

Article

Sustainable Foods: Opinions, Knowledge and Attitudes of Generation Z Consumers Toward Plant-Based Foods: A Case Study of Polish Students

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Abstract

In the face of escalating environmental crises, sustainable development is becoming one of the key global challenges. A growing body of research indicates that transitioning to plant-based diets, including a vegan diet, can significantly improve environmental sustainability. Young people from Generation Z play a crucial role in shaping future consumption patterns, and their beliefs and attitudes toward sustainable food may serve as an important indicator of social changes in the area of nutrition and the potential for implementing pro-ecological practices. The aim of the study is to assess students' perceptual attitudes toward plant-based products, which constitute an integral part of vegan diets, addressing a significant gap in the literature on sustainable consumption among Generation Z in emerging economies. The study allows for the identification of the main sources of information, psychosocial barriers, and motivational factors underlying the adoption of a vegan diet, situating them within sustainable development paradigms. The research group consisted of 263 university students in Warsaw (Poland). A CAWI survey method was used, with a proprietary questionnaire. The study shows that more than 60% of respondents were not interested in this dietary option, and a similar proportion did not expect to adopt veganism in the future. Students' attitudes toward the vegan diet are shaped primarily by their self-assessment of nutritional knowledge, previous experiences with plant-based diets, and socio-cultural factors. Although many respondents recognize the health and environmental benefits of a plant-based diet, the lack of reliable knowledge, concerns about deficiencies, higher product costs, and social pressure remain key barriers limiting their willingness to change eating habits. From a practical perspective, the findings highlight the need to develop nutrition education focused on the competencies required to properly balance plant-based diets, to increase the economic and sensory accessibility of vegan food, and to counteract persistent stereotypes and misconceptions about veganism, especially on social media, which is the main source of information for this age group.

Keywords: sustainable food system; vegan diet; vegetarian diet; Generation Z



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1. Introduction

In the face of escalating environmental crises such as climate change, biodiversity loss, and the degradation of natural resources, sustainable development is becoming one of the key global challenges. Food systems, particularly those based on animal farming,

generate significant environmental impacts, contributing to high greenhouse gas emissions, intensive water and land use, and the degradation of natural habitats [1,2].

An increasing number of studies from the last decade indicate that a transition to plant-based diets, including a vegan diet, can significantly improve environmental sustainability [2–4]. For example, in a systematic review, Kustar and Patino-Echeverri point out that compared with omnivorous diets following the same nutritional guidelines, vegan diets reduce land use by 50–86%, water use by 22–70%, and greenhouse gas emissions by 21–70%. Vegetarian diets achieve similar, though slightly smaller, reductions in these indicators [5]. However, the transition from a typical Western diet to a more sustainable dietary model (involving the reduction or elimination of animal-derived products) is a highly complex process, and any attempt to implement it should be preceded by an in-depth analysis that takes into account various aspects of sustainable development, including economic, social, psychological, health, and environmental dimensions. The study by Dorgbetor et al. [6] provides a broad discussion of both the benefits and the potential risks associated with the adoption of a strictly plant-based diet by the entire population.

However, it should be emphasized that such differences in environmental impact are related not only to classifying a diet as vegetarian or non-vegetarian but primarily to its composition. An assessment of the carbon footprint of different dietary choices showed that, due to differences in diet composition, some vegetarian dietary patterns exhibited a greater environmental impact than others, while some non-vegetarian patterns had a low impact [7,8]. For example, the Italian vegetarian diet, which included dairy and eggs, had more than four times the greenhouse gas emissions of the Indian diet, which was not vegetarian but consisted mainly of plant-based foods and only about 30 g of chicken and lamb per day [7].

Additionally, a plant-based diet is associated with a reduced risk of chronic diseases, which also supports the health dimension of sustainable development [1]. A 2023 literature review confirms the beneficial impact of this type of food on the cardiovascular system [9].

Despite documented environmental and health benefits, the large-scale adoption of plant-based diets faces social barriers. One of these is “vegophobia,” meaning negative prejudice, stigmatization, or discrimination against vegans and vegetarians [10–12]. Research indicates that meat-eaters often evaluate vegans negatively, especially when the motivation for the diet is ethical or environmental concerns. Such attitudes can lead to social exclusion, hinder dialogue, and slow the adoption of practices conducive to sustainable development. One reason for this situation may be the lack of widespread knowledge about the vegan diet, which makes it perceived as difficult to imagine and evokes reluctance [13]. Moreover, many consumers are confused about how to manage their diet, struggling to recognize the impact of their dietary choices on health and the environment [14,15].

Young people, including students, play a key role in shaping future consumption patterns. This group is increasingly interested in alternative diets, including plant-based nutrition. The knowledge, beliefs, and attitudes of students toward foods used in a vegan diet may serve as an important indicator of social changes in the field of nutrition and the potential for implementing pro-ecological practices. Existing research on students and members of Generation Z has focused primarily on attitudes toward sustainable food in general terms, selected ideological motivations (e.g., animal welfare), specific consumer behaviors examined in a very limited, local context, or the social relations and experiences of student vegans [16,17]. There are also studies on students’ health-related behaviors that take into account, among other factors, the type of diet followed [18], the impact of veganism on the athletic and academic performance of a very small study group [19], and assessments of the level of knowledge and opinions regarding a vegan diet among students of a single field of study at one university [20].

In a study involving students from two European countries and one Asian country, country of residence was found to be strongly associated with respondents' socio-demographic characteristics, lifestyles, and perceived barriers to adopting a plant-based diet [21]. The study by Panasiuk and Hozyasz also concerns students and includes a national context; however, it focuses on academic centers located in rural areas of Poland [22].

Against this background, the unique contribution of the present study lies in its analysis of students' attitudes toward a clearly specified type of sustainable food, as well as in the selection of the study group: students studying in Warsaw. The choice of universities located in this city was deliberate: as the capital, Warsaw has more than 70 higher education institutions with highly diverse profiles (in other large cities this number typically ranges from 14 to 25). Consequently, unlike many other academic centers in Poland, Warsaw attracts a broad cross-section of students from all regions of the country, which increases the heterogeneity of the sample. It is also worth emphasizing that the respondents represented 40 different fields of study, including 6 related to food science, 11 within the natural sciences, and 23 from other academic disciplines.

The aim of this study is to assess students' perceptual attitudes toward plant-based products, which constitute an integral part of vegan diets, addressing a significant gap in the literature on sustainable consumption among Generation Z in emerging economies. The study allows for the identification of the main sources of information, psychosocial barriers, and motivational factors underlying the adoption of a vegan diet, situating them within sustainable development paradigms. As a result, this analysis provides empirically grounded insights into generational readiness for pro-environmental consumer choices, forming a basis for the design of targeted interventions in vegan food production innovation and the development of public policies in Poland.

On this basis, the following research hypotheses were formulated:

H1: *Generation Z students exhibit a marked interest in a vegan diet.*

H2: *Students enrolled in food science-related fields demonstrate a higher level of interest in a vegan diet and a greater willingness to transition to veganism than students from other academic disciplines.*

2. Materials and Methods

The study was conducted in March 2023. The research group consisted of a non-probability sample composed of university students in Warsaw (Poland). The inclusion criterion for the study group was the status of being a student of a higher education institution in Poland, while non-students were excluded from the study. A CAWI survey method was used, with a proprietary questionnaire consisting of 38 questions concerning, among other things, general characteristics of respondents, knowledge and opinions about the vegan diet, its benefits and limitations, and preferences for purchasing this type of food. The questionnaire included closed single-choice and multiple-choice questions, as well as open-ended questions. A 5-point Likert scale was used to determine the respondents' opinions on the factors influencing the purchase of vegan products, where 5 defined a specific feature as "very important", 1 meant "not important". Respondents were also able to select "I have no opinion". The sample was selected using the snowball method and voluntary sampling. The invitation to participate in the survey was made available via email, social media and online platforms. Anonymity and confidentiality of data was ensured. The survey adhered to the ethical principles of non-violence, voluntariness, justice and autonomy, in line with the accepted principles of the 2013 Declaration of Helsinki. Statistical analysis was carried out using the Chi2 test with Statistica 13.3 software (at $p = 0.05$).

