DIETARY PREFERENCES AND ANALYSIS OF THE "PLANT-BASED FOOD BASKET" AMONG UKRAINIAN PRETEENS AND TEENAGERS

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The aim. *The aim of the study was to analyze aspects related to a healthy diet and lifestyle, more specifically to the consumption of plant-based food among Ukrainian preteens and teenagers aged 10 to 17 years.*

Materials and methods. *231 individuals aged 10 to 17 participated in the study, 85 of them were boys, 146 were girls, all of them were residents of Kharkiv city at the time of participation in the study. The respondents were presented with a questionnaire regarding their attitude to a healthy lifestyle, in particular, rational nutrition. The χ^2 test was used to analyze the qualitative data.*

Results and discussion. *In the work, it was found that more than half of the respondents led only a partially healthy lifestyle, 60.3 % and 54.1 % among girls and boys, respectively. Only 11.6 % and 18.8 % of girls and boys followed the diet, although the majority of preteens and teenagers did not skip breakfast (80.8 % of girls and 89.4 % of boys). Unfortunately, the vast majority of subjects (58.9 % of girls and 56.5 % of boys) sometimes indulged in "harmful food". Also, the majority of preteens and teenagers consumed food between principal meals (83.6 % of girls and 72.9 % of boys), which, taking into account current ideas, should be considered an alarming trend. The main motivation for choosing food among preteens and teenagers was their own food tastes and family traditions, while food advertising was taken into account by just over 1 % of preteens and teenagers. Self-assessment of the health state shows that only 2/3 to ¾ of preteens and teenagers had no complaints about their health. No sex differences were observed for all the indicated characteristics. The most popular vegetable product among Ukrainian preteens and teenagers was potato, it was consumed by more than ¾ of preteens and teenagers, its popularity grew with age, which can be considered a negative trend (fast food). The least popular plant-based product among preteens and teenagers was seeds, consumed by only 19.9 % of girls and 8.2 % of boys. It was the only plant-based product, for which a statistically significant difference in consumption was found (2.4 times more common among girls than among boys). With age, the frequency of coffee consumption as an "adult drink" increased among preteens and teenagers, while a "leap" in the prevalence of its consumption can be seen when passing from 14-15 years to 16-17 years. Therefore, most of the results obtained should be considered as concerning ones.*

Conclusions. *The consumption of plant-based food among Ukrainian preteens and teenagers is almost not associated with sex, while the consumption of some types of plant-based food is more closely related to the age of preteens and teenagers, which may indicate the continuation of the process of forming food habits in this ontogenesis period. The practical value of the work lies in potential corrective recommendations from doctors, valeologists, nutritionists, psychologists and other related specialists*

Keywords: *Healthy lifestyle, rational nutrition, preteens and teenagers, Ukraine, vegetables, fruits, "plant-based food basket"*

1. Introduction

Since ancient times, people have understood the importance of nutrition for health. Antiquity thinkers Hippocrates, Celsus, and Galen devoted entire treatises to the medicinal properties of various types of food and their reasonable consumption. The outstanding scientist Abu Ali Ibn Sina considered food a source of health, strength, and vigor. One of the first scientifically based nutrition systems, namely balanced nutrition, emerged more than two hundred years ago and prevailed in dietet-ics until recently [1]. Such a discipline as nutritionology studies the mechanisms of healthy eating, the motives of an individual's food choices, and the strategies of an individual's rational nutrition. There are well-known and grounded studies on physiological requirements for food substances and energy [2]. In addition, by the middle of the 20th century, the main vitamins were synthesized, which provided a more detailed study of trace elements in food products. The greatest scientific interest in the elements of nutrition in the USA coincided with the Great

Depression and the Second World War, which were years of food shortages and mass starvation of the population [3]. In the 1970s and 1990s, research in the field of nutritionology mainly covered the issue of the relationship between nutrition and chronic diseases. With the development of genomic and post-genomic technologies, research focused on deciphering exactly these mechanisms of nutrient homeostasis regulation [4].

