Jitka Weissova

A comparison of several health indicators in selected cities of Europe and of the relation between health expenditures and health of the population

Introduction

According to the World Health Organization, "*health* is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." In the narrower sense, illness is regarded as a lack of health. But it is also possible to expand this concept and to include all the limitations of the body's functions used in common activities.

This article addresses the health of the population in several European countries and focuses on big cities in particular. Special attention is paid to the Czech Republic (Prague and Pilsen) and to Berlin.

Between 1999 and 2003 natality decreased only in Berlin

The population of the Czech Republic (CR) makes up 2.3 % of that of the enlarged European Union. The age structure in the Czech Republic as measured by the age preference index is still close to the European average, but if present trends persist, the population of the CR will gradually become one of Europe's oldest.

Natality in the Czech Republic [2] has reached the lowest level ever. The CR is among the countries having the lowest total fertility rate *(1.179)*. The number of live births per 1000 women between the ages of 15 and 45 in 2003 differs widely, from London *(58.5)* and Lisbon *(55.7)* [11] on the one hand to Prague *(41.1)* [1], Berlin *(38.6)* [5] and Warsaw *(34.5)* [9] on the other. In the period from 1995 to 2003 this indicator increased in most of the cities, e.g., Lisbon, Pilsen, Prague and Warsaw. In Budapest this value declined in 1999 compared to 1995, but in 2003 growth similar to Prague was recorded.

The infant mortality rate is the number of deaths among children under a year old per 1000 live births. It is a frequently used indicator for international comparison. At present, it is one of the few indicators in which the Czech Republic is "leading" (with a low rate) both in Europe and in the world. This may be the result of one of the few positive legacies of the communist era: the health service, available equally to all.

London's higher infant mortality rate is discussed in an article by the London Health Observatory, which says [8]: *"London as a whole had a similar infant mortality rate to England and Wales, however, within London there were wide inequalities. The differences appear to be greater in outer London where many boroughs were showing high levels of infant mortality, but average or good life expectancy. The findings also show that babies born to women who registered their baby without a partner – "sole-registered" births – have a higher infant mortality than those babies born to women who registered their baby with a partner. The first mentioned group of women is among the poorest and most socially excluded groups in society."*

We can also look at the infant mortality rate from another point of view. Young women now usually postpone motherhood to their 30s or even 40s. Many of them then have to seek medical help to get pregnant, which often leads to the birth of twins or triplets. But those babies are in many cases born preterm, have a lower birth weight and are more likely to have other health problems putting them at risk.

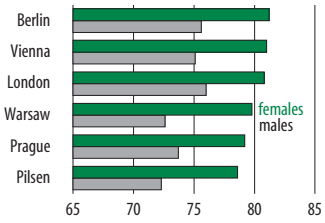
Historical data illustrate medical progress and increased public information made during the last century. In 1904, the infant mortality rate was about 160 in the larger cities of England, and 149 in Prague in 1900. At the beginning of the last century, the infant mortality rate was largly dependent on parents' social status.

Comparatively high life expectancy in Berlin, differing within the city; extraordinary increase in the Czech Republic following the political changes.

The rate of life expectancy increase in the Czech Republic after 1990 was extraordinary in the European context. In the period from 1990 to 2002 [2], male life expectancy increased by 4.6 years and female life expectancy by 3.3 years. Nevertheless, life expectancy in the Czech Republic is still not as high as the lowest ranking member of the EU 15. Although the difference has decreased, there is still a gap of roughly 3 years. Among the countries of Central and Eastern Europe, the Czech Republic ranks second, after Slovenia.

According to the London Health Observatory [8], there are areas in London that have some of the shortest life expectancies in Britain. These, on the other hand, are located alongside areas with some of Britain's highest life expectancies. Examples include the London districts *Westminster* and *Newham*. A baby born in Westminster can expect to live an average of 4.5 years longer than a baby born in Newham.

