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Mortality and longevity in the Central and East Europe - changes in years 1990-2005

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**MORTALITY AND LONGEVITY IN THE CENTRAL
AND EAST EUROPE
- CHANGES IN YEARS 1990–2005**

ABSTRACT: Political and socioeconomic transformation has significantly influenced demographic processes in Central and East Europe. This was mainly noticeable in behaviours and attitudes concerning forming and developing of families. With regard to the aforementioned behaviours, the populations of analysed countries have adopted to new conditions very quickly, and the demographic parameters have reached values that were almost identical as those in West Europe. The situation developed completely differently in the case of mortality and life expectancy. Differences between Central and East Europe, and West European countries, which were already visible at the beginning of 1990's, have been eliminated considerably slower. Even though, one can observe favourable transformations in life expectancy and the distribution of death causes in the Central and Eastern European countries. Those changes are especially apparent in countries which became members of the European Union in 2004.

KEY WORDS: Central and East Europe, mortality, life expectancy, causes of deaths.

INTRODUCTION

The political and socioeconomic transformations, which started in 1990's in Central and East Europe, had a great impact on many fields of life, including demographic behaviours of the population (Schoenmaeckers, 2000). Central and East European countries, which were considerably less advanced in the process of modernization than West European countries, started eliminating the differences very quickly. The political and socioeconomic transformations

modified or accelerated many of the demographic processes, especially those connected with the natural movement of population. It was manifested mainly in behaviours and attitudes concerning fertility, and forming and developing families (Monnier, 1998; Sardon, 1998; Seys, 1998). In this respect, populations of the analysed countries have adapted to new conditions very quickly. There has been a decrease in the marriage rate, a systematic rise of the mean age of the brides and bridegrooms, an increase in the divorce rate, a growing popularity of cohabitation and consensual unions, delaying of the first birth and limiting the number of children in the family. Demographic parameters have reached almost identical values as those observed in West Europe (Górecka, 2006). The situation developed completely differently with respect to mortality and life expectancy.

At the beginning of the transformation mortality and life expectancy in Central and East Europe countries have differed considerably from West European countries. It was a result of unfavourable processes initiated in this part of our continent after 1965. From early 1950's until mid 1960's basic demographic parameters describing mortality indicated positive changes in Central and East Europe as well as in West Europe, which was expressed, for instance, by an increase in life expectancy. In mid 1960's, stagnation and reversal of positive trends began particularly in the former Soviet Union (Bourgeois-Pichat, 1984; Okólski, 1987). Situation in Central and East Europe started to deteriorate in two ways: on the one hand in absolute sense, and on the other relatively in comparison to the Western part of the continent (Okólski, 2004:102).

The most distinct unfavourable tendencies were discernible in mortality of males in working age and in the increase in deaths caused by the diseases of the circulatory system (Zatoński, 2002). As a result, at the beginning of the transformation the average male life expectancy in countries of Central and East Europe substantially diverged from West Europe. The difference between Russia, the country with the lowest average life expectancy, and Sweden, where the average life expectancy was the highest, amounted to 11 years. The situation was similar with reference to women, but in this case the differences were not so big (maximum 7 years). Among the causes of deaths which definitely dominated in 1990 in Central and East Europe (as well as on the whole continent) were cardiovascular diseases, but the mortality rate caused by them was considerably higher than in Western Europe.

MORTALITY

After 1990, the increasing mortality tendency in the majority of countries of Central and East Europe has remained stable or even strengthened, particularly between 1990 and 1995. During the whole analysed period (1990–2005) the

crude death rate increased most significantly in Russia – by 44%, and in Ukraine and Belarus – by 37% and 34% respectively. Only in such countries as the Czech Republic, Poland, Hungary, or Slovakia the crude death rate dropped – by about 4 to 16% (Fig. 1).

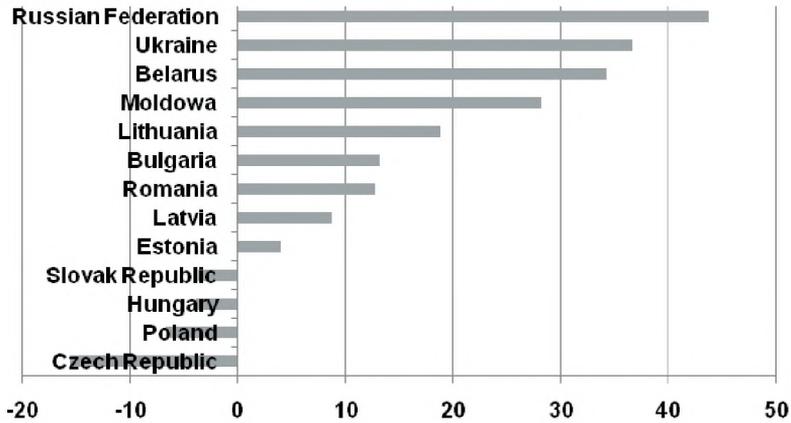


Fig. 1. Crude death rate in the Central and East European countries. Changes in years 1990–2005 (in %)

Source: Data based on Recent Demographic Developments in Europe 2006.

