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Health and Morbidity in the Accession Countries Country Report – Bulgaria

ENEPRI Research Report No. 26/November 2006

Rossitsa Rangelova*

Abstract

Not unlike other countries in Europe, Bulgaria has been subject to the steady process of population ageing, partly owing to the well-established downward trend in birth rates over the last several decades. In the past 15 years, this trend has been accompanied by the consequences of rising emigration, which has primarily involved young and active persons. As a result of the continual process of depopulation and an increase in population ageing, Bulgaria has one of the larger shares of older persons in Europe.

The worsening demographic situation and health status of the Bulgarian people, exacerbated by the conditions of economic and social crisis during the transition period to a market economy may be the most alarming phenomena in Bulgaria. Although there are differences among the countries from Central and Eastern Europe, most of them also experienced a deterioration of demographic and health indicators in the 1990s. In Bulgaria, the economic crisis gravely damaged access to health care services in particular.

This report presents the health status and morbidity of the population in Bulgaria over the past several decades, emphasising developments in the 1990s, during the country's transition period. Using statistical data it offers an in-depth analysis of the social and economic factors that determine health status as well as the utilisation of health care services in Bulgaria.

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1 Introduction

Not unlike other countries in Europe, Bulgaria has been subject to the steady process of population ageing. The basic reason lies in the well-established downward trend in birth rates over the last several decades. In the past 15 years, this trend has been accompanied by the consequences of rising emigration, which has primarily involved young and active persons.

Thus changes to the Bulgarian population have exceeded even the most pessimistic forecasts. Since 1990, Bulgaria has witnessed a continual process of depopulation accompanied by an increase in population ageing. As a result, Bulgaria now has one of the larger shares of older persons in Europe (see Appendix 1, Table A1).

The worsening of the demographic situation and health status of the Bulgarian people, exacerbated by the conditions of economic and social crisis during the transition period to a market economy, may be the most alarming phenomena in Bulgaria. There are differences among the countries from Central and Eastern Europe (CEE), but most of them also experienced a deterioration of demographic and health indicators in the 1990s. In Bulgaria the economic crisis gravely damaged access to health care services in particular.

This report presents the health status and morbidity of the population in Bulgaria over the past several decades, emphasising developments during the 1990s. The social and economic determinants of health status as well as the utilisation of health care services are also analysed.

2 Demographic trends

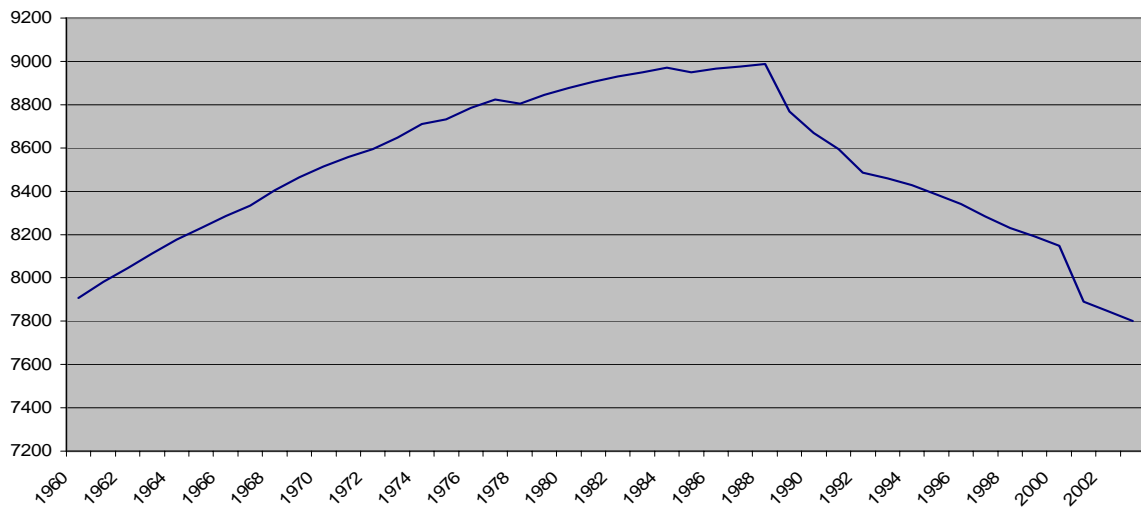
2.1 Size of the population

The demographic changes in Bulgaria need to be viewed from a long-term perspective (see Figure 1). The population in 1960 was about 7.9 million, which grew until 1988 to reach nearly 9 million.

The period 1970-89 was characterised by relative stability with regard to the demographic process. The birth and mortality rates declined, while migration of the population could be termed the “closed type” (Kaloianov, 2001).

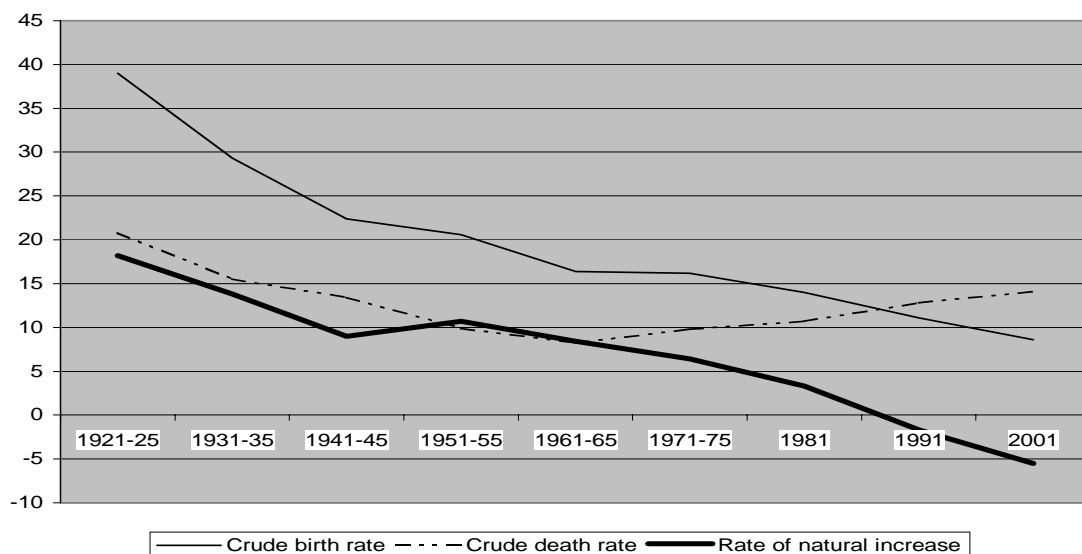
Nearly three decades ago demographers predicted a negative rate of natural increase in Bulgaria around the year 2000, but it was observed as early as 1990. Prior to that time, the rate of natural increase was positive, although continuously dropping: from 7.2 per 1,000 population in 1970 to 3.4 in 1980, 1.3 in 1985, 0.8 in 1989, -0.4 in 1990, -7.7 in 1997 and so on to -5.7 in 2003 (Appendix 1, Table A2). Thus, in the last 10-15 years the country has faced marked depopulation – from 8.9 million persons in 1989 to 7.8 million in 2003 (which means that at the beginning of the 21st century the size of the Bulgarian population was at the same level as in 1960).

Figure 1. Population figures in Bulgaria on 31 December, 1960-2003 (thousands)



The economic and social crisis in Bulgaria after 1989 seriously influenced its demographic processes. The birth rate continued to drop, with the lowest level observed in 2002 (8.5 per 1,000 population). The mortality rate fell until 1960, when it reached 8.1 per 1,000 population, after which it gradually rose and in 1989 was at 11.9. The increase in the mortality rate mostly concerned men of working age. At the beginning of the 21st century it exceeded 14 per 1,000 population (see Appendix 1, Table A2). It is obvious that such processes lead to changes in the age structure of the population and impact population ageing in the country. The proportion of young persons (aged under 20 years) decreased from 51.1% in 1900 to 37.8% in 1946 and then to 28.3% in 1985, reaching 22.1% in 2001. The proportion of elderly persons (aged 60 and over) increased, however, from 8.4% in 1900 to 9.6% in 1946, 20.5% in 1992 and 22.5% in 2002 (see Appendix 1, Table A3).

Figure 2. Crude birth rates, crude mortality rates and rates of natural increase in Bulgaria, 1921-2001 (per 1,000 persons)



Population ageing is more prevalent in rural areas (where about one-third of Bulgarians live) than in urban areas (Table 1). The proportion of elderly persons (aged 60 and over) in villages is twice as high as that in towns (respectively 32.5% and 18.2% in 2002).

Table 1. Live births, deaths and natural growth in Bulgaria, 1970-2003

Year	Number			Per 1,000 population		
	Live births	Deaths	Natural growth	Live births	Deaths	Natural growth (%)
Total						
1970	138,745	77,095	61650	16.3	9.1	7.2
1980	128,190	97,950	30240	14.5	11.1	3.4
1990	105,180	108,608	-3428	12.1	12.5	-0.4
1995	71,967	114,670	-42703	8.6	13.6	-5.0
2000	73,679	115,087	-41408	9.0	14.1	-5.1
2001	68,180	112,368	-44188	8.6	14.2	-5.6
2002	66,499	112,617	-46118	8.5	14.3	-5.8
2003	67,359	111,927	-44568	8.6	14.3	-5.7
Urban						
1970	79,809	30,957	48,852	18.0	7.0	11.0
1980	86,664	45,153	41,511	15.7	8.2	7.5
1990	73,940	55,225	18,715	12.6	9.4	3.2
1995	50,405	60,767	-10,362	8.8	10.7	-1.9
2000	52,789	64,184	-11,395	9.5	11.5	-2.0
2001	48,567	62,778	-14,211	8.9	11.5	-2.6
2002	47,779	63,765	-15,986	8.7	11.7	-3.0
2003	48,597	64,495	-15,898	8.9	11.8	-2.9
Rural						
1970	58,936	46,138	12,798	14.6	11.4	3.2
1980	41,526	52,797	-11,271	12.4	15.7	-3.3
1990	31,240	53,383	-22,143	10.9	18.6	-7.7
1995	21,562	53,903	-32,341	8.0	19.9	-11.9
2000	20,890	50,903	-30,013	8.1	19.6	-11.5
2001	19,613	49,590	-29,977	8.1	20.4	-12.3
2002	18,720	48,852	-30,132	7.8	20.3	-12.5
2003	18,762	47,432	-28,670	7.9	20.0	-12.1

Source: National Statistical Institute (NSI).

Since 1956, a growing gap has been observed between the number of women and men in the population, favouring the former. At the beginning of the 21st century, women comprised 51.4% of Bulgaria's population.

The change in the age structure of the population was very seriously influenced by the emigration outflows of Bulgarians to other countries across the world. According to official data of the National Statistical Institute (NSI), during the 1990s some 45,000 persons on average emigrated each year. Most of them were young persons, which aggravated the problem of population ageing. Based on official data from 1989 up to the present, over 750,000 people have emigrated, i.e. about 9% of the total population in 1989.

2.2 Age structure of the population

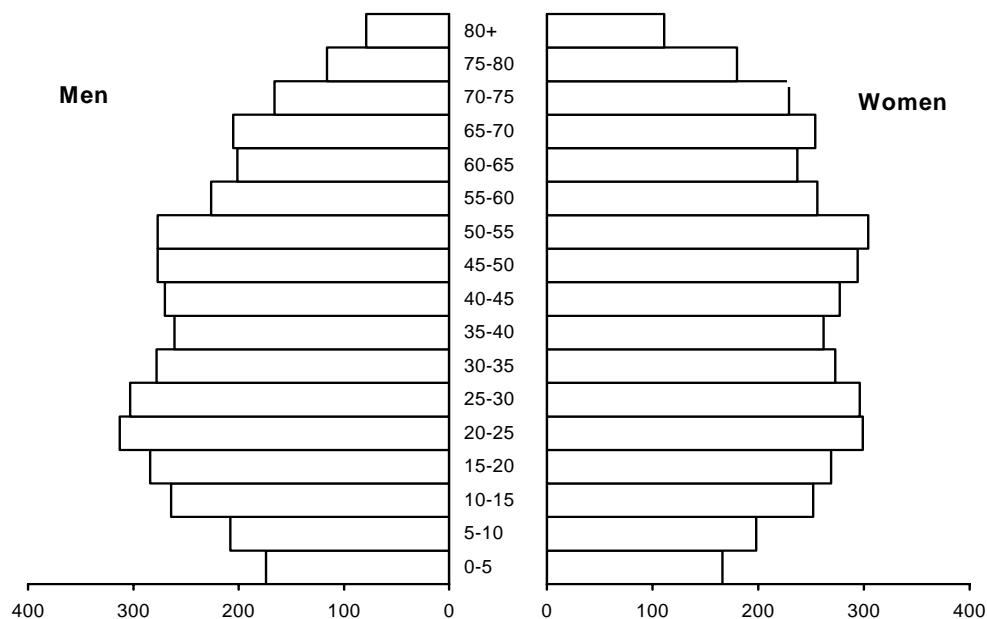
The population ageing study requires a long-term perspective. The data in Appendix 1, Table A3 shows that during the entire long period of 1887-2002, the share of young persons declined and that of old persons increased, with these trends intensifying in the last decade. The total number of the children (aged 0-14 years) fell over the last 40 years (1960-2002) by 756,000. Of this total, the drop during the 30-year period at the start of the cycle (1960-90) was 310,000, while the fall over the subsequent 12 years was 446,000. The main reason for the latter is the rapid drop of the birth rate, i.e. very low fertility, although there are also other reasons such as emigration (parents emigrate with their children) and those children joining the next age group (15-64).

According to official statistical data the number of the children born in 1989 was 105,180, while in 2001 it was only 68,180.

The population total for the second age group (15-64) increased over time up to 1990, then declined in the first half of the 1990s and after that slowly began to increase. In the whole period under consideration, the share of the second group in the total population increased. In contrast with the first two groups, the number of persons aged 65 and over continuously increased. This trend is mainly the result of longer life expectancy at birth.

The changes in the shares of younger and older persons are very negative from the point of view of population reproduction in Bulgaria. In 1990 the share of young persons (aged 0-14) was 20.1% and that of older persons (65 and over) was 13.4%. At the beginning of the 21st century, the share of older persons was already higher than that of the younger age groups (Appendix 1, Table 3A). At the same time, the share of the working age population (15-64) changed by less than 2 percentage points for the period under consideration (from 66.5% in 1990 to 68.4% in 2002). This means that the age pyramid is narrowing at the bottom and widening at the top, changing its traditional shape (see Figure 3).

Figure 3. Age pyramid of the Bulgarian population in 2000 (in thousands of persons)



Population ageing leads to increases in the average age, which in the 1990s changed faster than in the previous decades, and after 2000 exceeded 40 years old (the average age of the rural population exceeded 40 years old from the start of the 1990s). In 2003 the overall age was 40.8 years old, while in towns it was 39.1 and in villages 44.9 (Table 2).