Fig. 1 **Life expectancy in selected cities in 2003**[1]



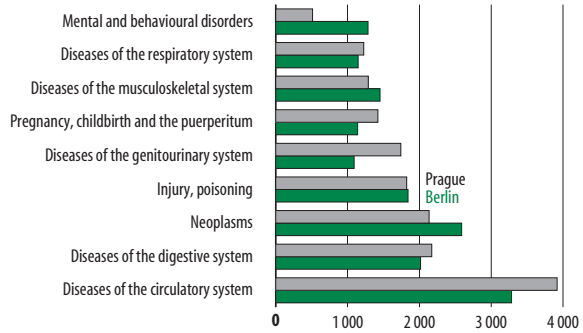
1 Please notice that the graph does not show the correlation between life expectancy of women and men.

A similar situation is to be found in the old neighborhoods of Berlin [5]. A baby born in *Wilmersdorf* or *Treptow* can expect to live an average of about 5 years longer than a baby born in *Kreuzberg (now Friedrichshain-Kreuzberg)*.

Per 100,000 inhabitants, a significant difference between Prague and Berlin in the number of hospitalized persons in the case of some diagnoses

There is very little difference in the number of hospitalized persons per 100,000 inhabitants in Prague [3] and Berlin [6] for some diagnoses (injuries, poisoning and respiratory ailments), versus a gap of hundreds of people in the case of other ailments – neoplasms *(452 cases)*, ailments of the circulatory system *(634)*, ailments of the genitourinary system *(652)*, mental behavioral disorders *(770)*.

Fig. 2 **Hospitalized persons per 100,000 inhabitants in Prague and Berlin in 2002 according to the reason for hospitalization**



We can see that per 100,000 inhabitants more people were hospitalized in Prague than in Berlin.

As is so often the case, these statistics raise further questions, such as:

- Why are so many more people hospitalized in Prague because of diseases of the circulatory system than in Berlin?
- Why are so many more people hospitalized in Berlin because of mental and behavioral illnesses than in Prague?

Berlin in 1995 had the lowest mortality rates for cancer (neoplasms)

Another group of indicators illustrating the level of a population's health is the mortality rate for diseases of the circulatory system, neoplasms, and external causes of death.

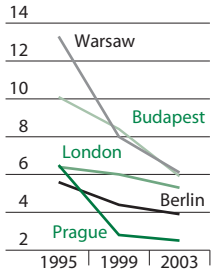
Czech death statistics [2] show a decline in the number of cases in the period from 1995 to 2002. 90 % of this decline is related to deaths from diseases of the circulatory system. Changes in this mortality rate differed between men and women – the rate for men dropped by 14.6 %, for women by 10 %.

In the Czech Republic, the decline in the mortality rate for *diseases of the circulatory system* is associated with

- improvement of eating habits and lifestyle,
- availability of new drugs and equipment,
- an increase in coronary surgery.

Fig. 3 shows that Berlin had the best results in 1995, while Prague now has the better rate, and Warsaw [9] had in 1995 and, together with Budapest, in 2003 [10] the worst rates related to the circulatory system.

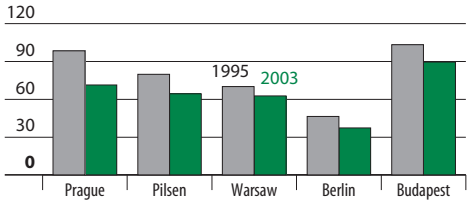
Fig. 3 **Mortality rates for diseases of the circulatory system in 1995, 1999 and 2003 per 100,000 of the population**



There was a slight increase in the Czech Republic in the mortality rate for *neoplasms* in the same period (from 1995 to 2003). Men's mortality rate for cancer increased by 3.4 %, while the mortality rate for women increased only by 1 %.

If the selected cities are ranked according to cancer mortality rates (in 1995, 1999, 2003) per 100,000 inhabitants, Berlin *(254, 237, 245 cases)* [5] ranks first, Warsaw *(260, 278, 292 cases)* [9] ranks second, followed by Prague *(323, 311, 312 cases)* [3]

Fig. 4 **Mortality rates for external causes of death in 1995 and 2003 per 100,000 of the population**



and Pilsen *(297, 313, 339 cases)* [2], with Budapest *(374, 380, 384 cases)* [10] ranks last.

