DOI: 10.15193/zntj/2025/142/534

ANNA PLATTA, ANNA MIKULEC, MILENA RUSZKOWSKA, JULIA PYSZKA-GNYP, MONIKA RADZYMIŃSKA

INTENTIONS TO PURCHASE "LIGHT" FOOD OF A SELECTED GROUP OF FEMALE STUDENTS AT POLISH UNIVERSITIES

Summary

Background. According to the literature, despite the growing production and increased range of "light" foods, interest in this food range is not increasing. The aim of the study was to determine whether intentions to purchase "light" foods were associated with the following psychosocial indicators: attitudes towards health, attitudes towards the environment, attitudes towards natural foods and attitudes towards novel foods. In preparing the questionnaire, a set of statements adapted from scientific publications by other authors was used. The survey questionnaire included items relating to: intentions to purchase "light" food, attitudes towards health, attitudes towards the environment, attitudes towards natural foods and attitudes towards novel foods. During the study, the respondents expressed the level of approval for or disapproval of all the items included, using a five-point Likert scale. The empirical data was presented as percentage distributions and descriptive statistics. Statistical analysis methods included: Scale reliability analysis based on Cronbach's α coefficients, Spearman's rank correlation, Chi-Square test with Yates correction, multinomial ordered logit model.

Results and conclusions. Based on young women surveys, it can be concluded that the intentions to purchase "light" foods are related to psychosocial indicators such as attitudes towards health and the environment, attitudes towards natural foods and novelty foods. It was shown that female students with positive attitudes towards natural and novel foods and ambivalent attitudes towards health are more likely to manifest a willingness to purchase "light" foods than the other young women surveyed. These factors are particularly important to young women of Generation Z in Poland. The study has certain limitations. Despite the large size of the study group, the results obtained are not representative and cannot be generalized to the population of young women (Generation Z) in Poland.

Keywords: energy-reduced food, , acceptance, purchase intentions, young consumers, Generation Z

Dr inż. A. Platta ORCID: 0000-0002-7963-1889, Faculty of Management and Quality Science, Gdynia Maritime University, 81-87 Morska St. 81-225 Gdynia; dr inż. A. Mikulec, ORCID: 0000-0002-2737-5967, Faculty of Engineering Sciences, University of Applied Science in Nowy Sącz, 1a Zamenhofa St., 33-300 Nowy Sącz; mgr. J. Pyszka-Gnyp, graduate Faculty of Management and Quality Science, Gdynia Maritime University, 81-225 Gdynia, 81-87 Morska Street, dr inż. M. Radzymińska ORCID: 0000-0003-0531-268X, Faculty of Economic Sciences, Institute of Management Science and Quality, University of Warmia and Mazury in Olsztyn, 4 Oczapowskiego St., 10-719 Olsztyn; dr hab. inż. M. Ruszkowska ORCID: 0000-0002-4488-1087, Faculty of Management and Quality Science, Gdynia Maritime University, 81-87 Morska Street, 81-225 Gdynia, Poland; Kontakt: e-mail: a.platta@wznj.umg.edu.pl

Introduction

Food insecurity affects an estimated 2 billion people worldwide [33]. Consequently, food manufacturers have invested resources in developing processed foods that can provide additional functional benefits for consumer wellbeing [10, 40, 45]. In order to promote public health, including the impact of the food we eat on our health, it is important to understand consumer behavior. Furthermore, it is necessary to assess consumer attitudes, norms and knowledge about foods in relation to actual dietary patterns and health risk profiles [31, 37]. At the same time, we are dealing with the emergence of a new group of light food products, which are often described interchangeably by manufacturers as light, fit, figure, slim, fitness, 0 % fat. These products, by their name, suggest that they are energy-reduced products and are often equated with these [43].

According to Regulation (EC) No 1333/2008 of the European Parliament and of the Council of 16 December 2008 on food additives [38], an "energy-reduced food" is a food, the energy value of which has been reduced by at least 30 % compared to the original food or a similar product. Carbohydrate substitutes are used in the manufacture of such foods [11, 14, 24, 49], fat [12, 20, 49] and flours [20, 24]. Regulation (EC) No 1924/2006 of the European Parliament and of the Council of 20 December 2006 [38] lays down the regulations that a food manufacturer must comply with in order to make an energy-reduced nutrition claim for an energy-reduced food. A claim that a food is low in energy, and any claim likely to have the same meaning for the consumer, may only be made where the product contains no more than 40 kcal/100 g (170 kJ) for solids or no more than 20 kcal/100 ml (80 kJ) for liquids. For sweeteners, a limit of 4 kcal/100 ml (17 kJ) applies, with a sweetening intensity equivalent to 6 g of sucrose (approximately 1 teaspoon of sucrose). The most common nutritional claims for light foods include a low fat product (the fat content in 100 g of the product must not exceed 3 g for a solid product and 1.5 g for a liquid product), a non-sugar product (the sugar content in 100 g of the product must not exceed 0.5 g).

