Commentary: Using geographical data to monitor socioeconomic inequalities in mortality: experiences from Japanese studies

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Policies to reduce socioeconomic inequalities in health need detailed and accurate descriptions of health inequalities in order to define priority areas for intervention. Essential for the monitoring of health inequalities is the use of national data on cause-specific mortality according to socioeconomic indicators such as education and income level. Longitudinal mortality data covering large national samples are available for only a dozen countries in Europe and elsewhere in the world. When such data are not available, alternative data sources have to be considered, such as ‘unlinked’ cross-sectional studies, longitudinal studies among small national samples or local populations, or geographical studies comparing neighbourhoods, municipalities, or regions.

Japan is a country of special interest. The record life expectancy of Japanese women did not only set a benchmark for public health in Western countries, but it also raised the question whether Japan had made similar achievements with respect to socioeconomic inequalities in mortality. Health inequalities in Japan may show different patterns, and may perhaps be substantially smaller than elsewhere. In the past century, Japan’s social and economic policies had a distinct outcome-oriented egalitarian ethos. In addition, Japan has a large middle class that is highly homogeneous in attitudes and life styles, even though its social stratification system may not be fundamentally different from Western capitalist countries.

Most Japanese studies on socioeconomic inequalities in mortality relied on geographical analysis. For example, a recent comparison of Japan’s 47 regions (prefectures) showed a strong association between women’s mortality and the average educational level of regions, while men’s mortality was strongly associated with measures of average income and income inequalities. Despite the ecological fallacy problem, results from such geographical analyses may be interpreted more broadly to suggest that also in Japanese society socioeconomic disadvantage was associated with higher mortality.

Fukuda and colleagues recently made important contributions to the monitoring of socioeconomic inequalities in mortality in Japan. They acquired data on the level of mortality for the ~3300 Japanese municipalities, distinguished causes of death, and studied trends between 1973–77 and 1993–98. Their results have been presented in a series of papers, of which the paper in the current issue of IJE is the most recent one. An important finding is that, at the municipal level, there were large socioeconomic inequalities in mortality from suicides and other injuries. This finding corresponds to recent European evidence of large socioeconomic differences in mortality from traffic injuries and suicides, and it points to injury prevention as an important area for tackling inequalities in health.

A salient finding from their study is that between the 1970s and 1990s mortality differences between poor and rich municipalities narrowed among men and even reversed among women. An inverse association between socioeconomic level and women’s mortality existed in 1993–98 because mortality from most cancers and coronary heart disease (CHD) was highest in rich municipalities. These trends and patterns strongly contrast to those observed for Western industrialized countries, in geographical and other studies. For example, between the 1980s and 1990s, socioeconomic inequalities in mortality in Europe were widening, at least in relative terms. CHD was a main contributor to the widening of relative inequalities in mortality among middle-aged men.

Could these findings be seen as an indication that socioeconomic inequalities in mortality within Japanese society were small or perhaps even absent? The fragmentary evidence from individual-level studies does not give a clear answer. A national study using ‘unlinked’ cross-sectional data observed inequalities in mortality according to occupational class around 1990. For men and women 20–59 years, mortality was highest among those working in manual and agricultural classes. However, no consistent mortality differences were observed between middle classes (e.g. clerical workers) and higher classes. Similarly, the results of a few longitudinal studies among small and selective population samples do not yield a consistent picture. For example, a longitudinal study among elderly Japanese observed elevated mortality among low educated men and women 60–69 years, but a disappearance or even reversal of this mortality gradient at higher ages.

The positive association between socioeconomic levels and mortality from cancer and CHD might perhaps indicate that ‘modern’ risk factors were more prevalent in upper socioeconomic groups. If so, this would have diminished inequalities in mortality in Japan, similar to the situation in northern Europe in the 1950s and in southern Europe more recently. However, in Japan, recent inequalities in smoking had a similar pattern and magnitude as in northern European countries. In addition, lower socioeconomic groups consumed

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