Table 2. Average age and index of population ageing in Bulgaria, 1960-2003*

Year	Average age (years)	Index of ageing	Year	Average age (years)	Index of ageing
1960	31.9	29.2	2000	39.9	105.1
1970	34.0	42.8	2001	40.1	109.1
1980	35.3	54.1	2002	40.6	116.4
1990	37.1	66.6	2003	40.8	120.6
1995	38.4	85.9	2004	41.0	124.0

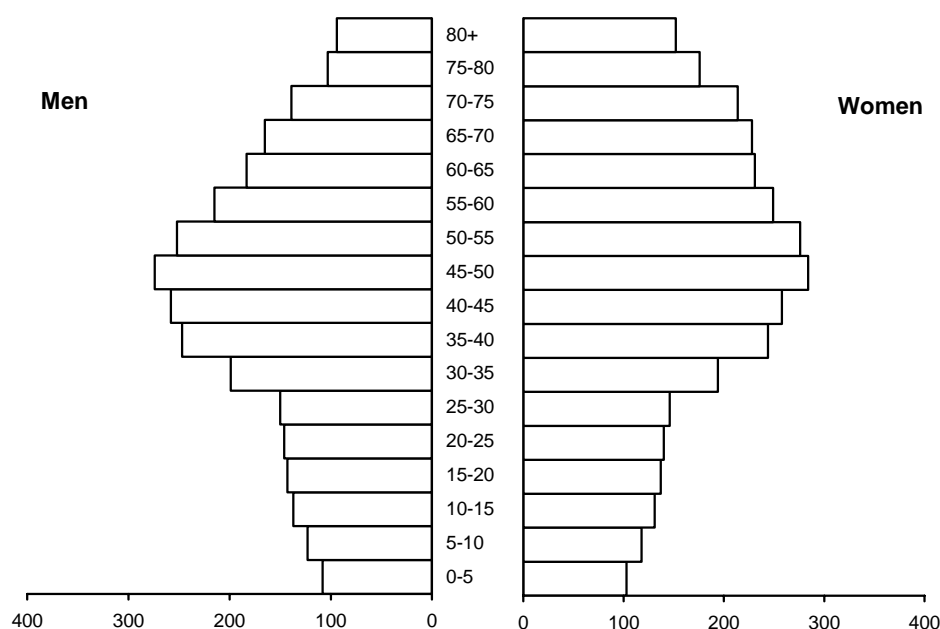
*Number of persons aged 65 and over per 100 children of age 0-14.

Source: NSI, *Statistical Yearbook of Bulgaria*, various issues, Sofia.

The dynamics of the indices of ageing illustrate the gravity of the situation. The process was less intensive in the period 1960-90, i.e. for the 30-year period during which it changed from 29.2% to 66.6%, while from 1990 to 2003 it changed from 66.6% to 120.6% – which means that the number of the older persons has already considerably exceeded that of younger persons.

Different projections by the United Nations, the World Health Organisation (WHO) and individual authors (Donkov, 1999 and Golemanov, 2000b) show that the process of de-population and ageing in Bulgaria will deepen (Figure 4). The hypothetical population total in Bulgaria is projected to be less than 5 million in 2050.

Figure 4. Age pyramid of the Bulgarian population in 2025 (in thousands of persons)



2.3 Migration from Bulgaria

With regard to migration, Bulgaria is among those countries in the CEE region most affected in the 1990s by the so-called ‘push factor’, caused by the social and economic crisis during the transition period.

During the previous 40 years up to the end of 1980s, the country’s population did not take part in free movement abroad. Following 1989, a massive external migration began, which gradually decreased in subsequent years, but which has nevertheless been significant in comparison with that of other former socialist countries.

The first emigration wave was of an ethnic character and concerned Bulgarian Turks. In 1989, over 220,000 persons left the country, moving mainly to Turkey as a reaction to the forcible change of their names in 1985.

After the collapse of the centrally planned economy, a new kind of emigration occurred, to developed industrial countries. In the years since 1989, Bulgaria’s transition to a market economy has been accompanied by the consequences of large-scale emigration of primarily young and active persons (Table 3).

Table 3. Distribution of potential migrants by age, 1992-2001

Age	1992 (%)	1996 (%)	2001 ^a (%)
18-29	24	24	23.6 (30.9) ^b
30-39	29	24	22.7 (22.2)
40-49	21	26	25.6 (23.9)
50-59	13	23	24.7 (22.9)
60 and over	13	3	3.4

^a The percentages in parentheses are those figures listed by a sample NSI study carried out during the 2001 population census. See NSI (2001a), p. 102.

^b Based on the NSI study of those aged from 15 to 29.

Sources: NSI (2001a) and International Organisation for Migration (IOM) (2001) p. 43.

The emigration wave was a result of a number of factors: the lifting of administrative barriers and restrictions, the very large difference in living standards between Bulgaria and developed countries, the reticence of the regime of the 1945-89 period to allow free movement, etc. In the first few years, external migration from Bulgaria was driven mainly by disparities in earnings and unemployment, such that people were often willing to accept a job abroad that did not match their education or professional qualifications. The main motivation for people to emigrate is the opportunity to find a job that could ensure a higher standard of living. This motivation is augmented by the pursuit of a professional career and personal goals.

According to data from the NSI, in the years that followed emigration varied between 40,000 and 70,000 persons per year. As previously noted, from 1989 up to now, over 750,000 persons have emigrated, i.e. about 9% of the total population in 1989 (or nearly one in ten Bulgarians).¹

The emigration of many young persons has strongly influenced the level of depopulation in Bulgaria (Rangelova & Vladimirova, 2004). Further, we cannot rely on the declared intention of

¹ There are not yet regular statistics on the real migration levels from Bulgaria. The empirical data is gathered from several sources – the population census, population registers, administrative sources, border statistics and sociological surveys. The NSI and the IOM organise studies on potential migration.

migrants to return to their home country (Box 1). World experience shows that many people who have intended to do return in fact remain in their new host country. The scale of immigration in Bulgaria up to now is not yet comparable to that of emigration.

Box 1. Profile of potential Bulgarian emigrants:

“The average potential migrant is a highly mobile, well-educated young person, more often men than women, rather single than married, and inhabiting the capital or other larger towns in Bulgaria. This reflects a significant shift in the social profile of the potential migrant since, during the last decade of transition, it was the poorly educated persons who prevailed in the group of potential migrants. The average potential Bulgarian migrant is a temporary labour migrant. He is most likely to stay abroad for shorter period of time than is usually thought. The survey showed that the majority of Bulgarians who plan to migrate would not wish to spend more than 3 years in a foreign country and would rather work there for a while than to permanently settle”.

Source: IOM (2001), p. 3.

2.4 Fertility

The decline in the total fertility rate from 1.54 in 1992 to 1.23 in 2003 is noteworthy, taking into account that the theoretical minimum for stationary population reproduction is 2.1. Similarly notable is the situation with regard to the reproduction of the fertile contingent of the population (the so-called ‘net coefficient of reproduction’). In recent years this rate has only been 0.60, which means the extent of replacement of one generation of women with another is rather low.

A phenomenon typical of the country in the 1990s was the extremely low average age of maternity. At that time, Bulgaria was ranked among the countries in Europe with the highest birth rate among the younger (adolescent) ages of maternity. The high birth rate among the under-20 age group primarily indicates the low level of information about and attitudes towards contraception, which result in inefficient planning of pregnancies and births.

The above-considered indicators reflect a specific phenomenon during the early transition years – a sharply worsened reproductive trend. The observed decline in the fertility rate is owing to both the decrease of the number of the women at fertility age and the decreasing birth rates. The average age of maternity rose from 23.6 in 1992 to 25.6 in 2003, as did the age at which women first gave birth – respectively from age 21.8 to 24.3. This trend was followed by the narrowing of the gap between the number of live births for the two age groups that are typical for most fertile women (20-24 and 25-29) – from about 2:1 in 1990 to close to 1:1 in 2003 (see Appendix 1, Table A6).

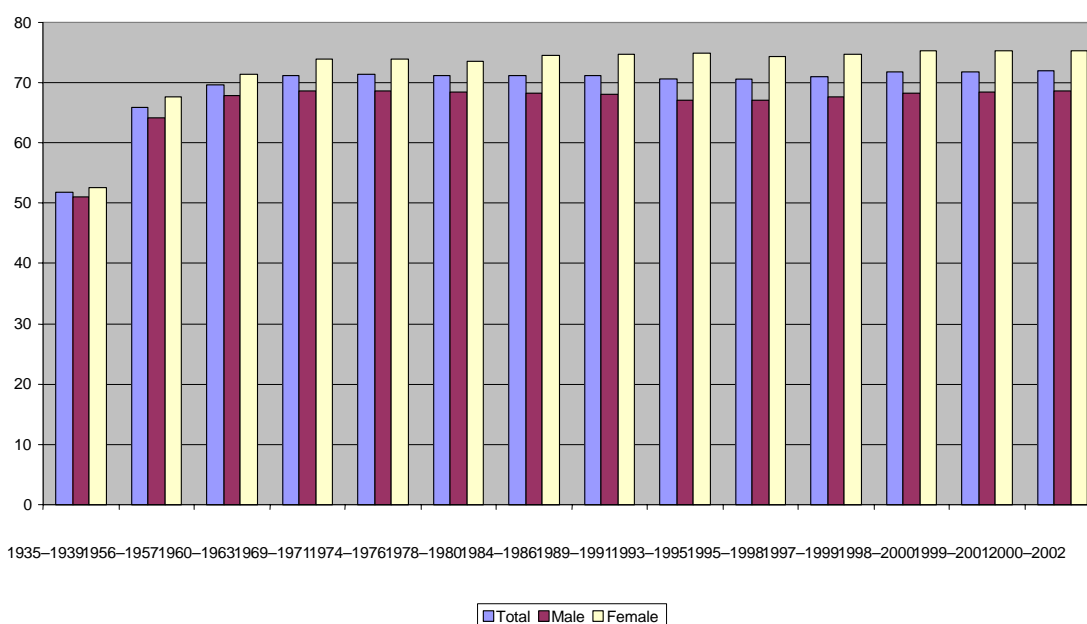
Other related indicators point out the negative impact. The maternal mortality rate in Bulgaria is one of the highest in Europe, in particular for women above 30. Young educated women, who pursue careers and postpone having children after the age of 30 run a serious risk with regard to their health and life. Another revealing statistic, according to data from the complex medical check-ups in 1993, is that only 30% of women are healthy or practically healthy. Despite the fact that it is hard to compare the data, 10 years ago 68% of women were considered to be healthy or practically healthy (UNDP, 1995, pp. 7-8). As a result of the worsened state of health care services after that year, annual check-ups practically ceased, which prevents us from following the trend further. A recently conducted survey, however, shows that nearly two-thirds of women in Bulgaria are unwilling to undertake medical examinations for breast cancer or diseases of the genital system. The health authority in the country has again aired the question of compulsory annual check-ups.

3 Health status

3.1 Life expectancy

Data on life expectancy at birth for Bulgaria over a long-term period shows some basic trends. At the end of the 19th century and beginning of the 20th, life expectancy at birth for men in Bulgaria was 39.99 years and for women 40.33 years. In the period 1935-39 it was about 52 years (see Appendix 1, Table A4). After the Second World War, as a result of the wide use of antibiotics and improvement in living standards the mortality rate began to decline. Thus until the mid-1960s, life expectancy at birth for both men and women increased and reached the level of economically developed countries. This was mainly the result of a decrease in infant mortality. Afterwards, however, the mortality rate of men, in particular of men in their active age, began increasing. The principle causes for that increase were cardiovascular disease and cancer. At present the total life expectancy at birth for men (about 72 years) is among the lowest in Europe, not only compared with many developed countries, where it reaches 80+ years, but also compared with other CEE countries. The growing gap between the life expectancy at birth for men and women is observably in favour of women – from about a year and a half in 1935-39 to nearly seven years at present (Figure 5).

Figure 5. Life expectancy at birth in Bulgaria, 1935-2002 – Total, men and women (in years)



The longer life expectancy at birth of women in comparison with men implies that the average age of the former is higher than that of the latter. According to projections by Bulgarian demographers (see Golemanov, 2000a) the average gender age gap will continue to increase in favour of women – from a male/female ratio of 38.6/41.4 years in 2000 to 43.2/46.7 in 2025.

Healthy life expectancy

Data in Appendix 1, Table A5 allows us to consider healthy life expectancy for a series of age groups. While *life expectancy* grew higher over the period 1996-2001 (excluding that of women

aged 75 and over)² the *healthy life expectancy* declined for both genders and all age groups, excluding men aged 80 and over, where it marks a slight increase by 0.20 years. Men's healthy life expectancy declined most seriously among the middle age groups: 50-54, 45-49 and 35-39 years – on average by 0.9 years. Women's healthy life expectancy declined most considerably (by one year on average) among the younger age groups: 25-29, 20-24 and 15-29 years.

3.2 Mortality

The general mortality rate of the Bulgarian population has been on the rise since the early 1960s. Starting from 8.1 per 1,000 in 1961 (one of the lowest levels in the world), it reached 14.7 per 1,000 in 1997 (see Figure 2), which is one of the highest rates among all developed countries.³

The period 1966-2000 saw relatively stable and statistically significant features of a general mortality rate among the whole population in Bulgaria (Golemanov, 2000b):

- declining mortality rate of women living in urban areas;
- increasing mortality rate of women living in rural areas, aged 35 years and over;
- increasing mortality rate of men living in urban and rural areas aged 15 years and over;
- the mortality rate of men has been higher than that of women; and
- the mortality rate of the rural population (men and women) has been higher than that of the urban population.

The trend towards an increase in the crude mortality rate in Bulgaria as well as other CEE countries is described by some authors as the “paradox of the demographic transition” (Kaloianov, 2001). Theoretically, at the present stage of the demographic transition in these countries the mortality rate should decrease. The impact of the increased mortality rate on the population age is contradictory. On the one hand, the increased mortality rate delays the population ageing process. But the higher mortality rate among persons aged 15 to 64 contributes to a higher intensity of population ageing.

At present one-fifth of deaths are premature, i.e. occurring before age 65, which has fallen from a rate of nearly 30 per 1,000 in 1990.

Among the most important causes and factors related to the mortality rate in Bulgaria are those of healthy lifestyle, the availability of health care services and the lack of modern and successfully implemented programmes for health promotion and illness prevention.

3.3 Infant mortality

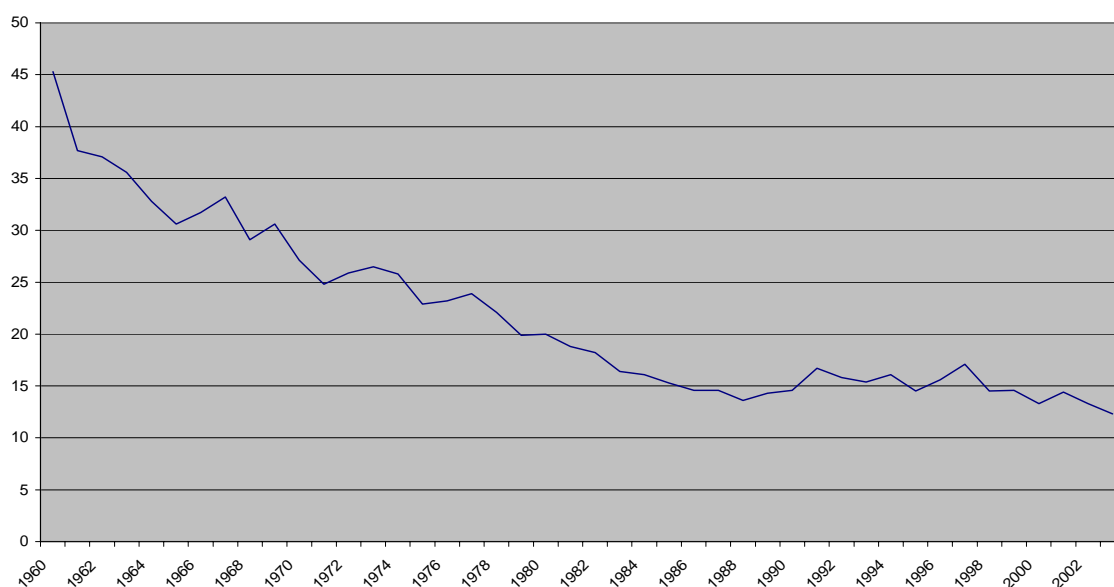
According to the infant (children aged 0-1 year) mortality classification of the WHO, at the beginning of the 20th century Bulgaria had a very high rate – over 140 per 1,000 births, which

² The lower life expectancy of older women in Bulgaria in comparison with men is an interesting and as-yet-unexplained phenomenon for Bulgaria (see Golemanov, 2000a).

