

The Nutritional Status of the Elderly in Russia, 1992 through 1994

ABSTRACT

Objectives. The purpose of this study was to ascertain how economic reform has affected nutritional well-being of the elderly in the Russian Federation.

Methods. A sample of more than 2932 Russians 60 years of age and older was selected from a nationally representative survey of Russian households. A 24-hour dietary recall and data on weight, height, and socioeconomic status were collected during 1992 and 1993 and from a separate nationally representative sample of 1955 persons in the same age group in 1994.

Results. Russia's elderly did not experience major declines in economic or nutritional well-being during the first 2 years of the reform period. Dietary composition shifted slightly toward reduced fat consumption. A small proportion of individuals showed signs of underweight. Of those who were underweight in 1992, none had lost more than 3 kg of weight by 1993. Among those 70 years of age and older, none who were underweight had lost any appreciable weight, although half lost small amounts.

Conclusions. Many more underweight elderly people increased than reduced their weight. Mean weight increased among all body mass index groups over the year reported here. However, economic conditions in December 1994 raise concerns. (*Am J Public Health.* 1996;86:355-360)

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Introduction

Since the reform process in the former Soviet Union began, much concern regarding the health and nutrition of elderly people has been voiced in both the lay and professional press. During periods of economic stability, children, pregnant and lactating women, and the elderly tend to be more vulnerable to nutritional deficits than other groups. In Russia, with rising food prices, the incomes of the elderly and their food supply have been thought to be inadequate.^{1,2}

To date, studies large and representative enough to yield conclusions have been lacking. For example, some surveys used self-reported weight loss and poverty cutoff levels below the official Russian government poverty level.^{1,3} Their initial reports indicated that high proportions (37% to 50%) of elderly people had lost more than 5 kg during the 6 months prior to the surveys.

In the Russian population, 11.8% are 60 to 69 years of age and 6.4% are more than 70 years of age. The "elderly" in Russia (who receive pensions and other benefits) are categorized legally as women 55 years of age and older and men 60 years of age and older.⁴ In this paper, we draw on a nationally representative sample of Russian households to examine economic and nutritional risks in the elderly.

Methods

Russian Longitudinal Monitoring Survey

This report drew on data collected between August 1992 and January 1995 in the Russian Longitudinal Monitoring Survey. This household-based survey monitored effects of the Russian reforms on the economic well-being of households and individuals. The survey involved two

phases. In the first phase, a longitudinal sample was followed in four surveys between August 1992 and January 1994. Here we use data from only 1992 and 1993. A separate sample (phase 2) was surveyed between November 1994 and January 1995.

In this paper data from the first two rounds of phase 1 and the first round of phase 2 are presented. Households were defined as persons both dwelling together and sharing a common budget. Weighted results were used to allow us to compare results across rounds. (Details of the sample layout and the weights are available from the authors.)

Instruments

During the five rounds of the survey, great effort was made to collect comparable economic and nutritional data. The income questions were identical (although elaborations occurred to differentiate in detail public and private sources of earnings). The weight and height instruments and approaches remained the same, but some changes were made by increasing the length and quality of training for dietary data collection between the first four rounds and the last round.

Household questionnaires focused on sociodemographic and economic data. Information was collected from each