A total of 263 respondents participated in the study (Table 1), of which more than 74% were women. Most of them were between the ages of 18 and 25 (80.6%). Responses were collected from residents of all Polish provinces, but the largest groups were from the Masovian Voivodeship (80.2% of respondents). More than half of respondents lived in large cities, while nearly 36% lived in rural areas. Most of the surveyed students were enrolled in first-cycle engineering or bachelor's degree programs, representing 40 different fields of study. The most numerous group were people studying Food Technology and Human Nutrition (24.3%) and Biotechnology (13.3%). Due to the wide variety of fields of study, the respondents were divided into three groups: students of food science-related fields (30.4%), students of natural sciences, including a few people studying medicine (32.3%), as well as those studying technical, economic or humanities disciplines (37.3%, referred to as others).

Table 1. Participant characteristics.

Socio-Demographic Characteristics		Number of Respondents (<i>n</i> = 263)	%
Gender	Women	195	74.1
	Men	67	25.5
	non-binary person	1	0.4
Age (years)	18–25	212	80.6
	26–35	30	11.4
	36–45	16	6.1
	46–56	5	1.9
Place of residence	village	94	35.7
	town up to 50,000 inhabitants	61	23.2
	city with 50,000–100,000 inhabitants	15	5.7
	city over 100,000 inhabitants	93	53.4
Field of study	food-related	80	30.4
	natural sciences	85	32.3
	Other	98	37.3
Education level	Bachelor's degree studies	204	77.6
	Master's degree studies	59	22.4

The questionnaire included a request for self-assessment of one's knowledge in the area of proper diet and nutrition. The largest groups consisted of students who rated their nutritional knowledge as average (41.1% of respondents) and good (38.8%) (Table 2). Nearly 13% of the surveyed individuals believed that their nutritional knowledge was at a very good level, while over 7% gave themselves a failing grade.

Table 2. Structure of students' responses to the questions: "Are you interested in a vegan diet?" and "Are you considering switching to a vegan diet?".

Characteristic	Interest in a Vegan Diet *			Desire to Switch to a Vegan Diet *			
	Number of Respondents <i>n</i>	Yes <i>n</i> (%)	No <i>n</i> (%)	Number of Respondents <i>n</i>	Yes <i>n</i> (%)	No <i>n</i> (%)	Perhaps in the Future <i>n</i> (%)
Total	256	93 (36.3)	163 (63.7)	256	53 (20.7)	152 (59.4)	51 (19.9)
Gender	$p = 0.0098$			$p = 0.183$			
women	191	78 (40.8)	113 (59.2)	191	40 (20.9)	40 (57.1)	42 (22)
men	64	14 (21.9)	50 (78.1)	64	40 (18.8)	43 (67.1)	9 (14.1)
Self-assessment of knowledge about proper nutrition	$p < 0.001$			$p < 0.001$			
very good	32	24 (75)	8 (25)	32	15 (46.9)	12 (37.5)	5 (15.6)
good	102	42 (41.2)	60 (58.8)	102	23 (22.5)	55 (53.9)	24 (23.6)
average	106	25 (23.6)	81 (76.4)	106	14 (13.2)	72 (67.9)	20 (18.9)
insufficient	16	2 (12.5)	14 (87.5)	16	1 (6.3)	13 (81.2)	2 (12.5)
Age (years)	$p = 0.402$			$p = 0.294$			
18–25	209	75 (35.9)	134 (64.1)	209	40 (19.2)	124 (59.3)	45 (21.5)
26–35	29	9 (31)	20 (69)	29	8 (27.6)	18 (62.1)	3 (10.3)
35–56	18	9 (50)	9 (50)	18	5 (27.8)	10 (55.6)	3 (16.6)
Field of study	$p = 0.647$			$p = 0.409$			
food-related	80	32 (40)	48 (60)	80	17 (21.2)	44 (55)	19 (23.8)
natural sciences	81	27 (33.3)	54 (66.7)	81	18 (22.2)	45 (55.6)	18 (22.2)
other	95	33 (34.7)	62 (65.3)	95	18 (18.9)	63 (66.3)	14 (14.7)
Type of diet	$p < 0.001$			$p < 0.001$			
vegetarians	34	24 (70.6)	10 (29.4)	34	16 (47.1)	12 (35.3)	6 (17.6)
omnivores **	222	68 (30.6)	154 (69.4)	222	36 (16.2)	140 (63.1)	46 (20.7)

* people currently on a vegan diet were excluded; ** people currently on a vegan and vegetarian diet were excluded.

3. Results

3.1. Interest in a Vegan Diet and Motivations

The surveyed students were asked about the type of diet they followed (Table 2). Seven individuals (2.7% of respondents) declared following a vegan diet, 34 individuals (12.9%) a vegetarian diet, while the remaining students (222 individuals) followed other dietary systems: FODMAP; low glycemic index diet; gluten-free; dairy-free; red-meat-free; meat-free but allowing fish; limiting meat, wheat products and cow's milk; semi-vegetarian; high-protein; reflux diet; ketogenic. Of this group, 196 individuals (over 88%) stated that they did not follow any specific diet. Respondents who were neither vegetarians nor vegans were classified as omnivores.

The surveyed students were asked whether they were interested in a vegan diet and whether they were considering adopting such a diet in the future. The responses indicated that more than 60% of respondents were not interested in this dietary option, and a similar proportion did not expect to adopt veganism in the future (Table 2). Women declared interest in this diet more often than men ($p = 0.0098$). A statistically significant association was observed between the declared level of knowledge about proper nutrition and interest in a vegan diet ($p < 0.001$). Higher levels of self-declared nutritional knowledge were

associated with a higher percentage of respondents expressing interest in a vegan diet. No significant relationship was observed between age or field of study and interest in veganism. However, the type of diet followed was strongly correlated with the level of interest, meaning that vegetarians were significantly more likely to express interest in a vegan diet compared with omnivores ($p < 0.001$). In summary, these results do not support Hypothesis 1, which stated that Generation Z students exhibit a marked interest in a vegan diet.

The willingness to transition to a vegan diet was significantly associated with the declared level of knowledge about proper nutrition ($p < 0.001$): individuals with a high self-assessed level of nutritional knowledge most frequently declared readiness to adopt this diet, whereas in the group with (declared) insufficient nutritional knowledge, the proportion of “yes” responses was the lowest. No significant differences in the declared willingness to change diet were found with regard to gender, age, or field of study. In contrast, the type of diet followed was strongly associated with readiness to switch to a vegan diet: nearly three times more vegetarians than omnivores declared a willingness to adopt a vegan diet.

To verify Hypothesis 2, an analysis was conducted to determine the proportion of non-vegan students from different fields of study who are interested in a vegan diet and simultaneously plan to adopt this type of nutrition. The results indicate that among 32 students in food-related fields who expressed interest in a vegan diet, 75% consider adopting it. In the case of students in natural sciences, the proportion of individuals interested in a vegan diet (32 students) and planning its implementation was slightly higher, amounting to 81.2% (26 out of 32). In contrast, among 33 students from other fields, 75% expressed a willingness to transition to veganism. These results indicate that Hypothesis 2 was not supported.

In the next question respondents were asked to indicate the reasons why other people choose a vegan diet (only 7 vegans participated in the study). In all analyzed groups, the most frequently indicated motivation was concern for animal welfare (Table 3) followed by environmental and ethical/religious reasons.

More than half of the respondents also pointed to health benefits. Weight reduction was mentioned less frequently, and fashion or trends were the least commonly indicated. An analysis of responses based on selected social and demographic characteristics of the respondents (Table 3) showed a significant difference between women and men in the perception of the reason “fashion and trends” ($p = 0.045$), which was more often indicated by men. The motivation of “animal welfare” was also close to statistical significance, being declared more frequently by women. The remaining reasons did not differ significantly between genders. The field of study had a significant effect on respondents’ opinions regarding ethical ($p < 0.001$) and environmental motivations ($p < 0.001$). Students in nutrition-related fields indicated ethical motivations more often than other students, whereas students of natural sciences most frequently emphasized environmental issues. Differences in the health motivations were also significant ($p = 0.001$). On the other hand no significant relationships were found for fashion, animal welfare, or weight reduction. The level of self-assessment of nutritional knowledge significantly differentiated two motivations: ethical ($p = 0.039$) and environmental ($p = 0.022$). Individuals with declared very good knowledge about proper nutrition more often pointed to these two reasons as the highly important. No significant differences were found for the remaining motives. Considering the respondents’ age, among the analyzed reasons only the “animal welfare” differentiated the age groups ($p = 0.042$). This reason was more frequently indicated by the younger individuals. No significant differences were noted for the remaining motiva-

tions. Analyzing the influence of the diet followed showed that the only motivation that significantly differentiated the dietary groups was environmental protection.

