. Fourth, additional studies that include both new variables and those already used in this research should be conducted. This approach would allow for the expansion of knowledge regarding consumers attitudes and behaviours, as well as identifying changes in Polish society's perceptions of insect-based food.

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The contribution of the authors

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Bogdan PACHOŁEK • Paweł BARTKOWIAK • Szymon MICHALAK • Magda STACHOWIAK-KRZYŻAN

POSTAWY WOBEC ŻYWNOŚCI NA BAZIE OWADÓW: PERSPEKTYWA POLSKIEGO KONSUMENTA

STRESZCZENIE: Celem artykułu była ocena postaw polskich konsumentów wobec produktów na bazie owadów, w zależności od płci, wieku, miejsca zamieszkania, poziomu wykształcenia i sytuacji materialnej respondentów. W badaniu zastosowano podejście ilościowe oparte na danych z ankiety internetowej przeprowadzonej w 2023 r. z udziałem 631 polskich respondentów. Kwestionariusz ankietowy zawierał 15 zmiennych mierzonych w pięciostopniowej skali opisujących stosunek konsumentów do żywności na bazie owadów. Statystyki opisowe i eksploracyjna analiza czynnikowa zostały wykorzystane do zidentyfikowania kluczowych czynników, które definiują postawy i zachowania konsumentów wobec żywności na bazie owadów. Wyniki badań wykazały, że polscy konsumenci generalnie nie posiadają wystarczających informacji na temat tej kategorii produktów i nie są skłonni poświęcać czasu na ich poszukiwanie. Respondenci wykazują również pewien poziom niechęci do tego typu żywności. Konsumenci nie postrzegają jej jako zdrowej, bezpiecznej i odżywczej żywności. Wyniki badań wskazują, że przyjęcie żywności na bazie owadów wśród polskich konsumentów może być problematyczne.

SŁOWA KLUCZOWE: zachowania konsumentów, postawy konsumentów, żywność na bazie owadów, jadalne owady, innowacyjny produkt spożywczy

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