

Does unemployment cause hospital admission or hospital admission unemployment?

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Background: The association between unemployment and hospital admission is approved, but the causal relationship is still under discussion. Causality discussion needs in depth knowledge of scientist, correct interpretation of problems and pitfalls in study designs and it is necessary to link local social condition. The aim of the present analysis is to compare results from a cross sectional and a cohort approach considering overall hospital admission and hospital admission due to cancer and circulatory disease in a local community in Denmark.

Method: Register based data was analyzed for the period 2006 to 2009. Hospital admission was measured as a first inpatient hospital admission. Exposure of interest was the individual unemployment situation separated in different compensation strategies in the year 2006. In the cross sectional analysis, a multiple logistic regression model was conducted based on the year 2006 (n=114,373). In a cohort analysis a follow up of healthy individuals aimed to look on the effect of unemployment on health until 2009, (n=89,764). A Cox regression model was used considering the first relevant hospital admission time dependently.

Result: Social welfare compensated unemployment and hospital admission was statistically significant associated in the cross sectional analysis. The cohort approach suggests for circulatory disease that social welfare compensated unemployment might lead to hospital admission due to the disease (HR: 1.63; 95% CI: 1.32-1.81). For hospital admission due to cancer no such an effect was seen. Persons having voluntary insured unemployment compensation had increased hospital admission neither in the cross sectional nor in the cohort approach.

Discussion/conclusion: Hospital admission due to circulatory disease shows a causal relationship from social welfare compensated unemployment to the disease. Given the result of the cross sectional study for hospital admission due to cancer, the unfound cohort effect might indicate a

reverse causation suggesting that the disease cause joblessness and finally social welfare compensated unemployment.

Importance: In future research, different study designs and local situations need to be considered to allow careful interpretation and discuss causality in social inequality.

Keywords: causality, unemployment, hospital admission, cross sectional study, cohort study, cancer circulatory disease

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