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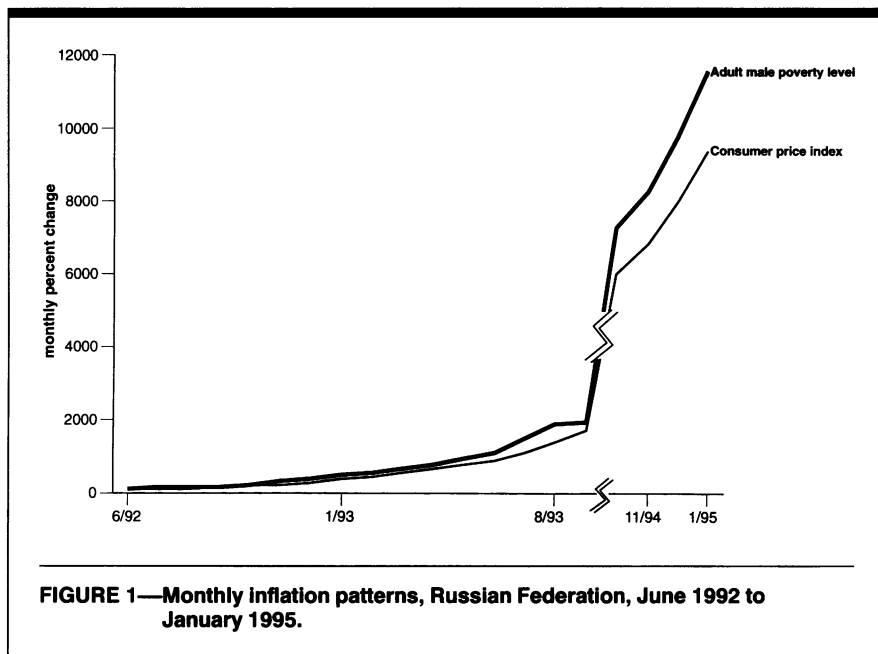


FIGURE 1—Monthly inflation patterns, Russian Federation, June 1992 to January 1995.

individual on time use, economic activities, demographics, dietary patterns, and anthropometric and other health data. In several visits to the household, economic data were obtained from the head of the household and from each individual member. No validation was possible, but expenditure and income data were internally consistent.

The nutritional aspect of the survey depended on dietary and anthropometric data, supplemented by expenditures for food and its home production. Anthropometric procedures were the same throughout. Dietary data were collected in the same way except that in the phase two (round 5) survey, additional training was provided for this purpose.⁵⁻⁷

For each survey, trained interviewers conducted a standard 24-hour dietary recall for each household member. They used color photos of foods to assist in assessing portion sizes, including each food item consumed, place of preparation, meal, and day of week.

The Russian Institute of Nutrition food composition table was used to assess diet in the three surveys discussed here. The nutrient compositions of a limited subset of foods not contained in the institute's food composition table were derived from the Russian Research Center for Preventive Medicine food composition table.

Nutritional Outcome and Other Measures

In measuring body composition, we used the body mass index (weight in

kilograms divided by height in square meters). Body mass index categories followed World Health Organization recommendations. Those with a body mass index of less than 18.6 were classified as underweight, those with a body mass index of 18.6 through 25 were classified as normal, those with a body mass index of 25.1 through 30 were classified as overweight, and those with a body mass index of more than 30 were classified as obese.⁸⁻¹⁰ Household income was defined as including market and in-kind measures. As in the United States, the Russian food basket translates the Russian recommended daily allowance into a menu matching Russian eating patterns. The cost of the food basket, plus a component for nonfood expenditures, is used as the basis for the official poverty line and for indexing the pensions of elderly people.¹¹

Standard errors of statistics (at the .05 level) for persons falling into various body composition categories were calculated by means of a clustered bootstrap procedure.¹² The bootstrap clusters treated individuals in the same household, both within and across rounds, as correlated observations.

Results

Economic Security

Large increases in the cost of the food basket and in the poverty line occurred between February 1992, when major economic reforms began, and Janu-

ary 1995 (Figure 1). From the end of 1993 through 1994, inflation increased at very high levels.

Official poverty levels are derived from household incomes as a proportion of the official poverty threshold. Table 1 shows that elderly people living in households with adults and children under the age of 60 years were much more likely than those living apart from persons less than 60 years of age to be very poor and to have an income less than half of the poverty line. The fortunes of older Russians, particularly those who lived in extended family settings, shifted sharply downward: in September 1992, August 1993, and December 1994, 22.3%, 15.5%, and 27.6%, respectively, were at the poverty level.

