Health-status of the Slovak Republic population in comparison with countries of Central Europe and European Union

Ginter E

Zdravotný stav obyvateľov Slovenskej republiky v porovnaní so stredoeurópskymi štátmi a Európskou úniou

Abstract

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Bratisl Lek Listy 2000; 101 (11): 589–593

The Central Europe (CE) countries are probably to become members of the European Union (EU) in a few years' time. This overview compares the health trends of Slovak Republic (SK) population in comparison with Central Europe countries (Czech Republic (CZ), Poland (PL) and Hungary (H)) and with the weighed mean of EU. The life expectancy of males and females at birth is significantly higher in EU, and this difference is not caused by substantially different infant mortality rate. Total premature mortality is significantly higher in CE and the differences in mortality due to cardiovascular diseases are the main cause of this gap. Cancer mortality in males, but not in females is the second most important difference. Breast cancer mortality rates in SK, CZ and PL are even lower than the EU average. Male mortality due to external causes is the third most important difference between EU and CE. The differences in mortality due to infectious diseases and due to diseases of respiratory system are not very great. After the political changes in 1989/90, the decline in cardiovascular mortality, mortality due to external causes and due to respiratory system diseases were observed in CE. Unfortunately, this is not true with cancer mortality. The rank of health status of four CE countries is as follows: the CZ is in the best situation, followed by SK and PL. There is an evident gap between these 3 countries and Hungary. The differences between EU and CE at the end of the 20th century are still relatively great, but in CZ, SK and PL there is the tendency to overcome this gap in the first 10—15 years of the next century. ***(Tab. 2, Fig. 6, Ref. 18.)***
Key words: health status, Central Europe, Slovakia, European Union, life expectancy, cardiovascular mortality, cancer, external causes of death.

Abstrakt

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Krajiny strednej Európy (CE) sa pravdepodobne v priebehu niekoľkých rokov stanú členmi Európskej únie (EÚ). Tento prehľad porovnáva zdravotnú situáciu v Slovenskej republike (SK) s ostatnými štátmi CE — Českou republikou (CZ), Poľskom (PL) a Maďarskom (H), ako aj s váženým priemerom štátov EÚ. Stredná dĺžka života mužov a žien je signifikantne vyššia v EÚ a tento rozdiel nemožno vysvetliť rozdielnou dojčeneckou úmrtnosťou. Celková predčasná mortalita vo veku 0—64 rokov je podstatne vyššia v CE a príčinou tohto rozdielu je hlavne podstatne vyššia kardiovaskulárna úmrtnosť. Úmrtnosť na rakovinu mužov, nie však žien, je druhou príčinou rozdielu medzi EÚ a CE. Úmrtnosť na rakovinu prsníka je dokonca v SK, CZ a PL nižšia ako v EÚ. Včasná mortalita mužov z vonkajších príčin je treťou najvýznamnejšou príčinou rozdielu medzi CE a EÚ. Rozdiely v úmrtnosti na infekčné a parazitárne ochorenia a na respiračné choroby nie sú medzi EÚ a CE veľké. Po politických zmenách v 1989/90 došlo v CE k poklesu kardiovaskulárnej mortality, úmrtnosti z vonkajších príčin, ako aj mortality zapríčinenej respiračnými chorobami. V CE však nedošlo k poklesu úmrtnosti na rakovinu. Poradie zdravotného stavu štyroch CE krajín je nasledovné: najlepšia je situácia v CZ, potom nasleduje SK a PL. Existuje evidentný rozdiel medzi týmito tromi štátmi a Maďarskom, kde je situácia zreteľne najhoršia. Rozdiely medzi EÚ a CE na konci 20. storočia sú stále veľké, ale je nádej, že Slovensko, CZ a PL dostihnú EÚ v prvých 10—15 rokoch 21. storočia. *(Tab. 2, obr. 6, lit. 18.)*
Kľúčové slová: zdravotný stav, Stredná Európa, Slovensko, Európska únia, stredná dĺžka života, kardiovaskulárna mortalita, rakovina, vonkajšie príčiny úmrtia.