The literature states that lowering total energy intake along with reducing total fat intake can have a significant impact on reducing body weight and chronic disease risk. However, consumers should know that products with reduced fat and kilocalories cannot be consumed in unlimited quantities [15]. Reduced-fat products fulfil their nutritional role when they help to control kilocalorie intake and when their use encourages the consumption of foods that provide important nutrients [6]. It is also worth highlighting the fact that excessive consumption of "light" products can also cause side effects, such as diarrhoea, due to the presence of artificial sweeteners that have laxative properties [8, 41, 48]. The use of sweeteners in food production is regulated by Regulation (EC) No 1333/2008 of the European Parliament and of the Council of 16 December 2008 on food additives [38]. Confectionery products sweetened with sugar substitutes belong to the "light" product group, as they contain at least 30 % fewer

kilocalories compared to products on the same shop shelf. "Light" sweets usually do not contain palm oil and are enriched with additional protein or fiber [13, 16]. "Light" products can include cookies, bars sweetened with sugar substitutes such as polyols. Polyols are a group of sweeteners which occur naturally in plants and fruit, such as plums, pears, peaches and apples. As they are characterized by lower sweetness than sucrose, they can be used in larger quantities. A uniform energy value of approximately 2.4 kcal/1 g (10 kJ) is assumed for all polyols. This represents only 60 % of the energy value of glucose or fructose. The polyol group includes xylitol, erythritol, mannitol, sorbitol, lactitol, isomalt, maltitol syrup [2, 9, 38].

According to the literature, despite the growing production and increased range of "light" foods, interest in this food range is not increasing [19, 43]. According to literature data, interest in energy-reduced foods increases with age, monthly income and problems with maintaining a healthy body weight [17]. The lack of literature data on the influence of socioeconomic factors on decisions to purchase and consume energy-reduced products prompted an exploratory study in this area.

The lack of literature on the influence of psychosocial indicators on the purchase of energy-reduced products by young women of Generation Z prompted the authors of this publication to conduct exploratory research in this area.

The aim of this study was to determine whether intentions to purchase "light" foods (PI) were associated with the following psychosocial indicators:

- attitudes towards health (HA),
- attitudes towards the environment (EA),
- attitudes towards natural foods (NFA),
- attitudes towards novel foods (NF).

The study attempts to verify the following research hypotheses:

The intentions to purchase "light" food (PI) are related to the variables HA, EA, NFA, and NF, which can be used to estimate PI.

Material and methods

Subjects

The empirical survey was conducted among female students of Polish higher education institutions pursuing degree programs in the following fields: social sciences (approx. 41 %), medical and health sciences (approx. 24 %), humanities (approx. 22 %), science and life sciences (approx. 8 %), engineering and technical sciences (approx. 2 %), arts (approx. 2 %), agricultural sciences (approx. 1 %), theological sciences (approx. 0.5 %). In addition, female students indicated the following as their place of origin: rural (approx. 21 %) and urban (approx. 79 %).

In the research proceedings, 258 correctly completed survey questionnaires were collected. All respondents gave their free, informed consent to participate in the study and were assured of its anonymity. The participants in the study were young women (generation Z) declaring to eat all foods and not to limit their consumption of meat or animal products. The structure of the study sample (N = 258 female respondents) is shown in Table 1.

Table 1. Characteristics of the respondents (N = 258)
 Tabela 1. Charakterystyka badanej grupy respondentów (N = 258)

	Number of people / Liczba osób	[%]
Study profile/ Profil studiów		
Social sciences / Nauki społeczne	106	41.09
Medical and health sciences / Nauki medyczne i nauki o zdrowiu	62	24.03
Humanities / Nauki humanistyczne	57	22.09
Natural sciences / Nauki ścisłe i przyrodnicze	20	7.75
Engineering and technical sciences / Nauki inżynieryjno-techniczne	5	1.94
Arts / Dziedzina sztuki	5	1.94
Agricultural sciences / Nauki rolnicze	2	0.78
Theological sciences / Nauki teologiczne	1	0.39
Place of residence/ Miejsce zamieszkani	a	
Village / Wieś	53	20.54
City with population of up to 50,000 / Miasto o populacji do 50 tys.	35	13.57
City with population between 50,000 and 150,000 / Miasto o populacji od 50 tys. do 150 tys.	34	13.18
City with population between 150,000 and 500,000 / Miasto o populacji od 150 tys. do 500 tys.	50	19.38
City with population > 500,000 / Miasto o populacji > 500 tys.	86	33.33

Questionnaire and data analysis

The study was conducted using a specially designed questionnaire, by indirect interview method, via an online platform from February to April 2024. "The reliability analysis was based on the correlation coefficients of all items of a scale with the overall scale score. Cronbach's α coefficient values ranged from 0 to 1. A minimum Cronbach's α coefficient value greater than or equal to 0.7 was assumed. All scales used for further analyses were characterized by high internal consistency, above the

threshold of satisfactory consistency ($\alpha \ge 0.7$). The values of Cronbach's α coefficients (Table 2) ranged from 0.70 to 0.90."