Table 2 shows that about two thirds of persons 60 years of age and older lived apart from families with other adults and children and received more than 75% of their income from pensions (state transfer programs). Those living in households with younger adults and children received less than half of their income from this source. In-kind income from private plots of land (see Table 2, noncash income from the private sector) represented about 10% of the total income of elderly people in all households and varied little with household structure. Support from relatives living outside the home and from private charities (including food) declined after 1992.

In 1992, elderly people living only with other elderly individuals had per capita food expenditures of 2250 rubles (in June 1992 real ruble terms), and those living with other family members had per capita food expenditures of 1686 rubles. During the subsequent 2 years, per capita food expenditures increased slightly for elderly people living alone and decreased for those living with others. In June 1992 ruble terms, per capita food expenditures increased to 2594 for elderly people living alone and decreased to 1577 for those living in extended family settings.

In September 1992, for elderly people living apart from families, 85% of total expenditures went for food; the corresponding figure for those living with families was 77%. In December 1994, the proportions were 68% and 74%, respectively.

Anthropometry

Table 3 shows statistically significant increases in weight and body mass index among the elderly from 1992 to 1993. Between 1993 and 1994, no weight or

body mass index changes were statistically significant. Moreover, although we report data for only three surveys, these trends were consistent over all five surveys conducted to date.¹³ Weight and body mass index changes were greater, however, in individuals 70 years of age and older (data not shown).

The proportions in each body mass index category (underweight, normal, overweight, and obese) varied over time (data not shown). Between 1992 and 1993, the proportion of individuals in the obese group increased at ages above 60 years. Between 1993 and 1994, the proportions of individuals in the normal and underweight groups increased. In all time periods, however, the majority were either overweight or obese. The shift toward the underweight category was somewhat greater among those living with nonelderly individuals (from 1.9% in 1992 to 3.2% in 1994 vs 1.7% to 2.6% among those not living with nonelderly individuals).

Table 4 shows the weight change distributions for the 1992 and 1993 surveys stratified by body mass index category. Little is known about short-term weight changes in normal free-living populations, and results must be interpreted cautiously. Between 1992 and 1993, weight changes of more than 3 kg occurred in 55% of respondents; these changes were almost equally distributed between weight loss (26%) and weight gain (29%).

Table 4 shows that, among those who were underweight (a body mass index below 18.6), 24% had lost weight between 1992 and 1993, but none had lost more than 3 kg. Most had gained weight. Even among those in the normal and overweight categories, a greater proportion gained than lost weight. However, a larger proportion (32.3%) of those in the obese group than of those in any other weight category lost weight. In general, no predominant trend toward weight loss was apparent during this period.

Among those 70 years old and older, the pattern mirrored that for all elderly individuals. No significant weight loss was seen in the underweight group between 1992 and 1993, and, in the normal weight group, only 12% lost more than 3 kg.

Dietary Intake

Total energy intake relative to World Health Organization recommended dietary allowances (based on weight, gender, and age)¹⁴ did not appear to change from 1992 to 1993 (67% to 77% in 1992, 69% to 77% in 1993), but it increased slightly in 1994 (72% to 79%) (see Table

TABLE 1—The Distribution of Poverty among the Russian Elderly Population, 1992 through 1994

Age Group, y	September 1992		August 1993		December 1994	
	< 50%	50%–100%	< 50%	50%–100%	< 50%	50%–100%
% elderly living in extended households						
60–69	7.9	29.1	9.5	27.1	16.6	34.0
70+	7.8	26.8	8.0	25.6	17.3	35.5
Total 60+	7.8	28.3	8.9	26.5	16.8	34.5
% elderly living by themselves						
60–69	1.2	15.7	1.3	7.4	2.6	8.1
70+	2.1	15.8	1.1	7.7	1.1	12.8
Total 60+	1.5	15.7	1.3	7.5	2.1	9.6
% total sample of elderly						
60–69	2.9	19.1	3.3	12.0	8.2	18.5
70+	3.7	18.9	3.0	12.8	7.4	21.9
Total 60+	3.2	19.1	3.2	12.3	7.9	19.7

Note. Shown are percentages of each age group with household incomes below 50% and 50% to 100% of the Russian poverty line. Statistics for rounds 1 and 3 were weighted to the 1989 Russian census; round 5 was self-weighting.

