

Assessment of food quality of the population as one of the important social problems

Evdokimova O.V.

Orel State University named after I.S. Turgeneva
Orel, Russia
evdokimova_oxana@bk.ru

Ivanova T.N.

Orel State University named after I.S. Turgeneva
Orel, Russia
evdokimova_oxana@bk.ru

Evdokimov N.S.

Orel State University named after I.S. Turgeneva
Orel, Russia
dredasti@mail.ru

Abstract - The current problem of the nutrition quality of elderly people, as the most numerous and rapidly growing socio-demographic group, is considered. It is known that nutrition is practically the only means of increasing a person's life expectancy by 25–40%, while the range of specialized products for this social and age category is very limited. The aim of the study was to identify the level of consumption of certain food products by people of old age and to constitute its correspondence to the physiological norms of consumption. The developed survey questionnaire used the model of measuring the latent variable. The analysis revealed qualitative nutritional problems of the studied social-age category, associated primarily with the level of income, attitude to the country of origin and the quality of food, physiological features of consumers. In the questionnaires the respondents indicated the volume of their average daily consumption of certain products, which made it possible to identify deviations from the physiological norms of consumption, which were of both kinds: abuse and undersupply of certain foods. The dependencies between the level of the average monthly income of elderly people and the consumption of cheap (potato and bread) food have been revealed. Some suggestions and recommendations for improving the quality of nutrition are, therefore, increasing the life expectancy of people in the elderly age and as a result improving the health of the nation and the quality of life in the country. The rationale for the industrialization process in the production of functional food products is to identify the needs of the population for certain food groups, compare recommended and real level of consumption of separate functional food ingredients and to suggest measures in order to normalize the nutritional status of the studied group of population.

Keywords - nutrition quality; elderly people; special-purpose products; physiological features of consumers

I. INTRODUCTION

Currently, the process of accelerated socio-economic transition from the traditional stage of development to the industrial one, with the predominance of industrial production, including food processing and public nourishment, is in progress. This is happening due to the high share of investment in the food industry, the development of new technological processes, the introduction of high-tech and high-tech technologies into production, the automation of technological production lines. Although, the number of diseases related to the problems of nutrition of the population in certain regions is steadily increasing, the state of health of the population remains at a low level.

One of the most significant determinants of the socio-economic situation in Russia is the demographic situation. In modern conditions, the market nature of the economy inevitably leads to differentiation of incomes among the population. The social and economic position of many social groups is worsening, including the elderly people. [1, 5, 11].

According to the May presidential decree "On the national goals and strategic objectives of the development of the Russian Federation for the period up to 2024", it is necessary to increase the average life expectancy of Russians up to 78 years old, the project of reforming the pension system in the country suggests raising the retirement age to 63 for women and 65 for men, which should include an improvement in the quality of life and physiological abilities of working people of older ages in the prevailing conditions.

II. LITERATURE REVIEW

The socio-demographic group of elderly people is one of the most numerous and fastest growing [10]. In 1960 the total number of people older than working age was 202 people per 1000 people of working age, in 2015 it was 391. According to Rosstat forecasts their number will be 465 people in 2026.

According to well-known medical scientists, nutrition is practically the only means of increasing the life expectancy of a person by 25–40% [7].

The rational nutrition of elderly people is one of the main issues in the resolution of the Government of the Russian Federation “The concept of state policy in the field of healthy nutrition of the population of Russia”, and in the adopted Federal Law “On social services for the elderly and the disabled”. [6, 16].

In recent years, more attention has been paid to the issues of the rational nutrition of elderly people [7]. At the same time, the range of special-purpose products for this social and age category is very limited [14]. We have no systematic data on the assessment of the nutritional quality of people in old age either in Russia or in separate regions. [12, 15, 17, 19]. There are no approaches to the industrialization of the production of functional foods.

Methodological approaches to the creation of healthy food products have been developed [13]; one of the methodological approaches in assessing the quality of nutrition of specific groups of population is marketing research using sociological methods by means of individual questionnaires of respondents. [4, 10].

Modern industrial processing of agricultural raw materials allows obtaining a significant amount of various food products, including special-purpose ones, without taking into account the place of production or the season, which allows us to simplify consumer choice and turn it into a special form of individualization of choice [18]. Scientific and technical progress in the food market is developing quite actively, but its positive achievement for the benefit of mankind will depend not only on the decisions of the governments of different countries, but also on the active position of the population, and consumers of food products as well [2].

III. RESEARCH METHODOLOGY

The sociological questionnaire was a formalized set of questions aimed at revealing the quantitative and qualitative characteristics of the object and subject of analysis. [4, 11]

The purpose of the study was to identify the level of consumption of certain foods by the studied category of the population and its correspondence to physiological norms. When designing the survey questionnaire, a model of measuring the latent variable was used [9].

