

ANALYSIS OF THE HEALTH CONDITION OF POPULATION ON THE BASIS OF INDICATORS OF MORTALITY IN SELECTED REGIONS OF THE CR

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Abstract: *Consequences of changes in the political, economic and social environment become evident in increasing the live expectancy of both sexes. The analysis was oriented to indicator of mortality in selected regions of the Czech Republic. Evaluation of the research results was carried out by statistical methods. Results achieved characterize regional differences in the health condition of population on the basis of indicators of mortality according to significant groups of causes of mortality.*

Keywords: *health service, demography, statistical methods, regions, Czech Republic*

Introduction

Changes, which occurred in the Czech Republic (or in Czechoslovakia) after 1989 in the field of economy (transformation of centrally directed economy to market economy) together with political changes (the change of a totalitarian system to a democratic system) affected not only the level and structure of particular sectors of national economy and the living standard of population but were also the cause of changes in other spheres of the population life. Last but not least, they were the reason of extensive qualitative and quantitative changes in health service and education.

The number of students at secondary schools as well as at universities and other colleges has increased (at present, we rank among the first places in EU countries). The condition of their admission was no longer class background but study conditions (to a great extent, however, also financial possibilities). Marked changes occurred in the method of education and in changes of relationships between teachers and students.

In consequence of qualitative and quantitative changes in the nutrition of population, in the improvement of health service and in other spheres of the community life the health condition of population improves and the average age increases. At the same

time, however, marked changes occur in the psychic demandingness in the personal life as well as in the working process in a number of professions. These facts become evident in an increased rate in teachers of all schools.

Methods

Empirical data on the achieved level of examined events in the defined territorial unit and time period were obtained from the Czech Statistical Office database as well as from our own research.

Exact statistical methods and demography contribute undoubtedly to the objective expression of these changes. Partial results of the paper authors were published in 2005 and 2006 or they are given in this paper. From the point of view of this research we consider these problems to be important. Problems of changes in the nutrition of population were dealt with by Škvařil, J. and Škvařilová, E. (2007). These authors consider particularly increased consumption of food of animal origin to be a significant risk factor in the nutrition of population (higher supply of energy, proteins and fats together with the unsuitable structure of fatty acids, cholesterol etc.). An extensive historical survey on the use of alternative and modern curative methods aimed at the need of the education of students of pedagogy mentions Belán (2007).

Theoretical aspects and interpretation of results of the study of demographic events and processes are dealt with by Dufek (2003), Kretschmerová (2001), Maca, Palát (2004), Palát, Maca (2004), ROUBÍČEK (1996) and Fiala (2003).

Methodical procedures of processing the up-to-date data of analysed time series based on methods of descriptive statistics are presented in the paper of Palát, Králík (2006).

Results and discussion

The life expectancy of males and females as of 2006 is given in Tab. 1 and in Figure 1 as compared to the regions of Prague and Ústí nad Labem. Figures 2-5 illustrate the variation range of deaths per 100 000 mid-year population for neoplasms, circulatory system diseases, respiratory system diseases and external causes in particular regions and in the whole Czech Republic in 2005.

	0	5	10	15	20	25	30	35	40	45	50
Males	73.45	68.80	63.86	58.91	54.07	49.30	44.49	39.70	34.98	30.38	26.02
Females	79.67	74.94	69.97	65.00	60.06	55.13	50.20	45.30	40.45	35.69	31.02

	55	60	65	70	75	80	85	90	95	100
Males	21.96	18.18	14.79	11.65	8.82	6.40	4.46	2.99	1.93	1.34
Females	26.49	22.13	18.01	14.07	10.46	7.36	4.83	2.96	1.72	0.98

Table 1: The life expectancy of males and females in the Czech Republic (live tables 2006)

In a diagram in Fig. 6 for 2005, it is possible to find four clusters with different demographic characteristics. The first one includes 1, the second 1, the third 9 and the fourth 3 regions: (1) – the capital of Prague, (2) – Central-Bohemian region, (3) – South-Bohemian region, Plzeň region, Vysočina region, South-Moravian region, Hradec Králové region, Pardubice region, Ústí region, Liberec region and Karlovy Vary region, (4) – Olomouc region, Zlín region, Moravian-Silesian region.