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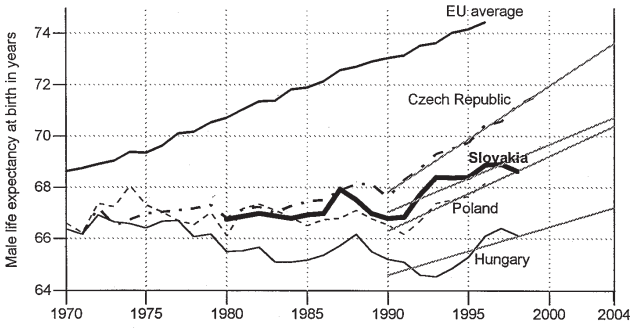

Fig. 1. The trends in male life expectancy at birth in four Central Europe countries and in the European Union. WHO data (4).
Obr. 1. Vývoj strednej dĺžky života mužov v štyroch krajinách strednej Európy a v Európskej únii. Údaje WHO (4).

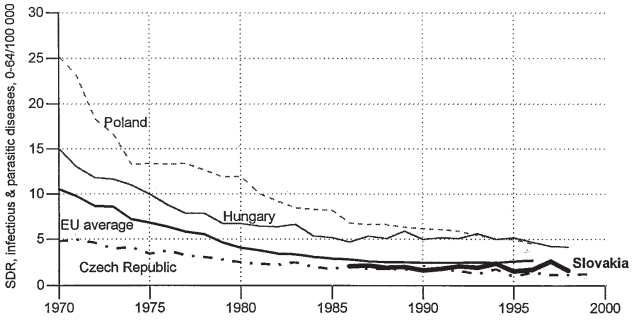

Fig. 2. Standardized death rate (males+females) caused by infectious and parasitic diseases for age group 0—64 years in four Central Europe countries and in the European Union. WHO data (4).
Obr. 2. Štandardizovaná úmrtnosť mužov a žien zapríčinená infekčnými a parazitárnymi ochoreniami pre vekový interval 0—64 rokov v štyroch krajinách strednej Európy a v Európskej únii. Údaje WHO (4).

The Central Europe (CE) countries (Poland, Slovakia, Hungary and Czech Republic) are to become members of the European Union (EU) probably in a few years' time. These countries are working to bring their health legislation into the line with those in the EU. At the request of the European Comission (EC), the World Health Organization (WHO) provided a health situation assessment in these countries. The EC through the Health Monitoring Programme supported the development of "Highlights on Health for the Candidate Countries for Accession to the European Union" (1). "Highlights on Health" give an overview of the health in a given country and compare its position in relation to other countries in Europe. Such highlights were published for the countries of EU, Romania, Russia, Kazakhstan and Kyrgyzstan; unfortunately until now, no "Highlights on Health" for Central Europe were published. The aim of this paper is to compare health trends of Slovak Republic (SK) population in comparison with Central Europe countries (Czech Republic (CZ), Poland (PL) and Hungary (H)) and with the weighted mean of European Union (EU).

Methods

Health for All Statistical Database, latest version from June 2000 was the chief source of information (2). This package contains recent health statistical data submitted by European Member States to WHO Regional Office for Europe. The last available data for most countries are from the years 1998/99, for EU average from 1996. As the premature mortality is considered as the most important information, standardized death rate (SDR) for the age interval 0—64 years was predominantly used. SDR is the age-standardized death rate calculated using the direct method, i.e. it represents what the crude death rate would have been if the population had the same age distribution as the standard European population. The trends in cause-specific mortality for males and females were extrapolated, if possible, by simple linear regression.

Results and Discussion

The gap in health separates the Central Europe postcommunist countries from the European Union. This gap in health started during the 60s and during 70s—80's it widened further till the collaps of communism. In 1990, the risk of death between 15 and 59 years for men was higher in Poland, Czechoslovakia and Hungary than in Honduras, the Phillipines or Sri Lanka (3, 4). Figure 1 shows, that during the 70's and 80's the male life expectancy at birth in the communist CE stagnated. Since the beginning of the 1990's the four CE countries (PL, CZ, SK and H) have seen enormous political, economic and social changes. After 1990, during the transition period, the trends in life expectancy of both males and females in CE significantly changed. The increase was most pronounced in the Czech Republic and the current situation in this country is similar to Portugal, the member state of EU. The difference between the weighted average of European Union and Central Europe is still high, about 3—8 years for the male and 3—6 years for the female population. These differences are not explainable by higher infant mortality rate in Central Europe. The current infant mortality in CZ (4.4 per 1,000 live births) is lower than the EU average. In PL, SK and H infant mortality is somewhat higher than in EU, but these differences could account to the decline of about 0.3—0.5 years for life expectancy.