³ Among the developed market economies, without exception, mortality continued to decline in the 1970s and 1980s, resulting in a further marked increase in life expectancy. In striking contrast, with the exception of the Czech Republic, men's mortality rates in the transition countries stopped decreasing, and even increased in this period. In most countries a further, although very slight, improvement in women's life expectancy is discernible. Despite the significant amount of research, the causes of this adverse trend are still unclear.

put it in the first category for infant mortality. The most significant decrease was in the period 1939-56, when the country passed to the second category – over 70 per 1,000. From 1956 to 1980, the infant mortality went into the third category – under 70 per 1,000, and since 1980 it has been in the fourth category – under 20 per 1,000. From the start of the 1970s to the mid-1990s, the infant mortality rate in Bulgaria was among the lowest in Europe. In the 1990s it kept its level, slightly fluctuating; at the beginning of the new century a tendency towards decline can be discerned. Up to the present, however, this indicator still has not entered the fifth category – under 10 per 1,000 – which is typical of developed countries (where it is around 5 per 1,000). Thus the infant mortality rate remains high by European standards, and more specifically, it is at the level of EU countries in the 1980s (Figure 6).

Figure 6. Infant mortality rate in Bulgaria, 1960-2003, per 1,000 children aged 0-1 year



In the 1990s, the infant mortality rate began rising again from a total of 14.8 per 1,000 to 17.5 in 1997 (which is the highest level after 1983), declining afterwards to 12.3 in 2003. In villages it has been much higher than in towns (see Appendix 1, Table A7). Infant mortality is known to be very closely related to the wealth of nations. Thus its increase in the 1990s can be connected mainly with the socio-economic and demographic crisis in the country at that time.

A more detailed analysis shows that different countries apply different methodological principles concerning statistics for newborn babies. In Bulgaria, the qualification of a baby born alive is given to every baby who at the end of the pregnancy of his/her mother (independently of the pregnancy period), weighs 1,000 g and over and shows signs of life.

In case the baby's weight is less than 1,000 g, s/he is regarded as born alive if s/he lives beyond six days after the birth date. This method of gathering data allows a higher number of newborn babies to be included, for whom the risks surrounding their survival are high.

At present, the total infant mortality rate in Bulgaria is still a two-digit figure, although very close to 10 per 1,000. In 2004 it was 11.6 per 1,000, with a rather higher figure in rural areas (16.5 per 1,000) and a lower one in towns (10.7 per 1,000). The figures ranged widely by region – from 5.9 per 1,000 in the Vidin district to 30.6 per 1,000 in the Sliven district. In the case of districts like Sliven, one reason for the high infant mortality rate could be the concentration of the Roma population.

The health status of the Roma minority (3.6% of the total Bulgarian population according to the 1992 census) also has to be taken into account. Most of the Roma have lower incomes than the rest of the population and many live in miserable conditions. Fertility and infant mortality rates are higher than those of other ethnic groups, while life expectancy is about 10 years less than the rest of population. In the context of the depopulation of the country, including the migration of young Bulgarians, it is possible that the impact of the higher (and increased) infant mortality rates of the Roma population on the total indicator for the country is stronger. That being stated, there are no official studies.

In 2004 the highest infant mortality rate occurred during the prenatal (antenatal) period (12.2 per 1,000), while the frequency of deaths at the neonatal stage is rather lower (6.6 per 1,000) as at the postnatal age (5.1 per 1,000 – without counting those dead up to 28 days after birth). The former fact concerning prenatal mortalities is indicative of the bad quality of the prenatal care.

Following the reproductive process, one could also observe an increasing rate of prematurely born babies at the very beginning of the 1990s – from 60.6 per 1,000 in 1980 to 66.0 in 1990 and 81.0 in 1993, after which it gradually began to decrease (UNDP, 1995, p. 10).

It is well known that an increasing number of babies with a low birth weight brings about a worsening of the initial status of children. Harmful consequences may await them: *early consequences* may arise through higher infant mortality or morbidity rates; *later consequences* may arise through some socio-economic disadvantages at a mature age. The medical and social character of this indicator makes it very important for a given country. It has been proven that the development of the cohort of low birth-weight babies in a country during a transition period gives more unfavourable results than in the previous decades, owing to data indicating that the mothers of a large proportion of these babies are subject to several factors: pregnancy at too early an age, low education and birth out of wedlock. The prevailing shares are observed among the Roma and Turkish minorities – in terms of the extremely low average age of maternity (Rangelova, 2003).

The main causes for the high rate of mortality of babies aged less than 1 year relates to the antenatal period (362.0 per 100,000), inborn anomalies (247.5 per 100,000) as well as diseases of the respiratory system (188.9 per 100,000), including grip and pneumonia, which cover nearly 84% of the deaths precipitated by this class of disease. The infant mortality rate caused by infections and parasites is relatively higher – 66.8 per 100,000 newborn in comparison with the other causes of death.

Recently, discussions among the health institutions in Bulgaria have held that the reasons for the high infant mortality rate are not justifiable and in most cases deaths are caused by curable diseases, in particular when the babies are aged 2-3 months.

3.4 Mortality by causes

The structural characteristics of the elderly mortality rate have been subject to relatively rapid and significant change in the last four decades (see Box 2). The following important structural features merit pointing out:

- Nearly 90% of all elderly deaths in Bulgaria have been caused by four classes of diseases: class VII (cardiovascular disease, 67%), class II (neoplasms/cancer, 14%), class XVII (accidents and poisonings – the so-called ‘external disease’, 4%) and class VIII (diseases of the respiratory system, 3%).
- Over nearly four decades, the share of cardiovascular deaths among all deaths has grown considerably. This growth has predominantly affected the rural population, in particular men (Table 4).

Table 4. Ratio of 1996-2000 cardiovascular deaths to those in 1966-70 (ICD – class VII)

Gender	Place of residence	Age 65-69	Age 70-74	Age 75-79	Age 80+
Men	Urban	1.06	1.25	1.20	1.13
	Rural	1.47	1.48	1.47	1.33
Women	Urban	1.04	1.10	1.09	1.04
	Rural	1.11	1.17	1.13	1.32

Source: Golemanov (2000a).

- The growing share of cardiovascular disease is to some extent related to the diminishing shares of those deaths attributable to neoplasms (cancer) and respiratory diseases. The only exception is registered for urban women: as a result of the relatively minor growth of the share of those with cardiovascular disease, neoplasms show a mild increase.
- The mortality rate by external causes (i.e. by accidents and poisonings) in Bulgaria has been the lowest in Europe since the beginning of the 1970s. Its dynamic is predetermined by the mortality of men, because their rate is higher than that of women.
- Respiratory disease is the only class of causes of death whose shares have sharply reduced (by about 2-3 times) during the period studied. A further reduction could be expected, although with a substantially slower pace. As a matter of fact, the whole course of this reduction very closely approaches an exponential curve, as has been the course of the respiratory mortality curve.

Box 2. General trends of the cause-specific mortality rate of the elderly in Bulgaria, 1966-2000

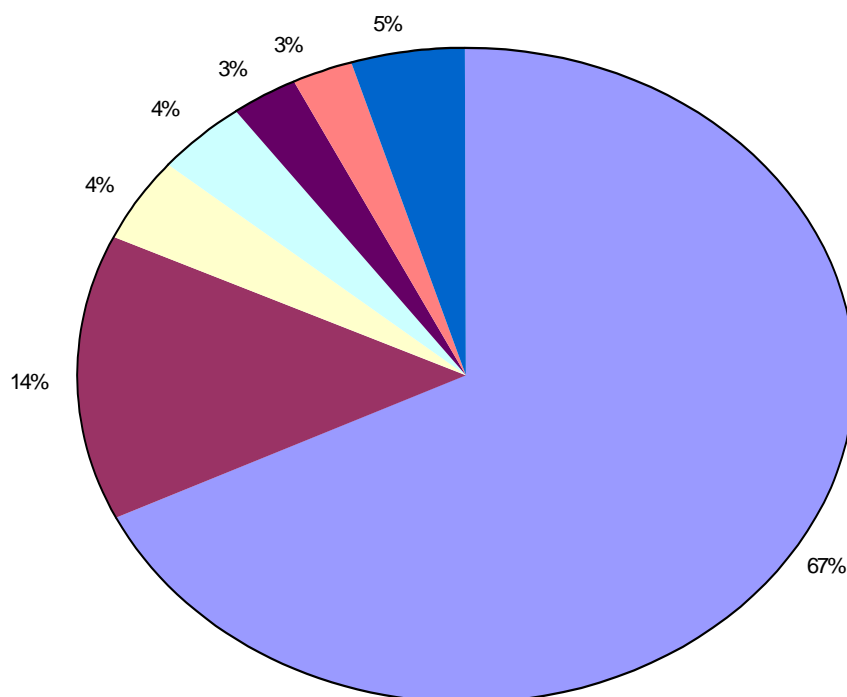
1. Prevailing and steadily increasing mortality rates of men owing to cardiovascular disease, all ages
2. Stable or slightly increasing mortality rates of women owing to cardiovascular disease, with a sharp rise for the oldest persons living in rural areas
3. Significantly higher mortality rates for men living in rural areas owing to cardiovascular disease than men living in urban areas
4. Significantly higher mortality rates for men than women owing to cardiovascular disease, in both urban and rural areas
5. Steadily diminishing mortality rates attributable to neoplasms of all four categories of elderly persons (men, women, those living in urban and those in rural areas)
6. Significantly higher mortality rates for men owing to neoplasms than for women, in both urban and rural areas
7. Significantly higher mortality rates owing to neoplasms for the urban elderly than for those living in rural areas, both genders
8. Steeply decreasing mortality rates owing to respiratory disease for all four categories of elderly persons
9. Almost equal mortality rates among the urban and rural elderly owing to respiratory disease, although a different pace of decrease is observable, resulting in a somewhat higher mortality rate of the rural elderly of both genders at the end of the projected period
10. Higher mortality rate of men owing to respiratory disease than for women, in both urban and rural areas

Source: Golemanov (2000b).

The overwhelming share of cardiovascular deaths has had a decisive role in the formation of the elderly mortality rate in Bulgaria. That is why the favourable trends in mortality attributable to neoplasms and respiratory diseases have only had a softening effect, if any, on the negative general mortality trends mentioned above.

The most recent data on the number and prevalence of deaths by cause reveals the current situation and confirms the above-described trends of changes in mortality rates in Bulgaria (Figure 7).

Figure 7. Elderly mortality by causes in 2002, per 100,000 of the population



Legend (according to the WHO's International Classification of Diseases or ICD – IX Revision):

- 67% – Cardiovascular disease
- 14% – Neoplasms
- 4% – Signs, symptoms and ill-defined conditions
- 4% – Accidents and poisonings (external causes)
- 3% – Diseases of the respiratory system
- 3% – Diseases of the digestive system
- 5% – Other

Source: WHO, "Health for All" statistical database (June 2002) (retrieved from http://www.nsi.bg/Stat_e/Bulgaria-World/Health.htm).

Cardiovascular disease remained the primary cause of elderly deaths in 2002, with a prevalence rate of 971.3 per 100,000, and a share in all deaths (per 100,000) of 67.9%, i.e. over two-thirds. The prevalence of deaths by this cause is higher among men (1004.2 per 100,000) than among women (940.2 per 100,000).

In 1998, Bulgaria had the worst position among European countries by the high prevalence of deaths caused by cardiovascular disease (813.14 per 1,000 against 255.71 for the EU-15). The age-standardised mortality rates for the CEE countries are higher than those for developed Europe. In the former socialist countries, in particular Bulgaria, cardiovascular disease, including heart disease, is much more widespread. Thus, in the case of Bulgaria the overwhelming share of deaths attributable to cardiovascular disease has had a key role in the formation of the elderly mortality rate.

In general, the spread of the disease is affected by the living standards and lifestyle of the Bulgarians, including the traditional nutritional patterns with their long-term health effects (for example, a high consumption of salt, fatty foods, a low level of physical activity, etc.), as well as access to health care, the cost of medicines, the state of medical technology, the lack of check-ups, the attitude towards preventive medicine, the degree of pollution and other factors.

The second most important cause of death is neoplasms. Although the prevalence of death for this category is 4-5 times lower than that caused by cardiovascular disease, it is still very high – 201.3 per 100,000 – with the rate for men rather higher (240.7 per 100,000) compared with women (163.9 per 100,000).

In the remaining distribution of the causes of death by importance one finds the following: signs, symptoms and ill-defined conditions, accidents and poisonings, diseases of the respiratory system and diseases of the digestive system. Deaths attributable to these six categories accounted for about 95% of all deaths in 2002 in Bulgaria.

These trends could be followed by population projections showing the future development of the population if the mortality and fertility rates remain unchanged over time (Zlatanov, 2003). Taking into consideration that the economic crisis has had the greatest impact on the social and health status of the elderly, one could even expect a worsening of their mortality rate.

Other experts in Bulgaria also state that most probably the general mortality rate of Bulgarians will follow previous trends, i.e. of rising rates (Golemanov & Christov, 2001). Having lived for more than a decade in severe social and economic crisis, with high unemployment and widespread poverty, under an intensifying pressure of psychosocial distress, Bulgarians should not expect any stabilisation or reduction of the general mortality rate. On the contrary, one should expect its future rise and, furthermore, an increase in the pace of its rise, related to the intensifying of risk factors for health and life.