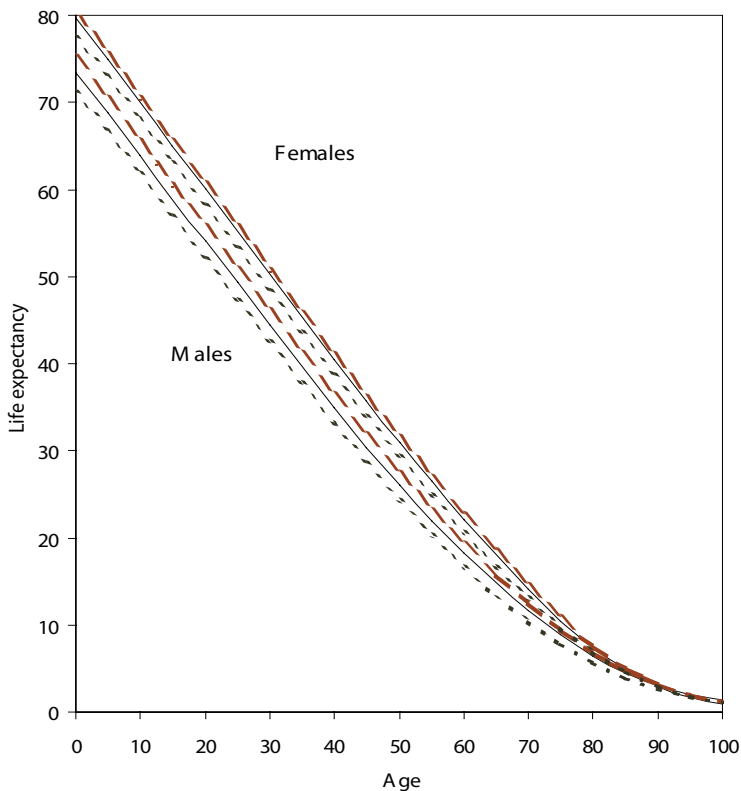


Fig. 1: The life expectancy of males and females in the Czech Republic (live tables 2006) as compared with the region of Prague and the region of Ústí nad Labem (live tables 2005-2006)

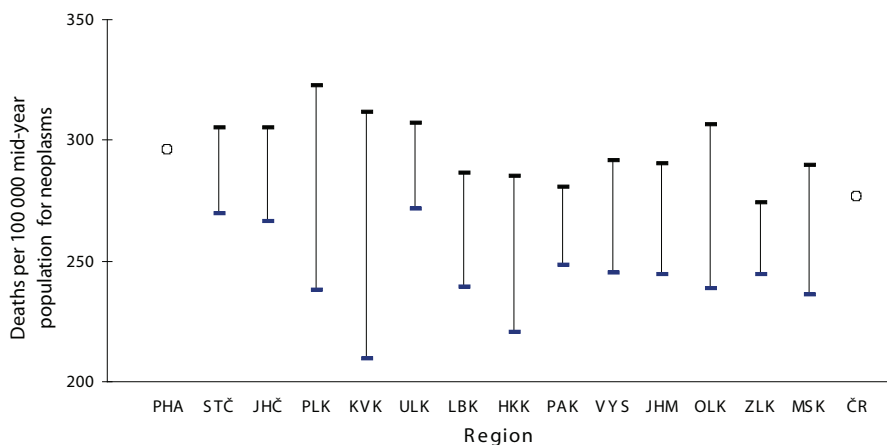


Fig. 2: Range of deaths per 100 000 mid-year population for neoplasms particular regions and in the whole Czech Republic in 2005. Explanatory notes: PHA – the capital of Prague, STČ – Central-Bohemian region, JHČ – South-Bohemian region, PLK – Plzeň region, KVK – Karlovy Vary region, ULK – Ústí nad Labem region, LBK – Liberec region, HKK – Hradec Králové region, PAK – Pardubice region, VYS - Vysočina region, JHM – South-Moravian region, OLK – Olomouc region, ZLK – Zlín region, MSK – Moravian-Silesian region, ČR – Czech Republic)