Today, it is accepted to consider rational nutrition as physiologically complete nutrition of healthy people, taking into account their age, sex, and occupation. Rational nutrition contributes to the health maintenance, resistance to harmful environmental factors, high physical and mental performance, as well as active longevity. Diet leaves a significant stamp on the formation of human organ systems and is one of the factors of human evolutionary development. Requirements for rational nutrition consist of requirements for food ration, diet, eating conditions. Rational nutrition is the nutrition of a healthy individual, built on scientific principles, able to quantitatively and qualitatively satisfy the body's need for energy. Alterations of the basic principles of rational nutrition lead to a number of diseases, from non-specific manifestations of a decrease in the body's immune status to foodborne diseases [5]. The link between nutrition and chronic non-infectious diseases is scientifically substantiated and proven. Current nutritional teachings recommend that half of one's diet should consist of fresh foods (e.g., raw vegetables, fruits, fresh grains, nuts, raw milk, and cold-pressed vegetable oil). At the same time, fruits and vegetables should be consumed according to the season.

Vegetables and fruits are an important component of a healthy diet. They contribute to the growth of children, support the functioning of the human body as a whole and ensure the mental, physical and social well-being of people of any age. They help reduce the risk of spreading non-infectious diseases [6]. Unhealthy nutrition is one of the ten most dangerous factors that cause diseases all over the world [7].

The growth of the fast food category worldwide is a cause for concern [8]. The results of a study, conducted in ten European countries, showed that the consumption of vegetables and fruits in significant quantities increases the life expectancy of people [9]. According to the latest WHO recommendations, it is necessary to consume at least 400 grams (or five portions of 80 grams) of vegetables and fruits per day. The optimal amount depends on a number of factors, including an individual's age, sex, and level of physical activity. It is recommended to balance the diet and eat different foods. Children, preteens, teenagers, adults and the elderly have different needs for vegetables and fruits; the needs of males and females also differ [10]. In particular, the results of research, conducted as part of monitoring medical staff, showed that the higher the average daily consumption of fruits and vegetables, the lower the probability of developing cardiovascular diseases [11]. According to the results of long-term studies in the United States and Europe, the following was found: people who ate more than 5 servings of fruits and vegetables per day had about a 20 % lower risk of coronary heart disease and stroke compared to people who ate less than 3 servings per day [12]. Increasing the consumption of fruits and vegetables per day reduces the risk of anxiety [13]. Consumption of vegetables and fruits in sufficient quantities can reduce the severity of the course of infectious diseases. They do not protect against viruses, such as COVID-19, but people who consume them recover faster than those whose diets are depleted of plant-based foods [14].

In addition to the positive effects of plant-based foods on health, it should be noted that according to some studies, plant-based (vegan) diets may be more economically attractive, as was recently demonstrated in a study of residents of Portugal. This new evidence contradicts existing data that plant-based diets should be considered more expensive than conventional omnivorous diets, given the new expensive meat substitutes and the higher cost of fruits and vegetables that are thought to be consumed in a similar fashion [15].

All of the above indicates the need to consider food preferences and dietary characteristics among different groups of the Ukrainian population, which is extremely insufficiently studied.

The aim of the current study was to analyze some aspects related to a healthy diet, lifestyle and consumption of plant-based food among Ukrainian preteens and teenagers.

2. Materials and methods

231 subjects aged 10 to 17 participated in the study, 85 of them were males, 146 were females. Data from all respondents were used in the analysis, even if the questionnaires filled were incomplete. The research was conducted on the basis of Kharkiv Specialized School No. 18 in 2021.