4 Morbidity

4.1 Morbidity in the main classes of disease (cardiovascular, TB, etc.)

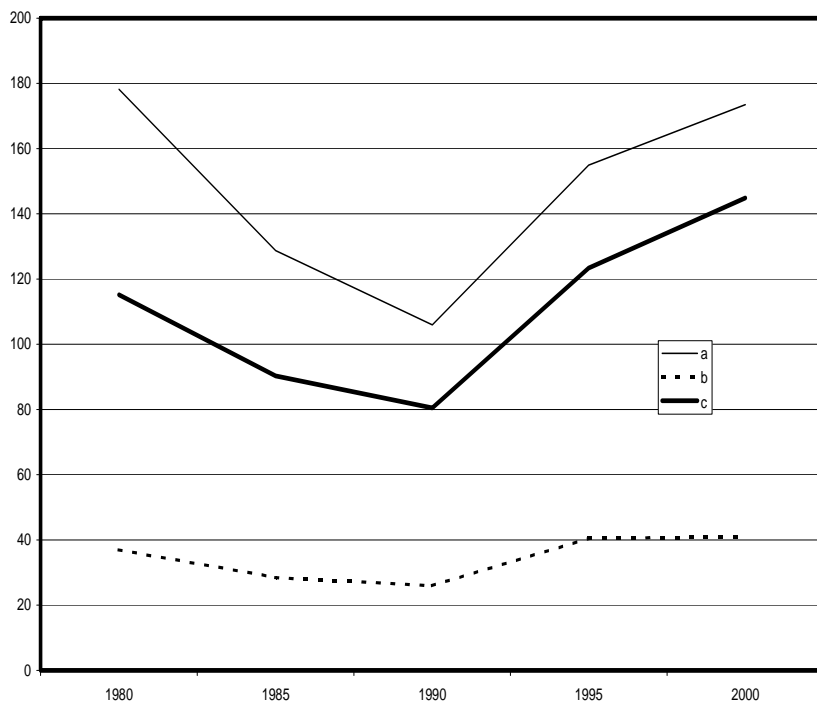
The importance of cardiovascular disease as a contributor to the mortality rate has already been highlighted. The cases of diseases registered by health facilities according to the International Classification of Diseases (ICD) for the period 1990-2000 also shows the large share held by diseases of the respiratory system – 40.8% (see Appendix 1, Table A8).

The morbidity rate of malignant neoplasms in Bulgaria outlines a long-term trend set to increase. According to official health statistics in 1980, the incidence occurred in 1,280 persons per 100,000 population; in 1985, the figure was 1,477, in 1989 it was 1,674 and reached 2,463 in 2000. Its rapid growth continued to a further 2,618 in 2001, 2,756 in 2002 and 2,863 in 2003.

The morbidity rate per 100,000 population of a very indicative disease like tuberculosis sharply decreased in the period 1980-90 (from 178.2 in 1980 to 108.1 in 1989), but in the 1990s the trend reversed (Figure 8). In 2000 the morbidity rate was 173.4, and was estimated to be 186.0 in 2001,

189.0 in 2002 and 166.0 in 2003 – i.e. generally exceeding the levels of the 1980s. The trend for the morbidity rate of tuberculosis of the respiratory system in 2000 (144.8) even significantly exceeded the 1980 level (115.1).

Figure 8. Morbidity rate of tuberculosis in Bulgaria, 1980-2000 (per 100,000 population)



Legend: a = total number; b = newly recorded; c = tuberculosis of the respiratory system.

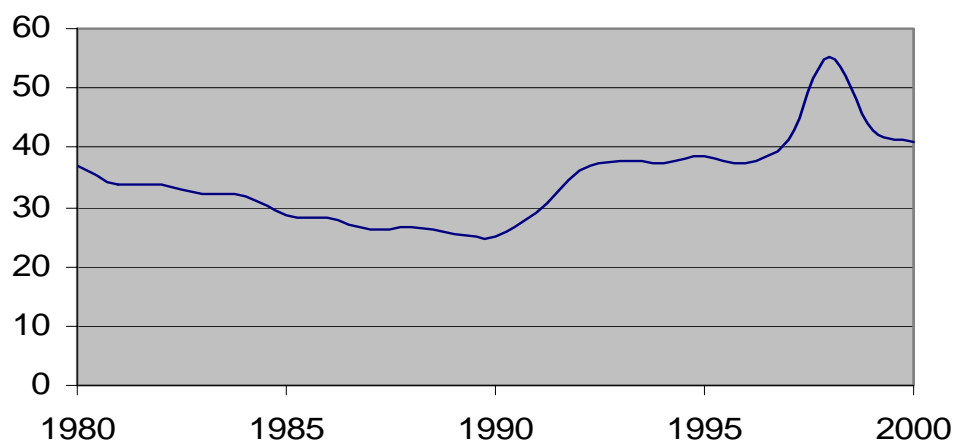
Source: National Statistical Institute and the National Centre for Health Information (2001), pp. 41-46.

While the increase of the latter form of the disease is the most disturbing fact (Figure 9), many of the rest of the forms of tuberculosis retained the same incidence levels and only the rates of two of them decreased for the period under consideration: ‘other forms of active tuberculosis’ – which nearly halved, and tuberculosis of the bones and joints – which dropped by nearly three times (Appendix 1, Table A8).

The data for newly recorded cases followed the same trend. For the whole period under review these figures were higher in villages than in towns, i.e. those living in villages were more severely hit by this sickness.⁴

⁴ An intensifying trend in the morbidity rate of tuberculosis is observed in many countries in Europe. More recently, doctors have discussed the appearance of a modified (mutant) version of this disease.

Figure 9. Tuberculosis incidence per 100,000 (new cases)



Source: National Statistical Institute and the National Centre for Health Information (2005).

High blood pressure

Although in 2001 the proportion of persons with high blood pressure (hypertension) remained high (21.3%), it marked a decrease in comparison with 1996 – by 1.5 percentage points. Hypertension is the most widespread chronic disease, which affected 18.3% of men and 24.4% of women. The largest group (44.2%) of those with hypertension were those aged 45-64 (Table 5). According to the epidemiological study carried out in 1985-86 in Bulgaria, the so-called ‘hidden hypertension’ (unknown by the persons tested) took a share of around 3.1%. These days every fourth person has above-average rates of blood pressure.

Table 5. Distribution of persons suffering from basic chronic diseases, 1996 and 2001 (%)*

Disease	Yr	Total	By gender		By age group					
			Men	Women	0-14	15-24	25-44	45-64	65-74	75+
High blood pressure (hypertension)	1996	22.8	18.9	26.3	0.4	1.8	12.1	46.4	28.4	10.9
	2001	21.3	18.3	24.4	0.2	1.5	13.0	44.2	27.7	13.4
Heart attacks	2001	1.8	2.3	1.2	–	0.6	4.2	41.6	37.5	16.1
Strokes	1996	2.0	2.5	1.6	0.0	0.3	6.5	34.6	38.6	20.0
	2001	2.7	3.1	2.2	2.0	0.4	6.8	33.2	38.8	18.8
Migraines and frequent headaches	2001	13.0	7.4	18.5	1.6	7.5	31.3	37.6	14.7	7.3
Long-lasting mental disorders	2001	8.1	6.2	10.1	1.0	5.8	26.6	40.7	16.3	9.5
Arthritis (rheumatic) arthritis without rheumatism	2001	7.5	5.0	10.0	0.6	0.8	10.2	38.7	29.9	19.8
Chronic bronchitis	1996	7.6	7.0	8.2	11.8	5.8	15.9	35.5	21.5	9.5
	2001	6.5	6.0	6.9	9.5	4.9	14.2	34.6	24.8	12.0
Ulcer	1996	7.9	9.3	6.6	0.5	3.5	25.1	44.4	19.1	7.4
	2001	6.3	7.3	5.4	0.7	1.7	25.4	44.9	19.1	8.3
Allergy-related diseases	2001	5.2	3.8	6.5	12.0	9.7	26.6	34.2	12.2	5.4
Cataracts	2001	3.9	3.3	4.4	0.6	0.8	6.4	25.8	33.1	33.3

Table 5. Continued

Diabetes	1996	3.6	2.9	4.2	0.2	1.6	6.0	42.8	35.4	14.0
	2001	3.5	2.8	4.1	1.2	1.5	9.9	38.1	34.8	14.5
Asthma	2001	2.7	2.4	3.0	11.0	7.9	12.6	30.3	26.0	12.2
Chronic skin diseases	1996	3.0	2.8	3.3	4.0	7.5	25.2	38.8	15.5	9.0
	2001	2.5	2.0	3.0	6.0	7.3	27.5	37.3	11.2	10.7
Osteoporosis	2001	1.8	0.8	2.8	1.8	–	8.3	41.1	27.1	21.8
Malignant neoplasms	2001	0.8	0.5	1.2	–	–	10.1	35.5	32.9	21.5

* The data shown for 1996 is only that for diseases observed in March 2001.

Source: NSI, Population Census (2001b), Sofia.

Heart attacks and strokes

The number of men with myocarditis was twice that of women. Among the individuals interviewed, the number of men who had experienced it was 2.3% of all interviewed, while the figure for women was 1.2%. Those most concerned were persons from the age group of 45-64. Among the total share of persons who had had myocarditis, the proportion of persons aged 45-64 was 37.5%.

The spread of strokes in Bulgaria is of special interest because of the great social impact of this disease. Over 3% of the men and 2.2% of the women interviewed had experienced a stroke. One-third of these were aged from 45 to 64, most of whom were economically active persons (at working age).

Migraines and frequent headaches

Women suffered from migraines twice as much as men. Those most affected in 2001 were persons in the age group 45-64, which comprised 37.6% of total number of afflicted persons.

Prevalence of mental stress

Persistent mental stress was more commonly identified by women (10.1% of those interviewed), than men (respectively 6.2%). Persons aged 45 to 64 (40.7%) had a greater tendency to experience it, followed by those aged 25 to 44 (26.6%).

It is important to highlight that 15% of those who suffered from high blood pressure did not pay attention to this health problem at all. Those afflicted by migraines and mental stress accounted for 30%, yet in many such cases the problems had not been diagnosed by a medical doctor.

Chronic diseases

The selection of questions used for studying the health status of the population in 2001 was completely harmonised with the recommendations of the WHO, which will enable international comparisons in the next few years.

The most important result is that over the period 1996-2001 the morbidity of chronic diseases declined for both men and women, but the level (frequency) of morbidity was still high.

The share of persons with chronic diseases decreased considerably: from 57.5% in 1996 to 46.4% in 2001, i.e. by 11.1 percentage points, with a decline that was almost equal for men and women (respectively by 11 percentage points for men and 10.7 for women). This data should be treated conditionally to some extent, because of the different number of diseases observed in the two surveys – 22 diseases in 1996 and 16 in 2001 (see Appendix 1, Table A9).

Women suffered from chronic diseases to a greater extent than men: 51.4% of women and 41.3% of men in 2001. It is understandable that the higher the age the higher is the rate of morbidity from chronic diseases.

The data on registered cases of infectious diseases subject to obligatory reporting (per 100,000 population) for the period 1980-2002 gives additional information about the state of morbidity in the country (Appendix 1, Table A10). It turns out that the prevalence of some of the infectious diseases was insignificant (diphtheria, poliomyelitis, epidemic encephalitis, etc.), while others were eclipsed completely during the period considered (like measles), or strongly limited (rubella, mumps, influenza and infectious hepatitis). Yet other diseases remained at a high level of frequency (chicken pox and anthrax).

5 Health care system in Bulgaria

5.1 Health care reform

Awareness of the need for health care reform has been the most significant change in the social sphere during the transition period; however, rather than mobilising the authorities it has often seemed to hamper them. Discussions of reform to health care services and social security began and stalled many times in the 1990s. In this situation, neither the old health care system worked nor was a new one fully created.⁵

In the early 1990s, some initial reforms returned to earlier traditions as below:

1. Laws were passed allowing the provision of private health-care services.
2. Medical associations were re-established.
3. Responsibility for many health care services was delegated to the municipalities, which actually meant decentralisation.

Finally, in the late 1990s the basic legislation on the health care system was voted upon by parliament. The implementation of the new health care system, which is an insurance-based financing system, was undertaken. The main goals of the new reforms are to achieve the following: improved health-care access and quality; a change of emphasis from curative care to preventive and primary care; an improved working environment and remuneration for health professionals; and an improved and reconfigured infrastructure for health-care service provision.

⁵ In fact for the greater part of the 1990s, the health care system in Bulgaria was mainly based upon the so-called 'Semashko model' of public sector provision. It was intrinsic to the former centrally planned economy and founded entirely on a relatively high level of government financing. This health care system was weighted towards hospital care, and developed an excessive human and physical infrastructure. Access to health care services was free, with universal entitlement to comprehensive health care. Health-care utilisation rates were high and differences between age groups in terms of access to health care services were negligible. Indicators of the health of the population were relatively good by international standards. The limitations of the previous economic system, however, including few incentives for providers to improve efficiency, gradually lowered the effectiveness of the health system in the former socialist period.

The first stage of the reform package adopted by the Bulgarian parliament concerned outpatient health care, which began on 1 July 2000 and entailed:

- the Health Insurance Law (1998);
- the Law on the Professional Organisations of Physicians and Dentists (1998); and
- the Law on Health Care Establishments (1999).

The reform of inpatient health care started about a year later.

The National Health Insurance Fund

In accordance with the first law cited above, the National Health Insurance Fund (NHIF) was established as an autonomous institution for compulsory health insurance. Health insurance payments are deducted from personal income, the amount of which is determined by parliament along with the overall NHIF budget. Parliament is the largest purchaser of health care services, signing contracts with providers.

The health insurance contribution was initially set at 6% of income, with employers and employees sharing the contribution in the ratio of 5:1. The participation of the employer has decreased in subsequent years, and by 2007 the ratio will be 1:1. Self-employed persons pay the entire amount. Contributions for soldiers and civil servants, along with the unemployed and poor, pensioners, students and other categories of vulnerable persons are covered by central and local budgets.

The health insurance system is compulsory for the entire population. Only some marginal social groups, such as the ethnic Roma population, the permanently unemployed, etc. are excluded from the system.⁶

Organisation of health care services

Outpatient services are performed by GPs and specialists. The basic package for primary health care includes the following (paid) services:

- ambulatory care (examination);
- surveillance, home visits and consultations;
- health promotion and prophylactics;
- immunisations;
- referral for medical and diagnostic tests; and
- the prescription of drugs.

Users pay for services not included in the package.

⁶ It turned out that in 2004 about 2 million Bulgarians for one or another reason did not pay their insurance contributions for a different number of months during the past one or more years. Taking into account the total number of the Bulgarian population (around 7.8 million), this means that if for about 4 million people the state had this obligation, while 1 million Bulgarians were abroad (emigrants) and 2 million people did not contribute to the NHIF, then only about a half million contributions were paid, including those by the unregistered unemployed, who had to pay for others such as those working part-time at a state job.

Inpatient (hospital sector) services have had to deal with a heavy legacy from the past (Tragakes et al., 2003, pp. 57-58), such as:

- an over-supply of hospital beds by international standards;
- an inefficient use of hospitals, with lengthy periods of stay and low rates of bed occupancy;
- a very poor state of repair for some hospitals, which are also poorly equipped and suffer from a shortage of essential supplies such that patients are forced to buy necessities like drugs and food; and
- a concentration of facilities and qualified staff in urban areas.

Patient experience with the hospital sector is very negative. The following main issues are identified for this assessment:

- a lack of sufficient and clear information concerning the cost of inpatient care, tests and surgical interventions;
- the poor hygienic conditions of hospital premises;
- uncertainty and clumsiness in doctor–patient relations;
- continuing practice of under-the-table payments; and
- a lack of information about the package of health care services paid by the NHIF.

The process of reducing the hospital's institutional capacity will continue and must be accompanied by an increase of capital investment in the remaining health-care institutions, so that the system could offer modern and quality health-care services.