Figure 2 shows that infectious disease prevention programmes during 1970's were successful in all CE communist countries. At present, the standardized death rate caused by infectious and parasitic diseses is in all age groups, both in males and females, similar in EU and in CE countries.

Figure 3 demonstrates that the difference in premature male mortality from cardiovascular diseases was the main cause of the health gap between EU and CE countries in 70's and 80's. Central Europe thanks to its geographical location was best prepared for the democratic changes after 1989. After the collaps of communism the decrease of cardiovascular mortality in politically and economically more consolidated countries occured: in the former Czechoslovakia in 1990, in Poland in 1991 and in Hungary in 1993. The cardiovascular mortality decrease was mainly due to rapid decrease of acute forms of cardiovascular diseases — myocardium infarction and stroke. The cardiovascular mortality decreased in the Central Europe more in married and educated persons and in districts with high economic activity and with low unemployment (5,6,7). The positive changes in the CE countries

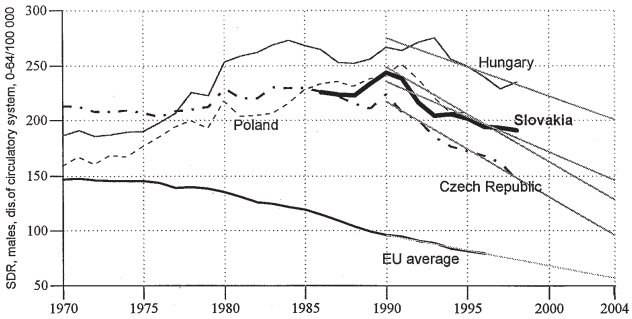

Fig. 3. Standardized death rate of males caused by cardiovascular diseases for age group 0—64 years in four Central Europe countries and in the European Union. WHO data (4).
Obr. 3. Štandardizovaná kardiovaskulárna mortalita mužov pre vekový interval 0—64 rokov v štyroch krajinách strednej Európy a v Európskej únii. Údaje WHO (4).

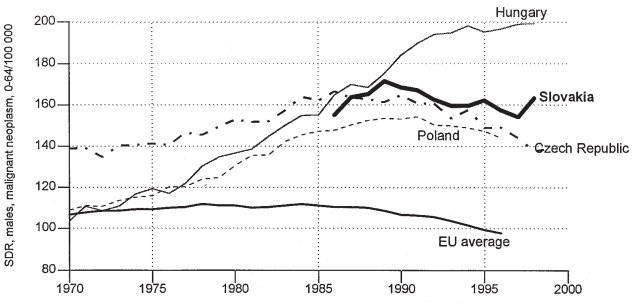

Fig. 4. Standardized death rate of males caused by cancer for age group 0—64 years in four Central Europe countries and in the European Union. WHO data (4).
Obr. 4. Štandardizovaná onkologická mortalita mužov pre vekový interval 0—64 rokov v štyroch krajinách strednej Európy a v Európskej únii. Údaje WHO (4).

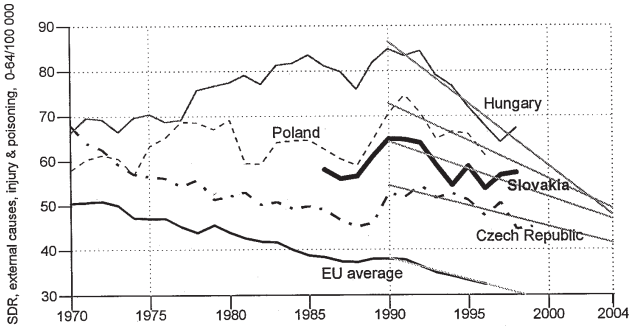

Fig. 5. Standardized death rate (males+females) caused by external causes, injury and poisoning for age group 0—64 years in four Central Europe countries and in the European Union.
WHO data (4).
Obr. 5. Štandardizovaná mortalita mužov a žien zapríčinená vonkajšími príčinami, poraneniami a otravami pre vekový interval 0—64 rokov v štyroch krajinách strednej Európy a v Európskej únii. Údaje WHO (4).

