Review

Health at advanced age: Social inequality and other factors potentially impacting longevity in nine high-income countries

José A. Tapia Granados*

SEH/SRC, Institute for Social Research, University of Michigan, Ann Arbor MI, United States

ARTICLE INFO

ABSTRACT

This article surveys the evolution of health at advanced age in nine high-income countries over the last three decades, and the variables that might explain that evolution. Life expectancy at age 65 for males and females is used as summary indicator to conceptualize "health at advanced age." A comparison of the nine countries – Canada, Denmark, France, Japan, Spain, Sweden, Switzerland, the United Kingdom, and the United States – reveals excellent health performance for Japan, which has the greatest proportion of elderly people in the population and also the best health indicators for both males and females; the United States and Denmark perform poorly. Of all nine countries, the United States has the youngest population, the highest income per capita, and the greatest expenditure on health care, but also the highest levels of income inequality and relative poverty, and lacked universal health care coverage during the study period. Experts have considered that these three factors have probably contributed to the poor progress in the health of the elderly in the United States in recent decades. Tobacco consumption appears to be a key influence on the health of the elderly and probably explains to a large extent – with a lag of several decades – the differential evolution of health in these countries.

© 2012 Elsevier Ireland Ltd. All rights reserved.

Contents

1. Introduction

This article surveys the evolution of health at advanced age (65 years or more) in a group of high-income countries over the last three decades, and discusses some variables that might explain that evolution. A few years ago the US National Institute on Aging (NIA) requested that the National Research Council (NRC) conduct an investigation of trends in international differences in life expectancy for people aged 50, so that opportunities for health-related interventions could be identified. Responding to the request, the NRC appointed a panel of experts to prepare a report clarifying the state of scientific knowledge in this area. The outcome of those endeavors has been two publications [1,2] that summarize a large theoretical and empirical literature, with contributions from practically every field within the social and health sciences. Those reports informed the present study and are discussed in relation to the findings reported below.

The countries selected for this article are all members of the OECD, the Organization for Economic Cooperation and Development. At present the OECD has 34 member states; although since its foundation in 1961 it has traditionally been considered a club of "rich nations," in the last two decades it has expanded to include some middle-income developing countries, such as Mexico and South Korea. The OECD provides standardized statistical data on all its member states, which facilitates cross-national comparisons. All the data used in this paper are from the OECD.[1]

We chose to look at a small number of countries rather than all the OECD member states or a larger group of them in order to focus on a variety of factors (social, political, economic, behavioral) that in principle may have an impact on health at advanced age, while avoiding complex statistical analyses. Both purposes would be defeated by considering a large group of countries. Selected for analysis were six Western European countries, the United States, Canada, and Japan. The rationale for this selection was based on the desire to capture variations in health as well as in factors potentially linked to health. Some countries of Eastern and Central Europe are members of the OECD, but we decided not to include any of them. The transition in Eastern Europe in the early 1990s – when authoritarian governments and planned economies under control of communist parties were removed and market economies under elected governments were put in place – was very traumatic in terms of social welfare. According to the United Nations Development Program and other sources, poverty rates multiplied more than ten-fold between 1989 and the mid-1990s and there were significant increases in adult mortality [3–5]. Since this is a very specific social phenomenon that cannot be compared with anything similar in Western countries in recent decades, we did not include any of these countries in the study.

Among the six Western European countries, two are Scandinavian, Denmark and Sweden. The Nordic countries have traditionally had very good health indicators since the early decades of the last century. Sweden has been always a leading country in terms of health and social welfare programs, but in recent years Denmark has sometimes been mentioned as an exception to the Scandinavian pattern of excellence in health. The other four Western European countries span a range of socio-economic conditions, with Switzerland and Spain at opposite ends of the distribution of per capita income in Western Europe. The United States and Canada were included because of the location and research interests of the author, but also because they have many similarities in culture, economy and level of income, and yet some major differences in the economic organization of health care. Japan was included because of its present status as the country in the world with the best performance on almost all health indicators. The selection of this group of nine countries entailed a degree of arbitrariness, but cross-national comparisons always imply some purposive sampling and ours is no exception to the rule. This kind of comparative approach often allows the identification of interesting and meaningful patterns.