The main research methods were interview and statistical analysis. We developed a questionnaire that contains questions about individuals' attitude to a healthy lifestyle, in particular, rational nutrition, and their actual adherence to its principles, self-assessment of their own lifestyle, health and nutrition, as well as questions of a socio-demographic nature. The questionnaire contained questions related to personal opinion and perception of the state of one's own health. All respondents were familiarized with the objectives of the study and gave voluntary consent to participate in it, in accordance with the requirements of the Declaration of Helsinki. For the current study, we used separate results of the survey regarding the mainly food component of the lifestyle (questions 1-4, 6, 8, 10, 13-15) for analysis, the rest are planned to be analyzed later.

Research questionnaire

1. Your age?
2. Your sex?
3. Can you classify yourself as an individual leading a healthy lifestyle?
Partially
Yes
No
I don't understand what it is about
4. Do you consider it necessary to follow the principles of a healthy diet?
Yes
Partially
No
This problem does not concern me
5. What do you do to keep healthy?
Doing sports
I follow the sleep regime
I walk in the fresh air
Sometimes I give up bad habits
Do nothing
6. Evaluate your diet
I eat rationally
I follow a diet
Sometimes I allow "harmful food"
Do nothing
7. Evaluate your lifestyle
Agile
Sedentary
8. Assess your health
There are no complaints

Sometimes headaches bother
I have chronic diseases
9. How often do you visit sports clubs and dance clubs?
Once a week
2-3 times a week
4-5 times a week
Daily
I don't visit
10. Do you usually have breakfast?
Yes
No
11. How many hours do you sleep?
3-4 hours
5-6 hours
7-8 hours
9 hours
12. What time do you go to bed?
9.00 p.m.
10.00 p.m.
11.00 p.m.
12.00 p.m. and later
13. Do you eat between meals?
Yes
No
14. What influences your choice of food?
Family traditions
Own tastes
Advertising (media)
15. What plant-based products have you consumed in the last week?

The χ^2 test was used to analyze the qualitative data. The relationship between two characteristics was characterized at the significance level of p<0.05. The obtained actual values of χ^2 were compared with the critical values for a given value of the freedom degree "df". Data from the questionnaires were entered into an Excel database. The data processing was carried out in the computer program Statistica 6.0.

3. Results

Since sex dimorphism is considered a general biological phenomenon and can significantly affect the interpretation of the scientific results, the first stage of data analysis was the stratification of all respondents into 2 groups, males and females, with further analysis in each group within age ranges.

Thus, the concept of sex dimorphism includes anatomical, physiological, behavioral and other biological differences between individuals of the opposite sex. In particular, males are characterized by higher height, increased physical aggression, and shorter life expectancy. While females are characterized by increased memory and attention, indirect aggression, greater obesity predisposition. Differences in the nutrition of males and females are due to different metabolic rates, the constitution of the body, and the peculiarities of reproductive functions. It is known that the muscle mass of males is on average 30–40 % greater than that of females, and this fact should not be ignored when preparing a diet [16]. Therefore, male's nutrition requires more calories than

female's one. These and other examples are the basis for stratification of the participants of various medical and biological studies by sex.

The age of the vast majority of the preteens and teenagers under study was in the range of 12-13 years. Thus, among girls aged 10, 11, 12, 13, 14, 15, 16, and 17 years, there were 7 (4.8 %), 23 (15.7 %), 32 (21.9 %), 29 (19.9), 18 (12.3 %), 19 (13.0 %), 16 (11.0 %) and 2 (1.4 %) respectively, and among the boys there were 2 (2, 3 %), 7 (8.2 %), 23 (27.1 %), 9 (10.6 %), 18 (21.2 %), 13 (15.3 %), 10 (11.8 %) and 3 (3.5 %) respectively. There was no statistically significant difference between age and sex (χ^2=10.65, df=7, p=0.15).

The respondents mostly classified themselves in the category of leading a partially healthy lifestyle, their percentage was 60.3 % and 54.1 % among girls and boys, respectively. According to their own self-assessment, 33.6 % and 41.2 % of girls and boys led a completely healthy lifestyle. 6.2 % and 4.7 % of girls and boys believed that they did not follow the principles of a healthy lifestyle. There was no relationship between sex and the potential answers (χ^2=1.41, df=2, p=0.49).

