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Distortion of regional old-age mortality due to late-life migration in the Netherlands?

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Abstract

Background: Regional mortality differences are an important public health indicator and can serve as the basis for population forecasts and local planning. Health-related migration at old age may distort observed regional mortality.

Objective: We assess whether internal migration in late life has the potential for distortion of regional old-age mortality rates and differences therein.

Methods: Using data from the Dutch population register we analyzed migration and death rates in the population aged 80+ across the Dutch NUTS 2 regions, NUTS 3 regions and municipalities in the years 2002-2006. Observed sex-specific age-standardized death rates and regional differences therein are compared to hypothetical rates in the three years prior to death disregarding migration.

Results: Internal migration in the last three years among those aged 80+ in the period 2002-2006 is higher between municipalities, for women and for those who died. Almost half of the municipalities showed differences of more than $\pm 5\%$ between the observed and hypothetical rates. Many of the municipalities, whose observed mortality rates significantly differed from the Dutch average, displayed no significant difference in hypothetical rates. Regional mortality variation across the municipalities decreased significantly if migration prior to death is disregarded. Greater differences were observed for women as compared to men. There were only minimal differences at NUTS 2 and NUTS 3 levels.

Conclusions: Migration flows at old age prior to death have the potential to significantly distort regional old-age mortality rates and patterns, as shown for the Dutch municipalities. The bias depends on age, regional level, migration intensity, and the role of nursing care.

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