Table 3. Reasons why other people follow a vegan diet.

Characteristic	Number of Respondents	Reasons Why Others Follow a Vegan Diet <i>n</i> (%)					
		Trends, Fashion	Ethical/ Religious	Environmental Protection	Animal Welfare	Weight Reduction	Health Reasons
Total	<i>n</i> = 263	6 (2.3)	165 (62.7)	171 (65)	230 (87.4)	76 (28.9)	135 (51.3)
Gender	<i>p</i> -value	0.045	0.187	0.243	0.050	0.570	0.886
women	<i>n</i> = 195	5 (2.6)	127 (65.1)	131 (67.2)	176 (90.3)	55 (28.2)	100 (51.3)
men	<i>n</i> = 67	6 (9)	38 (56.7)	39 (58.2)	53 (79.1)	21 (31.3)	35 (52.2)
Field of study	<i>p</i> -value	0.119	<0.001	<0.001	0.332	0.053	0.001
food-related	<i>n</i> = 80	5 (6.3)	55 (68.8)	48 (6)	68 (8)	18 (22.5)	36 (45)
natural sciences	<i>n</i> = 85	1 (1.2)	24 (28.2)	68 (80)	79 (92.9)	10 (11.8)	20 (23.5)
other	<i>n</i> = 98	6 (6.1)	57 (58.2)	55 (56.1)	83 (84.7)	28 (28.6)	52 (53.1)
Self-assessment of knowledge about proper nutrition	<i>p</i> -value	0.346	0.039	0.022	0.536	0.628	0.373
very good	<i>n</i> = 34	1 (2.9)	26 (76.5)	28 (82.4)	31 (91.2)	9 (26.5)	14 (41.2)
good	<i>n</i> = 103	3 (2.9)	71 (68.9)	71 (68.9)	90 (88.3)	30 (29.1)	55 (53.4)
average	<i>n</i> = 108	4 (3.7)	62 (57.4)	62 (57.4)	93 (86.1)	33 (30.6)	59 (54.6)
insufficient	<i>n</i> = 18	2 (11.1)	9 (50)	10 (55.6)	15 (83.3)	4 (22.2)	7 (38.9)
Age (years)	<i>p</i> -value	0.106	0.322	0.130	0.042	0.168	0.532
18–25	<i>n</i> = 212	6 (2.8)	138 (65.1)	145 (68.4)	189 (89.2)	57 (26.9)	108 (50.9)
26–35	<i>n</i> = 30	3 (10)	16 (53.3)	17 (56.7)	25 (83.3)	10 (33.3)	17 (56.7)
36–56	<i>n</i> = 21	2 (9.5)	12 (57.1)	9 (42.9)	15 (71.4)	9 (42.9)	10 (47.6)
Type of diet	<i>p</i> -value	-	0.336	0.04	0.227	0.538	0.619
vegans *	<i>n</i> = 7	0	2 (28.6)	6 (85.7)	7 (100)	1 (14.3)	5 (71.4)
vegetarians	<i>n</i> = 34	0	23 (67.7)	27 (79.4)	31 (91.2)	10 (29.4)	15 (44.1)
omnivores	<i>n</i> = 222	6 (2.7)	143 (64.4)	138 (62.2)	192 (86.5)	65 (29.3)	113 (51)

* Respondents who were vegans gave their own reasons for switching to a vegan diet. The responses do not sum to 100% because respondents could select more than one answer.

Vegans and vegetarians indicated this reason (environmental protection) significantly more often compared with individuals following a traditional diet. Ethical reasons and animal welfare, although clearly more frequent among vegans and vegetarians, did not reach statistical significance, mainly due to the very small size of the vegan group (*n* = 7). Such motivations as weight reduction and health improvement were perceived similarly by students following all types of diets, suggesting that these reasons are viewed by respondents as universal and independent of their own dietary practices.

3.2. Experiences with a Vegan Diet

The questions in this section of the questionnaire aimed to examine students' experiences with a vegan diet and how they perceive this way of eating in practical terms. The vast majority of respondents had never followed such a diet before (89.7%) and are not currently following it (97.3%). Individuals who had chosen this diet in the past (10.3%) were primarily motivated by health reasons, as well as animal and environmental protection. At the time the survey was conducted seven respondents were following a vegan diet, with

the duration varying: one person for less than a year, one for 1.5 years, two for 2 years, one for 3 years, one for 5 years, and one for 12 years.

All respondents were asked to indicate difficulties in adopting and maintaining a vegan diet. The most commonly reported challenge in maintaining a vegan diet, according to vegetarians, vegans, and omnivores alike, was the high cost of vegan products (Figure 1). This issue was particularly highlighted by vegans, more than 70% of whom considered it a problem. Difficulties in finding vegan products were also commonly reported, while the lack of food variety was mentioned more often by non-vegans and vegetarians than by vegans. Vegans, on the other hand, were more likely than the other groups to perceive social rejection as a barrier.

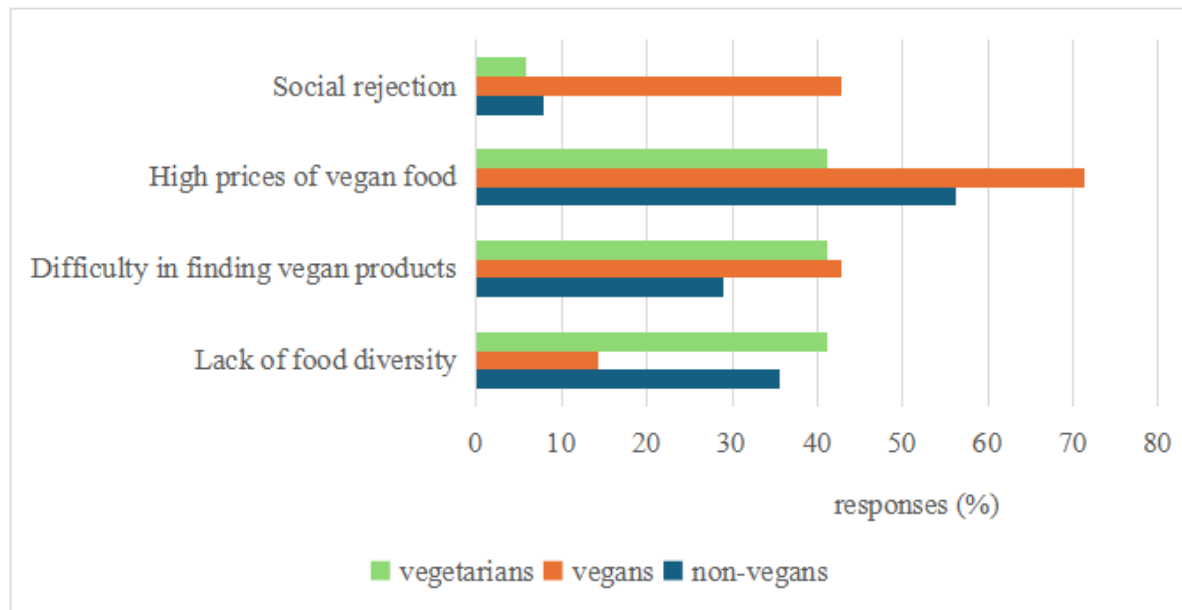


Figure 1. Respondents' opinions on the difficulties of maintaining a vegan diet. The responses do not sum to 100% because respondents could select more than one answer.

The questionnaire also included an option for respondents to provide their own comments. Some participants indicated opinions and barriers based on their personal experiences with a vegan diet (Table 4).

Respondents following a plant-based diet (vegetarians and vegans) most frequently reported difficulties related to the need for proper nutritional knowledge and continuous learning to balance their diet. They also pointed out challenges in meal planning, the lack of recipes, as well as practical barriers such as difficulties eating outside the home, complex recipes, lack of time, and self-discipline at the beginning of changing habits. Some also noted concerns about artificial additives in products and the high cost of ready-made vegan foods.

On the other hand, omnivorous individuals most often emphasized psychological and taste-related difficulties, highlighting the challenge of giving up meat and dairy, strong attachment to the taste of animal-based dishes, as well as temptations and limitations associated with a vegan diet. Traditional eating habits and issues arising in family situations (e.g., holidays, visits) were also mentioned as obstacles.

Table 4. Difficulties in maintaining a vegan diet indicated by respondents in an open-ended question.