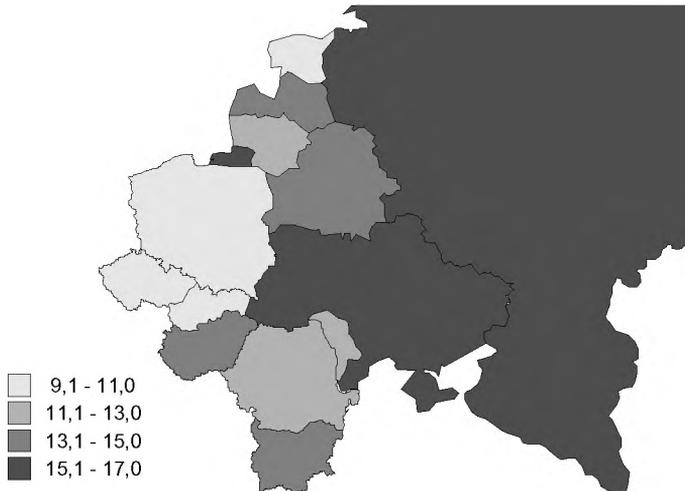


Fig. 2. Crude death rate (deaths per 1000 population) in the Central and East European countries in 2005

Source: Data based on Recent Demographic Developments in Europe 2006.

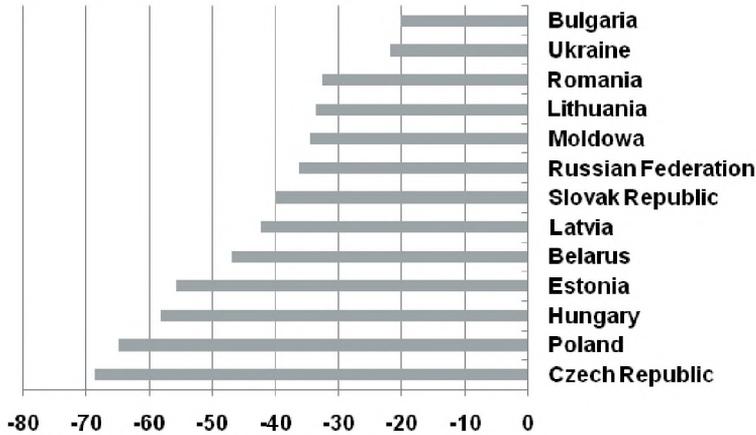


Fig. 3. Infant mortality rate in the Central and East European countries Changes in years 1990–2005 (in %)

Source: Data based on Recent Demographic Developments in Europe 2006.

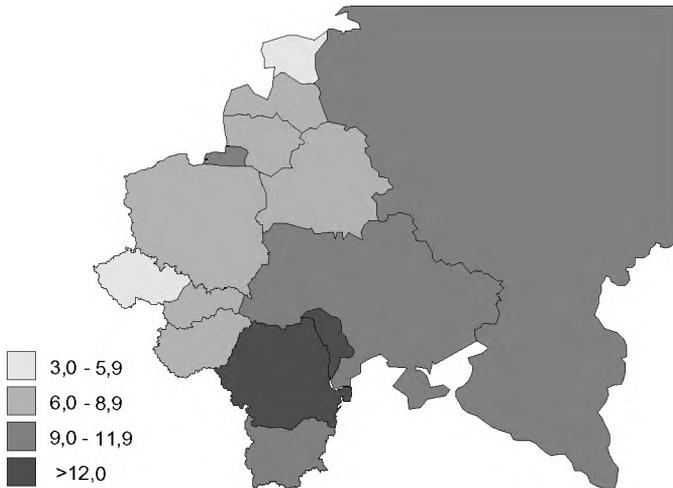


Fig. 4. Infant mortality rate (deaths during first year per 1,000 live births) in the Central and East European countries in 2005

Source: Data based on Recent Demographic Developments in Europe 2006.

As a result of these processes, total mortality in Central and East Europe in 2005 was very diversified: in Ukraine and in Russia it exceeded 16‰ and

in Poland and Slovakia it was below 10‰ similarly to Western Europe (Fig. 2). Infant mortality is a very important component of mortality in general. After 1990 infant mortality rate (deaths during first year per 1,000 live births) has dropped in all analysed countries, but the pace of the fall was very diversified: the highest – over 50–60% in the Czech Republic, Poland, Hungary and in Estonia; and substantially lower, about 20–30% in Bulgaria, Ukraine, Romania, and Lithuania (Fig. 3). It contributed to further deepening of the differences between the countries in that part of Europe. The scale of this diversity is illustrated by the values of infant mortality rate: from 3,4‰ in the Czech Republic to as much as 16,8‰ in Romania (Fig. 4). In the majority of analysed countries, in spite of a big decrease in years 1990–2005, the average infant mortality was much higher than in EU15 countries (EU members before May 2004).