5.2 Health-care system financing

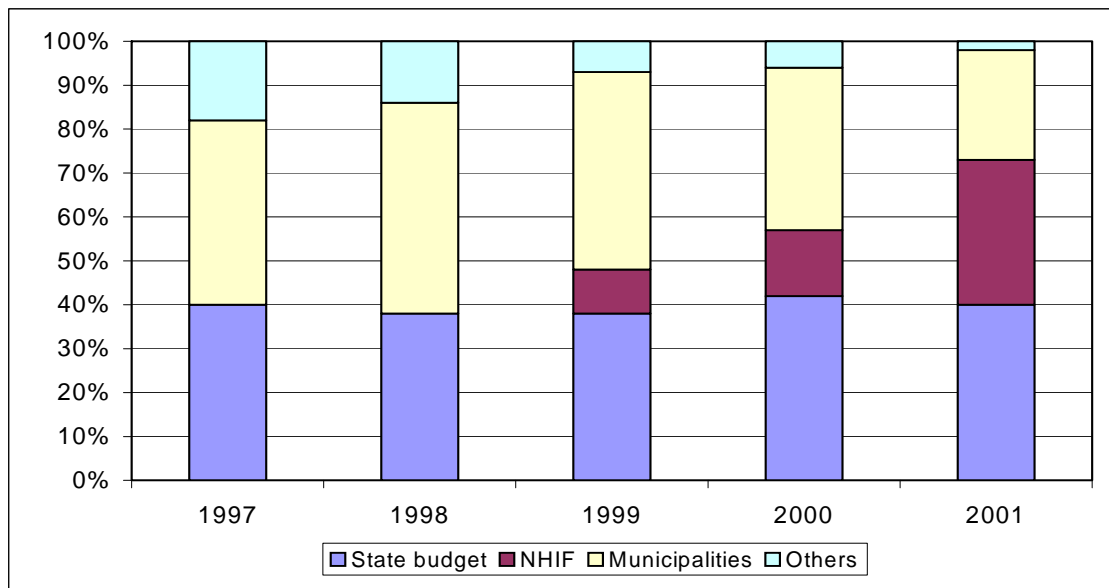
The relative contributions of the main sources of financing are shown in Table 6. At the macro level, the composition of health-care system funding is also shown in Figure 10.

Table 6. Structure of the main sources of health care financing in Bulgaria, 1989-2000 (%)

Sources of financing	1989	1994	1996	1998	1999	2000
Public, of which:	–	98.0	–	–	–	–
National budget	100.0	33.0	40.0	45.0	38.5	42.0
Local government budget	–	65.0	60.0	55.0	51.4	42.3
Statutory insurance	–	–	–	–	9.9	13.0
Private, of which:						
Out-of-pocket	–	0.5	–	–	–	–
Private insurance	–	–	–	–	0.1	–
Other charges*	–	1.5	–	–	–	2.7
External, of which:						
Foreign assistance	–	–	–	–	–	–

* Other charges refer to the non-budgetary financial resources of health establishments.

Source: Ministry of Health and Ministry of Finance.

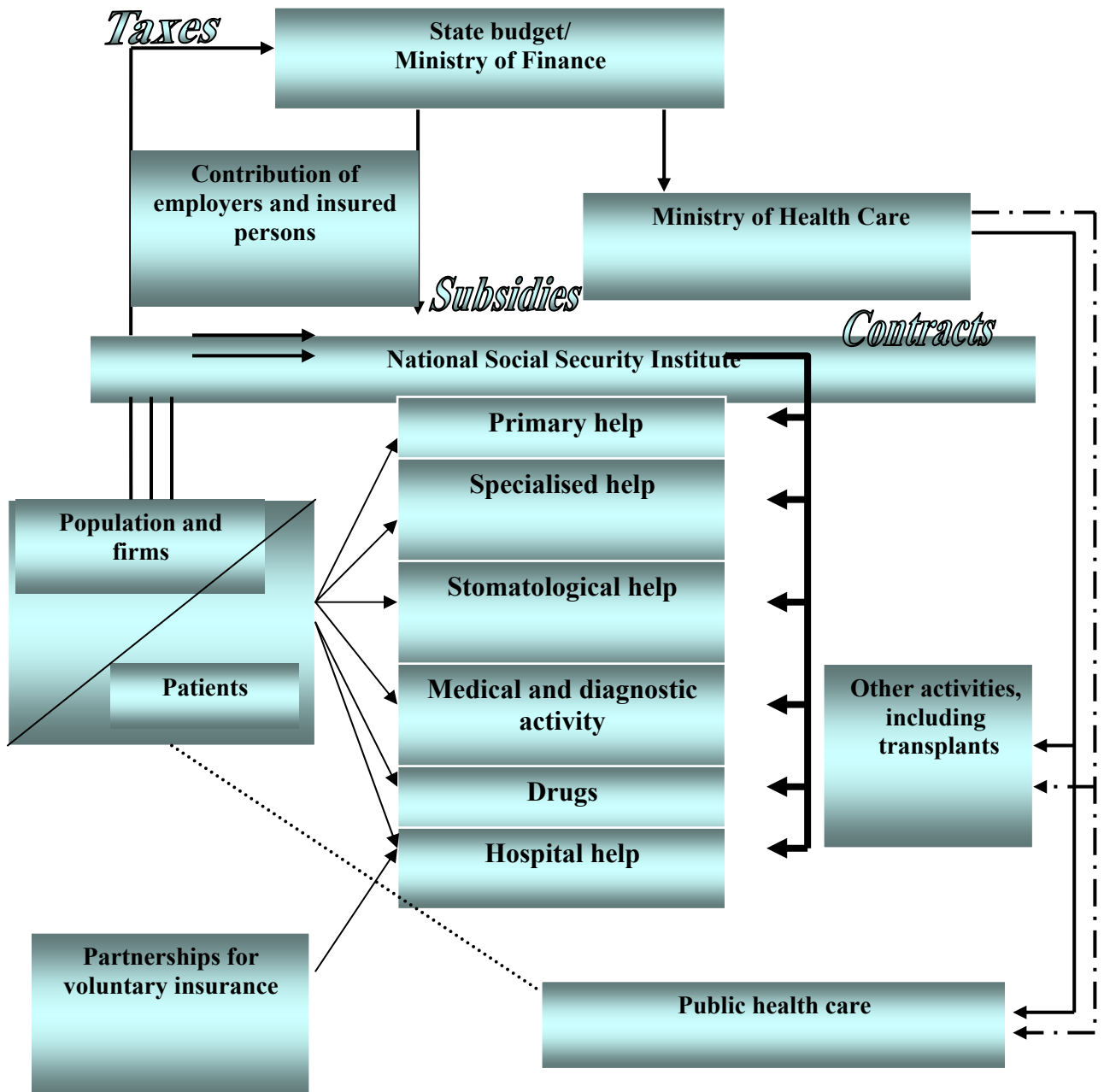
Figure 10. Institutional composition of health care funding, 1997-2001

As can be expected, national and municipal budgets provide the bulk of financing, with social health insurance contributing 13% in 2000 (the first year under health service reforms). Information is not available on all sources of health care revenue, which limits the analytical scope. For instance, foreign assistance was considerable during the period under review. Private out-of-pocket payments were also substantial, estimated by different sources to comprise nearly 20% of health care revenue (see Tragakes, 2003, p. 29).

At present the main sources of health care financing in Bulgaria are as follows (presented in Figure 11):

- taxation through the state budget;
- health insurance contributions – obligatory and voluntary;
- direct payments by citizens; and
- a combination of the above.

Figure 11. Financial flows



Out-of-pocket payments

In a survey conducted in Sofia in 1999, 54% of respondents had made informal payments for health care services (Delcheva, 1999). Unofficial (under-the-table) payments are widespread among Bulgarians in order to gain access to better quality services in hospitals and to pay for a wide variety of outpatient services. In many cases hospitalised patients have to pay for medicine themselves. Luxury services in hospitals (for example single rooms or televisions) have always incurred charges. Most people (excluding children and some categories of patients) have always been charged for outpatient drugs. Patients also pay for balneo-therapy, many dental services, cosmetic surgery, abortions, infertility treatment and eyeglasses.

In a survey of public opinion carried out in 2001, nearly two-thirds of respondents were in favour of the introduction of a range of official user fees.

According to projections by Bulgarian experts, there is a clear tendency towards the reduction of state financing and an increase of health insurance contributions (Table 7).

Table 7 Breakdown of health care financing (%)

Source of financing	Year					
	2003	2004	2005	2006	2007	2008
Total % of GDP	6.0	6.0	6.4	7.0	7.6	9.2
including						
Public sector	2.3	2.0	2.0	1.5	1.5	1.3
NHIF	1.9	2.3	2.6	3.5	3.9	4.5
Local government level	0.5	0.3	0.2	0.2	0.2	1.2
Voluntary insurance	0.1	0.2	0.4	0.6	0.8	1.0
Households	1.2	1.2	1.2	1.2	1.2	1.2

Source: Ministry of Health Care, NHIF.

5.3 Health care expenditure

Health expenditure in Bulgaria has dropped since the beginning of the 1990s. As a percentage of GDP it fell from 5.4% in 1991 to 3.2% in 1996. It rose to 4.2% in 1999 only to fall again to 3.6% in 2000 (see Table 8), after which expenditure increased again to 4.3%. Nevertheless, one should take account of two facts when considering these figures: first, they only include public health expenditures; and second, the volume of GDP decreased sharply during this period compared with 1989, which implies that the real decline of public health expenditure is in fact larger. The proportion of the health sector in total government expenditure fluctuated substantially during the 1990s, but on the whole increased.

If estimates of private spending are included, total health care expenditure as a share of GDP is roughly 4.4-5.1%.⁷ Taking into account the fact that Bulgaria has the lowest income per capita (together with Romania) among European countries, it is absolutely clear that its health care expenditure is often lower in comparison with advanced European and other CEE countries.

The WHO reports that the average person in Bulgaria spends \$81 per year on health care, while the state budget expenditure allows for \$67 per capita. The total health care expenditure is 4.8% of GDP (Tragakes et al., 2003, p. 35).

⁷ According to the WHO report (2000), Bulgaria's private share in total care expenditure was 18.1% in 1997.

Table 8. Dynamics of health care expenditure in Bulgaria, 1991-2000

Total on health care	1991	1995	1996	1997	1998	1999	2000
Real government health budget as a % of the 1990 budget*	71	47	35	26	41	–	–
Share of GDP (%)	5.4	3.7	3.2	3.5	3.8	4.2***	3.6***
Share of total government expenditure**	7.6	9.4	7.1	10.0**	11.0**	9.8	–

* Derived from Delcheva (1999).

** Derived from WHO Regional Office for Europe “Health for All” database

*** Derived from the NHIF

Source: WHO, Ministry of Finance, NHIF.

The reasons for the decline in public health-care expenditures reflect both the economic crisis in the 1990s and the relatively low priority attached to spending on health care by central and municipal government. Health insurance, introduced in 1999, was associated with an initial increase in total health-care expenditures as a percentage of GDP, but this appears to have been accompanied by correspondingly greater drops in budgetary spending in later years.

Scope of privatisation and commercialisation of the system as well as access to services in this context

Private practice has expanded significantly since 1991. Prior to the reform, private doctors had to register with municipalities but were employed in the public sector and maintained a private practice using government facilities. After the reform, all providers of outpatient care had to register their practices in the regional health centres with the Ministry of Health. Patients are responsible for the costs of services delivered by the private sector if the providers are not contracted by the NHIF. Although there are no exact figures available, it is estimated that perhaps only 4-5% of outpatient doctors have no contracts with the NHIF.

Physicians with private practices that were well established before the reform preferred to remain in private practice, because the fees from private patients are higher than those established by the NHIF. Yet many medical doctors have been forced to sign contracts with the NHIF as the private market remains limited. Most people cannot afford to pay the out-of-pocket expenses for private medical care. Those who choose to see a doctor privately do so mostly for specialists, but not for primary care physicians.

Hospital inpatient care absorbs about 60% of the government budget despite attempts during the last several years to shift the priority to primary health care.

Data from 2000 showed that private hospitals made up only 6% of the total number of hospitals and 0.5% of total bed numbers. None of the private hospitals has a contract with the NHIF, so patients bear the entire burden for the costs of medical services in private facilities.

The monopolistic State Pharmaceutical Company was closed in 1991, when the process of decentralisation began in this sector. At present there are about 30 state-owned companies dealing with the production, supply and distribution of pharmaceuticals, which are undergoing privatisation (European Communities & WHO, 2001, p. 33).

5.4 Criticism of the new health care system

It would be reasonable to expect positive results from the new health care system, at least towards the start of the 21st century. Yet so far, administrative data provide a very limited picture. Society does not have a clear and definite view about health care reform owing to the lack of monitoring and analysis. For this reason it is impossible for the time being to assess the efficient utilisation of the health care services to people in good or bad health.

Lately, however, some four years after the start of the new health care system, lively discussion about the new system has included concerns that there are many more limitations than anticipated. Critics and health authorities are convinced that the health system needs further essential improvements. Criticism is directed at the following issues:

- The reform began in a revolutionary way without any preparation.
- The nature of health care services was disregarded and market principles overrated.
- The NHIF actually has a monopoly position, with all the negative attributes of dictating the rules.
- The low income of people and rising costs of health care services and medicines were not properly taken into account.
- Priority was deliberately given to a system emphasising outpatient services.
- Patients are separated from medical specialists by GPs. The ‘gatekeeper’ function of GPs, which limits the number of visits to specialists, has negative effects for not only patients but also specialists. Given the limited access patients have to specialists, the income of specialists shrank, and they are now underpaid in comparison with GPs.
- GPs were not at all prepared to do the new job thrust upon them.
- There are too many patients per GP. On average the ratio should be from 500 to 1,000 patients per GP, but there are in fact over 8,000.

At present, criticisms of the new health care system are more prominent than positive statements (Box 3). The latter could be found in some official reports. Nevertheless, it seems that the ‘agents’ of the health care system are discontent: GPs because too much paperwork takes up their working time, and specialists because they are underpaid. Also dissatisfied are the consumers of the services: wealthy patients because they contribute much more to the NHIF but still pay additional money to visit private doctors or may have to experience the health care service like those who pay the least contribution; poor patients because they cannot afford any additional expenditures and have to rely on what is offered.

The limitations of the public health-care system push people towards private health-care services (including all kinds of alternative health care), which has two consequences: on the one hand, it shifts pressure away from the NHIF; on the other hand, overall health-care expenditure increases.

At present very dynamic changes are occurring in the health care system, particularly with respect to health care expenditure. As long as the health care system lacks effective reform, quick positive effects on health and life expectancy are not possible. Concerning the amount of health expenditure, the first priority is to gather much more funding for health care and the second is to spend it much more effectively.

Box 3. Problems arising with the health care reforms undertaken in Bulgaria

In 2000, the USAID Bulgaria Health Reform Project was established to assist health care reform in Bulgaria. The project highlighted the following problems with the health system:

- lack of knowledge on behalf of the recipients and the providers of the services covered by the NHIF;
- a variety of hospital payment approaches with contradicting incentives for the hospitals;
- a chronically under-funded system that is heavily subsidised by the government;
- lack of financial supervision of private insurance companies to protect patients;
- practically no inpatient care services covered under the benefit package;
- a large discrepancy in compensation between outpatient and inpatient specialists, which leads to significant under-the-table payments; and
- heavy gaming of the system by providers and pharmacists.