Difficulties in Maintaining a Vegan Diet	Vegetarians/ Vegans	Omnivores
	Number of Indications	
<i>"Lack of meal composition skills, recipes", Often, the complicated recipe for the dish being prepared or the lack of support from the family when one is still a minor or financially dependent"</i>	2	1
<i>"Difficulties eating out, poor menu choice or no options in restaurants, often incorrect labelling on the menu"</i>	3	
<i>Developing a balanced yet simple recipe using ingredients available in an average shop</i>	1	
<i>"Sometimes not good enough taste" "taste qualities"</i>	1	1
<i>"Diet balancing", "Until I balanced my diet, I often went hungry or lacked physical strength", „Providing sufficient protein without excessive fat"</i>	5	
<i>"Holidays and visits to family"</i>		1
<i>"The need to engage in continuous education about the vegan diet and balancing meals.", "Balance, knowledge, and providing the body with the right nutrients", "You need to have adequate knowledge about nutrition in order to build a nutritious diet that covers your needs for all essential nutrients."</i>	10	
<i>"People are not very aware of how simple it is; vegan products are often the basis of other traditional diets."</i>	1	
<i>"A lot of artificial additives in the composition of products," "Artificial substitutes for some ingredients"</i>	2	
<i>"At first, self-discipline, lack of time to prepare meals."</i>	3	
<i>"Effort and thinking about what you eat"</i>		1
<i>"Meat is tasty and hard to give up," "I like meat," "I can't follow this diet because of my occasional but irresistible urge to eat foods that I love and that contain meat or eggs."</i>		3
<i>"Non-vegan foods are delicious and tempting to eat," "Cravings," "Restrictions on what I can eat," "Exclusion of dairy products,"</i>		5
<i>"Difficulties in weaning myself off a standard meat-based diet."</i>		1
<i>"The price of some vegan products, e.g., ready-made meals"</i>	1	

3.3. Health Aspect of a Vegan Diet

The healthfulness of a vegan diet is widely discussed both in scientific literature and public debate, which generates diverse opinions and sometimes doubts. Therefore, it was important to examine how respondents perceive the health aspect of a vegan diet to better understand the beliefs and concerns that may influence their dietary choices. Respondents presented varied opinions regarding a vegan diet (Table 5).

About 42% considered it healthy, while 21% viewed it negatively, and over one-third had no formed opinion on the matter. Women were more likely than men to perceive a vegan diet as healthy. The level of self-assessment of nutritional knowledge also played a significant role: those declaring very good or good knowledge about proper nutrition more often evaluated a vegan diet positively and less frequently indicated that it is nutritionally insufficient.

However, almost half of the respondents believed that a vegan diet did not provide all essential nutrients. The most commonly indicated potential deficiencies related to vitamins,

especially B12 and D, minerals such as iron and zinc, and protein. Fats and macronutrients, e.g., calcium, were mentioned less frequently.

Results also varied by age group and field of study. Individuals aged 35–56 were more likely than others to consider a vegan diet healthy, while the 26–35 age group most often pointed to vitamin deficiencies. Students in food-related fields expressed greater concerns about deficiencies, whereas students in natural sciences more often had a positive opinion about a vegan diet.

The greatest differences, however, were observed between individuals following different types of diets. Vegetarians and vegans overwhelmingly perceived a vegan diet as healthy and nutritionally adequate, whereas omnivores were significantly more skeptical and more frequently pointed to potential nutrient deficiencies.

The next question concerned respondents' opinions on who, in their view, should not follow a vegan diet. The question was addressed to all respondents, who were free to provide their own answers. Very frequently indicated groups were developing individuals (children and adolescents) and people who were ill or had existing nutritional deficiencies (Figure 2).

Students were also asked to indicate the potential benefits of a vegan diet. Based on the results obtained, it can be concluded that respondents attributed a range of health benefits to a vegan diet (Figure 3). The most frequently mentioned benefit was the reduction of blood pressure, reported by 46% of participants. High ratings were also given to the decreased risk of developing type 2 diabetes and the reduced risk of cancer. Slightly less frequently, respondents mentioned maintaining a healthy body weight and lowering the risk of insulin resistance. Only about 24% of respondents stated that they did not have knowledge of the potential health benefits of following a vegan diet.

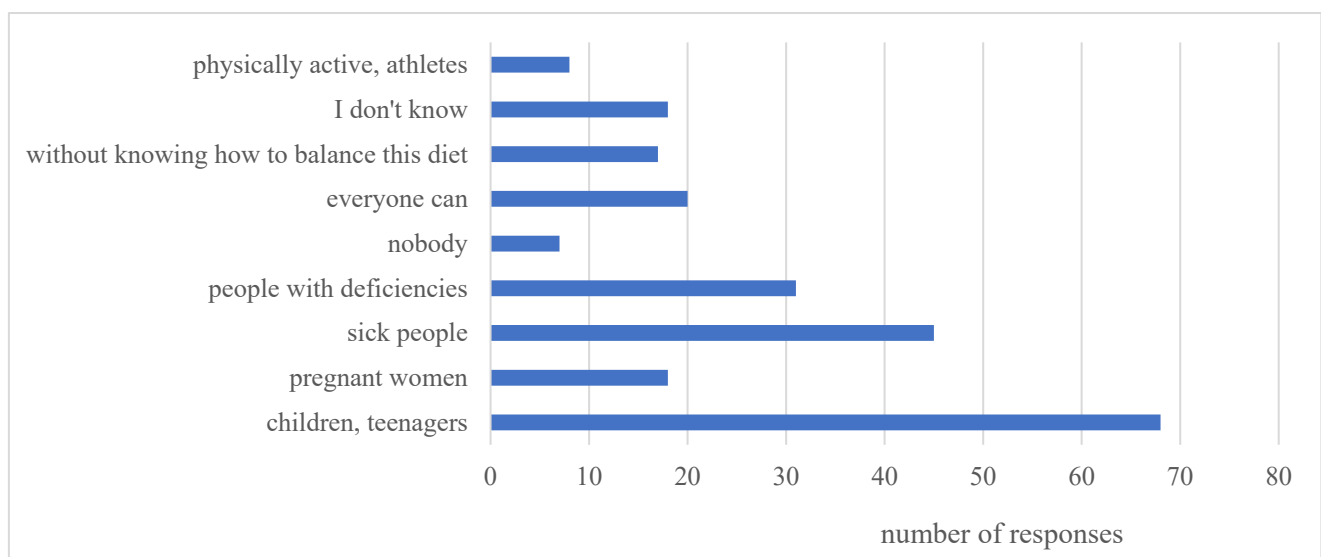


Figure 2. Respondents' opinions on who should not follow a vegan diet.

Table 5. Respondents' opinions on the healthiness of a vegan diet.

