

Relationships between morbidity, mortality and severe material deprivation in Europe

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Background: Severe material deprivation refers to a state of economic strain, defined as the enforced lack of items considered by most people as necessities. The severe material deprivation rate is one of three indicators to monitor poverty and social exclusion in the Europe 2020 strategy and has been defined by the Social Protection Committee on the basis of normative considerations. Unlike relative income poverty, it represents an absolute element which remains unchanged between countries and over time. In 2016, estimated 7.5 percent of the EU-28 population was severely materially deprived, with huge country variation from less than 1 percent in Sweden to more than 30 percent in Bulgaria.

Objective: The aim of our paper is first to check whether the normative definition of severe material deprivation is reflected in differential mortality risks. Excess mortality, a highly relevant and objective measure, may be seen as the ultimate consequence of deprivation. So from a good deprivation indicator we would expect firstly a substantial and statistically significant correlation with mortality risk, and secondly, that this correlation is not just a result of reverse causation due to selection of morbid people into the deprived population. Both aims are clearly met by the severe material deprivation indicator. We then further investigate if the excess mortality of the severely materially deprived, controlling for morbidity, is modified by Western vs. Eastern Europe and by gender.

Methods: EU-SILC longitudinal data is extracted from Eurostat's User Database. Annual vital status information (survived or died) is edited for survey respondents from 26 countries in 2003-2015 according to the FACTAGE method (Klotz and Göllner 2017). Covariates are measured at the first interview of a person. Severe material deprivation is reconstructed, and the GALI health limitation indicator is used as a measure of morbidity. Our data covers 743,820 individuals aged 35-79 years at baseline, whereof 14,066 died in the observational period. Cox's proportional hazard regression models are applied to estimate excess mortality.

Results: Controlling for age, period and country, the severely materially deprived have a mortality risk 1.69 times as high as the non-deprived. Controlling also for morbidity, excess mortality reduces to 1.39, still substantial and highly significant. Stratified by geography and gender, it turns out that this adjusted excess mortality figure is statistically equal between Western and Eastern European men (1.51 and 1.53) as well as between Western and Eastern European women (1.28 and 1.26), but significantly different between the genders.

Conclusions: It can be confirmed that severe material deprivation is highly correlated with mortality risk and that this correlation is not just a result of reverse causation due to selection effects. Although the prevalence of severe material deprivation is much higher in Eastern than in Western Europe, excess mortality of the severely materially deprived is statistically similar when morbidity is controlled for. This

validates the absolute nature of the severe material deprivation indicator. In contrast, gender is a clear effect modifier of excess mortality of the severely materially deprived, which is somewhat surprising given that the indicator is not based on traditional (male-biased) labor-market related categories. An interpretation is that the male population is as such more diverse in terms of mortality risk.