The survey was conducted in the city of Oryol in 2017. The quota sampling method was used to select the respondents. The selection parameters were gender and age of the respondents. In total 1680 pensioners (including age pensioners and invalidity pensioners) were asked. Among them there were 39.8% of men and 60.2% of women, which generally corresponds to regional statistics.

The social portrait of the consumer is presented below.

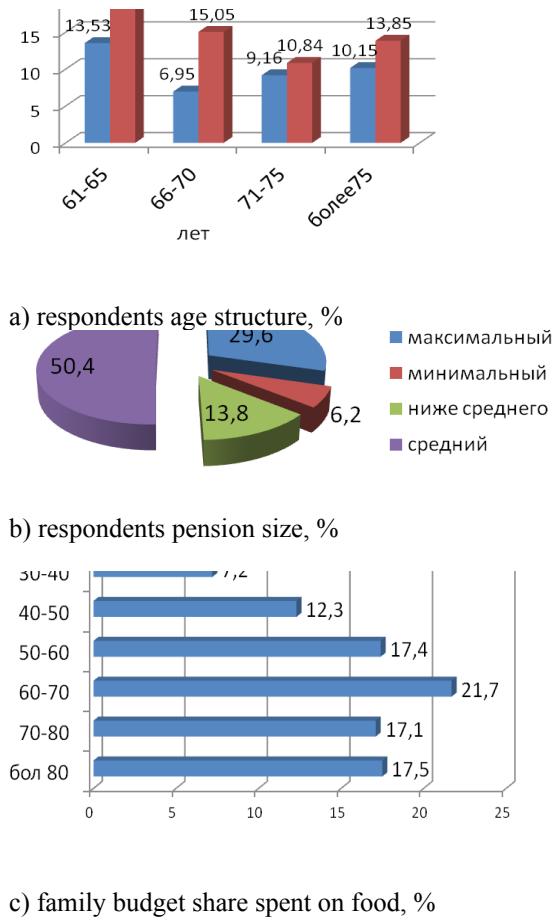


Fig. 1. Social portrait of respondents

I. PRACTICAL SIGNIFICANCE

According to the data obtained in the course of the survey, the size of pensions of elderly people is insignificant. Only about 30% of the respondents receive the maximum pension size, while 6.2% of the respondents have minimum pension size.

Low incomes account for a significant proportion of people who spend more than 50% of the family budget on food products, and 73.7% of the respondents belong to this category of consumers. According to international statistics, such families are considered poor.

Thus, three-quarters of elderly people belong to the category of the poor, and more than 17% of them spending more than 80% of their family income on food. Assessing this situation, it is necessary to recognize that the standard of living of elderly people is extremely low due to low pensions in Russia.

The highest proportion of pensioners who are not satisfied with the quality of food falls on the age category of 61–65 years (13.53% of men and 20.47% of women). Only among those who have monthly income per family member at a level above the average, the proportion of not satisfied with the size of their pensions begins to decline, while remaining still quite high (50.4%). The size of the pension is not enough for good nutrition of 83% of those spending up to 30% of the budget, and 98% of pensioners who spend more than 80% of the family budget on food.

For the main part of pensioners (more than 80%) is limited by their financial possibilities by the size of their pension, since they do not have additional earnings. Elderly people who are forced to save on food among pensioners who do not have additional income are 11.1% more than among pensioners who have a part-time job.

More than 50% of the respondents prefer domestic products. Only 9.8% of elderly people prefer imported products; for the rest of consumers, the producer of food products is not important.

Pensioners - women are more oriented to domestic food producers than men. At the same time, 17.1% of men and 6.5% of women prefer imported goods.

According to the survey, the need to save does not reduce food quality requirements of elderly people.

Less than one fifth of the respondents called the price the main factor determining their choice of foods. Women to a greater extent than men associate their buying choices exclusively with the price of goods (21.1 and 9.8%, respectively). Price is a significant factor in the choice of food products for respondents who have retired before reaching 60 years of age, and it is a priority factor for respondents who are over 70 years old. Requirements for the quality of purchased products among pensioners increase according to the amount of income for each family member: from 7.3% of the respondents with minimum income and 33% of the respondents with income above average level pay attention to the quality of food. Only 13.8% of pensioners, who consider their pension insufficient for quality nutrition, allow themselves to be guided not by the price of the product, but by the quality of the food they buy.

Those for whom the price is the primary factor, are mostly not interested in the manufacturer of food products, and pensioners, who are more oriented on the quality of goods, more often purchase products of domestic producers (66.3%).

To assess the quality of nutrition of elderly people, the following objectives were set in the study:

- 1) to determine the level of consumption of certain groups of food products;
- 2) to establish deviations from the physiological norms of food consumption;
- 3) to determine the effect of the level of material security of elderly on the nutritional structure.

The questionnaire posed a question allowing respondents to indicate the volume of their average daily consumption of certain products.