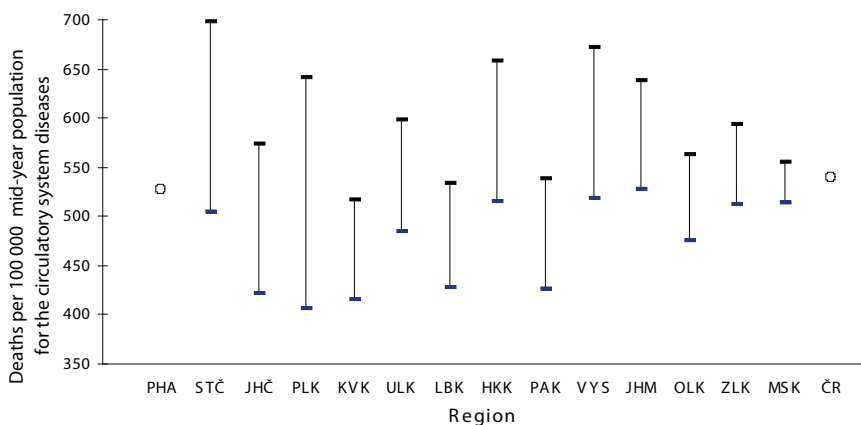


Fig. 3: Range of deaths per 100 000 mid-year population for circulatory system diseases in particular regions and in the whole Czech Republic in 2005. Explanatory notes see Fig. 2

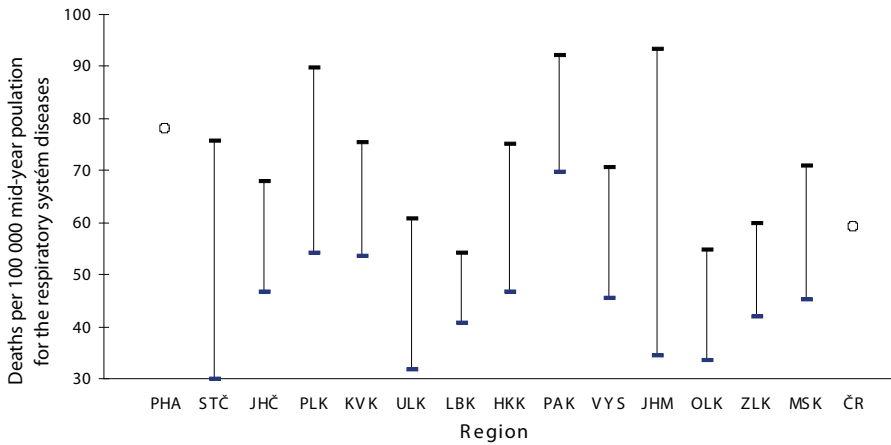


Fig. 4: Variation range of deaths per 100 000 mid-year population for respiratory system diseases in particular regions and in the whole Czech Republic in 2005. Explanatory notes see Fig. 2

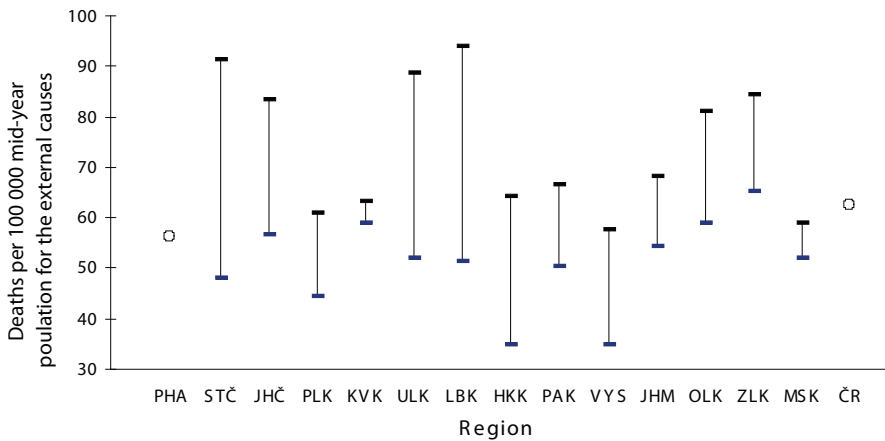


Fig. 5: Variation range of deaths per 100 000 mid-year population for external causes in particular regions and in the whole Czech Republic in 2005. Explanatory notes see Fig. 2