can be explained by higher healthy food consumption: substantial increase in the consumption of fruit and vegetables, decrease in pig meat, butter and fatty milk consumption and increase in the consumption of vegetable oils and high-quality margarins (8). There was a rapid improvement in availability and quality of modern cardiovascular disease health care: better pharmacological control of hypertension and hypercholesterolaemia, e.g. the use of statins and beta-blockers (9, 10). In spite of these positive trends there remains a deep gap in cardiovascular mortality between EU and CE countries both in male and female population. The situation in female mortality caused by cerebrovascular diseases is better: in all CE countries a significant decrease was observed and differences betweeen EU and Slovak and Czech republics are at present not very great.

Figure 4 demonstrates that around 1970 the male premature cancer mortality with the exception of Czech Republic, was close to or below the EU average. However, due to subsequently opposite trends in 1980's, male premature mortality in Central Europe countries, and particularly in Hungary is presently well above the EU average. Present male premature cancer mortality in Hungary is two-times higher than the EU average. Male cancer mortality in the Slovak Republic is at least two-times higher than in United Kingdom, Switzerland or Sweden (11). These differences are partially explainable by the higher prevalence of smoking in the Central Europe (12). The further risk factor could be oxidative stress, caused by low intake of antioxidants and high intake of spirits (13, 14). In female populations, the differences between EU and CE countries are not so dramatic, with the exception of extremely high mortality in Hungarian females. Paralel increase of female lung cancer mortality both in the EU and CE countries is caused by the continually increasing smoking prevalence in females almost in the whole Europe (15). Further local risk factors in CE (e.g. pollution) need to be identified with more specificity for preventive programmes. Premature mortality from malignant neoplasm of female breast is at present lower in Poland, Slovakia and Czech Republic than the EU average.

Both male and female premature mortality caused by external causes (injury, poisoning, accidents, suicide, homicide) was in 70's and 80's in CE significantly higher than in EU countries. The failure of totalitary system to satisfy material and psychosocial population needs was probably an important factor in not only in cardiovascular and cancer mortality, but also in mortality from external causes. The dramatic economic and political changes that occured after the onset of communism created a climate of toxic psychosocial environment. A loss of personal perspectives, chronic stress, tension, anger, hostility, social isolation, alienation, frustration, hopelessness, and apathy led to a lowered interest in own health and to very high incidence of alcoholism and suicides. After the collaps of communism the decrease of mortality from external causes of injury and poisoning is observed in all four CE countries (Fig. 5). In Hungary, in the country with highes suicide mortality in Europe, positive trends are observed after 1990, but even now suicide mortality in Hungary is 2—3 times higher than the EU average.

Figure 6 shows parallel trends in premature mortality caused by diseases of respiratory system both in EU and CE. It is possible that at the beginning of the next century the respiratory mortality

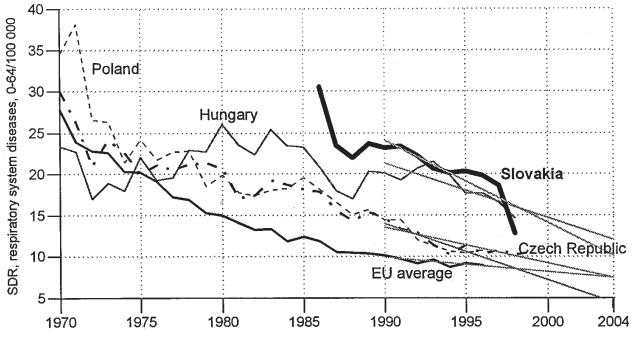

Fig. 6. Standardized death rate (males+females) caused by respiratory system diseases for age group 0—64 years in four Central Europe countries and in the European Union. WHO data (4).
Obr. 6. Štandardizovaná mortalita mužov a žien zapríčinená respiračnými ochoreniami pre vekový interval 0—64 rokov v štyroch krajinách strednej Európy a v Európskej únii. Údaje WHO (4).

in CE and EU countries will be very close. It is probable that both the use of new drugs and the increase of air quality in CE countries participated on these positive trends (16).