Table 2. Reliability of measurement scalesTabela 2. Rzetelność skal pomiarowych

Skale pomiarowe / Measurement scales	Cronbach α
Intentions to purchase "light" foods / Intencje zakupu żywności light	0.88
Attitudes towards health / Postawy wobec zdrowia	0.70
Attitudes towards the environment / Postawy wobec środowiska	0.90
Attitudes towards natural foods / Postawy wobec żywności naturalnej	0.87
Attitudes towards novel foods (neophilic/neophobic) / Postawy wobec nowej żywności	0.79

The research tool was constructed in such a way that the variables analyzed were a source of data allowing to achieve the assumed research goal and enabling the verification of the research hypothesis under consideration. A set of statements adapted from studies/works by other authors was used while preparing the survey questionnaire, which ultimately contained items related to:

- Intention to purchase "light" foods (PI) (-4 items): "I am interested in consuming light foods in the near future", "I am willing to purchase light foods", "I will make an effort to purchase light foods in the near future". The items included on the intention scale were adapted from the study by Kornher et al. [22] and Lim et al. [27] and modified for the ongoing study.
- Attitudes towards health (HA) (3 items): "I pay attention to how the foods I choose affect my health", "I know which foods are healthy and which are not", "When shopping, I choose products that have labels indicating their health benefits" [30].
- Attitudes towards the environment (EA) (3 items): "When I buy food, I try to pay attention to how its production affects the environment", "I try to avoid food products whose production is harmful to the environment", "I am interested in how food production affects the environment" [30, 39, 46].
- Attitudes towards natural foods (NFA) (5 items): "The natural character of food products is an important quality attribute to me", "I try to buy organic food products", "I try to avoid food products containing food additives", "The quality certificate of purchased food is important to me", "The natural character of a production method is important to me" [22].
- Attitudes towards new foods (NF) (10 items): "I am constantly trying new and different foods", "I do not trust new, unknown foods", "I do not try unknown foods", "I like foods from various national cuisines (ethnic food)", "During parties/when I am out, I enjoy trying new foods", "I eat almost everything", "I like try-

ing foods that are new to me", "The so-called "healthy food" looks too weird for me to eat", "I am afraid to eat something I have not eaten before", "I am very picky about the food I eat" [34].

During the survey, the respondent expressed his or her level of approval or disapproval of all the posted items using a 5-point Likert scale, where the values 1,2, means: "definitely no", "no"; the value 3 denoted an answer: "I do not know, I have no opinion"; and values 4, 5, corresponded to answers: "yes", "definitely yes" [26].

The collected empirical material was presented in the form of a percentage distribution of the answers given and selected descriptive statistics such as median, mean, standard deviation. The collected empirical material obtained from the surveys was subjected to statistical analysis using the following methods:

- Scale reliability analysis based on Cronbach's α coefficients. These methods were
 used in the initial stage of data analysis to assess the relevance and reliability of the
 scales used in the research tool.
- Spearman's rank correlation analysis. This was used to establish the strength and significance of the relationships between the dependent variable (PI) and the independent variables (HA, EA, NFA, NF).
- Chi-square test with Yates correction. Conducted to determine the relationship between intention to purchase "light" foods and health and environmental concerns and attitudes towards natural and novel foods.
- A multinomial ordered logit model was constructed in which the dependent variable (an ordinal variable) was a variable examining willingness to purchase "light" foods (categories: negative, ambivalent, positive).
- The explanatory variables were health and environmental concerns and attitudes towards natural and novel foods. In order to check the quality of the model, a validity table was used. The countable R² was approximately 71 %.

A significance level of p < 0.05 was assumed for all statistical analyses. Calculations were performed using Excel 2000 and Statistica 13.3 (Tibco Software, Palo Alto, USA).

Results and discussion

Positive attitudes towards the intention to purchase "light" foods were taken by approximately 16 % and 25 % of the respondents, respectively. Most of the young women surveyed had ambivalent attitudes (61.52 % and 41.96 %, respectively) (tab. 3).

A significant positive correlation was observed between attitudes towards health (0.25), environmental attitudes (0.17), attitudes towards natural foods (0.26) and new foods (0.22), and intentions to purchase "light" foods.

Table 3. Intention to purchase "light" foods Tabela 3. Intencja zakupu żywności "light"

Intentions towards "light" foods / Intencje wobec żywność light	Number of people / Liczba osób	[%]
Negative / Negatywne	51	19.76
Ambivalent / Ambiwalentne	105	40.70
Positive / Pozytywne	102	39.54

Consumer health consciousness has become an important factor driving the agrifood market. Healthier food products entered global markets with great force in the 21st century and quickly gained market share. Consequently, the food industry has responded to this trend by developing an increasing variety of new products with health-related claims and images, including organic and functional foods, which are chosen by consumers for their health-promoting properties [1].

In the self-reported study, health attitudes correlated significantly, positively with all statements related to intention to purchase "light" foods. The effect of positive health attitudes was observed for statement 1 – "I have tried light products (e.g. drinks, cheese, cold cuts, sweets, etc.", for which the median was 5 (i.e. at least 50 % of people answered "definitely yes") and the correlation coefficient was 0.22 (tab. 4).

On the other hand, in the Chi² test, significant differences were observed between health attitudes and statements: statement number 1 - "I have tried light products (e.g. drinks, cheese, cold cuts, sweets, etc.)", statement number 3 - "I am interested in consuming light foods in the near future", statement number 5 - "I will make an effort to purchase light foods in the near future" (tab. 4).

It has been shown [1, 28] that there is a general interest in more information about healthy foods. Consumers generally understand the relationship between food and health, and many are interested in taking appropriate actions. Our findings are consistent with those of other studies that confirm the positive impact of intention to purchase light food intake on consumer expectations and health. It is important that adults (in Poland) pay attention to the impact of the products they consume on their health. It is essential to conduct research monitoring the dietary behavior of various population groups to evaluate the need for preventive actions to ensure health and better safeguard the mental and physical condition of current and future generations [35].

