

Seasonal pattern of mortality by main cause of death in Novi Sad (Serbia), 1998-2013

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Objective: Main objective of this paper is to research seasonal pattern of mortality by leading cause of death using mortality data for urban population of Novi Sad in the period 1998-2013.

Mortality data is collected on monthly level and crude death rate (CDR) was calculated for all months standardized to 30 days. The number of death from all cause of death (ICD 10th version) was obtained from Statistical Office of Serbia. Population estimates was based on census data for 1991, 2002 and 2011.

Results

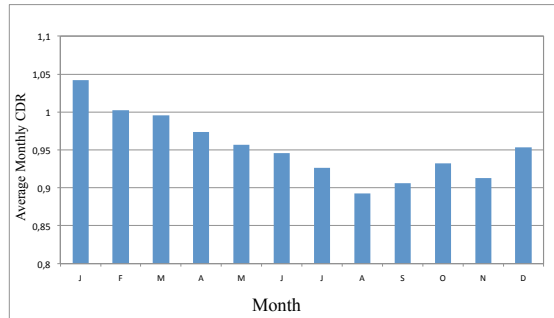


Figure 1. Average Monthly Crude Death Rate (CDR), 1998-2013

Results indicated five leading cause of death: cardiovascular diseases are the responsible for about 48% of all death, neoplasms for 25.1%, respiratory diseases for 5.1%, endocrine, nutritional and metabolic diseases for 4.3% and injury, poisoning and other external causes for 2.8% of all death.

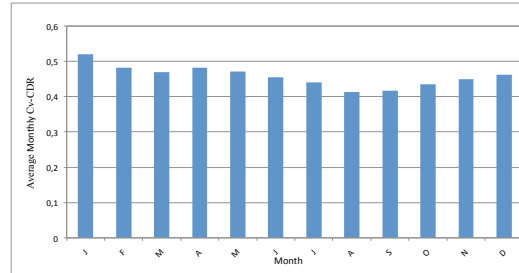


Figure 2. Average Monthly Cv-Crude Death Rate (CDR), 1998-2013

During analysis was find clear seasonal pattern with higher CDR in cold period of the year for mortality of all cause of death, as well for cardiovascular disease, neoplasms and respiratory diseases. Cardiovascular mortality show the same seasonal shift as mortality of all case of death.

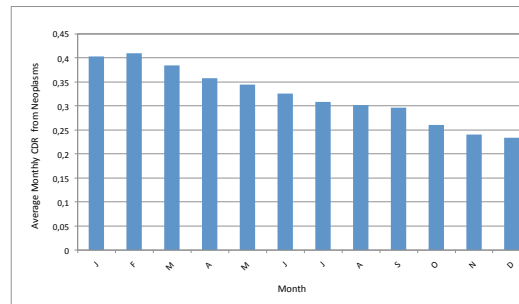


Figure 3. Average Monthly CDR from Neoplasms

Cardiovascular mortality has strong impact on seasonal trends of total mortality during the year. To investigate reasons for this seasonality, CDR was linked with environmental conditions (air temperature), demographic (sex and ageing) factors and lifestyle. Various diseases show different sensitivity to air temperature.

Regression analysis indicated that decreased of air temperature is followed with increase of CDR. This result was found for both sex. Most vulnerable group is population aged 65 and over. In population aged 65 and more regression analysis show stronger correlation in temperature-related mortality for man than for women. Men are more exposed to conventional risk factors (smoking, hypertension, nutrition, physical activity etc.). DALY (Disability Adjusted Life Years) show that male population in Serbia has the higher number of years lost due to ill-health, disability or early death.

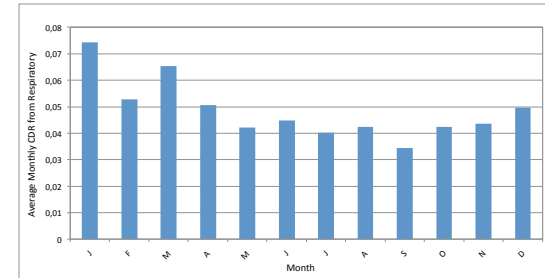


Figure 4. Average Monthly CDR from Respiratory Diseases

Changes of air temperature during the year exert impact to some risk factors, which creates seasonal pattern of CDR of three most frequent causes of death. Analysis of leading cause of death has determined increasing trend in neoplasms over observed period (from 21.9% in 1998 to 27% in 2013) and decreasing of endocrine diseases (from 3.4% in 1998 to 2.6% in 2013).

References

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Acknowledgments

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