CAUSES OF DEATHS

The analysis of causes of death distributions has been carried out on the basis of standardized death rates by cause (SDR). The age-standardized mortality rate is a weighted average of the age-specific mortality rates per 100,000 persons, where the weights are the proportions of persons in the corresponding age groups of the WHO standard population (World Health Statistics, 2007). After 1990, in Central and East European countries, some significant changes concerning distributions of death causes took place, apart of the changes in total mortality and infant mortality. Those changes went in different directions and had varying intensity. In 1990, intensity of mortality from circulatory system diseases, a major cause of death in developed countries, was much higher in Central and East Europe, 550–700 deaths per 100,000, than in the EU15 countries, 330 deaths per 100,000. Deaths from cardiovascular diseases constituted 42% of all causes of death in the European Union, while in Central and East Europe (except Moldavia) they constituted as much as 50–60%.

After 1990, in the majority of the analysed countries a decrease in mortality caused by this group of diseases took place; however, in four countries an increase was recorded: in Russia and Belarus by over 20%, and in Moldavia and Ukraine by over 40% (Fig. 5). As a result the diversification within Central and East Europe increased from 400 to 860 deaths per 100,000 and from 45 to 65% of all causes of deaths. The gap between Central and East Europe and the EU15 countries also broadened. The reason for it was the decrease in mortality in EU15 countries caused by diseases of the circulatory system from 326 per 100,000 in 1990 to 220 in 2005 (Fig. 6). Moreover, in those countries, the share of this group of diseases in all causes of death dropped from 42 to 36%.

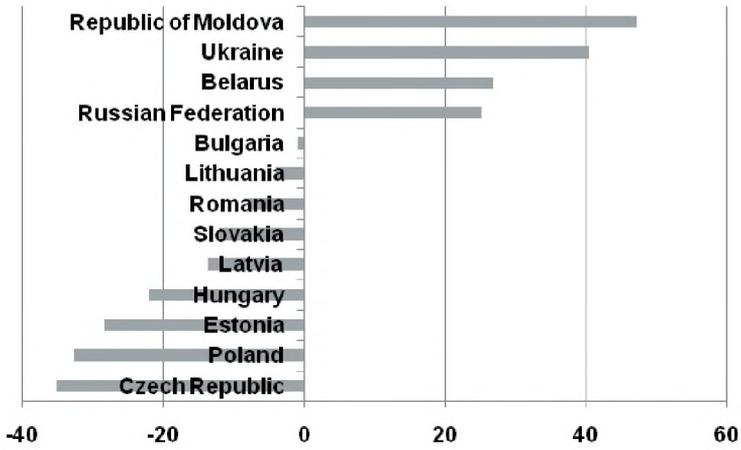


Fig. 5. SDR, diseases of the circulatory system in the Central and East European countries. Changes in years 1990–2005 (in%)

Source: Data based on Mortality indicators by 67 causes of death, age and sex, WHO 2007.

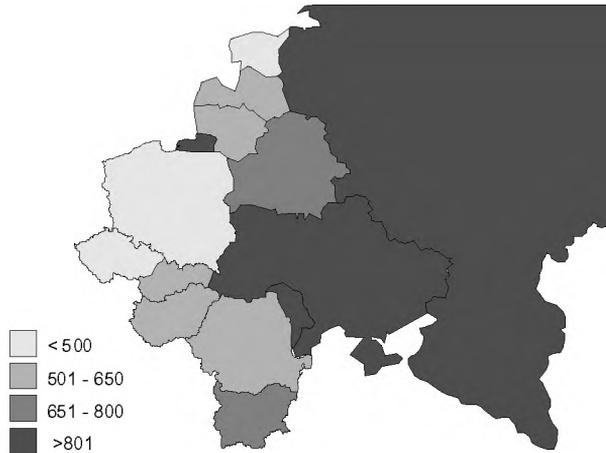


Fig. 6. SDR, diseases of the circulatory system (per 100,000) in the Central and East European countries in 2005

Source: Data based on Mortality indicators by 67 causes of death, age and sex, WHO 2007.