2. Demographic structure and health indicators

All nine countries have experienced significant aging of the population in the last three decades. This is a consequence of a fall in mortality rates, coupled with an even faster fall in birth rates. However, as Fig. 1 shows, the aging of the population has been quite different across these nine countries. While the proportion of the population over 65 years of age more than doubled in Japan, from
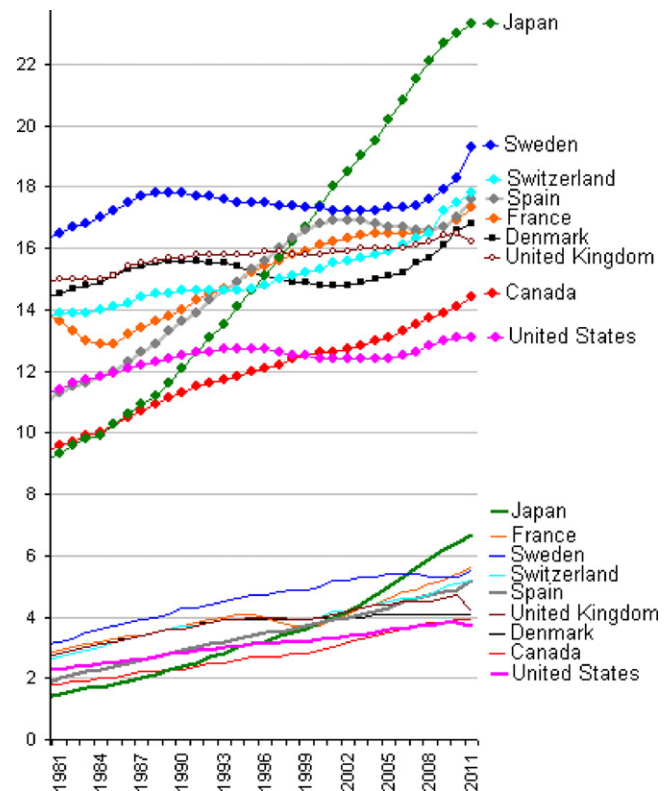

Fig. 1. Proportions of elderly in the population. The upper lines with dots represent the percentage of the population aged 65 or more, the lower set of smooth lines represents the proportions aged 80 or more.

9.1% in 1980 to 23.3% in 2011, the corresponding increases in the United States – from 11.3% to 13.1% – and in the United Kingdom – from 14.9% to 16.2% – were very small. In Spain, the process of population aging was very fast in the 1980s and 1990s but then reversed around the turn of the century, to restart later. In these countries, such slow-downs and reversals were largely a consequence of the influx of young immigrants. In terms of both the population aged 65 or more and the population aged 80 or more, the countries with the highest and the lowest proportions were, respectively, Japan and the United States.

Life expectancy at age 65 will be used here as the indicator summarizing the concept of "health at advanced age." Life expectancy at age k for a given population and year depends on the age-specific mortality rates at age k and older ages that are observed in that population and year. For population or country A in year T, life expectancy or expectation of life at age 65 (here denoted LE65, though e_{65} is often used by demographers) is the average number of further years that would be lived by individuals in a group aged 65 exposed for the rest of their lives to the age-specific mortality rates observed in A during year T.[2] In other words, LE65 is an inverse index of the age-specific mortality rates *at ages* 65 *and over that are observed in the given population and year*. Obviously, the greater the age-specific mortality rates observed in population A in year T, the smaller will be LE65.

Though the case could be made that, in general, greater rates of mortality correspond to higher rates of morbidity, mortality rates are in fact not particularly informative regarding morbidity or disability. OECD health data on morbidity include data on perceived

---

[1] It must be said that many of the statistics shown in the graphs of this paper are time series based on particular surveys or methods of estimation that often had breaks during the period considered. This implies that direct comparisons are subjected to major caveats.

[2] In a strict sense, this is the definition of *period life expectancy* [42]. *Cohort life expectancy* is the mean age at death of all the individuals born in a given year, which cannot be computed until many decades later, and so is not considered here.