Characteristic	Is a Vegan Diet Healthy?			Does a Vegan Diet Provide Sufficient Nutrients?			Which Nutrients Are Not Provided in Sufficient Quantities by a Vegan Diet?						
	Number of Respondents (n)	Yes n (%)	No n (%)	No Opinion n (%)	Yes n (%)	No n (%)	I Don't Know n (%)	Proteins n (%)	Carbo-Hydrates n (%)	Fats n (%)	Macro-Elements, e.g., Ca n (%)	Micro-Elements, (Fe, Zn) n (%)	Vitamins, (B ₁₂ , D) n (%)
Total	263	111 (42.2)	55 (20.9)	97 (36.9)	91 (34.6)	131 (49.8)	41 (15.6)	63 (24)	13 (4.9)	35 (13.3)	41 (15.6)	63 (24)	71 (27)
Gender													
women	195	85 (43.6)	35 (17.9)	75 (38.5)	71 (36.4)	91 (46.7)	33 (16.9)	45 (23.1)	10 (5.1)	25 (12.8)	33 (16.9)	48 (24.6)	54 (27.7)
men	67	25 (37.3)	20 (29.9)	22 (32.8)	20 (29.9)	40 (59.7)	7 (10.4)	18 (26.9)	3 (4.5)	10 (14.9)	8 (11.9)	15 (22.4)	16 (23.9)
Self-assessment of knowledge about proper nutrition													
very good	34	17 (50)	4 (11.8)	13 (38.2)	16 (47.1)	18 (52.9)	0	4 (11.8)	1 (2.9)	2 (5.9)	5 (14.7)	7 (20.6)	15 (44.1)
good	103	52 (50.5)	19 (18.4)	32 (31.1)	38 (36.9)	50 (48.5)	15 (14.6)	17 (16.5)	4 (3.9)	7 (6.8)	16 (15.5)	24 (23.3)	31 (30.1)
average	108	36 (33.3)	27 (25)	45 (41.7)	33 (30.6)	52 (48.1)	23 (21.3)	35 (32.4)	7 (6.5)	21 (19.4)	17 (15.7)	27 (25)	22 (20.4)
insufficient	18	6 (33.3)	5 (27.8)	7 (38.9)	4 (22.2)	11 (61.1)	3 (16.7)	7 (36.8)	1 (5.3)	5 (26.3)	3 (15.8)	5 (26.3)	5 (26.3)
Age (years)													
18–25	212	87 (41)	43 (20.3)	82 (38.7)	75 (35.4)	104 (49.1)	33 (15.6)	54 (25.5)	13 (6.1)	28 (13.2)	33 (15.6)	53 (25)	53 (25)
26–35	30	13 (43.3)	8 (26.7)	9 (30)	8 (26.7)	19 (63.3)	3 (10)	4 (13.3)	0	3 (10)	7 (23.3)	7 (23.3)	14 (46.7)
35–56	21	11 (52.4)	4 (19)	6 (28.6)	8 (38.1)	8 (38.1)	5 (23.8)	5 (23.8)	0	4 (19)	1 (4.8)	3 (14.3)	6 (28.6)
Field of study													
food-related	80	33 (41.3)	12 (15)	35 (43.7)	25 (31.3)	46 (57.5)	9 (11.2)	18 (22.5)	3 (3.8)	8 (10)	19 (23.8)	26 (32.5)	31 (38.8)
natural sciences	85	39 (45.9)	17 (20)	29 (34.1)	35 (41.2)	35 (41.2)	15 (17.6)	14 (16.5)	4 (4.7)	6 (7.1)	8 (9.4)	17 (20)	23 (27.1)
other	98	39 (39.8)	26 (26.5)	33 (33.7)	32 (32.7)	49 (50)	17 (17.3)	33 (33.7)	6 (6.1)	21 (21.4)	14 (14.3)	20 (20.4)	17 (17.3)
Type of diet													
vegetarians	34	23 (67.6)	6 (17.6)	5 (14.7)	17 (50)	16 (47.1)	1 (2.9)	7 (20.6)	0	5 (14.7)	7 (20.6)	11 (32.3)	12 (35.3)
vegans	7	5 (71.4)	2 (28.6)	0	3 (42.9)	4 (57.1)	0	1 (14.2)	0	3 (42.9)	2 (28.6)	2 (28.6)	2 (28.6)
omnivores	222	82 (36.9)	48 (21.7)	92 (41.4)	71 (32)	111 (50)	40 (18)	55 (24.8)	13 (5.9)	28 (12.6)	32 (14.4)	50 (22.5)	56 (25.2)

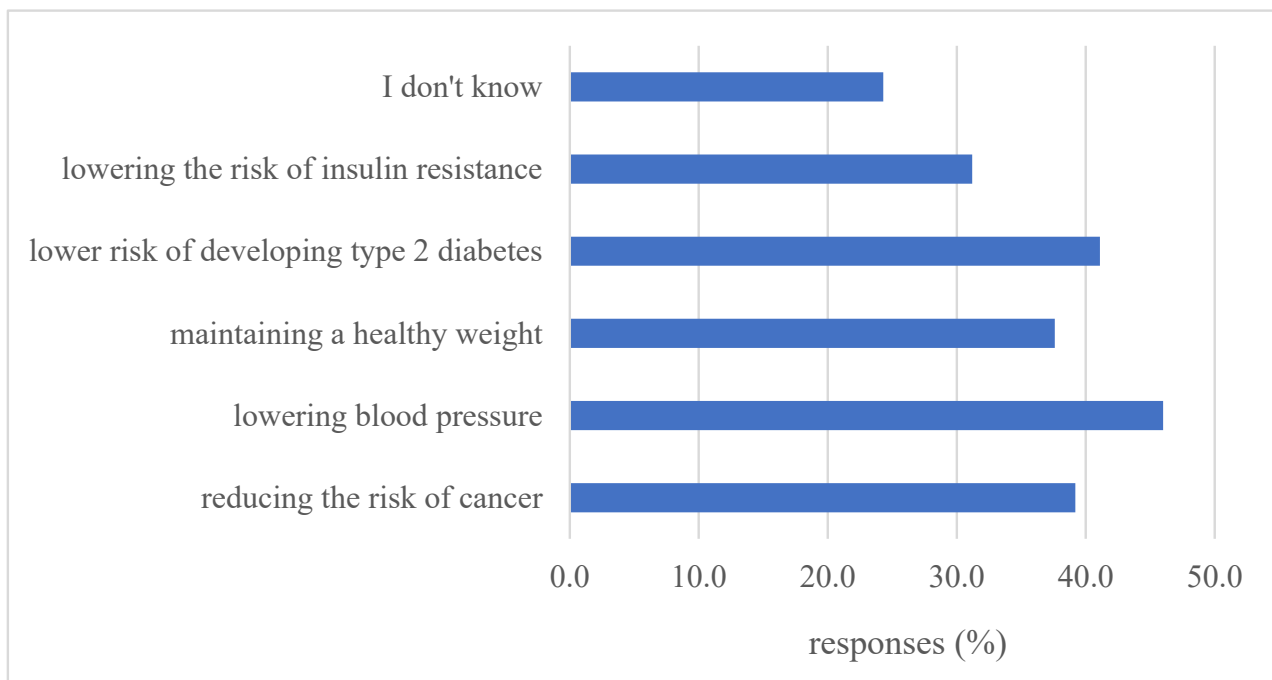


Figure 3. Respondents' indications regarding the benefits of a vegan diet. The responses do not sum to 100% because respondents could select more than one answer.

3.4. Knowledge About a Vegan Diet

To assess students' knowledge of the vegan diet, they were asked questions regarding the correct definition of this way of eating, the symbols present on vegan product packaging, the identification of a vegan product based on its ingredients, as well as the composition of a meal in accordance with vegan dietary principles (Table 6). Gender did not significantly differentiate knowledge of definitions, labelling, or identification of vegan products. Field of study had a partial influence on the test results. All students demonstrated a similar level of knowledge regarding definitions and labeling of vegan products. The difference was observed in the category of vegan product recognition, with food science students scoring noticeably higher than other groups. These differences were statistically significant ($p = 0.0075$).

Table 6. Testing respondents' knowledge about vegan diets.

Characteristic	Number of Respondents <i>n</i> = 263	Definition <i>n</i> (%)	Labelling <i>n</i> (%)	Vegan Meal <i>n</i> (%)	Vegan Product <i>n</i> (%)
Gender	<i>p</i>-value	0.065	0.347	0.099	0.538
women	195	178 (91.2)	176 (90.2)	150 (76.9)	149 (76.4)
men	67	55 (82.1)	57 (85.1)	44 (65.7)	48 (71.6)
Field of study	<i>p</i>-value	0.559	0.932	0.080	0.0075
food-related	80	72 (90)	71 (88.8)	62 (77.5)	68 (85)
natural sciences	85	75 (88.2)	74 (87.1)	70 (82.3)	63 (74.1)
other	98	91 (92.9)	87 (88.8)	67 (68.4)	63 (64.3)

Table 6. Cont.

Characteristic	Number of Respondents <i>n</i> = 263	Definition <i>n</i> (%)	Labelling <i>n</i> (%)	Vegan Meal <i>n</i> (%)	Vegan Product <i>n</i> (%)
Self-assessment of knowledge about proper nutrition	<i>p</i> -value	0.388	0.271	0.147	0.0077
very good	34	31 (91.2)	32 (94.1)	28 (82.4)	28 (82.4)
good	103	93 (90.3)	93 (90.3)	83 (80.6)	85 (82.5)
average	108	98 (90.7)	93 (86.1)	77 (71.3)	68 (63)
insufficient	18	14 (77.8)	14 (77.8)	11 (61.1)	13 (72.2)
Age (years)	<i>p</i> -value	0.148	0.045	0.988	0.702
18–25	212	194 (91.5)	190 (89.6)	160 (75.5)	155 (73.1)
26–35	30	25 (83.3)	27 (90)	23 (76.7)	24 (80)
36–56	21	17 (81)	15 (71.4)	16 (76.2)	15 (71.4)
Type of diet	<i>p</i> -value	0.0024	0.0390	0.490	0.34
vegans	7	4 (57.1)	7 (100)	6 (85.7)	6 (85.7)
vegetarians	34	34 (100)	34 (100)	28 (82.4)	28 (82.4)
omnivores	222	198 (89.2)	191 (86)	165 (74.3)	160 (72)

Self-reported knowledge of proper nutrition was associated with familiarity with vegan products. Individuals rating their knowledge as very good or good achieved better results in recognizing vegan meals and products compared to those with average or insufficient knowledge. The lowest scores were observed in the group with insufficient knowledge. Respondents' age did not significantly affect most analyzed aspects, except for knowledge of vegan product labeling ($p = 0.045$). Individuals aged 18–25 demonstrated a higher level of knowledge in this area than older participants.