Second main cause of deaths in Europe are neoplasms. In 1990, rates of deaths due to this cause in the majority of Central Europe countries were lower than in

the West of the continent, where SDR amounted to 204 deaths per 100,000. SDR was higher only in Hungary, the Czech Republic, Slovakia, and Poland: 269, 261, 225 and 215 deaths per 100,000 respectively. In the 1990–2005 period, in the majority of Central and East European countries, the intensity of mortality due to this cause dropped (Fig. 7), especially in the countries where it was very high,

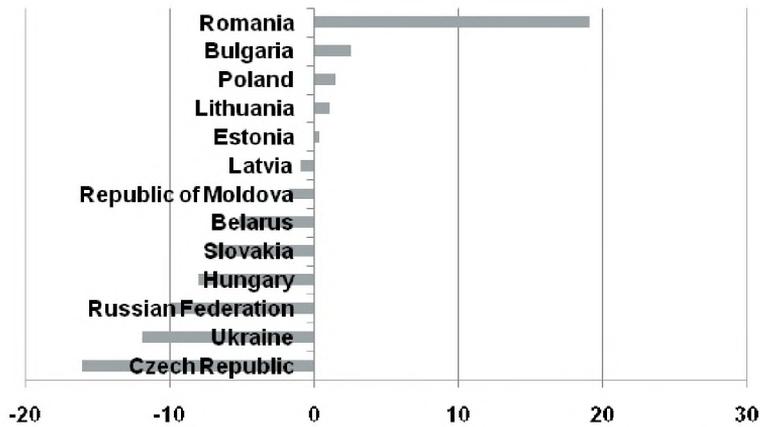


Fig. 7. SDR, neoplasms in the Central and East European countries. Changes in years 1990–2005 (in%)

Source: Data based on Mortality indicators by 67 causes of death, age and sex, WHO 2007.

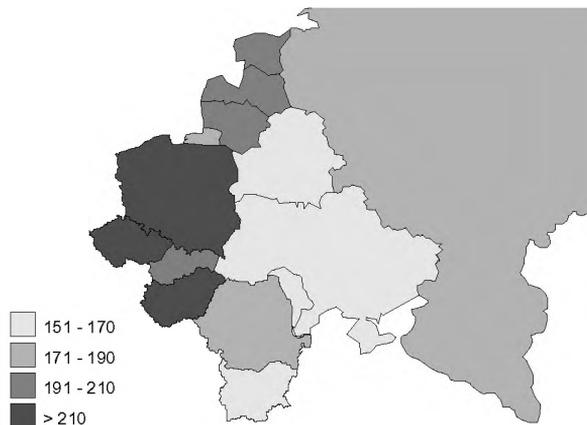


Fig. 8. SDR, neoplasms (per 100,000) in the Central and East European countries in 2005

Source: Data based on Mortality indicators by 67 causes of death, age and sex, WHO 2007.

e.g. in the Czech Republic. It also slightly increased in several countries such as Poland and Romania, which in 1990 had the lowest rate. In 2005, the highest rates of deaths from neoplasms were still characteristic of Hungary and the Czech Republic (despite the decrease), and of Poland, while the lowest were found in Bulgaria and Moldavia (Fig. 8).

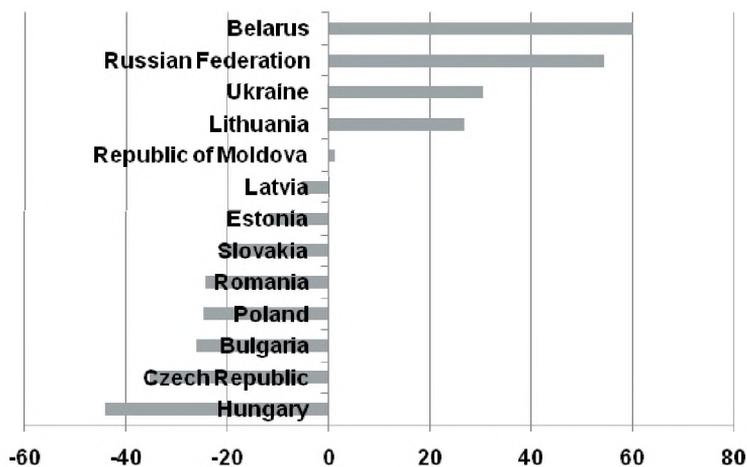


Fig. 9. SDR, external causes of injury and poisoning in the Central and East European countries. Changes in years 1990–2005

Source: Data based on Mortality indicators by 67 causes of death, age and sex, WHO 2007.