Source. Data were derived from the Russian Longitudinal Monitoring Survey, September 1992, August 1993, and December 1994.

TABLE 2—The Distribution of Sources of Total Russian Household Income

Source of Household Income	Households with Persons Aged 60+ Living by Themselves, %			Households with Persons Aged 60+ Plus Other Individuals, %		
	September 1992	August 1993	December 1994	September 1992	August 1993	December 1994
Income from work for state-owned organizations	5.6	4.8	4.2	41.2	36.2	23.9
Income from work for non-state-owned organizations	0.3	0.1	0.9	3.8	2.8	8.9
Transfers from the state (pensions, unemployment benefits, stipends, state allowances)	75.0	78.3	79.1	38.8	44.9	46.7
Cash income from private sector	0.9	1.2	1.6	1.6	2.0	4.6
Noncash income from the private sector	12.1	11.9	9.6	7.7	9.4	10.5
Sale of personal belongings	0.4	0.1	0.4	0.7	0.9	1.1
Rental of personal property/dividends	0.0	0.2	0.5	0.0	0.5	1.0
Family and charity transfers	5.8	3.5	3.6	6.2	3.3	3.0

Note. Statistics for rounds 1 and 3 were weighted to the 1989 Russian census; round 5 was self-weighting.

Source. Data were derived from the Russian Longitudinal Monitoring Survey, September 1992, August 1993, and December 1994.

TABLE 3—Anthropometric Status of Russian Adults 60 Years of Age and Older

Age Group and Gender	Weight, kg			Body Mass Index, kg/m ²		
	September 1992	Change, September 1992 to August 1993 (95% CI)	Change, August 1993 to December 1994 (95% CI)	September 1992	Change, September 1992 to August 1993 (95% CI)	Change, August 1993 to December 1994 (95% CI)
60 and older						
Male	71.05	1.26 (0.38, 2.14)	0.63 (-0.66, 1.92)	25.16	0.28 (0.05, 0.51)	0.21 (-0.24, 0.66)
Female	68.42	1.40 (0.73, 2.07)	-0.31 (-1.67, 0.85)	27.50	0.54 (0.32, 0.76)	0.18 (-0.19, 0.55)
Total	69.24	1.36 (0.83, 1.89)	0.09 (-0.71, 0.89)	26.77	0.46 (0.32, 0.6)	0.10 (-0.19, 0.39)
60-69						
Male	72.08	0.59 (-0.61, 1.59)	0.83 (-0.64, 2.3)	25.42	0.13 (-0.18, 0.64)	0.24 (-0.31, 0.79)
Female	70.80	1.56 (0.85, 2.27)	0.27 (-1.36, 1.9)	28.17	0.58 (0.34, 0.82)	0.39 (-0.06, 0.84)
Total	71.25	1.21 (0.64, 1.78)	0.53 (-0.59, 1.65)	27.21	0.41 (0.21, 0.61)	0.14 (-0.35, 0.63)
70+						
Male	68.17	3.23 (1.74, 4.72)	0.04 (-2.45, 2.53)	24.43	0.71 (0.36, 1.06)	0.12 (-0.74, 0.98)
Female	64.60	1.39 (0.29, 2.49)	-0.23 (-2.5, 2.04)	26.42	0.55 (0.26, 0.84)	0.13 (-0.22, 0.48)
Total	65.44	1.86 (0.99, 2.72)	-0.19 (-1.48, 1.1)	25.95	0.58 (0.33, 0.83)	0.13 (-0.55, 0.81)

Note. Statistics for rounds 1 and 3 were weighted to the 1989 Russian census; round 5 was self-weighting. CI = confidence interval. Source. Data were derived from the Russian Longitudinal Monitoring Survey, September 1992, August 1993, and December 1994.