The most pronounced difference was identified with regard to diet type, particularly in understanding the definition of the term “vegan diet.” Interestingly, vegetarians and omnivores often correctly recognized this definition than vegans. Knowledge of identifying vegan meals and products was similar across all groups, with no statistically significant differences.

3.5. Analysis of Selected Consumer Behaviors and Respondents' Perceptions Related to Vegan Products

The vegan product market has grown rapidly in recent years. More than half of respondents (57.8%), who did not follow a vegan diet at the time of the survey or previously, reported purchasing such products. Participants were asked about various issues related to choosing and purchasing vegan products, including sources of information, places of purchase, preferred categories of vegan products, and evaluations of their availability, labeling, and prices (Table 7).

The most frequently reported source of information about vegan foods was the Internet, indicated by 63.5% of respondents. About one-quarter of participants also cited family and friends, as well as scientific publications. Schools and books played a smaller role. It is worth noting that nearly 35% of respondents were not interested in vegan food topics at all.

Table 7. Selected consumer behaviors and opinions of respondents related to vegan products.

Analysis Category	Options	% of Responses
Explored sources of information about vegan food *	Internet	63.5
	work	4.9
	family, friends	26.2
	school	17.9
	books	20.5
	press	8.4
	scientific publications	25.5
	I am not interested.	34.6
Place of purchase for vegan food *	“health” food store	17.5
	online store	12.2
	supermarket	63.9
	market, bazaar	1.1
	local shop	6.5
	I do not purchase	26.6
Selected groups of vegan food products *	fruits and vegetables	80.6
	sweets	20.2
	seeds, grains, nuts	61.2
	plant-based “milk”	28.5
	plant-based dairy products	19.8
	plant-based “meat”	32.7
	cereal products	58.2
Availability of vegan products on the Polish market	difficult to obtain	1.1
	rather difficult to obtain	14.4
	sufficiently available	42.3
	fairly easily available	25.1
	easily available	12.5
	no opinion	4.6
Labelling of vegan food available in the shop	well	18.0
	rather well	35.0
	on average	25.0
	rather poorly	10.0
	poorly	2.0
	no opinion	10.0
Is vegan food more expensive than traditional food?	yes	74.0
	no	6.0
	it’s hard to say	20.0
Are there enough vegan dishes on the menu in restaurants?	yes	16.0
	no	55.0
	no opinion	29.0

* The number of responses does not add up to 100% because the respondent could select more than one answer.

In terms of places to purchase vegan food, supermarkets dominated, indicated by 64% of respondents. Specialty stores were chosen relatively less frequently, as were online stores. Additionally, 26% of respondents reported that they did not purchase vegan food at all.

Analysis of the choice of specific groups of vegan products showed that fruits and vegetables were the most frequently chosen (over 80%), followed by seeds, grains, nuts, and cereal products. Plant-based meat alternatives and plant-based beverages attracted considerably less interest. Plant-based dairy alternatives and vegan sweets were chosen the least.

Respondents also evaluated the availability of vegan products in the Polish market. Opinions on this matter were varied, but the vast majority of participants considered them easily and sufficiently available.

Regarding the labeling of vegan food in stores, positive (53%) and moderate (25%) opinions prevailed, while about 12% of respondents evaluated labeling critically.

The vast majority of respondents believed that vegan food was more expensive than traditional products, while one-fifth of students stated that it was difficult to assess, likely due to a lack of interest in such products.

With respect to the availability of vegan dishes in restaurants, over half of respondents believed the selection was insufficient, while only 16% indicated that an adequate number of such dishes is available in restaurants.

Analysis of the results regarding the importance of various factors when purchasing vegan products, indicated that the critically important product attributes influencing the purchase of vegan food were the sensory qualities of the product (taste, smell, appearance), its composition, and price (Figure 4). Factors related to care for the environment and animals were less important for the respondents.

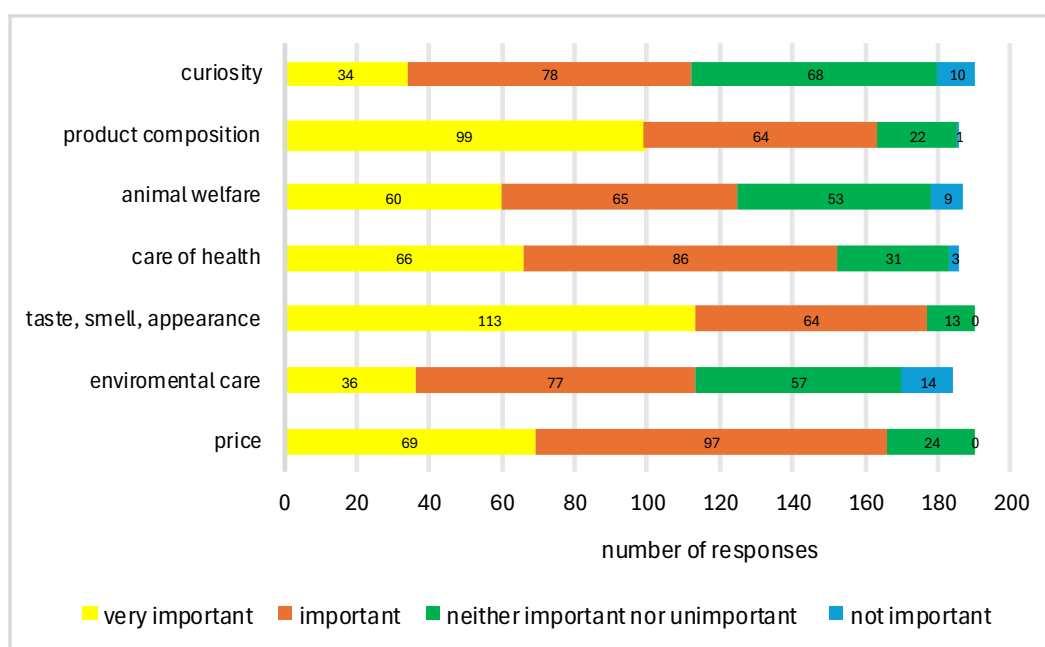


Figure 4. The impact of factors on the purchase of vegan food.

4. Discussion

4.1. Interest and Willingness to Change Diet

The transition to plant-based diets, including vegan diets, can bring multidimensional benefits for sustainable development in various aspects: environmental, health-related, and

in terms of sustainable human-animal relationships. Based on the results of searches for the terms “vegetarianism” and “veganism” in Google Trends and Google Scholar, a rising trend of interest in these types of diets can be observed over the past twenty years, both among the general public and within the scientific community [23]. Among the surveyed students, only 7 individuals declared that they followed a vegan diet (2.7% of respondents), and 34 individuals identified as vegetarians (13% of respondents). According to a report on nutrition conducted in Poland, 10% of Poles aged 18 to 65 are vegetarians, and 6% are vegans [24]. The differences between our results and the nationwide data arise from the fact that our study included only students and was not representative of the Polish population encompassing a wide age range. In addition, participation was voluntary, which may have led to self-selection of respondents. Therefore, the observed proportions should not be directly compared with population-level data, which constitutes a limitation of the present study. Another relevant factor may be that dietary patterns tend to change across the lifespan. In the 15-year study by Nezlec and Forestell [25], which focused on a sample of young adult Americans, it was shown that the proportion of vegetarians increased over time, while the proportion of omnivores decreased. However, these changes concerned only women, and men’s dietary habits did not change over time.

The number of people worldwide following plant-based diets varies depending on the country, and sometimes there are differences within the same country [26–28]. The data mainly concern vegetarians. The highest proportion of vegetarians globally occurs in India (30–40% of the population), while in Europe it is in Italy, the United Kingdom, and Germany (9%). In the Netherlands, vegetarians constitute 4% of the population, in Austria and Switzerland 3%, and in Hungary 1.5% (11% of whom are vegans) [28]. In the United Kingdom, the number of vegans is estimated at 1–2% of the population [27]. The “National Health Interview Survey” conducted in the United States showed that 4% of respondents reported following a vegetarian diet, and 2% a vegan diet. Differences in the size of these groups compared to other countries may result from considering only health-related motivations as a reason for changing diet [29].