The third main cause of death are external causes of injury and poisoning, for instance: road traffic injuries, poisoning, suicide, and homicide. In 1990, in all analysed countries the rate of death due to external causes was higher than in the countries of EU15. After 1990, in West Europe and in most of the countries of East and Central Europe the intensity of the rates of death from external causes dropped. However, in four countries the rates increased, the highest increase was recorded in Belarus by 60% and in Russia by 54% (Fig. 9). In 2005, as a result of that, SDR from external causes was still higher in Central and East Europe than in Western Europe. The gap between the most extreme SDR values has also broadened in analysed countries: from 45 in Bulgaria to 211 in Russia (Fig. 10). The high intensity of rates of death from external causes in Central and East Europe countries was caused by road traffic injuries and suicides. Among the European countries reporting suicide cases to WHO, the highest rates were found in eastern countries, such as Lithuania

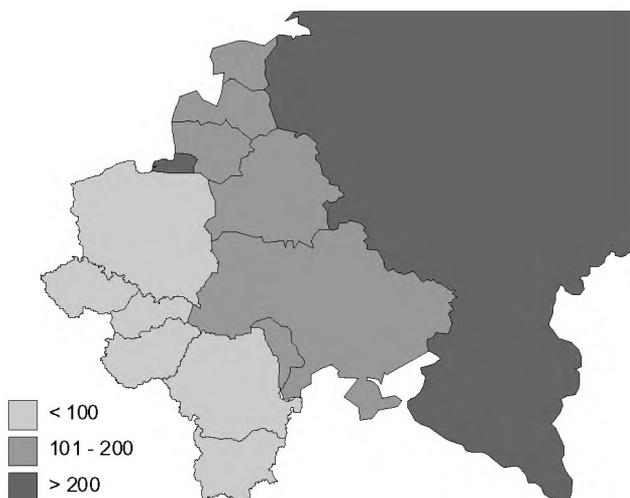


Fig. 10. SDR, external causes of injury and poisoning (per 100,000) in the Central and East European countries in 2005

Source: Data based on Mortality indicators by 67 causes of death, age and sex, WHO 2007.

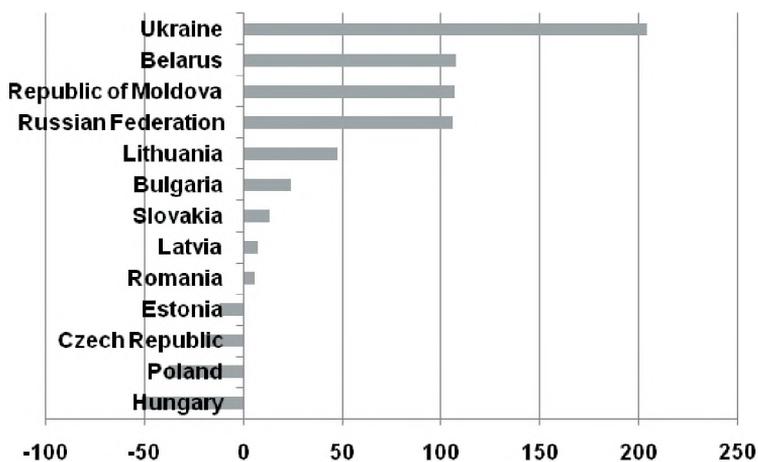


Fig. 11. SDR, infectious and parasitic diseases in the Central and East European countries. Changes in years 1990–2005 (in %)

Source: Data based on Mortality indicators by 67 causes of death, age and sex, WHO 2007.

– 40 per 100,000, the Russian Federation – 34 per 100,000 and Belarus – 33 per 100,000 (The European Health Report 2005).

Infectious and parasitic diseases should also be mentioned. They are the main cause of death in developing countries, however, in developed countries their role is minor (about 1% of all causes). Between 1990 and 2005 almost in the whole Europe the increase in mortality due to that cause took place. In EU15 countries the rise amounted to 45% while in some of the Central and East European countries the increase was considerably higher: in Ukraine by over 200%, and in Belarus, Moldavia, and Russia by over 100% (Fig. 11). Only in few countries (among others in Poland) decreases were recorded. The increase in mortality due to infectious and parasitic diseases is caused mainly by AIDS. In Central and East European countries, such as Ukraine, Russian Federation, Moldova, and Belarus the additional cause is tuberculosis (Arnaudova, 2006). In those countries tuberculosis is not under control and the numbers of individual instances continue to increase. Particular problems are identified with tuberculosis in the homeless, drug users, and alcoholics (Watson, 2006). In 2005 the lowest level of SDR from infectious and parasitic diseases, below the average rate of the EU15 (8,5 deaths per 100,000 population), was in: the Czech Republic, Slovakia, Hungary, Poland, Estonia and Bulgaria (Fig. 12).