It should be noted, that the percentage of girls and boys who were aware of the need to lead a healthy lifestyle was 50.7 % and 52.9 %, respectively. 34.9 % and 35.3 % of female and male respondents, who believed that it is sufficient to follow a healthy lifestyle at least partially, respectively 8.9 % and 8.2 % of girls and boys were not interested in this problem at all, and the majority of the girls and boys interviewed (5.5 % and 3.5 %) did not consider it

necessary to choose a healthy lifestyle as a manner of living. The difference in values between girls and boys was statistically non-significant (χ^2=0.51, df=3, p=0.92).

When studying the assessment of their own diet, it was found, that only 11.6 % and 18.8 % of girls and boys followed the diet, 11.6 % and 16.5 %, respectively, believed that they ate rationally, and 17.8 % and 8, 24 % did not pay attention to the diet at all. Unfortunately, the vast majority of people (58.9 % of girls and 56.5 % of boys) sometimes indulged in "harmful food". There was no relationship between the assessment of the diet and sex (χ^2=6.37, df=3, p=0.09).

Self-assessment of the health state showed that 66.4 % of girls and 75.3 % of boys had no complaints about their health, respectively, 5.5 % and 7.1 % of girls and boys complained about chronic diseases. It caused concern that 28.1 % of girls and 17.6 % of boys had periodic headaches. It should be noted, that there was no correlation between self-assessment of health status and sex in this case (χ^2=3.23, df=2, p=0.20).

80.8 % of girls answered "yes" to the question about whether they usually have breakfast, while 89.4 % of boys gave a positive answer. This difference was not significant (χ^2=2.95, df=1, p=0.09).

Regarding the availability of snacks between main meals, we obtained the following results. The majority of subjects (83.6 % of girls and 72.9 % of boys) ate between large meals, but this difference was not significant between individuals of different sexes (χ^2=3.74, df=1, p=0.053). Taking into account current ideas about the benefits of a limited number of meals, and diets and methods of nutrition, which are based on intermittent fasting, our results should be considered as requiring increased attention.

Investigating the motives when choosing food, it was found, that the female and male respondents were guided by the following: their own food tastes (63.0 % and 56.5 %), family traditions (35.6 % and 42.6 %), and advertising (only 1.4 % and 1.2 %), respectively. There were no sex differences (χ^2=1.03, df=2, p=0.60).