Attitudes towards the environment did not significantly influence the intention to purchase light food. Regardless of the attitude, female respondents were dominated by rather and definitely yes answers (median 4 and 3) to most of the statements placed on the scale of intention to purchase light food. A positive, significant correlation was observed between attitudes towards the environment and statements made on the scale of intention to purchase energy-reduced food: statement number 3 – "I am interested in

consuming light foods in the near future", statement number 4 - "I am willing to purchase light foods", statement number 5 - "I will make an effort to purchase light foods in the near future" (tab. 5).

Table 4. Impact of attitudes towards health on individual statements of the scale of intention to purchase "light" foods

Tabela 4. Wpływ postaw wobec zdrowia na poszczególne stwierdzenia skali intencji do zakupu żywności "light"

Stwierdzenia / Statements			1	2	3	4
obec zdrowia / towards health Median / Mediana	n/ na	Negative / Negatywne	4.00	3.00	4.00	3.00
	healt ediar ediar	Ambivalent / Ambiwalentne	4.00	4.00	4.00	3.00
	M	Positive / Pozytywne	4.00	4.00	4.00	3.00
		R**	0.14	0.20	0.15	0.20
. 45		Chi ²	9.63	13.51	8.19	13.14
Postawy v Attitudes		df	4	4	4	4
		p	0.05	0.01	0.08	0.01

Explanatory notes/ Objaśnienia:

Table 5. Influence of attitudes towards the environment on individual statements of the scale of intention to purchase "light" food

Tabela 5. Wpływ postaw wobec środowiska na poszczególne stwierdzenia skali intencji do zakupu żywności "light"

Statements / Stwierdzenia			1	2	3	4	
s towards the ent / Postawy środowiska Median / Median /	ı / ıa	Negative / Negatywne	4.00	3.00	4.00	3.00	
	ediar ediar	Ambivalent / Ambiwalentne	4.00	3.00	4.00	3.00	
	M	Μ̈́	Positive / Pozytywne	4.00	4.00	4.00	3.00
s tov nent śroc		R**	0.06	0.14***	0.12	0.13	
Attitudes nvironme wobec s			Chi ²	5.89	5.20	5.05	3.36
Attitudes to environment wobec śro		df	4	4	4	4	
9		p	0.21	0.27	0.28	0.50	

Explanatory notes/ Objaśnienia:

^{*1 – &}quot;I would try dishes made of calorie-reduced raw materials" / "Spróbowałabym dań z surowców o obniżonej wartości kalorycznej"; 2 – "I am interested in consuming light foods in the near future" / "W najbliżej przyszłości jestem zainteresowany spożywaniem żywności light"; 3 – "I am willing to purchase light foods" / "Jestem skłonna nabywać żywność light"; 4 – "I will make an effort to purchase light foods in the near future" /"Podejmę wysiłek, aby kupować żywność light"; **Spearman's R, *** bold values are statistically significant (p < 0.05)/wartości pogrubione różnią się istotnie dla (p < 0.05)

*1 – "I would try dishes made of calorie-reduced raw materials" / "Spróbowałabym dań z surowców o obniżonej wartości kalorycznej"; 2 – "I am interested in consuming light foods in the near future" / "W najbliżej przyszłości jestem zainteresowany spożywaniem żywności light"; 3 – "I am willing to purchase light foods" /,"Jestem skłonna nabywać żywność light"; 4 – "I will make an effort to purchase light foods in the near future" / "Podejmę wysiłek, aby kupować żywność light"; **Spearman's R, *** bold values are statistically significant (p < 0.05) / wartości pogrubione różnią się istotnie dla (p < 0.05)

Organic food is widely known for its positive impact on human health, as it is produced without the use of pesticides, herbicides, inorganic fertilizers, fertilizers derived from sewage sludge, bioengineering, ionizing radiation, antibiotics and growth hormones [44]. As early as in 1989, Hay [18] found that organic food was perceived to be of better quality, better taste, healthier, more nutritious. Malaysian consumers have been shown to value health knowledge and perceived value in their intention to purchase organic food products [42]. It is reasonable to assume that these factors would be important to food consumers when deciding about light foods made from organic raw materials.

In our study, it was shown that attitude towards natural foods had both a significant impact and a positive significant correlation was observed for the majority of statements regarding intention to purchase light foods (except for the propensity to purchase light foods). A particularly significant effect of a positive attitude towards natural foods was observed for statement number 1 – "I have tried light products (e.g. drinks, cheese, cold cuts, sweets, etc.", for which the median was 5 (i.e. at least 50 % of people answered "definitely yes") and the correlation coefficient was 0.24 (tab. 6).

Table 6. Influence of attitudes towards natural foods on individual statements of the scale of intention to purchase "light" foods

Tabela 6.	Wpływ postaw	wobec	żywności	naturalnej	na	poszczególne	stwierdzenia	skali	intencji	do
	zakupu "light"									

Statements / Stwierdzenia			1	2	3	4	
ward tawy natu	n/ na	Negative / Negatywne	4.00	3.00	4.00	3.00	
	Median / Mediana	Ambivalent / Ambiwalentne	4.00	4.00	4.00	3.00	
	ΣΣ	Positive / Pozytywne	4.50	4.00	4.00	4.00	
		R**	0.15	0.20	0.10	0.21	
titudes tovods / Pos żywności			Chi ²	13.92	12.74	3.99	10.93
Attitudes foods / I żywno		df	4	4	4	4	
A t		p	0.01	0.01	0.41	0.03	

Explanatory notes/ Objaśnienia:

^{*1 – &}quot;I would try dishes made of calorie-reduced raw materials" / "Spróbowałabym dań z surowców o obniżonej wartości kalorycznej"; 2 – "I am interested in consuming light foods in the near future" / "W najbliżej przyszłości jestem zainteresowany spożywaniem żywności light"; 3 – "I am willing to pur-

chase light foods"/, "Jestem sklonna nabywać żywność light"; 4 – "I will make an effort to purchase light foods in the near future"/, "Podejmę wysiłek, aby kupować żywność light"; **Spearman's R, *** bold values are statistically significant (p < 0.05)/wartości pogrubione różnią się istotnie dla (p < 0.05)

As results from the literature on the subject, respondents' attitudes towards different types of food (organic and functional foods), as well as health and health values of food, are mostly ambivalent in the subject studied [29]. However, it is important to highlight the fact that young shoppers represent an important segment of food buyers, who are particularly aware of and committed to the modern trend of sustainable consumption [21]. At the same time, they are increasingly aware of the impact of their purchasing decisions on the environment and climate [47]. When young consumers buy food that is new to them, they pay particular attention to its quality and composition [23].

A positive, significant correlation was observed for attitudes towards new foods with statement number 2 – "I would try dishes made from calorie-reduced raw materials" and statement number 4 – "I am willing to purchase light foods". Only for statement number 1 – "I have tried light products (e.g. drinks, cheese, cold cuts, sweets, etc.)" significant differences were observed between attitudes towards new foods. For this statement, the median was 5 (i.e. at least 50 % of people answered "definitely yes") and the correlation coefficient was 0.29 (tab. 7).

Table 7. Influence of attitudes towards novel foods on individual statements of the scale of intention to purchase "light" foods

Tabela 7. Wpływ postaw wobec nowej żywności na poszczególne stwierdzenia skali intencji do zakupu żywności "light"

	St	atements / Stwierdzenia	1	2	3	3	
20	n/ na	Negative / Negatywne	4.00	3.00	4.00	3.00	
towards novel ostawy wobec żywności	Median / Mediana	Ambivalent / Ambiwalentne	4.00	3.00	4.00	3.00	
	$\Sigma \Sigma$	Positive / Pozytywne		5.00	4.00	4.00	3.00
Attitudes toward foods / Postawy nowej żywnc		R**	0.26	0.12	0.19	0.06	
		Chi ²	7.54	4.58	8.61	2.90	
		df	4	4	4	4	
/ f		p	0.11	0.33	0.07	0.57	

Explanatory notes/ Objaśnienia:

^{*1 – &}quot;I would try dishes made of calorie-reduced raw materials" /,,Spróbowałabym dań z surowców o obniżonej wartości kalorycznej"; 2 – "I am interested in consuming light foods in the near future" / "W najbliżej przyszłości jestem zainteresowany spożywaniem żywności light"; 3 – "I am willing to purchase light foods" / "Jestem skłonna nabywać żywność light"; 4 – "I will make an effort to purchase light foods in the near future" / "Podejmę wysiłek, aby kupować żywność light"; **Spearman's R, *** bold values are statistically significant (p < 0.05)/wartości pogrubione różnią się istotnie dla (p < 0.05)

The literature reports that novelty-seeking positively influences consumer attitudes in Turkey towards functional foods as an innovative product group [25]. This result fully corroborates the results of a study conducted by Cranfield et al. [7] on Canadian consumers. Carrillo et al. [3] found in their study that novelty-seeking positively influences attitudes and spending on functional foods.

On the basis of the multivariate logit model constructed, it was shown that, assuming a significance level of 5 %, the statistically significant variables were: attitudes towards natural foods (category: positive), attitudes towards health (ambivalent category), attitudes towards novel foods (category: positive):

- people with a positive attitude towards natural foods are more than twice as likely to manifest a more positive intention to purchase "light" foods than people who are negatively disposed towards natural foods, ceteris paribus;
- people with ambivalent attitudes towards concern for their own health are about 90 % more likely to manifest a more positive intention to purchase "light" foods than people who are not concerned about their own health, ceteris paribus;
- people with a positive attitude towards novel foods are more than twice as likely to manifest a more positive intention to purchase "light" foods than people who are negatively disposed towards novel foods, ceteris paribus (tab. 8).
- The results obtained are confirmed by the literature on the subject. According to Cha et al. [4], utilitarian nutritional values were clearly superior to hedonistic nutritional values as a basis for explaining consumer attitudes towards functional food consumption. While utilitarian nutritional values were strongly and positively related to participants' attitudes towards functional food consumption, hedonistic nutritional values were less strongly and negatively related to attitudes. It was shown that predictors of intention to consume functional foods were dependent on women's and men's preferences [5]. It is important to highlight the fact that young shoppers represent an important segment of food buyers who are particularly aware of and committed to the modern trend of sustainable consumption [21]. At the same time, they are increasingly aware of the impact of their purchasing decisions on the environment and climate [47]. When young consumers buy food that is new to them, they pay particular attention to its quality and composition [13]. In addition, the use of convenience foods among Polish consumers varies widely and can depend on factors such as: gender, generation, level of monthly income, lifestyle. It was found that generation Z is more likely, compared to generations X and Y, to express an intention to consume convenience foods, new foods and are interested in unconventional food trends [36].