The third major group of causes of death is *external causes of death*, such as traffic accidents, suicides and injuries. This group exhibited a steep decline in the Czech Republic in the period from 1995 to 2002 [2]. The mortality rate (per 100,000 inhabitants) dropped by 18.6 %. The mortality rate for men decreased by 9.5 %, while the rate for women declined by 32.4 %.

Other injuries account for 70 % of this decrease; their number dropped by one-fourth. The most frequent causes of death in 2002 in this category were traffic accidents *(21.8 %)*, suicides *(22.4 %)* and other injuries *(55.8 %)*.

In that year, male suicide rates were four times higher than the rates for women, and men were three times likelier to die as the result of a traffic accident than women.

The comparison of cities with regard to the number of deaths due to external causes per 100,000 inhabitants shows big differences between these cities in the years 1995 and 2003. Berlin is in first place, whereas the rates for Budapest are more than twice as high as those of Berlin. We should keep in mind, however, that even the lowest of these figures is always too high.

Highest health expenditures in Germany

The third part of this article concerns health expenditures. All data were published in the Urban Audit Database. Urban Audit is an attempt to deliver European regional data in a comparable form [12].

The order of the selected cities according to the first two indicators is the following:

Number of hospital beds, doctors and dentists in the year 2001 per 1,000 residents

	Hospital beds	Doctors	Dentists
London	4.00	0.59	0.49
Berlin	6.88	2.07	1.05
Prague	9.05	6.00	0.78
Vienna	11.55	7.54	0.80
Pilsen	14.35	7.60	0.86

London has the lowest numbers, Prague's are higher … and Pilsen shows the highest number of hospital beds, doctors and dentists. Berlin is the only city whose ranking shows some disparity: it has the second lowest number of hospital beds and doctors (first and second column) and the highest number of dentists (third column). For the sake of clarity, the maximum number for each indicator is highlighted.

In nearly all European countries, the structure of the population is changing. The percentage of elderly people is growing, and this naturally has an effect on health expenditures. This is one reason (among others) why these expenditures are now increasing in the EU more than twice as fast as the states' economy. Some funding will have to increase – for example, funding for prevention, the fight against smoking and the fight against

Fig. 5 **Public and private health expenditures in several European countries as a percentage of the total spending for health in 2002**

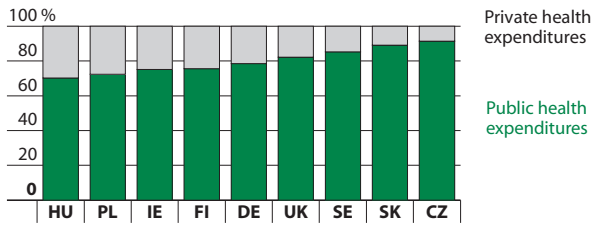
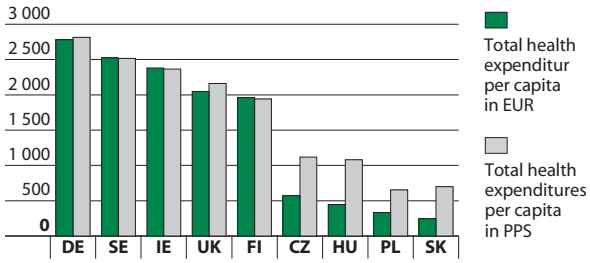


Fig. 6 **Total health expenditures per capita in PPS and in EUR in the year 2002**



obesity, as well as for treatment of long-term chronic ailments and diseases that accompany an aging population.

Health expenditures in the Czech Republic increased more than sevenfold in the period from 1989 to 2002, and spending for drugs increased elevenfold. Nevertheless, in 2002, the Czech Republic spent 7.4 % of GDP for its health service, while Germany, for example, spent 10.9 % of its GDP for health [4].

