Original Research

Trends in health indicators in the urban middle-aged population in the Czech Republic in 1998–2010

K. Žejglicová [a,*], J. Kratěnová [a], M. Lustigová [a,c], M. Malý [b]

[a] *The National Institute of Public Health, Environmental and Population Health Monitoring, Prague, Czech Republic*
[b] *The National Institute of Public Health, Unit for Biostatistics and Informatics, Prague, Czech Republic*
[c] *Charles University in Prague, Faculty of Science, Department of Social Geography and Regional Development, Czech Republic*

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ABSTRACT

Objectives: To track the trends in general health indicators and the prevalence of cardiovascular diseases (CVD), high blood pressure and elevated blood cholesterol in the middle-aged urban population in the Czech Republic in 1998–2010.

Study design: Cross-sectional study.

Methods: The following data from the three-phase HELEN (HEalth – Lifestyle – ENvironment) study, a prevalence questionnaire survey, were analysed: data collected from 8214 subjects in phase I, 6107 subjects in phase II, and 4389 subjects in phase III. The study subjects were aged 45–54 years and the study period spanned from 1998 to 2010. The differences in the indicators between phases were evaluated by binary and ordinal logistic regression models at a significance level of 0.01.

Results: Over the study period, a significant increase was observed in the proportion of respondents who self-rated their health as very good or good: from 46.6% to 51.0% in males ($P = 0.006$) and from 45.5% to 49.9% in females ($P < 0.001$). At the same time, the rates of respondents under long-term medical follow-up rose significantly from 36.3% to 44.3% ($P < 0.001$) and from 46.4% to 56.2% ($P < 0.001$), respectively.

CVD prevalence did not change although the percentage of males and females with high blood pressure (from 29.3% to 36.6% and from 26.0% to 31.2%, respectively) and elevated total cholesterol (from 29.0% to 36.6% and from 27.3% to 32.4%, respectively) increased significantly.

Conclusions: Self-rated health among the middle-aged population in the Czech Republic improved during the 1998–2010 period, but, at the same time, more people needed to be followed up for a disease. The proportions of respondents with hypertension and elevated blood cholesterol increased while the CVD rates did not vary significantly.

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* *Corresponding author.* The National Institute of Public Health, Šrobárova 48, 100 42, Prague 10, Czech Republic. Tel.: +420 26708 2496.
  E-mail address: zejglicova@atlas.cz (K. Žejglicová).

Introduction

In the early 1990s, similarly to other post communist countries, the Czech Republic (CR) had a high level of mortality in comparison with Western European countries. The difference was due to higher death rates, particularly for cardiovascular diseases (CVD). Since then, declining mortality and, at the same time, increasing life expectancy at birth, have been observed in the CR. A more than 50% contribution to this positive trend came from reduced death rates, namely for CVD. This trend diverted the CR from most of the Eastern European countries closer to Western European countries.[1] Nevertheless, life expectancy at birth in the CR is lower than the average in the European Union (EU) and the country still lags behind the developed countries of Western Europe by about 15 years. The positive trend in death rates is a result not only improved health care (use of advanced technologies) but also changes in lifestyle (particularly in the area of diet and nutrition), improved environment and, last but not least, the fact that the social transition of post communism was socially bearable.[2]

Population health in the CR in the first half of the 1990s was characterised by a high mortality level and by an enormously high prevalence of the risk factors for CVD such as hypertension and hypercholesterolemia. Based on the results of the MONICA study[3] conducted in 21 countries in 1992, the population of the CR was among those with the highest mean total cholesterol level (the mean for both males and females in all countries was 5.8 mmol/l in comparison with 6.2 mmol/l in males and 6.1 mmol/l in females in the CR). Higher levels than those in the CR were reported for males in Switzerland, the former Yugoslavia and Sweden and for females in the former Yugoslavia, Lithuania, Switzerland and Germany. The same study also reported high systolic blood pressure values in the CR. The mean systolic blood pressure was 133 mm Hg in males and 129 mm Hg in females and the respective values in the CR were 137 mm Hg and 133 mm Hg. Higher mean systolic blood pressure values were reported in males from three countries (Finland, Germany, Italy) and females from four countries (Finland, Germany, Russia and the former Yugoslavia).

In response to this negative situation the CR attempted to collect as much data as possible on nationwide population health and on trends in the post communist era. As routine statistical data were not adequate for this purpose, further investigations were needed. One of the few regularly repeated population health surveys in the CR is the HELEN study, coordinated by the National Institute of Public Health (NIPH) in Prague.

The aim of this communication was, based on the results of the HELEN study, to describe and test changes in the health of the urban middle-aged population in the Czech Republic over a period of 12 years between 1998 and 2010. The article focuses on the prevalence of six health indicators (self-rated health, self-reported chronic morbidity, long-term medical follow-up, CVD, high blood pressure, elevated total cholesterol), which are of interest from the public health perspective.

Methods

The HELEN study is part of the Environmental Health Monitoring System in the CR.[4] The main objective of the study is to describe the health of urban middle-aged populations as extensively as possible and to study the health indicators trends. The study focuses on general health indicators such as self-rated health, prevalence of selected non-infectious diseases and risk factors for these diseases. Three phases of the HELEN study were completed using identical methodology to enable comparison of results between phases.

The HELEN study is a prevalence questionnaire survey conducted in selected cities of the CR at regular intervals. Phase I spanned 1998 to 2001, phase II 2004 and 2005, and phase III 2009 and 2010. Data from 16 cities in which all three phases of the HELEN study took place were used for comparison of results between phases.

In each of the 16 cities systematic random selection from the Civil Registry of the Ministry of Interior of the CR was used to obtain a representative sample of 800 subjects (400 males and 400 females) aged between 45 and 54 years. Questionnaire forms were distributed and collected by interviewers whose task was to contact the selected person and to persuade him/her to participate in the study. The questionnaire was self-administered, without interviewer's intervention. In 2010 (phase III) the method was partially modified; the number of subjects addressed was reduced to 600 (300 males and 300 females) in each of the cities and the survey was conducted by mail. Selected persons were contacted by mail and received the questionnaire form along with an information letter. Non-respondents were contacted again by mail. Since 2009, the questionnaire was also available on the internet. All respondents signed informed consent to their participation in the study.

The selected indicators self-rated health, self-reported chronic morbidity, and long-term medical follow-up characterize the general health status.

Self-rated health (SRH) is one of the most widely used survey measures of health and is included among a European Core Health Indicator (ECHI).[5] Respondents self-rated their health on a five-point scale from very good to very poor. For further analysis, SRH data were merged into three categories: good SRH (health rated as very good and good), average SRH, and poor SRH (health rated as very poor and poor).

Self-reported chronic morbidity is defined as the proportion of people reporting to have any long-standing chronic illness or long-standing health problem with duration in excess of six months.[5]

The indicator long-term medical follow-up refers to the fact that a respondent has been followed up for some disease on a long term basis.

The prevalence of hypertension and elevated blood cholesterol is derived from responses to the following question: 'Were you diagnosed by a physician with high blood pressure/elevated total blood cholesterol?'. The prevalence of CVD is derived from responses to questions about physician confirmed myocardial infarction, coronary heart disease, or stroke (cerebrovascular event) if the respondent reported a history of at least one of these diseases.