Table 8. Estimating determinants of intentions to purchase "light" foods
Tabela 8. Oszacowanie czynników wpływających na intencje zakupu żywności "light"

	Value / Wartość	Std. Error / Błąd	t value / wartość t	p value wartośc p	CI Lower / CI dolny	CI Upper / CI górny	Odds Ratio / Iloraz szans
Attitude towards the environment – ambivalent attitude / Postawa wobec środowiska – postawa ambiwalentna	-0.134	0.344	-0.388	0.698	-0.810	0.540	0.875
Attitude towards the environment – positive attitude / Postawa wobec środowiska – postawa pozytywna	-0.047	0.352	-0.134	0.893	-0.741	0.642	0.954
Attitude towards natural foods – ambivalent attitude / Postawa wobec żywności naturalnej – postawa ambiwalentna	0.437	0.376	1.163	0.245	-0.298	1.180	1.548
Attitude towards natural foods – positive attitude / Postawa wobec żywności naturalnej – postawa pozytywna	1.005	0.508	1.979	0.048*	0.016	2.012	2.733
Attitude towards health – ambivalent attitude / Postawa wobec zdrowia – postawa ambiwalentna	0.650	0.322	2.020	0.043	0.021	1.286	1.916
Attitude towards health – positive attitude / Postawa wobec zdrowia – postawa pozytywna	0.598	0.377	1.585	0.113	-0.140	1.342	1.818
Attitude towards novel foods – ambivalent attitude / Postawa wobec nowej żywności – postawa ambiwalentna	0.239	0.320	0.746	0.456	-0.388	0.869	1.270
Attitude towards novel foods – positive attitude / Postawa wobec nowej żywności – postawa pozytywna	1.015	0.388	2.617	0.009	0.259	1.782	2.758
Negative attitude, ambivalent attitude / Postawa negatywna, postawa ambiwalentna	-0.029	0.386	-0.075	0.940	-0.810	0.540	0.875
Ambivalent attitude, positive attitude / Postawa ambiwalentna, postawa pozytywna	2.104	0.411	5.121	0.000	-0.741	0.642	0.954

Explanatory notes/ Objaśnienia: *bold values are statistically significant (p < 0.05) / wartości pogrubione różnią się istonie (p < 0.05)

Conclusions

- Intentions to purchase "light" foods are related to psychosocial determinants such as attitudes towards health and the environment, attitudes towards natural foods and novelty foods.
- 2. It was shown that female students with positive attitudes towards natural and novel foods and ambivalent attitudes towards health are more likely to manifest willingness to purchase "light" foods than the other young women surveyed.
- 3. Manufacturers and marketers of new foods should ensure that product information refers to attributes that realistically make them organic and products with high health benefits. These factors are particularly important to young women of Generation Z in Poland.

Acknowledgments

The publication/article presents the result of the Projects no WZNJ/2025/PZ/01 and WZNJ/2025/PZ/05.

References

- [1] Azzurra A., Paola P.: Consumers' behaviours and attitudes toward healthy food products: The case of Organic and Functional foods. Paper prepared for presentation at the 113th EAAE Seminar "A resilient European food industry and food chain in a challenging world", Chania, Crete, Greece, date as in: September 3 6, 2009. https://ageconsearch.umn.edu/record/57661/files/Annunziata.pdf.
- [2] Baranowski D., Rutkowska J., Antoniewska A.: Ksylitol rola technologiczna i żywieniowa. Food. Science. Technology. Quality, 2020, 27, 2 (123), 5-21.
- [3] Carrillo E., Prado-Gascó V., Fiszman S., Varela P.: Why buying functional foods? Understanding spending behaviour through structural equation modelling. Food Res. Int., 2013, 50(1), 361-368.
- [4] Cha M.H., Lee J., Song M.J.: Dieticians' intentions to recommend functional foods: The mediating role of consumption frequency of functional foods. Nutr. Res. Pract., 2010, 4(1), 75-81.
- [5] Coxa D.N., Kosterb A., Russell C.G.: Predicting intentions to consume functional foods and supplement to offset memory loss using an adaptation of protection motivation theory. Appetite, 2004, 43, 55-64.
- [6] Craig W.J., Mangels A.R.: Position of the American Dietetic association: vegetarian diets. J. Am. Diet. Assoc., 2009, 109(7), 1266-1282.
- [7] Cranfield J., Henson S., Masakure O.: Factors Affecting the Extent to Which Consumers Incorporate Functional Ingredients into Their Diets. J. Agri. Econom., 2011, 62(2), 375-392.
- [8] Derewiaka D., Sobiecka A., Ciecierska M., Drużyńska B., Majewska E., Kowalska J.: Charakterystyka wybranej żywności o obniżonej kaloryczności. Postępy Techniki Przetwórstwa Spożywczego, 2013, 2, 70-74.
- [9] Directive 94/35/WE of the European Parliament and of the Council of 30 June 1994 on The Use of Sweeteners in Food. EU Official Journal, 288.