Finally, the respondents were asked to name the products of plant origin that they used usually during the week. Interest in the analysis of the weekly consumer "plant-based food basket" was caused by the fact that, according to some data, the number of plant-based units that an individual consumes during the week can serve as an indicator of his/her relative risk of a number of diseases. It is believed that a more diverse diet affects the maintenance of the gut microbiome and the preservation of beneficial microflora. Some studies, summarizing the importance of a variety of plant-based foods, indicate that a weekly "plant-based food basket" should include at least 30 units of plant-based products [17]. In the current analysis, we focused on determining the frequency of consumption of various units of plant-based products during the week according to the respondents' self-assessment. When processing the data, the answer options were distributed for each type of plant-based product separately or for a small combination of them (from 2–3 units), since the respondents combined fruits, vegetables, cereals, seeds, etc. in different ways, which caused certain difficulties in their analysis. At the same time, from the units of plant-based products, the indicated products were taken into account as a "yes" answer (used during the week), and not indicated as a "no" answer (not used during the week).
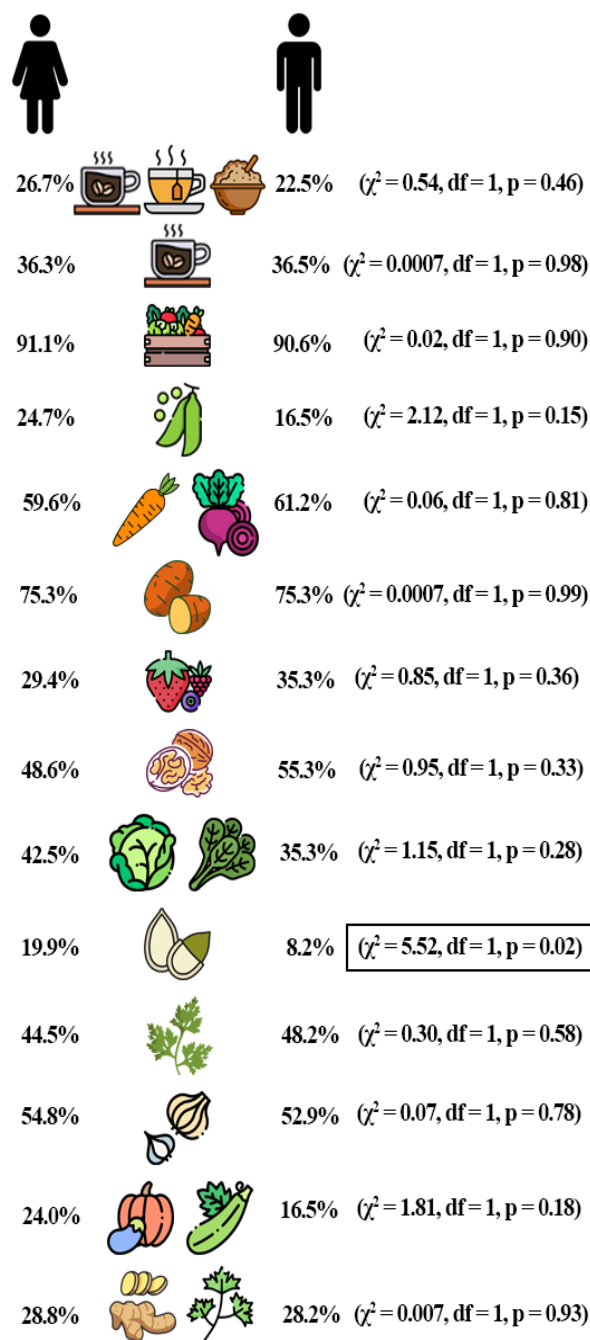

Fig. 1. Frequency of consumption of different units of plant-based products by preteens and teenagers of different sexes during the week. The following categories of plant-based products are presented (from top to bottom): 1) tea, coffee, porridge; 2) coffee (alone); 3) vegetables and fruits (in general); 4) legumes; 5) carrots and beets; 6) potatoes; 7) berries; 8) nuts; 9) cabbage and spinach; 10) seeds; 11) greens; 12) onion and garlic; 13) pumpkin, eggplant and zucchini; 14) spices and herbs. Statistical indicators: χ^2 stands for the chi-square test, df stands for the degree of freedom, p stands for the level of significance. Statistically significant differences between boys and girls are boxed. The icons for the drawings are selected on the website https://www.flaticon.com

As can be seen in Fig. 1, the results of the data analysis were as follows: tea, coffee and cereal were consumed by 26.7 % of girls and 22.5 % of boys, while coffee alone was consumed by 36.3 % of girls and 36.5 % of boys.