TABLE 4—Changes in Weight among Russian Persons of Retirement Age between 1992 and 1993, by Body Mass Index Category

1992 Weight Category	Weight Change, % (95% Confidence Interval)				
	> -3 kg	-3 to -1.1 kg	-1 to +1	1.1 to +3 kg	> +3 kg
Underweight ^a	0.0 (0.0, 0.0)	24.3 (5.8, 42.9)	39.9 (18.7, 61.0)	29.6 (9.4, 9.9)	6.2 (-4.2, 16.6)
Normal ^b	10.9 (8.5, 13.4)	13.5 (10.8, 16.2)	45.9 (41.9, 49.8)	16.4 (13.5, 19.3)	13.3 (10.6, 15.9)
Overweight ^c	12.6 (9.9, 15.4)	11.4 (8.7, 14.0)	48.6 (44.4, 52.7)	15.3 (12.3, 18.3)	12.1 (9.4, 14.8)
Obese ^d	18.7 (14.6, 22.7)	13.6 (10.0, 17.1)	39.2 (34.1, 44.2)	12.8 (9.3, 16.2)	15.8 (12.0, 19.6)
Sample, %	13.2 (11.4, 15.1)	13.2 (11.3, 14.9)	44.9 (42.2, 47.7)	15.5 (13.5, 17.4)	13.2 (11.4, 15.1)

Note. Each line totals 100%. Data were derived from the Russian Longitudinal Monitoring Survey, September 1992 and August 1993.

^aBody mass index below 18.6.
^bBody mass index of 18.6 to 25.
^cBody mass index of 25.1 to 30.
^dBody mass index > 30.

5). Similarly, no notable trend for protein intake was seen, although the contribution of protein to total energy did decline slightly.

Energy derived from fat in all three surveys was high relative to US and World Health Organization guidelines of 30% maximum. A large overall reduction was evident, percentages being about 36% in 1992, about 33.2% in 1993, and 30.5% in 1994.

Discussion

The critical question is, Are elderly Russians at great nutritional risk? During 1992/93, with major economic reform beginning, concern for the nutrition and welfare of elderly people prompted mass shipments of food to Russia and the

establishment of many humanitarian food programs in urban areas. The surveys reported here began 8 months into the economic reform, and humanitarian aid may already have had an impact. Thus, timing could explain some of the differences between our findings and those of the earlier Centers for Disease Control and Prevention (CDC) surveys suggesting a substantial impact of food deprivation on the elderly.^{1,3} However, no systematic data had been previously available to indicate fully, with objective measures, the nutritional status of elderly people. Also, we included information on cash and in-kind humanitarian assistance (see Table 2) as part of the family and charity transfers income category. This category represented a minuscule component of household income in Russia.

The CDC-CARE surveys in Ekaterinburg and Moscow in 1992 screened 486 persons 70 years of age and older but used an instrument prepared in the United States for a national project and did not collect dietary or anthropometric data.^{3,5,16} The overall conclusion of the CDC-CARE study was that the body mass index distributions of elderly Russians and Americans are similar; however, the fact that incomes were so close to the poverty line in Russia was viewed as troubling. Because detailed income data were not collected, however, conclusions about the inadequacy of pensions might reflect either incomplete information or a lower poverty threshold.