Total health expenditures in several European countries in % of GDP in 2002

Country	DE	SE	HU	UK	CZ	FI	IE	PL	SK
% of GDP	*10.9*	*9.2*	*7.8*	*7.6*	*7.4*	*7.3*	*7.3*	*6.1*	*5.7*

The graph shows how patient contributions to health care spending differ between several European countries [4]. People in the Czech Republic pay only 8.6 % of the costs themselves, while the average in EU countries is 25 %.

Increasing patient contributions to health expenditures is not very popular from a political point of view. The Czech government is thus not in a hurry to make changes, but these changes will eventually have to be instituted.

Finally, the last graph shows the same set of European countries and their total health expenditures per capita in PPS[1] (see the columns in the foreground), as well as, in comparison, total health expenditures per capita in EUR (columns in the background) in 2002 [4].

Summary

Is there a relationship between health expenditures and the health of a population ?

Based on the available data, it is difficult to give a clear answer. The cities of Western Europe show better results than the cities of Eastern Europe in terms of life expectancy, in infant mortality (not births) and in cancer mortality rates. From this point of view, the answer would be yes. If Prague is compared with Warsaw and Budapest, the graph in Fig. 6 shows that while the Czech Republic and Hungary spend almost twice as much on health care as Poland, the results for all three are about the same. Here the answer would be no.

And the conclusions?

The amount of money spent on health care systems is very important, but it is not the only factor determining the health of a population.

In statistics, the data being analyzed always end up giving rise to further questions. In this case we might ask:

- Are our health care systems efficient?
- Is the priority given to preventive care high enough?
- Do people cooperate in preventive care, and do they feel responsible enough for their own health?

1 PPS (Purchasing Power Standards) are a fictive 'currency' unit that eliminates differences in purchasing power, i.e., different price levels, between countries.

Jitka Weissova ist Mitarbeiterin des Tschechischen Statistischen Zentralamtes, Regionalamt Pilsen.

Sources

[1] Czech Statistical Office, Prague: *Statistical Yearbook of the Czech Republic*, *Vìkové slo•ení obyvatelstva ÈR v roce 1995, 1999, 2003* (Internet: http://www.czso.cz).

[2] Institute of Health Information and Statistics, Prague: *Czech Health Statistics Yearbooks* (Internet: http://www.uzis.cz).

[3] Institute of Health Information and Statistics, Prague: *Zdravotnictví Hlavního mìsta Prahy 2003* (Internet: http://www.uzis.cz/cz/publikac/knihovna_uzis_pdf/karpha2003.pdf).

[4] Institute of Health Information and Statistics, Prague: *Hrubý domácí produkt v èlenských zemích EU*, výdaje na zdravotnictví v zemích EU a zdroje jejich financování, 2004.

[5] Statistisches Landesamt Berlin: *Die kleine Berlin-Statistik 2004* (Internet: http://www.statistik-berlin.de/Kbst-engl/kbs-02.htm, http://www.statistik-berlin.de/Kbst-engl/kbs-08.htm, http://www.statistik-berlin.de/framesets/aktuell-kbst.htm).

[6] Statistisches Landesamt Berlin: *Diagnosedaten der Krankenhauspatienten für 2002 liegen vor* (Pressemitteilung 283/03 vom 8. Januar 2004), (Internet: http://www.statistik-berlin.de/pms2000/sg04/2004/04-01-08.html).

[7] Adler, L.: *Report Shows Berlin Sinking Deeper into Poverty* (Internet: http://www.wsws.org/articles/2004/jun2004/ber-j19_prn.shtml).

[8] Patrick, J., Jacobson, B.: *Mapping Health Inequalities across London, Executive Summary;* London Health Observatory (Internet: http://www.lho.org.uk/Health_Inequalities/Attachments/PDF_Files/ineq_summary.pdf).

[9] Central Statistical Office of Poland: *personal communication* (Internet: http://www.stat.gov.pl).

[10] Hungarian Central Statistical Office: *personal communication* (Internet: http://portal.ksh.hu).

[11] Instituto Nacional de Estatística: *personal communication* (Internet: http://www.ine.pt).

[12] EUROSTAT; European Commission, Direction Régional: *Urban Audit Database* (Internet: http://www.urbanaudit.org/DataAccessed.aspx).