- [10] Granato D, Barba FJ, Bursać Kovačević D, Lorenzo JM, Cruz AG, Putnik P. Functional Foods: Product Development, Technological Trends, Efficacy Testing, and Safety. Annu Review Food Science and Technology. 2020 Mar 25;11:93-118. doi: 10.1146/annurev-food-032519-051708. Epub 2020 Jan 6. DOI: 10.1146/annurev-food-032519-051708.
- [11] Goszczyńska M.: Żywność o obniżonej wartości energetycznej. Magazyn Przemysłu Spożywczego, 2000, 3, 37-38.
- [12] Górecka D., Hęś M., Jędrusek-Golińska A.: Wykorzystanie zamienników tłuszczu w produktach spożywczych. Prze. Spoż., 2020, 74(1), 18-24.
- [13] Górecka D., Komolka P.: Otyłość i nadwaga. Cz. II. Produkty o obniżonej wartości energetycznej. Przem. Spoż., 2013, 67(1), 8-11.
- [14] Górecka A., Krygier K.: Fat Replacers in Low-calorie Food. Przem. Spoż., 2004, 58(5), 36-42.
- [15] Grajeta H.: Żywność funkcjonalna w profilaktyce chorób układu krążenia. Adv. Clin. Exp. Med., 2004, 13(3), 503-510.
- [16] Grupińska J., Grzelak T., Walczak M., Kramkowska M., Czyżewska K.: Korzyści i zagrożenia związane z konsumpcją naturalnych zamienników sacharozy. Bromatol. Chem. Toksykol., 2015, 48(1), 1-10.
- [17] Gryś-Mokorzyńska E.: Skłonność do nabywania produktów typu light. Marketing i Rynek, 2010, 11, 33-37.
- [18] Hay J.: The consumer's perspective on organic foods. Food Market Commentary, Agriculture
- [19] Jeżewska-Zychowicz M., Jeznach M., Kosicka-Gębska M.: Gotowość konsumentów do spożywania żywności typu light. Bromatol. Chem. Toksykol., 2012, 45(3), 603-607.
- [20] Kasprzyk I., Markowska J., Polak E.: Zamienniki tłuszczu w produktach spożywczych. Przem. Spoż., 2016, 70(1), 19-22.
- [21] Komor A., Czernyszewicz E., Białoskurski S., Goliszek A., Wróblewska W., Pawlak, J.: Przemiany w konsumpcji żywności w Polsce w świetle uwarunkowań społeczno-ekonomicznych. Instytut Naukowo-Wydawniczy "Spatium", Radom, Poland, 2020.
- [22] Kornher L., Schellhorn M., Vetter S.: Disgusting or innovative-consumer willingness to pay for insect based burger patties in Germany. Sustainability, 2019, 11, 1878.
- [23] Kułyk P., Dubicki P.: Uwarunkowania zachowań konsumentów na rynku żywności ekologicznej. Problemy Rolnictwa Światowego, 2019, 19(1), 79–87.
- 24] Kudełka W., Jachna D.: Charakterystyka żywności o obniżonej wartości energetycznej. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Krakowie, 2009, 834, 69-93.
- [25] Küçükkambak S.E.: A study to determine the mediating effect of novelty seeking in the effect of consumers' personal values on attitudes towards functional foods: Research on consumers in Turkey. J. Econ. Admin. Sci., 2021, 22(2), #711.
- [26] Likert R.A.: Technique for the Measurement of Attitudes. Archiv. Psychol., 1932, 22, 5-55.
- [27] Lim S.M., Thien C.N., Toure A.K., Poh B.K.: Factors Influencing Acceptance of Grasshoppers and Other Insects as Food: A Comparison between Two Cities in Malaysia. Foods, 2022, 11, #3284.
- [28] Morna A.: Consumer behavior and attitudes toward functional foods. Analele Universității din Oradea, Fascicula: Ecotoxicologie, Zootehnie şi Tehnologii de Industrie Alimntară 2015, XIV B, 335-340. https://www.cabidigitallibrary.org/doi/pdf/10.5555/20163002500.
- [29] Mikulec A., Mikulec K., Radzymińska M., Platta A.: Perception of organic, functional and genetically modified foods a study among consumers in Gdynia, Poland. Silesian University of Technology Scientific Papers. Organization and Management, 2023, 182, 265-284.