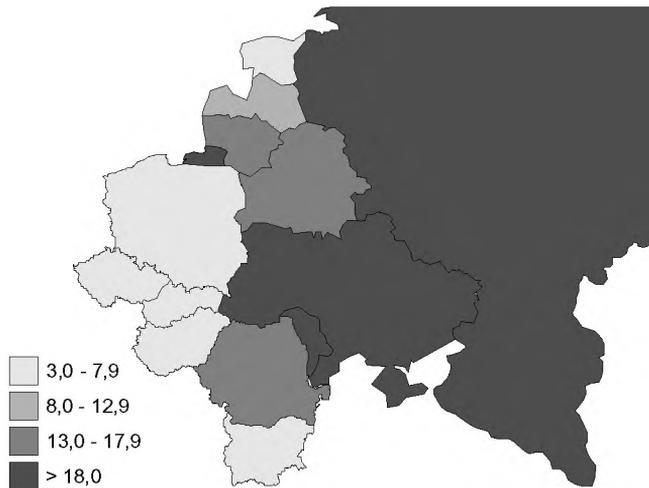


Fig. 12. SDR, infectious and parasitic diseases (per 100,000) in the Central and East European countries in 2005

Source: Data based on Mortality indicators by 67 causes of death, age and sex, WHO 2007.

LONGEVITY

Transformations in mortality which took place between 1990 and 2005 had an influence on the average life expectancy in the analysed countries. In most countries those changes were positive, but in some countries they had a negative outcome. Male life expectancy at birth decreased in Moldavia, Lithuania, and Belarus, however the biggest decline was recorded in Russia and Ukraine (by over 4 years). The most favourable changes took place in the Czech Republic and Poland, where life expectancy increased respectively by 5,3 and 4,3 years (Fig. 13). Despite those changes none of the Central and East European countries reached as high a rate of male life expectancy at birth as the Western European countries (Fig. 14).

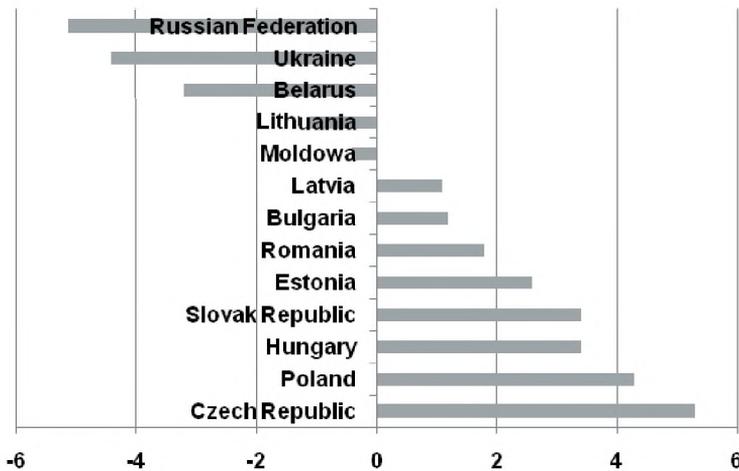


Fig. 13. The changes (expressed in years) in male life expectancy in the Central and East European countries in years 1990–2005

Source: Data based on Mortality indicators by 67 causes of death, age and sex, WHO 2007.

With respect to women, the situation was very similar. Female life expectancy at birth also increased, but not as dynamically as in the case of men (maximum 3,8 year). There were also countries where the decrease of this rate was recorded – in Russia and Ukraine by almost two years, and in Belarus by one year (Fig. 15). Until 2005 in Central and East Europe women, similarly to men, life expectancy did not attain the level typical for Western Europe (Fig. 16).

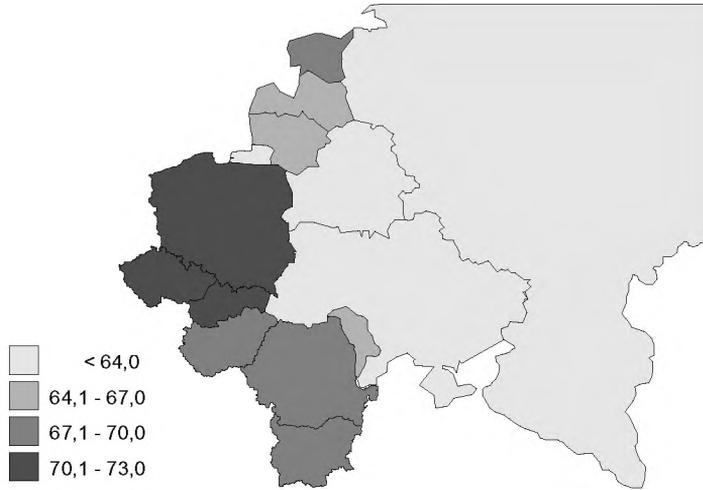


Fig. 14. Life expectancy at birth for men in the Central and East European countries in 2005

Source: Data based on Mortality indicators by 67 causes of death, age and sex, WHO 2007.