The survey reported here focused on about 3000 persons 60 years old and older followed in 1992 and 1993, and another

TABLE 5—The Structure of Dietary Intake in Russian Adults of Retirement Age, by Age Group

Age Group, y	RDA for Energy, %			RDA for Protein, %			Energy from Protein, %			Energy from Fat, %		
	Sept. 1992	October 1993	December 1994	Sept. 1992	August 1993	December 1994	Sept. 1992	August 1993	December 1994	Sept. 1992	August 1993	December 1994
50	77.8	77.1	79.0	124.1	114.7	111.0	14.4	13.6	12.9	39.0	35.7	32.7
60+	75.5	76.3	79.6	101.4	98.9	97.1	13.6	13.4	12.6	36.6	33.2	30.5
70+	67.5	69.6	72.8	92.2	92.6	91.0	13.3	13.4	12.4	35.5	32.5	29.3

Note. RDA = recommended dietary allowance. Statistics for rounds 1 and 3 were weighted to the 1989 Russian census; round 5 was self-weighting. Source. Data were derived from the Russian Longitudinal Monitoring Survey, September 1992, August 1993, and December 1994.

2000 in late 1994, drawn from national samples of households. Income, expenditures, diet, and body composition were measured and related to the legal threshold for poverty (as, in fact, developed by two of the authors).

The results were very different. In terms of economic welfare, elderly people living apart from families appeared to be much better off than those living with their families. Indeed, during 1993 and 1994, households with persons of retirement age fared much better than most others in terms of proportions below the poverty threshold, largely because pensions (1) provided a significant part of the income of the elderly households in which no nonelderly individuals resided and (2) kept up with inflation. Every 3 months, pensions were adjusted to changes in the cost of food. However, by 1994, poverty among elderly people had increased. This may be partially explained by the absence of economies of scale adjustments for family size in Russia.

In another study of the transition beginning in the 1980s, we showed a marked shift in the distribution of poverty away from elderly people to children, the working poor, and the unemployed: more than 40% of children in 1992, and more than 46% in 1993, were poor (double the rates for the elderly); in December 1994, 60.7% of preschoolers were poor, in comparison with only 27.6% of the elderly.¹⁷

The major factor protecting these elderly individuals from the economic turmoil in their country is the legal hedge against inflation in pensions. No other segment of the population is systematically protected by indexing, and, if half of the pension income of households were to be removed (equivalent to a 2- to 3-month delay in indexing pensions to inflation), the rate of elderly households in poverty would have risen from 17% to 43% in 1993.¹⁷

Elderly Russians have somewhat accommodated to economic stress by modestly shifting their diets away from fat. Only a small proportion showed serious effects on weight. Of those underweight in 1992, none had lost more than 3 kg of weight a year later. The weight distribution of elderly Russians is close to that of elderly Americans.¹⁸ More underweight elderly people gained weight than lost weight, and mean weight increased in all body mass index groups between the 1992 and 1993 surveys. No individuals lost more than 3 kg, and marked changes in weight did not occur between 1993 and 1994.

A second question is, Do elderly people living apart from families suffer the most? Elderly Russians who lived with their families were worse off economically than those who lived apart from their families. In economic terms, elderly people living alone apparently have done better, and it is likely that the economic welfare of elderly individuals living in extended families has suffered. This could be unique to the living and socioeconomic patterns of the former Soviet Union and requires further analysis.

In summary, from a nutritional perspective, this analysis reveals that elderly people in Russia are in less dire straits than previously thought. However, they constitute a vulnerable group whose health and welfare needs to be monitored; although they were relatively well off during 1992 and 1993, poverty rates rose in 1994. Also, although the two samples analyzed here are both nationally representative, it is possible that some of the differences between 1992 and 1993, and between 1992 and 1994, arose from the difference in samples. In particular, it seems paradoxical that, in 1994, elderly people were poorer than before, spent a smaller proportion of their income on food, and yet had not lost weight. Although this can partly be explained by the

fact that eating patterns have changed, resulting in even greater caloric intake in 1994, further study is needed to gain an understanding of these changes. Continuing surveys of the 1994 sample will allow further monitoring and fuller interpretation. □

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