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Main features of food consumption in Ukraine

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In this paper statistical data of the households surveys and results of own author's studies are analyzed to determine the main features of food consumption in Ukraine. It is shown that during the last 10 years the well-being of Ukrainians is gradually improving. However, the diet is still remains distorted and needs considerable corrections for meeting the internationally recognized recommendations.

Introduction

Following the Ukraine Cabinet of Ministers Resolution [1], a quarterly survey of about 10 thousand households is carried out. All expenditures and consumptions are registered daily during 7 consecutive days. Household survey results are published every year by the State Statistics Committee of Ukraine under the title of "Household Expenditures and Resources". Recently published data [2] contain information related to the period of time from 1999 to 2008 (inclusively). Every three month a report is published presenting actual Household Budget Survey data in comparison with the corresponding period of the preceding year. The latest available data are for January-March of 2009. Every year a report on Household Expenditures and Resources in Ukraine is published as well [3].

Methodology

The sampling is done using a probability method and the multistage stratification, through selection of the territorial units with a probability proportional to the size. For the sampling frame determination, 2001 nationwide census data are used in urban settlements, while in rural areas materials of the household registration by the administrative - territorial divisions are used. A household is defined as a group of people living either in the same residential building, or in a part of it, providing themselves with everything necessary for their life, occupied with their common household duties and responsibilities, fully or partially putting together and spending their money. They may be related either by blood, or by law, or not be related at all. In 2008 the response rate was 83 % (9 % refused to participate, 8 % have not participated for other reasons).

Initial information is collected in the form of household current expenditure diaries, where all required data are recorded during 7 days in succession. The seasonal variability is tracked by the survey quarterly performance. All foods in the template of the household current expenses diary are divided into the following 11 groups:

- Meat, meat products, bacon, animal fats (with exception of butter);
- Fish, fish products, sea products;
- Milk, dairy products, butter, ice-cream;
- Bread and bakery products, flour, groats, legumes, macaroni products;
- Eggs;
- Oil, margarine, mayonnaise;
- Sugar, confectionery products, sweets, chocolate, jam, fruit butter, honey;
- Potato, vegetables, vegetable canned foods, mushrooms;

- Fruits, berries, fruit-berry canned food, water-melons, melons;
- Alcoholic and soft drinks, tea, coffee;
- Salt, spices.

In a separate table of the diary, all expenses for outdoors meals are registered according to the place where the meal was consumed: restaurant; diner, cafeteria at work or at school; cafe, cafeteria, snack bar, cafeteria at the theatre, vending machine, bar. In a separate table, food products received either from a personal part-time farm, or presented as gifts, or received free-of-charge from other sources are registered as well. For making the registration easier, a provisional detailed list of food products is provided in the diary.

Therefore, a relatively detailed description of consumed foods is contained in individual household diaries. However, during the next stage, when the diaries are collected, the information is processed in such a way, that all items in a specific group are summarized. Further statistical treatment is performed using only the compressed data of 11 groups of the food products. As a result, it is not possible to extract data on consumption of a specific food later on, for example, nuts, or butter, or juices, or soft drinks. Moreover, the consumption of all dairy products is recalculated for fresh milk. That is why rather ridiculous figures sometimes appear in statistical tables on consumption of milk and dairy products.

Results and discussion

The households were characterized by the average number of persons [2]. The households are also considered as being either with, or without children, taking into account the specified number of children. During the last 10 years the average size of the household in Ukraine decreased from 2.77 in 1999 to 2.60 in 2009. It is interesting that there are almost equal four groups of households consisting of 1, 2, 3, 4 and more persons. Number of households with children significantly decreased from 44.2 % in 1999 to 37.8 % in 2009 reflecting a steady tendency of the birth rate reduction.

Table 1 Foods consumed by households (average monthly, per person)

	1999	2001	2002	2003	2004	2005	2006	2007	2008
- meat and products, kg	3,7	2,8	3,3	3,9	4,0	4,4	4,7	5,1	5,1
- milk and products, kg	18,7	17,3	18,8	19,1	20,2	21,7	22,3	22,1	22,6
- eggs, units	19	16	17	17	18	21	19	20	20
- fish and products, kg	1,3	1,4	1,4	1,4	1,6	1,8	1,9	1,9	2,1
- sugar, kg	2,7	3,3	3,1	3,2	3,6	3,6	3,2	3,2	3,4
- vegetable oils, kg	1,5	2,0	2,0	2,0	1,9	1,9	1,7	1,7	1,8
- potato, kg	10,2	11,1	10,3	9,9	10,1	9,6	8,7	8,3	8,4
- vegetables, kg	10,0	9,0	9,5	9,0	8,7	9,1	9,4	8,7	9,3
- fruits, nuts, grapes, kg	2,0	2,2	2,4	2,5	2,7	3,1	3,0	3,6	3,7
- bread and products, kg	9,1	10,7	10,7	10,3	10,4	10,3	9,8	9,6	9,6

The well-being of the Ukrainian population gradually increases, because the consumption expenditure has decreased from 96.6 % in 1999 to 86.2 % in 2009, while expenditure for food products and soft drinks decreased from 65.2 % to 48.9 % for the same period of time. It is believed that population lives in the state of poverty, if the food products expenditure exceeds 60 % of all consumption expenses.