The majority of respondents, both girls and boys, indicated that they consumed fruits and vegetables (respectively 91.6 % and 90.8 %) in general (without specifying the categories). The female and male respondents used legumes with the following frequency: 24.7 % and 16.5 %. 59.6 % of girls and 61.2 % of boys used beet and carrot roots. Potatoes were consumed by 75.3 % of respondents, which gave this vegetable product the status of the most common. Spinach and cabbage were consumed by 42.5 % of girls and 35.3 % of boys. Various berries were consumed with the following frequencies: 29.4 % and 35.3 % of female respondents and male respondents, respectively. Low indicators can be explained by the fact that berries in our climate ripen in short seasonal intervals, namely, in summer and early autumn. In autumn and winter (when the data collection took place), these products are less often available and, in addition, have a high cost. Greens were used somewhat more, because they are grown in sufficient quantities from early spring to late autumn. These indicators were as follows: 44.5 % and 48.2 % among girls and boys, respectively. Nuts were consumed as follows: 48.6 % by girls and 55.3 % by boys. Onions and garlic were consumed even more often by both girls and boys, namely: 54.8 % and 52.9 %. Zucchini, pumpkins and eggplants were relatively unpopular among preteens and teenagers, consumed by 24 % of girls and 16.5 % of boys, respectively. Herbs and spices were consumed as follows: 28.8 % by girls, 28.2 % by boys. All the indicated differences were statistically non-significant. Seeds were used by female respondents in 19.9 % of cases and by male respondents in 8.2 % of cases, i.e. 2.4 times more often, which is the only statistically significant difference.

If in the current study among a certain subpopulation of preteens and teenagers (from 10 to 17 years old) we did not find sex differences in the plant-based food consumption, except for seeds, this does not mean that such differences are absent in principle in other age groups of the Ukrainian population or in other contemporary human populations. For example, when studying a sample of the Saudi population and looking for associations between diet and behavioral disorders, it was shown, that females consumed 14 g of fiber per day and had mild depression, while males consumed 12 g of fiber per day and had very high stress. Eating low to moderate portions of fruit or very low portions of nuts and seeds was associated with stress in males. Moderate levels of depression among females likely occurred with low to moderate intake of nuts and seeds [18].

In addition, we conducted an analysis of the use of different categories of plant-based products among preteens and teenagers of different age subgroups. As sex differences were demonstrated only in the case of seed consumption, we decided to analyze whether differences were observed among different age subgroups of preteens and teenagers regardless of sex (combined subgroups of girls and boys). Thus, such statistically significant differences were demonstrated for 5 categories of plant-based product units, namely for tea, coffee and cereals, coffee alone, potatoes, greens and herbs and spices (see Tables 1–5). Statistically non-significant differences in other categories of plant-based products are not given.

Table 1

Distribution of consumption of tea, coffee and cereals among preteens and teenagers of different age subgroups

Age subgroup	Consumption of tea, coffee and cereals per week		
	Yes	No	Total
10–11 years, n	4	35	39
%	10.3	89.7	100
12–13 years, n	23	70	93
%	24.7	75.3	100
14–15 years, n	17	51	68
%	25	75	100
16–17 years, n	14	17	31
%	45.2	54.8	100
Total, n	58	173	231
%	25.1	74.9	100

Statistics. $\chi^2=11.21$; df=3; p=0.01

As can be seen from the data in Table 1, with age, the weekly consumption of such units of plant-based products as tea, coffee, and cereals increases rapidly. If at the age of 10–11 such products were included in the "plant-based food basket" of only a tenth of preteens, then among older teenagers such products were popular in 45.2 % of cases. It can be assumed, that it is tea and coffee, and not cereals, that are becoming more common plant-based products.

Table 2

Distribution of consumption of coffee alone among preteens and teenagers of different age subgroups

Age subgroup	Consumption of coffee		
	Yes	No	Total
10–11 years, n	7	32	39
%	18.0	81.0	100
12–13 years, n	30	63	93
%	32.3	67.7	100
14–15 years, n	29	39	68
%	42.7	57.3	100
16–17 years, n	18	13	31
%	58.1	41.9	100
Total, n	84	147	231
%	36.4	63.6	100

Statistics. χ^2=13.86; df=3; p=0.003

When analyzing coffee as a unit of plant-based products separately, a similar trend can be observed: with age, the "drink for adults" becomes more and more popular among preteens and teenagers. A special "leap" in the spread of coffee consumption can be seen when moving from the age group of 14–15 years to the age group of 16–17 years. It should be noted, that caffeine is considered the most consumed psychostimulant worldwide, and coffee containing it is the second most consumed beverage after water. The use of caffeine among children is controversial. Despite the fact that caffeine promotes brain activity, it can inhibit the growth and development of preteens and teenagers [19]. That is why the trend we found should not be considered positive.