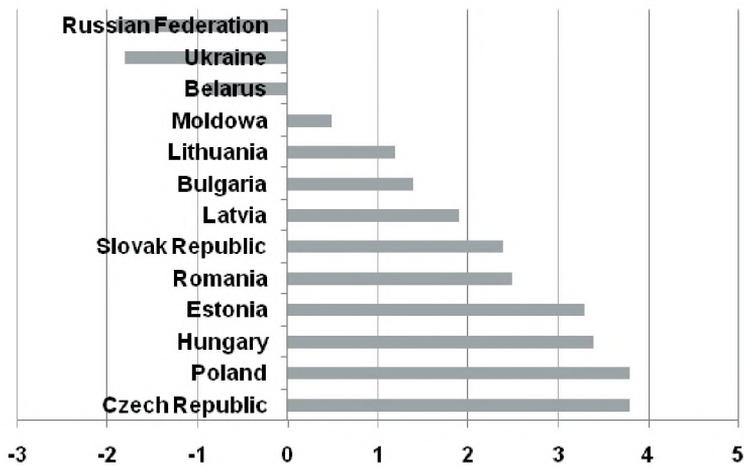


Fig. 15. The changes (expressed in years) in female life expectancy in the Central and East European countries in years 1990–2005

Source: Data based on Mortality indicators by 67 causes of death, age and sex, WHO 2007

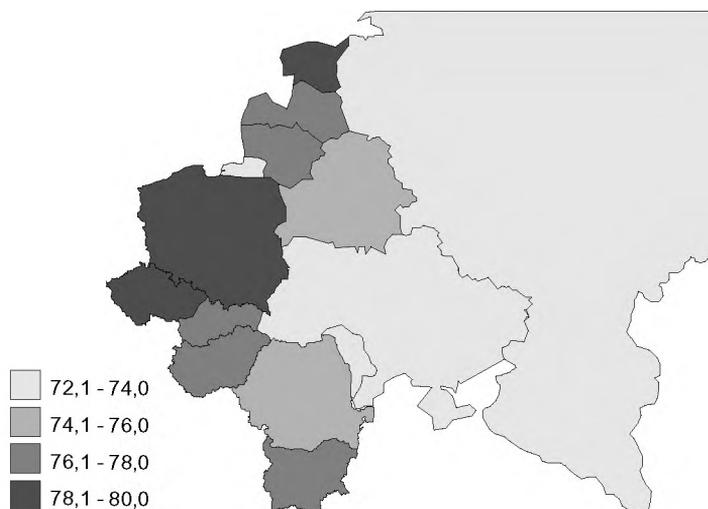


Fig. 16. Life expectancy at birth for women in the Central and East European countries in 2005

Source: Data based on Mortality indicators by 67 causes of death, age and sex, WHO 2007

A different pace and directions of changes in mortality in Central and East European countries caused the gap in life expectancy between men and women. In 1990 it was from 6,4 to 10,5 years in women's favour. Until 2005, in the majority of countries that difference increased. The maximum gap between women and men was reported in Russia - 13,7 years (Fig. 17) while the average EU value was 5,6 years (Fig. 15). In Poland, the Czech Republic, and Slovakia the distance between men and women decreased, and only in Hungary it remained at the same level (Fig. 18).

The synthesis of the actual situation concerning mortality and longevity in Central and East European countries is depicted in figure 19. It is a rank classification based on the values of the following parameters in 2005: 1) crude death rate, 2) infant mortality rate, 3) SDR, diseases of the circulatory system, 4) SDR, neoplasms, 5) SDR, external causes of injury and poisoning, 6) SDR, infectious and parasitic diseases, 7) life expectancy for men, 8) life expectancy for women, and finally 9) difference between female and male life expectancy. Each country was assigned a rank from 1 to 13 with reference to particular parameters (the country with the most favourable parameter obtained the highest value), next the ranks of each country were totalled up.

Visibly the most favourable situation among Central and East European countries occurred in the Czech Republic, Poland, and Slovakia. The analysed

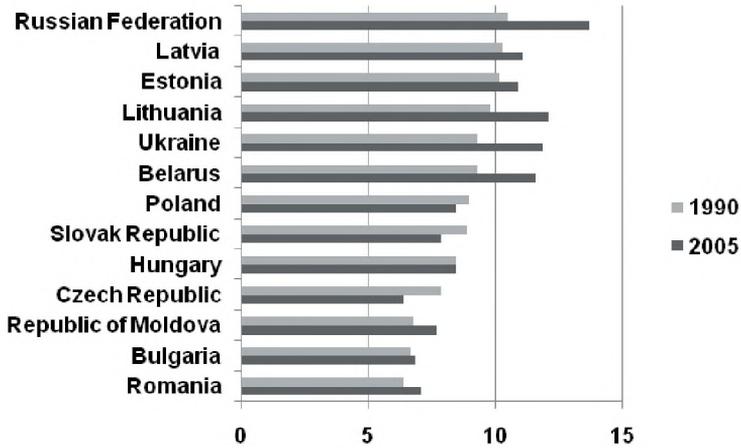


Fig. 17. The difference (expressed in years) in life expectancy between women and men in the Central and East European countries in 1990 and 2005