Improvement of living conditions and well-being of Ukrainian citizens is confirmed by the fact that in 2008 only 18.1 % of population (8.1 mil) lived with average per capita income under subsistence minimum (626 UAH), while in 1999 when the subsistence minimum was 270 UAH, almost 80 % of the population (39.2 mil) was in condition of poverty.

From analysis of the foods consumed by households in the last 10 years (Table 1) it is clear that consumption of meat and meat products increased during the decade by 37.8 %, milk and dairy products – by 20.9 %, eggs – by 5 %, fish and fish products – by 61.5 %, sugar – by 25.9 %, sunflower-seed oil and other vegetable oils – by 20 %, fruit, berries, nuts, grapes – by 85 %. At the same time, consumption of potatoes in 2008 decreased from the maximum in 2001 (11.1 kg/person/month) by 24.3 %; bread and bakery products from the maximum in 2001 (10.7 kg/person/month) by 10.3 %. Consumption of vegetables decreased by 7 %. While the dynamics (decrease) of bread and potatoes consumption is positive and reflects improvement of foods variety in the diet, decrease of vegetables consumption is a negative fact that has to be taken into consideration.

Improvement of the situation at the job market, as well as increase of the minimal wage level, increase of the pensions and the state social payments have affected the average monthly total income of the population and promoted decrease in differentiation of population by the well-being standards. The ratio of the total income of 10 % of the richest and the poorest population is 5.2 now, while the most prosperous 20 % of the population received 36 % of the overall total income.

Increase of the real income of the population has given consumers a better chance for maintaining appropriate level of the domestic nutrition and for its improving. The caloric content of the daily diet in 2008 was 3482 kcal with 93 g of proteins in the consumed foods, 159 g of lipids, and 426 g of carbohydrates. More detailed information shows that the caloric value in all groups of population was higher than the norms for both active and disabled persons. The lowest value (2923 kcal) is observed in the households with children. However, even in the households with the low income elderly men, the caloric value was higher than the norm for active persons. As a paradox, the highest caloric value was observed in the households consisting only of elderly persons being more than twice as high as the recommended value of 2000 kcal. The caloric value was especially high in rural households (3713 kcal) and households without children (4097 kcal). This tendency should be considered as a negative one, because it is a possible cause of obesity and a clear indication of the misbalanced diet.

Three groups of households have shown deficit of proteins, namely the households with children (80 g), households with children not having either one, or both parents (83 g), and households with income lower than the subsistence minimum (78 g). The situation is especially negative, if one considers the content of lipids in consumed foods in the same groups. There is no deficiency observed; on the contrary, the content of lipids is 30-40 % higher than the norm indicating that there is a considerable misbalance in ratio between proteins and lipids. Such a distortion is observed in all groups of the households. The situation is particularly alarming in the households without children where 188 g of fats are consumed per day instead of the recommended 100 g, and in the households consisting only of elderly persons where 216 g of lipids are consumed daily.

Content of carbohydrates in consumed foods in three groups of households, namely, in urban ones (395 g), in households with children not having one or both parents (377 g), and in households with income lower than minimum cost of living (384 g) is almost equal to the recommended norms, while the consumption in households with children (357 g) is lower than the norm. Again, in households consisting only of elderly persons the consumption of carbohydrates is enormously high, two times exceeding the recommended norm.

The differentiation was observed in consumption of foods between households of the poorest 10 % with the total per month income lower than the subsistence minimum and the most prosperous 10 % of households. The latter spent for meals 1.6 times smaller part of their cumulative expenses (40 %) than the first decile, while the caloric content (3792 kcal) was 1.3 times higher. In households of the first decile and in groups with the total income lower than the subsistence minimum, one person consumed fruits, berries, nuts, grapes, meat and meat products, fish, milk and dairy products, vegetables and melons, sugar, vegetative fats, eggs 1.2-3.2 times less than persons from the most prosperous decile group, while consumption of bread and potato was more in the poorest group.

Foods produced at personal farms traditionally play a significant role in the rural households. In 2008 more than a half of potatoes consumed in the households was produced at such farms and about one third of vegetables, melons, a quarter of eggs, 14 % of milk and dairy products, 11 % of fruits, berries, nuts, grapes, meat and meat products. In the rural households, it has been produced from 90 % to 36 % of these products.

There is a very important question: does the diet of Ukrainians correspond to international recommendations and norms? Annually the UN releases a report on the level of human development. The basic generalized parameter is the Human Development Index (HDI) calculated using data on the life expectancy, the degree of literacy and the total per capita product. According to the Human Development Report 2007/2008 [4], the Ukraine occupies 76th place with HDI=0.788, the life expectancy of 67.7 years. The low life expectancy is caused partly by a wrong diet. Seven risk factors have the greatest influence on the death rate from non-infectious diseases [5], four of which are related to nutrition (hypercholesterolemia, superfluous body weight, alcohol, insufficient consumption of fruits and vegetables). All the risk factors are present in the Ukraine.