Tab. 1. Health status indicators for the male population in European Union and in four Central Europe postcommunist countries. Last available WHO data.

Parameter	EU 1996	Slovakia 1998/99	Czech Rep. 1999	Poland 1996	Hungary 1998
Life expectancy at birth (years)	74.4	69.0	71.5	68.2	66.2
Infant mortality rate (per 1000 live births)	6.12	9.37	4.82	13.4	10.9
Total mortality SDR – all causes	314	559	430	595	745
Circulatory system SDR	78.7	186.0	142.0	196.0	235.0
Ischaemic heart disease – SDR	44.0	96.2	78.3	84.6	120.0
Cerebrovascular disease – SDR	12.4	24.9	23.7	29.4	52.5
Malignant neoplasm SDR	97.7	159.8	139.0	144.0	199.0
Lung cancer SDR	28.9	43.6	46.9	54.0	72.2
External causes SDR	49.0	87.2	72.6	104.0	112.0
Suicide SDR	15.0	21.3	21.0	24.5	44.0
Homicide SDR	1.60	3.00	1.96	4.00	4.01
Infectious diseases SDR	3.61	2.20	2.04	6.96	6.98
Respiratory system SDR	12.1	20.2	15.6	16.2	21.3
Digestive system SDR	20.7	52.7	32.8	27.4	114.0
Liver diseases SDR	14.6	37.4	22.2	15.4	96.0

SDR = standardized death rate for age interval 0—64 years per 100 000.

Conclusion

Table 1 compares the last available most important data on male population from EU (weighted average) and from four CE countries (Slovakia, Czech Republic, Poland and Hungary). The life expectancy at birth is significantly higher in EU and this difference is not caused by substantially higher infant mortality rate in CE. Total premature mortality from all causes is substantially higher in CE and the differences in mortality from cardiovascular diseases are the main cause of this gap: EU=100%, SK=236 %, CZ=181 %, PL=249 %, H=299%. Cancer mortality is the second most important difference: EU=100 %, SK=164 %, CZ=142 %, PL=147 %, H=204 %. Mortality from external causes is the third most important difference: EU=100 %, SK=178 %, CZ=148 %, PL=212 %, H=229 %. Most of these three causes of premature death are preventable. After the political changes in 1989/90, the decline of cardiovascular mortality, mortality from external cau-

Tab. 2. Health status indicators for the female population in European Union and in four Central Europe postcommunist countries. Last available WHO data.

Parameter	EU 1996	Slovakia 1998/99	Czech Rep. 1999	Poland 1996	Hungary 1998
Life expectancy at birth (years)	81.0	77.0	78.3	76.7	75.3
Infant mortality rate (per 1000 live births)	4.93	8.09	4.40	10.90	8.47
Total mortality SDR – all causes	153	212	182	230	293
Circulatory system SDR	27.8	62.1	47.0	65.1	84.1
Ischaemic heart disease – SDR	10.2	26.0	19.3	18.3	35.0
Cerebrovascular disease – SDR	7.5	10.2	10.3	16.0	24.5
Malignant neoplasm SDR	65.7	77.4	81.1	82.2	102.0
Lung cancer SDR	7.0	6.5	9.6	9.3	18.0
Breast cancer SDR	18.5	14.6	15.7	15.2	20.0
Cancer of cervix SDR	1.96	5.77	4.58	7.27	5.64
External causes SDR	15.5	17.6	18.1	19.7	25.3
Suicide SDR	4.99	2.71	4.29	4.28	9.78
Homicide SDR	0.72	1.07	0.98	1.41	2.34
Infectious diseases SDR	1.79	1.08	0.56	2.43	1.78
Respiratory system SDR	5.79	6.32	5.86	5.92	8.96
Digestive system SDR	8.7	16.4	10.8	8.8	36.3
Liver diseases SDR	5.68	11.80	6.10	4.17	29.40

SDR = standardized death rate for age interval 0—64 years per 100 000.

ses and from respiratory system diseases in CE were observed. Unfortunately, this is not true for cancer mortality.