6 Health service utilisation

6.1 Doctor consultations

An idea about the prevalence of doctor consultations can be had from the 2001 population census data for Bulgaria (Table 9).

Table 9. Doctor consultations during the month before the interview in 2001 (%)

	Doctor consultations			
	GP	Paediatrician	Specialist	Dentist
Total	30.2	12.8	15.1	15.3
By gender				
Men	26.2	11.8	13.6	14.8
Women	34.1	13.8	16.4	15.8
By age group				
0-14	27.4	15.2	10.7	16.4
15-24	20.0	4.2	12.5	15.1
25-44	23.9	–	15.0	16.2
45-64	32.8	–	16.6	16.6
65-74	47.6	–	17.0	12.8
75+	45.9	–	21.0	7.3
By place of residence				
The capital	26.9	20.7	9.8	19.2
Town	27.7	12.8	15.3	16.1
Village	35.6	10.0	16.4	12.6
By ethnic group				
Bulgarians	30.6	14.8	14.9	16.4
Turks	31.5	9.9	20.1	11.6
Romas	22.0	5.6	7.8	8.9
Others	31.4	2.2	13.7	13.3
Persons aged 15 years and over (total)	30.7	4.2	15.8	15.2

Table 9. Continued

By marital status				
Single	20.1	4.0	12.7	14.8
Married	33.0	–	16.8	15.9
Divorced	23.7	–	15.7	17.1
Widowed	43.9	–	17.8	11.2
By level of education				
Elementary and lower	38.8	5.8	15.9	8.3
Basic	33.7	3.2	15.1	13.3
Secondary	27.0	12.5	15.7	15.6
Higher	28.0	–	18.3	23.7

Source: NSI (2001b), pp. 76-77 and p. 79.

Main findings based on the data in Table 9

- Women consult doctors more often than men.
- Considering the age groups, older persons attend consultations with GPs or specialists more often than other age groups. The reverse tendency is observed for consultations with dentists.
- Those living in less populated areas are more likely to consult GPs and specialists compared with the persons living in the capital, Sofia. The opposite is observed for consultations with dentists. The fewer number of paediatric consultations in less populated areas can be explained by the lower fertility rate in such areas.
- Generally speaking, all the ethnic groups considered consult GPs to a similar degree (percentage), except Romas, who are less likely to consult the three groups of specialists listed. Turks are most likely consult specialists.
- Widowed and married persons tend to use doctors more than single and divorced persons, while the latter and married persons are most likely to spend time and money on dentists.
- The higher the level of education the more individuals are oriented towards specialists and dentists. Those with less education visit their GPs more often.

The distribution of doctor visits by area of expertise reveals the general morbidity of the population (Table 10). It is indicative that excluding specialists in internal diseases, visits to specialists are most often related to diseases of the respiratory and cardiovascular systems.

Table 10. Distribution of doctor consultations by area of expertise, 2001 (total=100) (%)

Doctors' speciality	%	Doctors' speciality	%
Internal diseases	32.1	Dermatologist	2.9
Otology, nose and throat diseases	9.7	Urologist	2.6
Cardiologist	8.1	Pulmonary diseases	2.6
Neurologist	7.5	Endocrinologist	2.5
Gynaecologist	7.4	Rheumatologist	1.6
Oculist	7.3	Psychiatrist	1.2
Orthopaedist	5.2	Oncologist	0.9
Digestive system	3.1	Other	5.3

Source: NSI (2001b), p. 78.

6.2 Medical services in hospitals

Data showing the demographic characteristics of users of hospital medical services are shown in Table 11.

Table 11. Utilisation of hospital medical services by demographic characteristics, 2001 (%)

	Day patients	Patients with a stay in hospitals
Total	15.6	8.4
By gender		
Men	14.6	8.2
Women	16.6	8.7
By age group		
0-14	15.7	6.0
15-24	11.6	7.0
25-44	13.1	6.1
45-64	16.9	9.6
65-74	21.2	13.8
75+	19.4	13.6
By place of residence		
The capital	8.9	6.4
Town	17.1	8.2
Village	15.4	9.6
By ethnic group		
Bulgarians	16.0	8.2
Turks	16.3	10.1
Romas	11.3	8.5
Others	13.3	6.7
Persons aged 15 years and over – total	15.6	8.9
By marital status		
Single	11.2	6.4
Married	17.1	9.4
Divorced	13.9	8.2
Widowed	18.2	11.6
By level of education		
Elementary and lower	19.8	15.0
Basic	16.2	10.2
Secondary	14.3	6.7
Higher	14.7	6.7

Source: NSI (2001b), pp. 76-78.

Main findings based on the data in Table 11

- Women are more likely than men to use hospital services.
- Persons over 45 years old more often use hospital services.
- The less densely populated the area of residence the more likely is an individual to stay in a hospital.
- Among the ethnic groups, Turks are most likely to go to the hospital.

- Widowed persons, followed by their married counterparts are more likely to use hospital services than single or divorced persons.
- Those with a lower level of education use hospital services more often than those with secondary and higher education (notably, the percentages for the two latter groups are very close).

6.3 Dynamics of health service utilisation

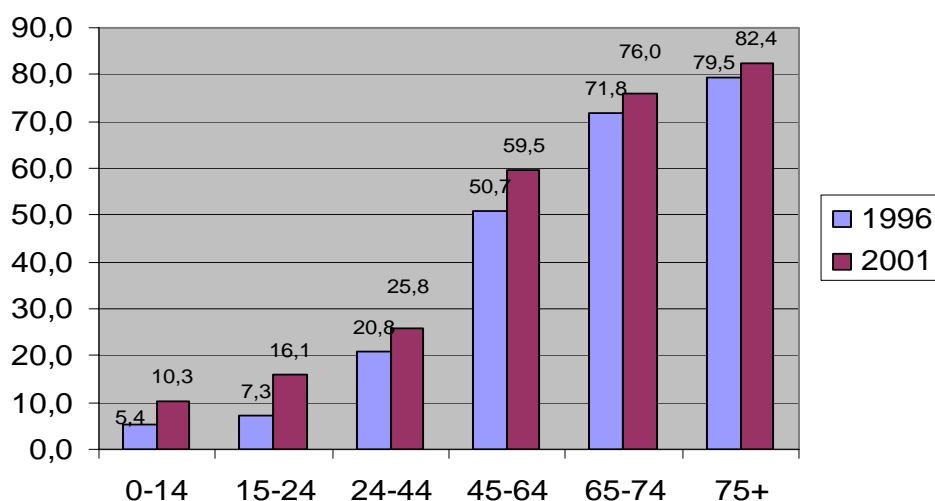
The most recent survey of self-assessed health in Bulgaria was carried out in 2001 together with the population census. The first and most important findings from this survey are that the subjective self-assessed health state of Bulgarians worsened in the period 1996-2001, for both men and women. While in 1996 the share of men who reported a worsened health state (i.e. self-assessed as 'fair', 'poor' and 'very poor') was 27.8%, by 2001 it had increased to 35.9% – a rise of 8.5 percentage points. The share of women who reported a worsened health state in 1996 was 38.8% compared with 44.4% in 2001 – a rise of 5.6 percentage points. Overall, this means that every second woman and every third man interviewed declared a worsened health status in 2001 (Table 12). The share of children (0-14) and young persons (15-24) who reported a worsened health state doubled over this period (see Figure 12). Changes in the other categories confirm the tendency described in terms of data for 1990 and 1997, for example: the younger the healthier; single persons (who are mostly held to be young persons) are healthier than their married, divorced or widowed counterparts; and those living in the capital report a better health status.

Table 12. Share of persons with a worsened health status by basic demographic characteristics, 1996 and 2001 (%)

	Share of persons with worsened health state	
	1996	2001
Total	33.6	40.2
By gender		
Men	27.8	35.9
Women	38.8	44.4
By age group		
0-14	5.4	10.3
15-24	7.3	16.1
25-44	20.8	25.8
45-64	50.7	59.5
65-74	71.8	76.0
75+	79.5	82.4
By place of residence		
Capital	33.3	37.4
Towns	31.0	37.8
Villages	38.8	45.1
By marital status		
Single	11.2	17.3
Married	41.4	48.7
Divorced	39.0	46.1
Widowed	71.9	74.1

Source: NSI.

Figure 12. Share of persons in bad health by age group, 1996 and 2001 (%)



The 2001 survey also provides the opportunity to consider the health state of Bulgarians from many additional aspects, including healthy lifestyle, as discussed in the sections below.

Medical service use

In February 2001 (i.e. the month before the survey) about one-third of the persons interviewed saw their GP, over 15% saw a medical specialist, nearly 2% had had an emergency and nearly 3% had seen a paediatrician. For 52% of these visits the reason given was illness, followed by prescription of medicines and administrative procedures (22%), check-ups (19%), traumas and injuries (5%) and other (2%). Most often individuals see otolaryngologists (ear, nose and throat specialists) followed by cardiologists, neurologists, gynaecologists and eye doctors.

The results from the survey show a greater prevalence of stomatological (mouth) disease in comparison with 1996. In the months prior to the survey 16% of the persons interviewed aged 5 and over saw a dentist, while 27% had seen a dentist within less than a year, 50% within a year or more and 7% had never seen a dentist. The main reason cited for dental visits was a toothache.

Drug use

One-third of those interviewed in 2001 had taken medicines prescribed by a medical doctor during the two weeks before the interview. The most commonly used medicines were those for high blood pressure (46.3%), analgesics (33.9%), antibiotics (24.3%), those associated with stomach problems (12.3%) and soporifics (11.5%).

One in three persons had taken non-prescription drugs (34.0%). The most frequently used were analgesics (40.5%), cold and sore throat medicines (24.0%), vitamins and minerals (16.6%), those associated with stomach problems (7.4%) and antibiotics (5.9%).

Smoking

A marked phenomenon in tobacco use in the 14-year period 1986-2001 has been the increasing share of women who smoke. The share of smoking women among the total number of women increased from 16.7% in 1986 to 23.8% in 1996, reaching 29.8% in 2001 (see Table 13). Every second man was a smoker, among which the proportion of long-term smokers was 49.0% in 1986, 49.2% in 1996 and 51.7% in 2001.

Table 13. Distribution of smokers and alcohol users, 1996 and 2001 (%)

	Persons who smoke		Persons who smoke 20 or more cigarettes per day		Persons who drink		Persons drinking the equivalent of over 50 degrees ethyl alcohol daily on average	
	1996	2001	1996	2001	1996	2001	1996	2001
Total (persons aged 15 and over)	35.6	40.5	3.8	5.6	64.7	76.0	13.6	12.2
By gender								
Men	49.2	51.7	6.9	9.5	81.5	81.4	26.5	23.7
Women	23.8	29.8	1.0	1.8	49.9	67.8	2.3	1.2
By age group								
15-24	38.8	41.3	1.6	3.3	52.0	70.0	4.7	4.9
25-44	56.5	58.5	5.8	7.8	76.7	78.4	16.9	15.5
45-64	30.9	38.7	4.7	7.1	68.6	78.6	17.6	21.8
65-74	10.5	13.9	1.2	1.0	53.9	70.7	10.1	8.3
75+	6.8	6.4	0.8	0.8	45.6	60.3	8.9	2.2
By place of living								
Capital	37.4	40.3	3.3	6.3	66.2	78.9	5.6	9.3
Towns	38.7	44.6	3.9	5.6	67.2	76.6	14.2	10.8
Villages	29.5	33.9	3.9	5.3	59.9	73.5	16.1	15.6

Source: NSI.

The share of smokers increased in all age groups, excluding those aged 75 and over. Smoking was most popular among those aged 25-44, the group most often identified as 'hard smokers'. A disturbing fact was the increasing proportion of young persons who smoke.

Alcohol use

The proportion of men using alcohol was high but unchanged over time (81.5% in 1996 and 81.4% in 2001). The proportion of women using alcohol rose sharply (from 49.9% in 1996 to 67.8% in 2001). The share of drinkers increased in all age groups, particular among young persons aged 15-24, where the increase was from 52% in 1996 to 70.0% in 2001 (see Table 13). The positive thing in this story is the observed decrease of the regular ('hard') alcohol consumers (using the equivalent of over 50 degrees ethyl alcohol daily on average). For men the figure slid from 26.5% in 1996 to 23.7% in 2001, and for women it nearly halved for the period under consideration.

Among those consuming alcohol every day, 44% drank rakia (Bulgarian vodka), while 25% consumed wine and 23% beer.

Physical activity

Over the period under review the level physical activity of Bulgarians declined, most typically for men than for women, and for persons living in urban regions than for those in rural areas (see Table 14). The decline is also marked for the younger age groups. Only the elderly aged 65 and over showed an increase in their level of physical activity.

Table 14. Physical activity of the Bulgarian population, 1996 and 2001 (%)

	High		Middle		Low	
	1996	2001	1996	2001	1996	2001
Total (persons aged 5 and over)	5.2	4.0	59.2	55.9	35.6	40.1
By gender						
Men	7.7	4.5	60.5	57.9	31.9	37.6
Women	3.1	3.4	58	53.9	38.9	42.8
By age group						
5-14	14.8	9.4	53.1	53.1	32.1	37.6
15-24	18.7	9.6	52.3	52.2	29.0	38.2
25-44	2.0	3.3	61.9	54.7	36.1	42.0
45-64	–	1.1	68.1	60.3	31.9	38.6
65-74	–	0.9	56.6	58	43.4	41.4
75+	–	–	36.2	51.8	63.8	48.2
By place of living						
The capital	6.9	6.8	49	45.2	44.1	48
Towns	6.25	4.8	56.8	52.6	37.0	42.7
Villages	2.8	1.7	68.1	65.3	29.1	33.1

Source: NSI.

Body mass index

According to international practice, if one has a body mass index (BMI) rate of over 27 kg/m² s/he is considered as having an over-average weight. The number of adults in Bulgaria with over-average weight fell considerably in the period 1996-2001 (from 38.5% in 1996 to 32% in 2001 for men and from 39.5% to 30% for women). For men and women the average weight is respectively 76.6 kg and 65.2. The stature of the average man is 173.4 cm and that of the average woman is 162.6 cm.

Health prophylaxis

The importance of health prophylaxis (or disease prevention) has shrunk in terms of the focus given by the population and the health care system in the country. According to survey data, one-third of the persons interviewed aged 7 and over have never had their blood pressure measured.

At present, the reforming health care system is renewing its efforts in preventative care, by initiating compulsory check-ups – even to the point of threatening sanctions (fines) if such care is not undertaken periodically.

Data in Table 15 show the changes in the main hospitalisation indicators over a long period – from 1980 to 2003. A positive trend concerning disease is observable in terms of the average length of an inpatient's stay in hospital – which nearly halved for the period under consideration. At the same time, the bed occupancy rate in hospitals also significantly decreased.

Table 15. Basic hospitalisation indicators, 1980 – 2003

Year	Bed occupancy rate – days	Average length of stay in a hospital
1980	313	15.2
1985	318	14.5
1990	281	13.7
1995	241	13.6
1998	227	12.5
1999	245	11.9
2000	242	11.5
2001	235*	10.3
2001	259*	9.2
2003	270	8.8

* Not all relevant institutions are included.