Considerable attention in the EU is paid to interrelation between nutrition and health, and millions of euros are spent for financing corresponding projects. Unfortunately, except for the selective inspection of households, anything similar is not done in Ukraine. So-called "consumer's basket" [6,7] was not reconsidered since 2000. There is no national program of healthy nutrition. At the same time, scientifically proved recommendations on the rational and healthy nutrition are very popular abroad [8-10]. In Ukraine, recommendations on the balanced diet are based on so-called formula of the balanced nutrition [11] suggested by A. A. Pokrovskiy in 1964 and used until now in spite of the fact that approach to problems of the balanced diet has essentially changed during the last 40 years.

Ukrainian norms underestimate importance of proteins, overstating at the same time contents of fats. As a result, recommended for Ukrainians relation between proteins, fats and carbohydrates does not correspond to the last advices of scientists. Moreover, interrelation between saturated, vegetative and poly-unsaturated fat acids is also distorted.

Surveys show that Ukrainian population does not pay serious attention to a balanced diet, and some questions cannot be answered at all. For example, 10 % of the population have never measured and do not know their body mass, almost half (44.5 %) cannot estimate the caloric value of the diet, every third (32.7 %) eats irregularly and only 6 % follow the low cholesterol diet. Twice exaggerated are Ukrainian norms for sodium (4-6 g/day). At the same time, recommendations on such important minerals as potassium, magnesium,

iron and zinc in the Ukrainian norms are understated by 1.5-2.0 times. As for vitamins, 4-6 times understated are Ukrainian norms for vitamin B₃, and 2.5 times the norms for B₁₂.

It was interesting to compare consumption of basic foods in Ukraine with that in other European countries [12]. Data on a diet in 16 European countries were obtained from the DAFNE database reflecting consumption in 1999-2005 [13]. The corresponding data for Ukraine was taken from the report [2] and composition of the "consumer's basket" [6,7].

In Table 2 only average figures for the European countries are presented, although there was a wide scatter practically for all parameters. For example, at the average consumption of animal fats of 11,9 g/day, only 0,8 g/day are consumed in Greece, while 41 g/day in Poland, i.e. 50 times more. Comparison with Ukraine on this parameter is impossible, since by the Ukrainian methodology, the butter is recalculated in pure milk.

According to Ukrainian norms, consumption of animal and vegetative fats should correspond to 1:1 ratio, although by the most recent European and American recommendations this ratio should be 1:2 for the benefit of vegetative fats. The average ratio for the European countries is 1:3, while in Greece due to olive oil this ratio reaches 1:100. The Mediterranean diet [14] with high consumption of olive oil is considered by some scientists as the ideal one for all European countries. It is necessary to note, that by consumption of vegetative oils Ukraine does not differ from majority of the European countries.

Table 2 Consumption of main foods (average per day per person), g

Consumed Food	EU countries	Ukrainian norms	Real consumption in Ukraine
- meat and meat products	153	146	170
- milk and dairy products	300	394	753
- fish and fish products	30.5	35.7	70
- sugar	31	66	113
- animal fats	11.9	19.2	?
- vegetable oils	32.4	19.5	60
- potatoes	132	260	280
- vegetables and melons	163	301	310
- fruit, berries, nuts, grapes	164	175	123
- bread and bakery products	134	301	320

Ukrainian norms for consumption of bread more than 2 times exceed average for the EU countries (134 g/day), with the actual consumption being even higher (345 g/day). This reflects the national tradition of eating all dishes with bread, but it is also the result of the relative. Similar situation is observed with potato, consumption of which in Ukraine is 2 times higher than the average in the countries of Europe. Consumption of vegetables and fruits should exceed 400 g/day. Apparently, even in the EU countries this norm is not met. Ukrainian norms exceed the European ones; however actual consumption in Ukraine, especially of fruits (123 g/day), is still low. A serious problem is the over-consumption of sugar by Ukrainians (113 g/day) in contradiction with recommendations for the healthy diet.

So, consumption of all foods in Ukraine is higher than in other European countries in average, except fruits. A special study of the dietary intake of Ukrainian students [15] has shown that bread and potato which were the main foods in the diet of Ukrainians until the

end of 20th century became less and less consumed. Only 63.8 % of females and 77.1 % of males still consume bread daily, while, only 21.7 % of females and 34.3 % of males eat potato daily. This fact and a sharp increase in consumption of fruits and vegetables show that the well-being of Ukrainians is improving during the last years.

Conclusion

The statistical data indicate that the dietary intake of Ukrainian population is gradually improving. However, consumption of foods by its structure is still typical for countries with a low standard of living and characterized by a deformed structure of the diet with deficiency of proteins and excess of carbohydrates. There should be some cardinal changes in the diet, such as keeping the recommended ratio between proteins, lipids and carbohydrates; increase in consumption of complex carbohydrates and fibers; consuming more vegetables and fruits, reduction of the consumed sugar; decrease in amount of salt; minimum of alcohol; lowering the excessive body mass. At the same time, it is necessary to avoid eurocentrism, not forgetting that the national cuisine and traditions of the healthy eating result from a long adaptation of the population to specific conditions of life and environment.

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