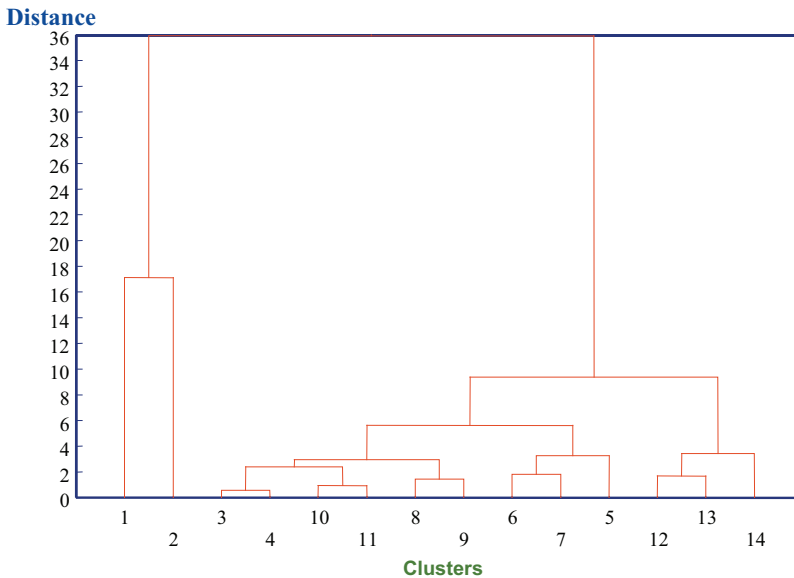


Fig. 6: A dendrogram from demographic characteristics per 1000 population (marriages, divorces, live births, deaths, immigrants and emigrants) in 14 regions of the CR in 2005. (1 – the capital of Prague, 2 – Central-Bohemian region, 3 – South-Bohemian region, 4 – Plzeň region, 5 – Karlovy Vary region, 6 – Ústí nad Labem region, 7 – Liberec region, 8 – Hradec Králové region, 9 – Pardubice region, 10 – Vysočina region, 11 – South-Moravian region, 12 – Olomouc region, 13 – Zlin region, 14 – Moravian-Silesian region)

Conclusion

Results achieved have proved the suitability of using statistical methods in dealing with problems of demographic development in particular regions and in the whole Czech Republic. Changes in the economic and social environment with their social and economic aspects become evident by the continual increasing the life expectancy of both males and females. The number of dead persons was evaluated according to the cause of death. For the statistical analysis of the given material methods of regression and correlation analysis as well as cluster analysis were used. Results of cluster analysis consist in the division of regions into clusters with different demographic characteristics. Possibilities of multidimensional methods and particularly cluster analysis are not sufficiently applied in pedagogical and psychological research yet.

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ANALÝZA VÝVOJE ZDRAVOTNÍHO STAVU OBYVATELSTVA NA ZÁKLADĚ UKAZATELŮ ÚMRTNOSTI VE VYBRANÝCH REGIONECH ČR

Abstrakt: Důsledky změn politického, ekonomického a sociálního prostředí se projevují na zvyšování střední délky života obou pohlaví. Analýza byla orientována na indikátory úmrtnosti ve vybraných regionech České republiky. Vyhodnocení bylo provedeno statistickými metodami. Dosažené výsledky charakterizují regionální rozdíly ve zdravotním stavu obyvatelstva na základě ukazatelů úmrtnosti podle významných skupin příčin smrti.

Klíčová slova: zdravotnictví, demografie, statistické metody, regiony, Česká republika