Table 3

Distribution of consumption of potato among preteens and teenagers of different age subgroups

Age subgroup	Consumption of potato		
	Yes	No	Total
10–11 years, n	22	17	39
%	56.4	44.6	100
12–13 years, n	67	26	93
%	72.0	28.0	100
14–15 years, n	57	11	68
%	83.8	16.2	100
16–17 years, n	28	3	31
%	90.3	9.7	100
Total, n	174	57	231
%	75.3	24.7	100

Statistics. χ^2=14.44; df=3; p=0.002

The data in Table 3 indicate that the popularity of potatoes as a plant-based product is gradually increasing. The biggest "leap" in its popularity can be seen from the age subgroup of 10–11 years to the age subgroup of 12–13 years. Since the questionnaire did not specify the form, in which the respondents use potatoes, it is quite possible to assume that such data can be explained by not very optimistic trends. Potentially, with age, children increasingly begin to consume fast food, specifically potatoes in the form of French fries. It should be mentioned the latest data on the ambiguous effect of diets rich in potatoes on humans. In particular, data for the US population suggest that a large percentage of daily plant-based food consumption in this population also comes from white potatoes, but limited information is available on how potatoes are included in the US diet. The study used data from US residents aged 2 to 18 and 19 and older who participated in a national survey between 2001 and 2018. Several potato-containing food clusters were identified, several with higher and lower diet quality compared to the potato-free diet pattern. Children and teenagers in one potato cluster had lower BMI, waist circumference, and body weight compared to those on a potato-free diet, while adults in 3 potato clusters had higher anthropometric parameters than those who did not consume potatoes. In adults, some dietary patterns, including potatoes, were also associated with lower and higher HDL and total cholesterol levels and higher insulin levels [20].

Table 4

Distribution of consumption of greens among preteens and teenagers of different age subgroups

Age subgroup	Consumption of greens		
	Yes	No	Total
10–11 years, n	17	22	39
%	43.6	56.4	100
12–13 years, n	32	61	93
%	34.4	65.6	100
14–15 years, n	39	29	68
%	57.4	42.7	100
16–17 years, n	18	13	31
%	58.1	41.9	100
Total, n	106	125	231
%	54.1	45.9	100

Statistics. $\chi^2=10.49$; df=3; p=0.01

As for the use of greens, the data in Table 4 do not show a unidirectional dynamic regarding the growth of its consumption with age. Moreover, when moving from the age subgroup of 10–11 years to the age subgroup of 12–13 years, it can be observed, that the use of greens even decreases, returning to the increasing trend at the age of 14–15 years and remaining at approximately the same frequency until the age of 16–17 years.

Table 5

Distribution of consumption of spices and herbs among preteens and teenagers of different age subgroups

Age subgroup	Consumption of spices and herbs		
	Yes	No	Total
10–11 years, n	8	31	39
%	20.5	79.5	100
12–13 years, n	19	74	93
%	20.4	79.6	100
14–15 years, n	29	39	68
%	42.6	57.4	100
16–17 years, n	10	21	31
%	32.3	67.7	100
Total, n	66	165	231
%	28.6	71.4	100

Statistics. $\chi^2=11.07$; df=3; p=0.01

From the data in Table 5, it can be observed, that the consumption of herbs and spices occurred most among teenagers aged 14–15 years, at the age of 10 to 13 the percentage of cases of use of these useful units of plant-based products almost did not change.