Table 2 compares the last available data on female population from EU and from 4 CE countries (Slovakia, Czech Republic, Poland and Hungary). The life expectancy at birth is higher in EU and this difference is not caused by substantially higher infant mortality rate in CE. Premature mortality from all causes is substantially higher in CE and the differences in mortality from cardiovascular diseases are the main cause of this gap: EU=100%, SK=233 %, CZ=169 %, PL=234 %, H=303 %. The differences in female cancer mortality are not so great as in male population: EU=100 %, SK=118 %, CZ=123 %, PL=125 %, H=155 %. Breast cancer mortality is in Slovakia, Czech Republic and Poland even lower than the EU average. The differences in mortality from external causes, from infectious deseases and from diseases of respiratory system are not very great between EU and CE. After the political changes in 1989/90 the decline of cardiovascular mortality, mortality from external causes and from respiratory system diseases was observed.

The rank of health status of four CE countries which are to become members of the European Union is as follows: the Czech Republic is in the best situation, followed by Slovakia and Poland, in which the health situation is similar. There is an evident gap between these 3 countries and Hungary. The differences between EU and CE at the end of 20th century are still relatively great, but in the Czech and Slovak Republics and in Poland there is the tendency to overcome this gap in the first 10—15 years of the next century. High premature mortality from cardiovascular diseases, from cancer and from external causes are the most important causes of the difference between CE and EU. All these three causes are to a great extend preventable. Antioxidant deficiencies, alcoholism, smoking and psychosocial stress (4, 12, 13, 14, 17, 18) could became an important risk factors in postcommunist Central Europe. Further local risk factors in this region need to be identified with more specificity for preventive programmes in individual Central Europe countries.

References

1. WHO: Highlights on health for the candidate countries for accession to the European Union. European Health 21 Target 19, Copenhagen 2000, pp. 1—11.

2. WHO: Health for All. Statistical database 2000. Copenhagen: WHO Regional Office for Europe, updated June 2000.

3. Feachem R: Health decline in Eastern Europe. Nature 1994, 367: 313—314.

4. Bobak M, Marmot M: East-west mortality divide and its potential explanations: proposed research agenda. Brit Med J 1996, 312: 421—425.

5. Bruthans J, Dzúrová D: Úmrtnost na nemoci oběhové soustavy v České republice po roce 1989. Demografie 1999, 41:193—206.

6. Bobak M, Hertzman C, Skodova Z, Marmot M: Own education, current conditions, parental material circumstances, and risk of myocardial infarction in a former communist country. J Epidemiol Community Health 2000, 54: 91—96.

7. Rosolova H, Simon J, Sefrna F: Impact of cardiovascular risk factors on morbidity and mortality in Czech middle-aged men: Pilsen longitudinal study. Cardiology 1994, 85: 61—68.

8. FAO: FAOSTAT Nutrition Database, Food and Agriculture Organization, Rome, updated June 2000.

9. Widimsky J, Skodova Z: What are the trends in cardiovascular pharmacotherapy in recent years in patients after myocardial infarct? Vnitr Lek 1997, 43: 580—583.

10. Gajdoš M, Cagáň S, Spustová V, Dzúrik R: Prevencia a terapia aterosklerózy. Bratisl Lek Listy 1996, 97: 382—387.

11. Ginter E: Recent trends in cancer mortality in the Slovak Republic and in Europe. Neoplasma 2000, 47: 68—72.

12. Peto R, Lopez AD, Boreham J, Thun M, Heath C: Mortality from tobacco in developed countries: indirect estimation from national vital statistics. Lancet 1992, 339: 1268—1278.

13. Ryan M: Alcoholism and rising mortality in the Russian Federation. Brit Med J 1995, 310: 646—648.

14. Ginter E: High cardiovascular mortality in postcommunist countries: participation of oxidative stress? Intern J Vit Nutr Res 1996, 66: 183—189.

15. Tobacco or Health. A global status report. Geneva, WHO 1997.

16. CORINAIR 90 Inventory. Emissions in 10 Phare Countries. FAVART, Bratislava 1996, pp. 48.

17. Zikmund V: Psychical and psychosocial factors and sudden cardiac death. Bratisl Lek Listy 1997, 98: 407—412.

18. Ginter E: World Health Report 2000: The position of Slovak Republic. Bratisl Lek Listy 2000, 101: 477—483.

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