Source: NSI.

7 Health status based on self-assessment

Data on self-assessed health obtained through a health interview is a basic source of information. WHO experts rely on the complex nature of self-assessment. At the same time, the shortcoming of these indicators are well known, which include the nature of the study settings, the method of data collection or the cultural specificity of the persons under review. These factors reflect the subjective character of self-assessment, especially when cross-country comparisons and analyses are made.⁸

The available data on the self-reported health of Bulgarians allows us to present a cross-tabulated analysis revealing the influence of given social and economic factors on people's health status – age, gender, marital status, income, education, population size of the area in which the individual lives, occupation, etc. – in 1997 (Table 16). It should be stressed that 1997 is the year in which the socio-economic crisis of the 1990s was at its height.⁹

A descriptive analysis of factors behind self-assessed health status shows that in general *men* feel better in terms of their state of health than *women*. Men more frequently evaluate their health status as 'good' or 'very good', while women seem to evaluate their health status more pessimistically. This may be related to the higher life expectancy of women – they live longer and to older ages, and thus they suffer more from chronic diseases. As a result they may perceive their health status as 'poor' more frequently.

⁸ There are reasons for dealing cautiously with these data. The context in which Bulgarians assess their own health positively is very questionable, particularly in comparison with people from other countries. For example, according to studies carried out in the period 1990-95, 55% of Bulgarians aged 15 and over defined their health state as 'good' or 'very good', while for Germans the figure was 45.2% and for the Portuguese only 30.5% (see the *Fourth Evaluation in Spain of the European Regional Health for All Programme* by Regidor & Gutiérrez-Fisac, 1999). In another survey (1996) among the 10 CEE countries, Bulgaria had the largest proportion of adult respondents assessing their health as being 'good' (62%), while in case of Latvia the share was a mere 26%. It is hard to find reasonable arguments to justify such results.

⁹ The calculations were performed using SPSS for Windows.

Table 16. Self-assessed health status, disaggregated by social and economic factors, 1997 (%)

	Self-assessed health status				
	Very good	Good	Fair	Poor	Very poor
Total	3.8	27.8	39.7	19.2	9.5
Gender					
Men	21.4	41.3	23.4	10.4	3.3
Women	15.3	37.5	31.1	10.8	5.3
Age					
18-24	47.4	40.6	9.0	1.5	1.5
25-34	34.2	51.0	13.4	1.3	0.0
35-44	21.1	51.0	22.5	4.9	0.5
45-54	4.4	44.8	35.0	12.8	2.5
55-64	3.4	31.8	44.6	15.5	4.7
65+	4.4	17.6	37.6	24.9	15.6
Marital status					
Married	14.1	40.7	30.5	10.6	0.1
As married*	23.1	38.5	26.9	11.5	0.0
Divorced	3.2	45.2	41.9	9.7	0.0
Separated	50.0	16.7	33.3	0.0	0.0
Widowed	2.2	25.8	29.0	23.7	0.0
Single	45.3	40.1	10.5	4.1	0.0
Population size of the area in which the individual resides (number of persons)					
Up to 2000	14.2	35.4	29.1	14.6	6.7
2-5,000	13.0	29.6	29.6	24.1	3.7
5-10,000	26.2	41.0	24.6	6.6	1.6
10-20,000	22.3	39.8	24.3	6.8	6.8
20-50,000	20.8	53.2	19.5	2.6	3.9
50-100,000	24.4	37.0	23.6	11.8	3.1
100-500,000	14.9	42.5	32.8	4.6	5.2
Education level					
PhD degree	21.7	55.0	20.2	3.1	0.0
Masters degree	15.5	44.8	25.9	8.6	5.2
Bachelors degree	24.5	37.4	28.6	6.8	2.7
Secondary professional	40.0	26.7	26.7	6.7	0.0
Secondary	24.4	44.8	23.2	5.1	2.2
Basic	27.6	51.7	17.2	0.0	3.4
Finished elementary	8.8	32.3	34.7	19.5	4.8
Unfinished elementary education	7.7	20.2	35.6	23.1	13.5
No formal education	0.0	33.3	19.0	19.0	28.6
Occupation					
Manager with over 10 years experience	22.2	33.3	33.3	11.1	0.0
Manager with less than 10 years experience	21.4	57.1	21.4	0.0	0.0
Professional	17.7	50.6	20.3	6.3	5.1

Table 16. Continued

Supervisor	17.1	53.7	22.0	7.3	0.0
Non-managerial worker	15.7	40.3	34.3	7.5	1.5
Foreman	11.1	27.8	50.0	11.1	0.0
Skilled	19.3	43.9	29.8	7.0	0.0
Semi-skilled	16.1	42.0	28.2	10.5	3.3
Unskilled	15.6	34.4	30.0	14.4	5.6
Farmer	9.1	45.5	27.3	18.2	0.0
Agricultural worker	7.6	24.6	31.4	21.2	15.3
Armed forces	38.1	47.6	14.3	0.0	0.0
Never worked	46.8	38.7	6.5	4.8	3.2
Income groups – distribution of people by income divided among 10 groups (1990)					
I – lowest	9.1	21.2	27.3	27.3	15.2
II	5.3	28.1	43.9	21.1	1.8
III	15.0	37.8	36.2	9.4	1.6
IV	8.8	31.4	47.8	10.1	1.9
V	12.9	40.0	40.7	5.0	1.4
VI	15.0	41.9	35.0	5.0	3.1
VII	29.9	42.9	22.1	2.6	2.6
VIII	19.0	54.8	21.4	2.4	2.4
IX	50.0	50.0	0.0	0.0	0.0
X – highest	33.3	33.3	33.3	0.0	0.0
Subjectively defined social class					
Upper	29.4	39.2	31.4	0.0	0.0
Upper-middle	21.1	42.2	28.7	7.0	0.8
Low-middle	13.4	42.9	35.6	5.9	2.2
Working	13.6	35.5	35.2	11.7	4.1
Lower	13.0	23.9	24.6	23.9	14.5

* Cohabitants

Source: Own calculations based on the NSI (1997).

Another factor influencing self-assessed health is *age*. There is a correlation between age and the state of health in the sense that younger persons generally have a better state of health. They more often evaluate their health status as ‘very good’ or ‘good’. As people grow older, they more frequently evaluate their health status as ‘fair’, ‘poor’ or ‘very poor’.

It could not be claimed that the *population size of the area in which an individual lives* is strongly correlated to self-assessed health status, although there is a small negative correlation, i.e. the smaller the town the worse the health state of the people living there. Those living in rural areas are on average older than their urban counterparts and it is expected that they would more frequently assess their health status as ‘poor’. On the other hand, younger and respectively healthier persons can clearly be seen to be living in larger towns – students and young persons who have migrated to towns searching for employment – who evaluate their health as ‘good’ or ‘very good’.

There are several findings with regard to the correlation between health status and *marital status*. In general, married persons less frequently declare a ‘very good’ state of health in comparison with separated, single or those persons living as married couples (cohabitants). Within the last two groups it is assumed that younger persons prevail and they evaluate their

health status more frequently as ‘very good’ or ‘good’. Widowed persons more often evaluate their health status as ‘fair’, ‘good’ or ‘poor’ and it is assumed that they belong to the older cohorts. There is, however, a questionable lack of responses to ‘very poor’ for (almost) all of the six groups considered; also dubiously low is the frequency of responses to ‘very good’ among divorced and widowed persons (in comparison with the high frequency of the neighbouring grade ‘good’). This fact gives rise to some questions about the nature of the sample.

Self-assessed health is also related to *education*. In general, the following well-outlined trend is observed: the lowest level of education predetermines a worse state of health; conversely, those with a higher education enjoy a better state of health.

Concerning *occupation*, more skilled persons tend to declare a better health status. One can also see the large proportion of persons responding as having ‘never worked’ or being in the ‘armed forces’ evaluating their health ‘very good’. It is assumed that in the former group mainly young persons are included – pupils, students, etc., while those in the armed forces are expected to be healthy.

Self-assessed health by *social class* (subjectively defined by the interviewee) reveals another interesting aspect. The general tendency is that the higher the social class, the better the state of health. This tendency is related to self-assessment by income group and education, since education is typically highly correlated with income and social group (the higher the income the higher the social group).

The distribution of population *by income* (which has been divided into 10 groups) is given, showing that wealthier persons are more likely to self-assess a better health state, or put otherwise the lower the income the worse the state of health.

8 Econometric analysis of health status and determinants of health-care services utilisation

The applied econometric analysis is aimed at revealing significant demographic, social and economic explanatory factors of the health status of the population and the utilisation of health care services. Four logit models are analysed. They include the following demographic indicators (explanatory variables):

- gender;
- age (years); and
- marital (cohabitation) status – married + living as married and others.

Analysis is based on individual data from the 1997 Bulgaria Integrated Household Survey (IHS), which is a representative sample survey (see Appendix 2, Country-specific sources of information). Using the data from this survey we look for comparability of the results with the other country reports undertaken for the ENEPRI AHEAD Work Package II.

8.1 Determinants of health status

In the *first model*, health status was measured against the dependent variable ‘illness in the four weeks before the survey’, with demographic and social indicators used in their capacity as explanatory variables. The results from the application of the logit model are presented in Table 17.

Table 17. Results of the logit model of health status determinants

I. Dependent variable: Any illness in the four weeks before the survey? (no illness = 0; at least one illness = 1)					
Variable	Odds ratio	Standard error	Significance	Confidence interval, 95%	
<i>Gender, reference – men</i>					
Women	0.954	0.065	0.469	0.840	1.083
<i>Age, no reference</i>					
Age	1.009	0.002	0.000	1.006	1.012
<i>Marital status, reference – married + as married</i>					
Other*	0.805	0.070	0.002	0.701	0.923
Constant	0.166	0.077	0.000	–	–
Number of observations: 68,000					

* ‘Other’ includes: single, divorced, separated and widowed, which is not the best decision because it agglomerates different kinds of groups, such as single (mainly young) and widowed (mainly old) persons.

Source: Own calculations based on the 1997 Bulgaria Integrated Household Survey in Bulgaria (retrieved from www.worldbank.org).

The results of logit analysis confirm preliminary findings that age is a significant determinant of health status, in relation to whether an individual was ill in the four weeks before the survey. Age has a major effect on declines in health status. Gender, however, is not a significant determinant.

Considering health status by marital group, when taken together those falling into the categories of widowed, divorced and single (the ‘other’ category) have less probability of evaluating their health status as ‘good’. Taking into account that ‘other’ includes single (mainly young) and widowed (mainly older) persons as well as the significant role of the age factor, we can further identify the more likely tendency of older persons to evaluate their health status as worse.

8.2 Determinants of health care utilisation

The available (but limited) data based on the 1997 IHS offer an opportunity to analyse the determinants of health care utilisation while considering some relevant variables (Table 18). We use the nature of the logit model to define the probability of having specific characteristics by the influence of separate factors, such as gender, age, marital (cohabitation) status and others.

In the *second model* (Table 18), answers to the question of whether the respondent had had ‘any consultation in the four weeks before the survey’ are used as a proxy indicator for primary-care utilisation determinants.

The results show that gender could not be treated as a determinant when looking at users of primary care services, although women are more likely to consult doctors than men. Elderly individuals, who have a higher probability of being in poor health, are more likely to use primary care services than younger ones.

Although married or cohabiting persons are more likely to be in a worse health condition than single persons, they are also less likely to visit a primary care doctor. Yet marital (cohabitation) status does not strongly differentiate the probability of undertaking a medical consultation. The most important variable among those considered for a medical consultation, i.e. primary care utilisation, is a health problem (the individual’s illness).

Table 18. Results of the logit model of determinants of health-care services utilisation

Variable	Odds ratio	Standard error	Significance	Confidence interval, 95%	
II. Dependent variable: Any medical consultation in the four weeks before the survey? (no consultation = 0; at least one consultation = 1)					
<i>Gender reference – men</i>					
Women	1.094	0.102	0.381	0.895	1.337
<i>Age, no reference</i>					
Age	1.005	0.002	0.041	1.000	1.010
<i>Marital status, reference – married + as married</i>					
Other	0.917	0.109	0.428	0.740	1.136
<i>Any illness past 4 weeks – yes</i>					
No	6.543	0.102	0.000	5.358	7.989
Constant	0.031	0.130	0.000	–	–
III. Dependent variable: Any medical treatment received in the last four weeks? (no treatment = 0; at least one instance of treatment = 1)					
<i>Gender, reference – men</i>					
Women	1.045	0.058	0.443	0.933	1.171
<i>Age, no reference</i>					
Age	1.019	0.001	0.000	1.017	1.022
<i>Marital status, reference – married + as married</i>					
Other	0.832	0.062	0.003	0.736	0.940
<i>Reasons for consultation – illness and injury</i>					
Other*	4.499	0.173	0.000	3.207	6.312
<i>Who was consulted first? Doctor</i>					
Other**	0.758	0.446	0.534	0.316	1.817
<i>Travel time, no reference</i>					
Time travel	1.041	0.006	0.000	1.028	1.054
Constant	0.152	0.073	0.000	–	–
IV. Dependent variable: Hospital treatment received (no hospital treatment = 0; at least one instance of hospital treatment = 1)					
<i>Gender, reference – men</i>					
Women	1.118	0.178	0.530	0.789	1.585
<i>Age, no reference</i>					
Age	1.014	0.004	0.001	1.005	1.022
<i>Marital status, reference – married + as married</i>					
Other	1.299	0.194	0.178	0.888	1.901
<i>Reasons for consultation – illness and injury</i>					
Other	8.000	0.261	0.000	4.799	13.335
<i>Travel time, no reference</i>					
Time travel	1.031	0.007	0.000	1.016	1.046
Constant	0.006	9.250	0.000	–	–
Number of observations: 68,000					

* 'Other' includes: check-up, vaccination, prenatal care and other.

** 'Other' includes: pharmacy, nurse, midwife, other.

Source: Own calculations based on the NSI 1997 Bulgaria Integrated Household Survey.

As with primary care, the probability of using any medical services increases with age. According to the results of the *third logit model*, individuals in younger cohorts are less likely to receive medical treatment. It would be interesting to analyse the structure by type of care services they would be likely to use (home, hospital, nursing, sanatoria or other), but this is beyond the scope of the present study. This model confirms once again that the most important

determinants are those related to the need for treatment, but not the other social or demographic factors considered (e.g. gender). Elderly persons are more likely to need medical treatment, irregardless of the travel time. The other important determinant is a real reason for consultation – illness or injury.

The chosen variable in the *fourth logit model* in Table 18 illuminates hospital services. Again, the main finding is that health status (here ‘reason for consultation’) is the most important factor influencing utilisation of health care services (‘hospital treatment received’). Another important factor is age. This is not the case when considering marital status, however. Married, widowed and divorced individuals are more likely to use hospital services than single persons (see Table 11). Health status strongly influences individual behaviour and decisions on visiting a hospital. The probability of receiving hospital treatment is similar to that for undertaking consultations (utilisation of primary health care): the worse the health assessment, the higher the chances of using health care services.