Table 1 presents the data obtained on the consumption of food by elderly people: norm or excess of the norm.

TABLE I. TABLE CONSUMPTION OF FOOD BY AN ELDERLY PERSON PER DAY: NORM, EXCESS, SHORTAGE, NON-USE, %

product	Within the norm	Less than 50 % excess	More than 50 % excess	Do not use	More than 50 % shortage	Less than 50 % shortage
1. bakery	59,4	4,9	4,4	2,5	23,5	5,8
2. potatoes	49,4	10,6	12,1	2,8	10,1	15,4

3. vegetables and melons	42,5	2,8	-	7,3	35,8	11,4
4. fruits and berries	46,5	2,5	2,8	9,2	31,2	8,2
5. meat and meat products	40,8	6,8	6,8	9,7	22,6	13,8
6. eggs	37,9	4,4	10,6	19,7	11,1	16,8
7. fish and fish products	49,9	6,8	17,3	13,5	8,7	4,4
8. sugar and confectionery	70,9	4,9	3,9	12,1	6,8	1,8
9. vegetable oil	55,1	18,8	1,5	3,9	6,6	14,5
10. milk	33,4	5,8	1,1	14,5	26,7	18,8
11. butter	49,9	4,4	18,8	17,8	7,9	1,8
12. cheese	25,9	12,8	10,6	27,4	2,5	21,2

It has been established that the consumption of sugar and confectionery products (70.9%) mostly corresponds to norm. Most of the respondents adhere to the physiological norm of consumption of bakery products and vegetable oil. Compliance with the norm in the men's consumption of bread products is 20% more than the women's consumption. Compliance with the norm in the men's consumption of potatoes is 17% more than the women's consumption. The largest deviations from the norm are determined in the consumption of such products as cheese, milk and eggs.

The analysis showed that elderly people consume above the norm potatoes (22.6%), butter (23.1%), fish and fish products (23.8%), cheese (23.5%). The excess of 1.5 times as much was noted for the following types of products: butter (18.8%), fish and fish products (17.3%), potatoes (12.1%), eggs and cheese (12.3%).

Correlation analysis revealed that the consumption of cheap products (potatoes and bread) increases with the decrease in the monthly average income.

As a solution to the problem of the unbalanced nutrition of elderly people for the purpose of reducing the risk of deficiency of essential food substances, the scientific community in the field of food production has conducted research and developed hundreds of formulas and technologies of special-purpose products of geriatric nutrition and functional foods.

However, at present, these developments are present in the consumer market in a limited quantity. The range of such goods is small due to low economic interest of the manufacturers in them.

The modern level of technical equipment of food enterprises and processing industry allows adapting the existing technological lines for the production of homogeneous groups of functional food products at minimal cost.

On the basis of existing enterprises of the food and processing industry it is possible to carry out a slight modernization of technological lines in each region. That will provide the desired properties of new products and the necessary production volumes.

II. CONCLUSION

Studies have led to the following conclusions:

- geriatric market segment is characterized by a growth trend;
- the life expectancy of the population depends on the quality of food by 25-40%;
- using the model of measuring the latent variable in analyzing the nutritional quality of elderly people, correlations between the level of income of respondents and the cost of food were established, orientation to domestic products, price and quality of goods was identified;
- deviations from the norms of consumption of certain groups of food products were found.

To improve the quality of nutrition of the population and, consequently, increase the life expectancy of elderly people, it is necessary:

- to industrialize the production of functional food products;
- to introduce widely advanced research and development in the field of functional and special-purpose food products in the food and processing industry;
- to introduce the products onto the consumer market and include them into the rations of the population.

VI. RESULTS DISCUSSION

When developing national projects and the national programs in the field of demography in accordance with the Decree of the President of the Russian Federation of 07.05.2018 No. 204 "On the national goals and strategic objectives of the development of the Russian Federation for the period up to 2024", the Ministry of Health of the Russian Federation, the Ministry of Science and Higher Education of the Russian Federation and the Ministry of Economic Development of the Russian Federation should provide for supporting the production and introduction to the consumer market functional foods based on the use of local affordable plant raw materials.

We recommend to the Ministry of Economic Development of the Russian Federation to ensure measures of economic motivation for producers of functional food products in order to implement existing scientific and technical developments of special-purpose products into mass production and introduce them to the consumer market. The measures can include the possibility of subsidizing part of the costs on development, production and launch of functional foods with proven preventative characteristics.

We recommend to increase public awareness of the properties and importance of functional foods and organic products, about the need to adjust one's diet taking into account age-related changes through the implementation of the National Program on propagating and maintaining a healthy lifestyle of the Russian citizens.

To fulfill the set socio-economic tasks in order to fully provide the elderly population with functional food products, a program of state support on industrialization of the production of functional food products as a factor in ensuring the quality and life expectancy of the population is needed.

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