Source: Data based on Mortality indicators by 67 causes of death, age and sex, WHO 2007

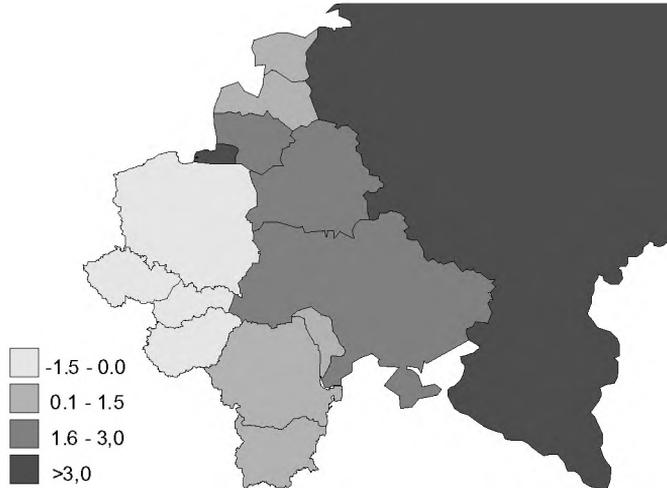


Fig. 18. The changes (expressed in years) in the difference in life expectancy between women and men in the Central and East European countries from 1990 to 2005

Source: Data based on Mortality indicators by 67 causes of death, age and sex, WHO 2007

parameters had the best values in 2005 in those countries and the changes between 1990 and 2005 had a positive direction there. The final positions were

occupied by the countries which are not the members of the European Union: Belarus, Moldavia, Ukraine, and Russia which in majority of parameters was last or last but one.

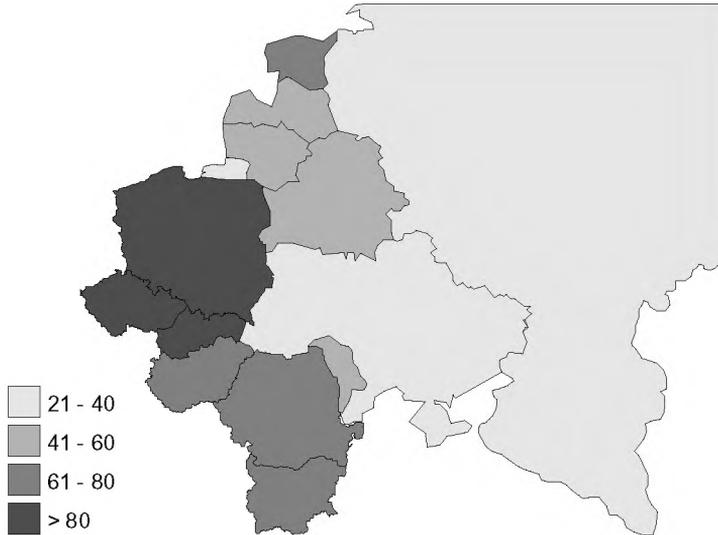


Fig. 19. East and Central European countries – rank classification in mortality, causes of death and life expectancy in 2005

Source: Author's research based on Recent Demographic Developments in Europe 2006 and Mortality indicators by 67 causes of death, age and sex, WHO 2007

CONCLUSION

Transformations concerning fertility, family formation and dissolution, which took place after 1990, had the same character in all Central and East European countries. It was a reaction to changes of socioeconomic situation, introduction of the free market rules and the withdrawal of the state from its welfare function. The threat of unemployment, uncertainty of the future, and the necessity to take over the individual responsibility over the economic situation of a household contributed to limiting the activeness in forming and developing a family in all post-Communist countries (Kotowska, 1998).

In case of mortality different tendencies were discernible and transformations took different directions. This part of human life has its own rights because it does not depend on the will of the individual, as it is in the case of fertility, marriages or divorces, but on the economic and social context. There is a distinct

connection between the level of the socioeconomic development and health and mortality (Wilkinson and Marmot, 2003). Health of society, and mortality in consequence, is the outcome of two groups of factors. On the one hand there are objective determinants resulting from the level of economical development, for instance: conditions of living, wealth of society, level and availability of medical care and working conditions. On the other hand there are factors resulting directly from the behaviour of an individual. Those are factors such as: bad diet, stimulant abuse (alcohol, drugs), or lack of activeness, which may contribute negatively to one's health.

Those enumerated factors which determine mortality do not change in satisfying pace in Central and East European countries. However, in many countries favourable transformations in mortality, life expectancy and cause of death distributions can be observed. It is particularly noticeable in the Czech Republic, Poland, Slovakia, and other countries which joined the European Union in 2004. In countries where the amelioration of the economic situation and conditions of living progresses are too slow or even deteriorate, mortality increases and longevity decreases. This situation takes place in such countries as Belarus, Moldavia, Ukraine, and especially in Russia.

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