9 Summary

- Bulgaria’s demographic and health indicators have deteriorated in the last several decades, particularly since 1990. The most negative consequences are depopulation and a high rate of population ageing. Further, the specific ‘inertia’ in the dynamics of the demographic processes predetermines their impact over the next several decades. The bio-demographic picture in Bulgaria shows a sharp worsening immediately after the start of the transition period, i.e. in 1989, when the conditions of the deep socio-economic crisis exerted an influence very rapidly.
- In contrast with the favourable mortality trends registered in all European countries with a developed market economy, elderly Bulgarians suffer from a steadily deteriorating mortality rate. Most probably, this situation will continue in the course of the following decades. Taking into consideration the economic crisis during the transition period, which had the greatest impact on the social and health status of the elderly, one even could expect a worsening of their mortality rate.
- In the last 15 years, the health state of Bulgarians has worsened in general. Although we have seen some positive changes in the last several years (a declining share of persons with above-average weight and the declining morbidity of chronic diseases) the health state of Bulgarians as a whole has deteriorated. Self-assessed health has degenerated, with marked increases in stomatological problems, smoking and alcohol use. If one takes into account the very high level of cardiovascular disease, poorer health prophylaxis, etc., the strong need for further activity related to preventive care becomes clear.
- The hypothesis behind the analysis is that the utilisation of health care services is mainly determined by health status, accompanied by other demographic, social and economic factors, such as age, education and income, etc. In the case of Bulgaria, there is merit to studying whether the health and morbidity crisis following the transition period may have any long-term effects.
- Population ageing results in a number of harmful consequences for the health of a society overall. As a rule, an ageing population hampers increases in living standards and puts pressure on the health care system. This impact is especially acute for Bulgaria, where the necessary funds are drastically limited not only because of a lack of health insurance funds but also because of their inefficient use. In addition, population ageing means that a much greater number of elderly persons will need a relatively higher amount of public medical expenditure.

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Appendix 1 – Tables

Table A1. Distribution of European countries according to the population age indicator (PAI) as of 1 January 1998 (,%)

PAI	Country
05.0–10.0	Turkey, Azerbaijan, Albania, Bosnia, Armenia, Moldova, FRY Macedonia, Georgia
10.1–11.0	Liechtenstein
11.1–12.0	Cyprus, Slovakia, Ireland, Iceland, Poland, Malta
12.1–13.0	Croatia, Russia, Lithuania
13.1–14.0	Belarus, Slovenia, the Netherlands, Ukraine, Czech Republic
14.1–15.0	Estonia, Latvia, Luxembourg, Hungary, Finland, Denmark, Switzerland
15.1–16.0	Portugal, San Marino, Austria, Bulgaria , France, Norway, the UK, Germany
16.1–17.0	Spain, Greece, Belgium
17.1+	Italy, Sweden

* PAI is the proportion of persons aged 65 and over in the total population. Countries are arranged according to PAI in increasing order.

Source: Council of Europe (1999).

Table A2. Demographic indicators for Bulgaria, 1921-2003 (per 1,000 population)

Year (or annual average)	Crude birth rates	Crude mortality rates	Rates of natural increase
1921–25	39.0	20.8	18.2
1931–35	29.3	15.5	13.8
1941–45	22.4	13.4	9.0
1951–55	20.6	9.9	10.7
1961–65	16.4	8.2	8.4
1971–75	16.2	9.8	6.4
1981	14.0	10.7	3.3
1991	11.1	12.8	-1.7
1997	7.7	14.7	-7.7
2003	8.6	14.3	-5.7
2004	9.0	14.2	-5.2

Source: NSI, *Statistical Yearbook of Bulgaria*, Sofia, various issues.

Table A3. Population age structure in Bulgaria, 1887-2001 (%)

Year	Up to 14	15-64	65 and over
1887	41.4	52.1	6.5
1892	41.7	52.6	5.7
1900	40.2	54.7	5.1
1910	39.8	54.9	5.3
1920	36.2	58.0	5.8
1926	34.9	59.3	5.8
1934	35.5	59.3	5.2
1946	27.9	66.3	5.8
1960	26.0	66.4	7.6
1970	22.7	67.5	9.8
1980	22.1	65.9	12.0
1990	20.1	66.5	13.4
1995	17.7	67.1	15.2
2000	15.5	68.2	16.3
2001	15.1	68.4	16.5

Source: NSI, *Statistical Yearbook of Bulgaria*, Sofia, various issues.

Table A4. Life expectancy at birth in Bulgaria, 1935-2002 (years)

Period	Total	Men	Women
1935-39	51.75	50.98	52.56
1956-57	65.89	64.17	67.65
1960-63	69.59	67.82	71.35
1969-71	71.11	68.58	73.86
1974-76	71.31	68.68	73.91
1978-80	71.14	68.35	73.55
1984-86	71.19	68.17	74.44
1989-1991	71.22	68.02	74.66
1993-95	70.60	67.10	74.90
1995-98	70.50	67.10	74.30
1997-99	71.00	67.60	74.60
1998-2000	71.70	68.15	75.34
1999-2001	71.80	68.50	75.20
2000-02	71.87	68.54	75.37

Source: NSI, *Statistical Yearbook of Bulgaria*, Sofia, various issues.

Table A5. Life and healthy life expectancy in Bulgaria, 1996-2001 (years)*

Age groups	Men				Women			
	Life expectancy		Healthy life expectancy		Life expectancy		Healthy life expectancy	
	1996	2001	1996	2001	1996	2001	1996	2001
15-29	53.84	54.30	46.12	45.38	60.88	61.11	48.21	47.24
20-24	49.07	49.51	41.50	40.71	56.02	56.23	43.51	42.50
25-29	44.37	44.80	36.93	36.18	51.16	51.36	38.87	37.83
30-34	39.68	40.08	32.40	31.65	46.33	46.52	34.19	33.35
35-39	35.05	35.43	27.98	27.13	41.51	41.71	29.62	28.75
40-44	30.58	30.91	23.66	22.84	36.76	36.96	25.13	24.46
45-49	26.35	26.61	19.64	18.78	32.11	32.31	20.91	20.24
50-54	22.40	22.65	15.87	14.93	27.58	27.77	16.86	16.26
55-59	18.74	19.01	12.42	11.86	23.16	23.37	12.96	12.54
60-64	15.38	15.63	9.27	8.83	18.98	19.17	9.59	9.06
65-69	12.32	12.61	6.56	6.05	15.05	15.20	6.57	6.20
70-74	9.48	9.80	4.28	4.03	11.46	11.58	3.90	3.72
75-79	7.05	7.40	2.57	2.37	8.45	8.44	2.29	1.95
80+	5.16	5.49	1.15	1.35	5.95	5.89	1.02	0.97

* Calculations are based on the mortality data for the population in Bulgaria up to 31.12.2000. They were undertaken by H. Maleshkov (University for National and World Economy) and M. Mutafova (Medical University) in Sofia.

Table A6. Number of live births by age group for women of fertile age (15-49), 1980-2003

Age	1980	1990	1995	2000	2001	2003
Total	59.8	48.9	35.0	36.7	35.7	35.6
15-19	80.3	68.3	53.5	45.5	43.1	39.3
20-24	192.8	158.4	100.6	89.7	86.7	81.0
25-29	92.8	78.3	61.8	72.9	72.5	75.3
30-34	32.2	28.8	22.4	32.3	33.0	37.2
35-39	9.7	9.4	7.5	9.5	9.9	11.2
40-44	2.1	1.8	1.5	1.9	1.8	1.8
45-49	0.1	0.1	0.1	0.1	0.1	0.1

Source: NSI, *Statistical Yearbook of Bulgaria*, Sofia, various issues.

Table A7. Infant mortality rates in Bulgaria – By total and by place of residence, 1970-2003*

Year	Total	Urban	Rural
Number			
1970	3,788	1,811	1,977
1980	2,594	1,560	1,034
1990	1,554	1,020	534
1995	1,065	705	360
1997	1,23	719	404
2000	981	657	324
2001	982	625	357
2002	889	573	316
2003	831	522	309
2004	810	514	298
Per 1,000 live births			
1970	27.3	22.7	33.5
1980	20.2	18.0	24.9
1990	14.8	13.8	17.1
1995	14.8	14.0	16.7
1997	17.5	15.7	22.0
2000	13.3	12.4	15.5
2001	14.4	12.9	18.2
2002	13.3	12.0	16.9
2003	12.3	10.7	16.5
2004	11.6	10.2	15.3

* Infant mortality – up to one year of age per 1,000 live born

Source: NSI, *Statistical Yearbook of Bulgaria*, Sofia, various issues.

Table A8. Registered cases of active tuberculosis, 1980-2002 (per 100,000 population)

Form of disease	1980	1990	1995	2000	2001	2002
Total	178.2	106.0	154.9	173.4	185.8	188.7
Of which new cases	37.0	25.9	40.5	41.0	48.8	47.8
Tuberculosis of the respiratory system	115.1	80.5	123.4	144.8	157.6	161.6
Of which new cases	25.6	19.9	33.9	35.6	42.8	42.4
Tuberculosis of the bones and joints	12.4	5.3	5.1	4.8	5.3	4.8
Of which new cases	2.2	1.0	1.0	1.0	1.1	0.9
Meningitis and CNS tuberculosis	0.5	0.3	0.5	0.5	0.5	0.4
Of which new cases	0.1	0.1	0.1	0.1	0.2	0.1
Other forms of active tuberculosis	50.2	19.9	25.9	23.3	22.4	21.9
Of which new cases	9.1	4.9	5.5	4.3	4.7	4.4

Source: *Health Care*, annual publication of the NSI and the National Centre for Health Information, various issues.

Table A9. Distribution of persons with chronic diseases by number of diseases for 1996* and 2001** (%)

	Year	Total	By gender		By age group							
			Men	Women	0-14	15-24	25-34	35-44	45-54	55-64	65-74	75+
Without diseases	1996	42.5	48.0	37.6	82.6	73.5	55.7	38.6	25.2	14.2	10.1	7.4
	2001	53.6	58.7	48.6	86.3	78.3	72.1	54.5	40.1	29.8	20.4	17.4
With diseases	1996	57.5	52.0	62.4	17.4	26.5	44.3	61.4	74.8	85.8	89.9	92.6
	2001	46.4	41.3	51.4	13.7	21.7	27.9	45.5	59.9	70.2	79.6	82.6
With 1 disease	1996	20.9	22.7	19.3	14.1	17.7	25.1	27.3	27.1	19.9	16.7	18.7
	2001	22.7	21.9	23.5	10.8	16.2	18.6	26.6	29.5	30.3	28.0	23.6
With 2 diseases	1996	13.7	13.0	14.4	2.7	5.7	10.8	15.9	19.0	21.1	22.4	17.6
	2001	11.4	10.2	12.5	2.2	4.3	5.6	10.6	16.3	17.6	22.3	19.4
With 3 diseases	1996	8.9	7.2	10.3	0.4	1.9	5.1	8.3	11.5	16.3	17.5	18.5
	2001	6.1	5.2	7.0	0.5	0.8	2.5	5.1	7.7	11.4	11.9	17.2
With 4 diseases and over	1996	14.9	9.1	18.4	0.1	0.6	1.5	4.8	7.1	10.3	11.9	15.3
	2001	6.2	4.0	8.3	0.2	0.4	1.2	3.2	6.4	10.9	17.4	22.2

* The calculations for 1996 are done on the basis of a questionnaire listing 22 chronic diseases.

** The calculations for 2001 are done on the basis of a questionnaire listing 16 chronic diseases.

Source: NSI, Population census, 2001, Sofia.

Table A10. Registered cases of infectious diseases subject to obligatory reporting (per 100,000 population)

Cases	1980	1990	2000	2001	2002
Diphtheria	0.0	–	–	–	–
Scarlet fever	145.6	85.7	64.6	37.8	45.0
Measles	121.5	1.7	0.6	0.1	0.0
Pertussis (whooping cough)	1.7	0.3	1.3	1.0	1.0
Rubella	779.1	147.3	348.2	20.9	10.2
Chicken pox	537.2	418.6	285.8	293.8	290.3
Mumps	73.6	1.5	28.8	18.3	4.2
Influenza	2746.6	142.4	366.7	66.2	28.8
Epidemic meningitis	1.2	0.9	1.1	0.5	0.3
Epidemic encephalitis	0.3	0.1	0.3	–	–
Poliomyelitis	–	–	–	0.0	–
Haemorrhagic fever	0.0	0.4	1.8	0.7	3.5
Malaria*	0.1	0.1	0.1	0.2	0.7
Typhoid fever	–	–	3.6	4.6	6.5
Paratyphoid fever	1.4	0.5	0.2	0.2	0.2
Shigellosis	0.0	0.0	–	0.0	0.1
Infectious hepatitis	96.9	61.9	19.8	22.9	16.0
Anthrax	110.8	274.2	104.8	98.8	78.0
Leptospirosis	0.1	0.1	0.2	0.1	0.0
Tetanus	0.2	0.3	0.4	0.3	0.3
Meningitis serosa	0.2	0.1	0.0	0.1	0.0
Bacterial meningitis and meningoencephalitis	2.2	1.5	2.0	–	–
Viral meningitis and meningoencephalitis	–	–	–	2.1	2.5

* All registered cases are imported.

Source: National Centre for Health Information, Sofia.

Appendix 2 – Country-specific sources of information

- The **National Statistical Institute (NSI)** in Bulgaria provides population census data along with demographic and social statistics.
- The **National Centre for Health Information (NCHI)** creates and maintains information databases about the health and demographic status of the population, health care resources and activities.

NSI and NCHI periodically issue the joint publication *Health Protection*.

- The **World Health Organisation's** "Health for All" programme includes Bulgaria.
- **Mortality statistics by cause of death** are among the current demographic statistics gathered in Bulgaria. The source of data is the certificates of death. The basic cause of death is coded by a medical doctor applying the WHO's International Classification of Diseases (ICD) (Revision 9). Statistical processing and aggregation of the data are performed strictly according to the requirements of the ICD. The NSI in Sofia provides data to the WHO, Eurostat and other international organisations, along with many others in the country. The data are comparable for the purpose of international comparisons.
- The **health state of the population in Bulgaria** was assessed through a random sample survey in the country or the so-called 'health interview'. The survey is recommended and methodologically founded by the WHO. The purpose of the survey is to gather data and evaluate the health state and health behaviour of the population on the basis of 'self-reported health status'. The first survey was carried out by the NSI in Bulgaria in December 1996. The sample covered 17,523 persons of all ages in 6,000 ordinary (non-institutionalised) households.

The second survey was included in the population census in March 2001. The methodology and tools used were first harmonised according to the recommendations of the WHO. In this way comparability with other countries, mainly EU member states, is achievable. The survey in 2001 covered 10,000 persons chosen at random sampling. In line with the general requirements of the WHO, all members of the households included in the sample were interviewed. For children below 14 years of age the answers were given by their mother or another adult member of the household.

- The **Bulgarian 1997 Integrated Household Survey (IHS)** is a nationally representative, multi-purpose household survey that contains information on a series of subjects including household composition, health, fertility, employment and other indicators. The primary objective of the survey is to allow detailed analysis of the standard of living of the Bulgarian population in general and of the poor in particular. The survey is administrated by Gullup International under the auspices of the Bulgarian Ministry of Labour and Social Affairs and the National Statistics Institute.

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