The literature indicates that, indeed, food preferences may differ among males and females, and may change or remain constant among certain age groups. Thus, a study in a sample of Lebanon showed that when studying different age groups (children and teenagers aged 6 to 19.9 years; adults aged 20 to 59.9 years and elderly people over 60 years old) females consumed significantly more fiber. In addition, among preteens and teenagers aged 12 to 19.9 years, females consumed more fat compared to males. These differences in macronutrient intake were not observed in either younger children or older people. There were also differences in the consumption in food groups by sex: males consumed significantly more red and processed meat, bread, fast food, soft drinks and alcohol, while females consumed more fruit, vegetables, milk and sweets. In all age groups, females consumed less micronutrients, including calcium, iron, and zinc, compared to males [21].

Limitations of the study. The study is of a pilot nature.

Prospects for further research. In our future research, we plan to expand the sample to include individuals of other age groups, as well as conduct an analysis taking into account other factors.

4. Conclusions

231 people aged 10 to 17 took part in the study, of which 85 were boys, 146 were girls, all residents of Kharkiv city. Respondents were presented with a questionnaire regarding their attitude to a healthy lifestyle, in particular, rational nutrition, and their own adherence to its principles, self-assessment of their own lifestyle, health status and nutritional characteristics, with an emphasis on the analysis of plant-based food consumption during the week. The χ^2 test was used to analyze the qualitative data. The relationship between two characteristics was considered significant at the level of p < 0.05. Data from the questionnaires were entered into an Excel database. The data processing was carried out in the computer program Statistica 6.0.

In the work, it was found, that the respondents mainly included themselves in the category of leading a

partially healthy lifestyle, more than half of them, 60.3 % and 54.1 % among girls and boys, respectively. Unfortunately, the percentage of girls and boys who were aware of the need to lead a healthy lifestyle was only about half, 50.7 % and 52.9 %, respectively. Only 11.6 % and 18.8 % of girls and boys followed the diet, 11.6 % and 16.5 %, respectively, believed that they ate rationally. Unfortunately, the vast majority of individuals (58.9 % of girls and 56.5 % of boys) sometimes indulged in "harmful food". Self-assessment of the health state shows that only 2/3 to ¾ of preteens and teenagers, respectively 66.4 % of girls and 75.3 % of boys, have no complaints about their well-being. The majority of preteens and teenagers did not skip breakfast (80.8 % of girls and 89.4 % of boys). Also, most preteens and teenagers ate between main meals (83.6 % of girls and 72.9 % of boys), which should be considered an alarming trend, taking into account current ideas about the benefits of a limited number of meals. The main motivation for choosing food among preteens and teenagers was their own food tastes, followed by family traditions, while food advertising was taken into account by just over 1 % of preteens and teenagers. No sex differences were observed for all the indicated characteristics.

The most popular plant-based food product among Ukrainian preteens and teenagers was potato, it was consumed by more than ¾ of preteens and teenagers, and its popularity increased with age, which can be considered a not very positive trend (it is expected to be consumed in the form of fast food). The least popular plant-based food product among preteens and teenagers was seeds, used by only 19.9 % of girls and 8.2 % of boys. Seeds were the only plant-based food, for which a statis-

tically significant difference in consumption was found (2.4 times more common among girls than among boys). With age, the frequency of coffee consumption as an "adult drink" increased among preteens and teenagers. Coffee became more and more popular among preteens and teenagers, while a "leap" in the spread of coffee consumption can be seen when moving from the age group of 14–15 years to the age group of 16–17 years. Therefore, most of the obtained results should be considered as a cause for concern.

The practical value of the work lies in potential corrective recommendations from doctors, valeologists, nutritionists, psychologists and other related specialists. The results of the work may also be relevant for the forecast of the cost of the "plant-based food basket" for preteens and teenagers who, at the time of the study, are in other countries due to the military actions in Ukraine, but have formed food preferences. In our future studies, it is planned to expand the population sample with other age groups.

Conflict of interests

Funding

Data availability

Data will be made available on reasonable request.

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