The results obtained in this study indicated that most surveyed students were not interested in veganism and did not plan to adopt this dietary option. Gender was a significant factor differentiating interest in a vegan diet, with women more often declaring interest in such a diet than men. This result is consistent with literature reports, which repeatedly indicated that women more often engaged in health-promoting behaviors, were more open to dietary changes, and demonstrated a higher level of concern for animal welfare [25,29–32]. In a study of 1000 British individuals regarding their views on vegetarian and vegan diets, women were found to have a more positive attitude toward vegetarianism and veganism compared to men [27].

In contrast, in the present study, the lack of significant differences between genders regarding the willingness to transition to a vegan diet may suggest that, despite greater interest among women, the decision to change one’s dietary pattern depends on factors other than biological sex.

A clear relationship was observed between self-assessment of nutritional knowledge and interest in a vegan diet, as well as the declared willingness to adopt it. Individuals who rate their knowledge of healthy eating highly were significantly more likely to exhibit positive attitudes toward a vegan diet than those with average or insufficient self-assessment in this area. These results are consistent with previous studies emphasizing that nutritional knowledge supported making informed dietary choices, including decisions to reduce or eliminate animal-based products [5,13,33,34]. It is plausible that a higher subjective sense of nutritional knowledge may influence perceived competence in nutrition and, in turn, reduce concerns about potential dietary imbalances. This finding highlights the

importance of nutrition education as a key factor supporting positive attitudes toward plant-based diets.

Age and field of study were not significantly associated with either interest in a vegan diet or the intention to transition to this way of eating. Although some studies observed greater interest in alternative diets among younger individuals, in this study, this relationship was not statistically significant. The lack of association with the field of study and interest in a vegan diet, as well as willingness to adopt it, was demonstrated during the verification of the assumptions of Hypothesis 2. This might suggest that academic affiliation does not automatically determine interest in a plant-based diet; current high subjective sense of nutritional knowledge is more significant than the field of study.

The type of followed diet proved to be a very important factor, regarding both interest in a vegan diet and the willingness to adopt it. Individuals following a vegetarian diet demonstrated significantly greater interest and declared a markedly higher readiness to adopt a vegan diet compared to those following other types of diets. This result aligns with previous scientific reports suggesting that individuals who already limited the consumption of animal products might perceive a vegan diet as a natural next step in dietary changes. Additionally, they might be more aware of plant-based alternatives and face lower entry barriers to a fully plant-based diet.

4.2. Motivations

To develop strategies encouraging consumers to adopt more sustainable food systems, it is necessary to understand the motivations for shifting from a traditional diet to a vegan diet. Since only a small number of vegans participated in the study, respondents were asked to explain why, in their opinion, other individuals followed a vegan diet.

In all analyzed groups, the most frequently indicated motivation was concern for animal welfare followed by environmental and ethical/religious reasons.

It was found that gender differentiated only a small portion of the motivations. Men significantly more often indicated “fashion and trends” as a reason for others following a vegan diet, whereas women more frequently emphasized animal welfare. This finding is consistent with the literature, which suggests that men more often perceived plant-based diets as associated with social pressure or cultural trends, while women were attributed with a stronger sense of empathy and greater sensitivity to humanitarian issues [25,29–32,35].

Significant differences, however, were observed depending on the field of study. Students in food-related programs more often cited ethical motivations, which may stem from their greater awareness of the impact of food production on animals and the environment. Students in natural sciences significantly more often emphasized environmental protection, which aligns with their educational profile, increased environmental awareness, and more frequent exposure to data on climate change. Differences were also noted regarding health-related motivations, which may result from different perceptions of the relationship between diet and health depending on the field of study. Therefore, it can be concluded that the field of study significantly shaped the interpretation of the reasons why others adopted a plant-based diet.

Another variable differentiating motivations was the self-assessment of knowledge about proper nutrition. Individuals who declared very good or good nutritional knowledge more often indicated ethical and environmental motivations than students with a low self-assessment in this area. This finding suggests that a higher subjective sense of nutritional knowledge not only influenced one’s own dietary choices but also affected the way one interpreted the behavior of others. It is also possible that individuals interested in nutrition are more frequently exposed to knowledge about the impact of a plant-based diet on the environment and animal life, which reinforces the perception of these motivations

as socially significant. The team of Sanchez-Sabate emphasized [35] that consumers often lacked adequate knowledge and perceived food as “detached” from the environment, not seeing the impact of various food-related factors on the environment beyond transportation and packaging. As a result, they did not understand why meat consumption should have been limited because they did not know which types of food were environmentally friendly. Similar conclusions were drawn by other authors, who suggested that consumers would have been open to making more sustainable dietary choices if they had had adequate knowledge or had been informed about different environmental impacts on the product label [5,27,36].

Regarding age, the only motivation differentiating groups was animal welfare, which was most frequently indicated by the youngest respondents. This is consistent with trends described in the literature where younger generations were characterized by higher sensitivity to ethical and environmental issues, as well as greater engagement in pro-animal actions. The lack of age differences in other areas suggests that health- or environment-related motivations were perceived similarly regardless of life stage.

Overall, the results indicate that although some motivations, such as health or weight management, are perceived relatively uniformly, while ethical, environmental, and animal welfare-related motivations are strongly determined by sociodemographic factors. This supports the notion that dietary decisions, both personal and attributed to others, are shaped not only by objective information but also by educational, cultural and individual values. The influence of the socio-cultural environment on people’s dietary choices was also highlighted in other studies [26], where perceptions of meat consumption in compared communities varied due to cultural traditions and religious beliefs.

4.3. Barriers

Adopting veganism as a lifestyle, which aims to exclude all forms of animal exploitation, involves acquiring a new social identity and redefining categories of edible and inedible foods [37]. This process is certainly a major challenge, particularly for young people. Frequently indicated barriers to maintaining a vegan diet reported by respondents are the high cost of vegan products, difficulties in eating out, and limited availability in stores. Such challenges are also clearly reported by vegans in other countries [37]. Nearly 80% of Turkish students who are vegans complain about the limited choice or lack of vegan alternatives in work and school cafeterias. They perceive this situation as indirect discrimination against their social group, similar to state policies that force them to pay taxes supporting animal farming [12].

Furthermore, respondents following a plant-based diet (vegetarians and vegans) often reported difficulties related to the need for proper nutritional knowledge regarding diet balancing and meal planning. Docherty and Jasper, after conducting interviews with vegetarians and based on their own experiences as vegans, argued that the lack of widespread knowledge about a vegan diet could create reluctance and difficulty in transitioning from a vegetarian to a vegan diet [13]. Omnivorous individuals most often indicated difficulty in giving up meat and dairy, and a strong attachment to the taste of animal-based dishes. The pleasure derived from eating meat was also reported as an obstacle by participants in other studies [27,38–40]. In an article examining why vegetarians only gave up meat consumption, while still including other animal-based products in their diet, the problem of difficulty in excluding cheese—the so-called “cheese paradox”—was raised [13]. This was attributed to the tempting, even addictive taste of cheese, which had no equal sensory alternative among vegan products.

For individuals following plant-based diets, family gatherings (holidays, visits) can also be challenging. For many attempting to adhere to a vegan diet, eating meat in such

situations may be a forced choice due to social pressure [11,26]. A family member who is vegetarian or vegan no longer fully participates in culinary traditions that hold emotional significance for the family [41]. Eating and sharing meals, especially meat, has long been an element of Western culture and diet, establishing community among group members and facilitating social bonding [42]. By giving up meat and animal products, vegans disrupt convention and tradition, which is associated with frequently experienced social rejection [10,11,13,32–34,42,43], as reported by vegans participating in this study. Social exclusion did not constitute a major obstacle for surveyed vegetarians.

Results from other studies [10,13] confirmed that vegans were evaluated more negatively than vegetarians, with male vegans eliciting greater dislike than female vegans [11,27,34]. Meat is associated with masculinity, and vegans experience gender-related stereotypes linked to reduced masculinity. Additionally, men more often believe that a meal without meat is not a proper meal, as it does not make people strong [44–48].