- [30] Modlinska K., Adamczyk D., Maison D., Goncikowska K., Pisula W.: Relationship between Acceptance of Insects as an Alternative to Meat and Willingness to Consume Insect-Based Food A Study on a Representative Sample of the Polish Population. Foods, 2021, 10, #2420.
- [31] Ocieczek A., Bartkowicz J., Żyłka K.: Uwarunkowania postaw i zachowań konsumentów na rynku nowej żywności jako indykatory ewolucyjnych zmian rynku żywności. Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu, 2018, 20(6), 181-188.
- [32] Oliveira L., Poínhos R., Sousa F.: Attitudes Towards Functional Foods Scale: Psychometric Proprieties and Adaptation for Use Among Adolescents. Acta, Mèdica Portuguesa 2019, 32(4), 266-271.
- [33] OECD/FAO. OECD-FAO Agricultural Outlook 2020–2029; FAO: Rome, Italy; OECD Publishing: Paris, France, 2020.
- [34] Pliner P., Hobden K.: Development of a scale to measure the trait of food neophobia in humans. Appetite, 1992, 19, 105-120.
- [35] Platta A., Mikulec A., Radzymińska M. Health behaviour in baby boomers and Generations X, Y and Z: Focus on dietary fibre and saturated fat intake. Silesian University of Technology Scientific Papers. Organization and Management, 2024, 194, 417-433.
- [36] Platta A., Mikulec A., Mikulec K., Suwała G., Radzymińska M.: Determinants of purchase and consumption of convenience foods survey of Polish respondents. Silesian University of Technology Scientific Papers. Organization and Management, 2023, 128, 361-376.
- [37] Rasanjaleel R.M.K.S, Samarasinghe D.S.R.: Influence of Antecedents on Consumer Attitudes towards Functional Food: Empirical Study in Sri Lanka. Int. J. Trends Sci. Res. Develop., 2021, 3(5), 2523-1529.
- [38] Regulation (EC) No 1333/2008 of 16 December 2008 on Food Additives. EU Official Journal, 8. https://eur-lex.europa.eu/legal-content/PL/TXT/?uri=CELEX:32008R1333.
- [39] Roberts J.A.: Green consumers in the 1990s: Profile and implications for advertising. J. Business Res., 1996, 36, 217-231.
- [40] Rothman N.B., Pratt M.G., Rees L., Vogus T.J.: Undrstanding the dual nature of ambivalence: Why and when ambivalence leads to good and bad outcomes. Acad. Manag.Annal., 11(1), 33-72.
- [41] Rusek A., Biazik E., Lesiów T.: Analysis and estimation of application of selected sweeteners used in food by consumers. Part 1. Nauki Inżynierskie i Technologie, 2016, 3(22), 101-116.
- [42] Shaharudin M.R., Pani J.J., Mansor S.W., Elias S.J.: Purchase Intention of Organic Food; Perceived Value Overview. Canadian Social Science, 2010, 6(1), 70-79. [Online] file:///C:/Users/Lenovo/Downloads/1284%20(1).pdf (November 2nd, 2024)
- [43] Szczepańska E., Grudowska E.: Consumption of light foods and drinks among adults. Annales Academiae Medicae Silesiensis, 2020, 74, 68-76.
- [44] USDA Consumer Brochure: Organic Food Standards and Labels. (2009). [Online] Available: http://www.nal.usda.gov/afsic/pubs/ofp/ofp.shtml (November 2nd, 2024)
- [45] van Harreveld F., Nohlen H.U., Schneider I.K.: Chapter Five The ABC of Ambivalence: Affective, Behavioral, and Cognitive Consequences of Attitudinal Conflict. Advances in Experimental Social Psychology, 2015, 52, 285-324.
- [46] Verbeke W. Consumer acceptance of functional foods: socio-demographic, cognitive and attitudinal determinants. Food Quality and Preference, 2005, 16(1), 45-57.
- [47] Wesołowski G., Białoskurski S., Królik P.: Determinants of purchase decisions regarding green products in the opinions of young buyers. J. Market. Market Stud., 2023, XXX(9), 37-46.
- [48] Wierzejska R.: Informacje żywnieniowe na opakowaniach produktów spożywczych podejście konsumentów. Przem. Spoż., 2012, 66, 43-45.

[49] Zychnowska M., Onacik-Gür S., Krygier K.: Właściwości i możliwości wykorzystania zamienników tłuszczów dostępnych na rynku. Problemy Higieny i Epidemiologii, 2015, 96(1), 42-50.

INTENCJE DO ZAKUPU ŻYWNOŚCI "LIGHT" WYBRANEJ GRUPY STUDENTEK POLSKICH UCZELNI WYŻSZYCH

Streszczenie

Wprowadzenie. Według danych literaturowych mimo rosnącej produkcji i zwiększenia asortymentu żywności typu light zainteresowanie tym asortymentem żywności nie rośnie. Konsumpcja żywności "light" wymaga przede wszystkim jej akceptacji wśród konsumentów. Celem badania było ustalenie, czy intencje do nabywania żywności "light" są powiązane z następującymi wskaźnikami psychospołecznymi: troską o zdrowie, troską o środowisko, postawą wobec żywności naturalnej, postawą wobec nowej żywności. Badanie przeprowadzono za pomocą specjalnie zaprojektowanego kwestionariusza, w którym zamieszczono stwierdzenia zaadaptowane z publikacji naukowych innych autorów odnoszące się do: intencji zakupu żywności light, postaw wobec zdrowia, postaw wobec środowiska, postaw wobec żywności naturalnej i postaw wobec nowej żywności. Respondenci podczas badania wyrażali poziom aprobaty lub dezaprobaty wobec wszystkich zamieszczonych pozycji, posługując się 5-stopniową skalą Likerta. Dane empiryczne przedstawiono jako rozkłady procentowe i statystyki opisowe. Metody analizy statystycznej obejmowały: analizę rzetelności skali opartą na współczynnikach α Cronbacha, korelację rang Spearmana, test chi-kwadrat z poprawką Yatesa, wielomianowy uporządkowany model logitowy.

Wyniki i wnioski. Na podstawie badań ankietowych przeprowadzonych wśród młodych kobiet można stwierdzić, że intencje do nabywania żywności "light" są powiązane ze wskaźnikami psychospołecznymi, takimi jak: troska o zdrowie i środowisko, postawy wobec żywności naturalnej i nowości. Wykazano, że studentki o postawach pozytywnych wobec żywności naturalnej i nowej żywności oraz o postawach ambiwalentnych wobec troski o zdrowie mają większe szanse na przejawianie gotowości do zakupu żywności "light" od pozostałych, badanych młodych kobiet. Te czynniki są szczególnie ważne dla młodych kobiet z pokolenia Z w Polsce. Badanie ma pewne ograniczenia. Pomimo dużej liczebności badanej grupy, uzyskane wyniki nie są reprezentatywne i nie mogą być uogólniane na populację młodych kobiet (pokolenie Z) w Polsce.

Słowa kluczowe: żywność o obniżonej wartości energetycznej, akceptacja, intencje zakupu, młodzi konsumenci, pokolenie Z **※**