Some authors state that the reason for adopting a plant-based diet is also significant. Motivations related to animal suffering are evaluated more negatively than, for example, health-related motivations [10]. Vegans, by causing less harm to animals, the environment, and their own health, are perceived as harming others (here: meat-eaters) because they challenge the integrity of prevailing social values and traditions that utilize animals [10]. The lifestyle and philosophy of Western culture are based on the assumption that eating animals is natural, normal, nice, and necessary (4 N), as well as the belief in human superiority over animals (speciesism) [34,35,42].

The study by Markowski and Roxburgh confirmed that veganism was stigmatized, while also providing additional perspectives on individuals following this type of diet [42]. Non-vegan students described vegans as intolerant, intrusive, controlling, self-righteous, and emphasizing “their veganism.”

To ensure the sustainable development of societies, it is necessary to develop strategies to resolve the “vegans vs. omnivores” conflict, especially since a negative attitude toward vegans is not widely considered a social problem and is sometimes even “fueled” by the media, which portrays veganism as “absurd, difficult, impossible to maintain, a trendy phenomenon, often excessive, and even hostile” [49].

4.4. Health Aspect

An important aspect of the study was the students’ opinion on the healthiness of a vegan diet. Respondents held divided opinions about a vegan diet, with less than half considering it healthy. Women and individuals with high self-assessment of nutritional knowledge evaluated it more positively. Nevertheless, nearly half of the respondents believed that a vegan diet does not provide all necessary nutrients. Differences were also visible between age groups and fields of study: middle-aged individuals more often considered a vegan diet healthy, younger respondents more frequently indicated potential deficiencies, and students in food-related fields expressed more concerns than students in natural sciences. Respondents were aware that a vegan diet can effectively serve as prevention against lifestyle-related diseases; however, many believed that this way of eating is not suitable for everyone. Data presented by Skorek, Glibowski, and Banach [50] indicated that there were many controversies surrounding vegetarian diets, and particularly vegan diets. The majority of people in Polish society still consider this way of eating to be improper and potentially causing undesirable health effects. People who have never followed a plant-based diet tend to have a particularly negative attitude.

Research on the nutritional value of plant-based diets confirmed the risk of deficiencies in protein and essential amino acids of animal origin, which may be contraindications for athletes and pregnant women [51], but at the same time pointed to an increased intake of

nutritionally beneficial polyunsaturated fatty acids. Study [52] demonstrated that, when following a vegetarian diet, it is possible to achieve a complete and balanced dietary plan that meets the needs of pregnant and lactating women. The authors also note that such a diet requires careful planning and consideration of appropriate sources of protein and other nutrients, including supplementation and, if necessary, consultation with a dietitian.

The findings of Marciniak, Lange, and Laskowski [53], on a group of 390 individuals following various plant-based diets, including veganism, indicated that regardless of the type of vegetarian diet, participants adhered to principles of proper nutrition, were aware of how to balance such diets, and knew which nutrients to supplement. Nearly two-thirds of respondents had BMI within the normal range, and over 80% assessed their health as good or very good. The health impact of the diet followed by vegans, characterized by increased consumption of vegetables, fruits, whole grains, legumes, plant fats, seeds and nuts, was associated with their declared level of nutritional knowledge.

The study confirmed that individuals following various forms of vegetarian diets could obtain all necessary nutrients from diverse food products, paying particular attention to certain nutrients that posed a risk of deficiency. Hargreaves et al. [54] disagreed with labeling vegetarian diets as restrictive dietary patterns because they exclude selected food groups. According to the authors, such a definition might suggest that the diet was somehow incomplete, contributing to the negative image of vegetarianism and reinforcing the belief that a standard omnivorous diet was more appropriate. In reality, not all plant-based foods are healthy (e.g., highly processed foods are not beneficial), but balanced vegetarian diets are considered healthy at all stages of life [55] and are associated with better health outcomes [56]. In this study, terms such as “alternative” or “non-conventional” were proposed for vegetarian diets to distinguish them from the conventional diet followed by the majority of the Western population.

Fresán, Errendal, and Craig [26] considered that all types of vegetarian diets met the criteria of sustainable diets as defined by the Food and Agriculture Organization of the United Nations (FAO) in 2010. The organization pointed out that to achieve a more holistic assessment of diets, other aspects beyond nutritional value should also be considered. According to FAO, sustainable diets are “diets with low environmental impact, which contribute to food and nutrition security and to a healthy life for present and future generations. . .” [57].

4.5. Knowledge, Information Sources, Market

One factor supporting the transition to a vegan diet and facilitating its maintenance is knowledge of this way of eating. The conducted study indicated that the most stable and unambiguous predictors of competence regarding vegan products and concepts were field of study, type of diet followed, and self-assessment of nutritional knowledge. The obtained results suggested that competencies related to a vegan diet were linked both to formal nutrition education and experience derived from culinary and dietary practice. Literature reports confirmed that many people had difficulty recognizing evidence-based information, felt confused, skeptical and helpless regarding healthy eating [14]. The authors emphasized the important role of public health and healthcare professionals in educating consumers about proper diet and nutrition. They also suggested that science communicators and journalists could serve as important information channels, conveying messages about managing diets from both health and environmental perspectives.

The vegan product market is developing dynamically, which is reflected in consumer declarations indicating that more than half of non-vegan respondents purchase such foods. These findings align with the broader European trend of increasing consumption of plant-based products driven by the combined influence of health, environmental, and cultural

factors that shape consumer attitudes and their readiness to adopt alternative dietary choices. The dominant role of the Internet as a source of information about vegan products corresponds with research on the influence of social media on dietary behaviors. Digital content, including influencer recommendations, reinforces positive attitudes toward plant-based foods and increases their perceived attractiveness among consumers [58,59]. These findings demonstrate that the Internet is a key channel for disseminating pro-vegan content among young adults.

The predominance of purchases made in supermarkets reflects the “mainstreaming” of vegan products. At the same time, the limited interest in plant-based meat and dairy alternatives indicates persistent sensory and technological barriers, which have been confirmed in previous studies [32,60,61]. The preference for unprocessed plant foods (vegetables, fruits, grains, and seeds) is also consistent with observations that some consumers perceive meat substitutes as overly processed [62].

The perception of vegan products as more expensive than conventional foods echoes earlier findings identifying cost as one of the main obstacles to continuing a plant-based diet [26,27]. The literature also indicates that improving the price-to-value ratio may substantially increase consumers’ willingness to choose plant-based products, particularly in populations not ideologically committed to such diets.

In evaluating the availability of foodservice options, most respondents consider them insufficient, which corresponds with research showing that a limited menu offering and a lack of attractive dish descriptions significantly reduce the likelihood of choosing plant-based meals [63]. International studies suggest that even minor menu interventions, such as increasing the visibility of plant-based dishes, can substantially boost their popularity, indicating strong potential for the development of this category in Poland.

5. Conclusions

The proposed hypotheses assumed that Generation Z students exhibit a marked interest in a vegan diet and that students enrolled in food science-related fields demonstrate both greater interest in vegan diets and a higher willingness to transition to veganism than students from other academic disciplines. Neither hypothesis was supported by the results obtained.

The study demonstrates that Warsaw students’ attitudes toward a vegan diet are shaped primarily by their self-assessment of nutritional knowledge, previous experiences with plant-based eating, and socio-cultural factors. Although many respondents recognize the health and environmental benefits of a plant-based diet, the lack of reliable knowledge, concerns about nutrient deficiencies, higher product costs, and social pressure remain key barriers limiting their readiness to change dietary habits. This suggests that the mere availability of plant-based products is insufficient to support sustainable dietary choices if it is not accompanied by educational and environmental measures. The main limitations of this study that restrict the generalizability of the findings to the broader Polish population include the uneven gender distribution of respondents and the exclusive inclusion of students.

From a practical perspective, the results highlight the need to develop nutrition education aimed at building competencies necessary to properly balance plant-based diets and critically evaluate nutritional information. It is advisable to avoid “maximal demands,” such as calls for the widespread adoption of strict vegan diets. A more effective approach may involve incremental steps, for example, encouraging reductions in meat consumption, followed by a transition to a vegetarian diet, and eventually to a vegan one, if desired. At the same time, improving the economic and sensory accessibility of vegan foods is essential, particularly in academic foodservice settings and other venues where students

make every day dietary choices. Another important aspect of practical support involves counteracting entrenched stereotypes and misconceptions about veganism, especially in social media, which serve as the primary information source for this age group. Integrated educational, communicative and environmental strategies may significantly enhance both the acceptance and actual accessibility of more sustainable dietary patterns.

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