Development of Oldest–Old Mortality, 1950–1990: Evidence from 28 Developed Countries. [Odense Monographs on Population Aging 1]. By VÄINÖ KANNISTO. Odense: Odense University Press, 1994. Pp. 108. DKK. 260 or US $40. ISBN: 87-7838-015-4.

Students of mortality change will find this recent book by Väinö Kannisto to be essential reading. The book offers the first comprehensive road map of changes in mortality of those aged 80 and older in a collection of countries mostly from Europe and Japan. Written by a man who was for many years the United Nations adviser on demographic and social statistics, the book fills a major gap in our knowledge of mortality change. Kannisto has cashed in on years of contacts with statistical offices around the world to help assemble a data base of impressive size. The data analysed in this book presently form the core of the Odense Archive of Population Data on Aging, maintained under the direction of James Vaupel and his colleagues at the Odense University Medical School in Denmark.

For years, published statistics from various sources have failed to record in full detail the pattern of mortality for ages 80 and older. As a relic of this tradition, for example, the data base on cause-specific mortality maintained by the World Health Organization still retains an open category for ages 85 and above. In the preface to this book, Vaupel notes that close to half of deaths of women and a third of those of men in developed countries now occur at ages above 80, which makes the inadequacies of the traditional age classification system painfully obvious. We can hope that one of the many contributions of this book will be to convince government agencies around the world of the importance of publishing detailed population statistics even at the highest ages.

The major strength of this book is clearly its pathbreaking description of mortality trends at older ages. A major part of the research project, of which this book is a part, has been to check the reliability of age-reporting at older ages in the various countries, but unfortunately many details of this analysis have been omitted from the present volume. Because I have been familiar with the project since 1992, I am convinced that Kannisto's judgments about data quality can be trusted and, therefore, that the description offered is quite accurate. The uninitiated reader, however, may be left wondering how some crucial decisions were made – for example, why Canada and the United States were omitted from the entire analysis. Kannisto reassures us that a report on quality assessment will be published in a forthcoming volume (p. 14), but it is regrettable that a more comprehensive treatment was not offered in a single volume. Similar comments apply to the author's method of deriving population estimates from death counts for non-extinct cohorts (p. 18).

Although the current report is mostly descriptive, it also addresses a number of important substantive issues regarding mortality change among the very old. There is a notable lack of references to other published work in this area, but, nevertheless, the book offers a wealth of interesting observations and hypotheses worthy of further investigation. For example, Kannisto contends that mortality at older ages did not decline much during the early stages of the mortality transition (p. 21). Certainly, this statement is true in relative terms if we compare trends at older ages to those in infancy and childhood, but are we quite certain that mortality rates at older ages were not falling before the period of this study? A gradual improvement in data quality, leading to less exaggeration of age, would tend to dampen a downward trend in mortality rates and might even reverse it, creating the false impression of an acceleration in recent decades when data quality is fairly high and relatively constant (in some countries). Yet the hypothesis of a recent acceleration in the pattern of mortality decline at older ages is intriguing and important, because it affects our expectations regarding the future of human longevity.

The author's analysis of the age pattern of mortality decline is also worth mentioning. It has been commonly observed that the magnitude of the relative decrease in mortality rates over time tends to diminish with increasing age, perhaps leading us to suspect that mortality rates at very high ages (say, above 100 or 105) would show little or no temporal decline. A documented absence of mortality decline at very high ages would be an important finding, because it would be consistent with the view that humans may be subject to an underlying process of physiological deterioration that is immutable. Kannisto's data offer a unique opportunity to study this question, although the present results remain inconclusive.

Below age 100, the author confirms the general tendency for progressively smaller temporal declines in mortality with increasing age, especially for women. The age pattern of mortality decline is more variable for men, but Kannisto apparently considers the pattern of women's mortality more natural, with the diversity of men's mortality patterns reflecting the variation in 'external events' and 'interfering factors' that differentiate men's life styles in different societies

(p. 50). This hypothesis about the causes of different patterns of mortality decline for men and women certainly merits further investigation. If Kannisto is correct that the relative constancy of the women's pattern of change reflects the fact that women in low-mortality societies die more in conformity with the ageing process than men, then it may be reasonable by some form of extrapolation of this pattern to expect very small or even non-existent declines in mortality at very high ages.

Such a pessimistic conclusion (admittedly mine, not the author's) may be contradicted, however, by Kannisto's direct analysis of mortality rates at ages above 100 years. Here, the author documents a decrease in the probability of death even at the highest observable ages, although only during the final decade of his study. Although lacking a proper analysis of the statistical significance of the observed difference, the consistency of the pattern is impressive and convincing: at every age above 100 years with at least 100 observations, the probability of dying fell for both men and women from the 1970s to the 1980s in a pooled analysis of data from 14 countries. The author does not speculate about the reason why the decline in death rates among centenarians began only recently, but again, I wonder whether an improvement in data quality at these ages may have dampened an earlier mortality decline and created the illusion of a recent acceleration. Based on my own analyses of mortality trends at these ages, I am almost certain that this effect is present in Japan during this period, although it may not be present or significant for the majority of countries in this group.

Finally, the author's remarks regarding the relative importance of period and cohort factors deserve some comment. Although I tend to agree with his conclusion that the role of cohort factors, if any, has been secondary to period factors in the epoch-making decline in old-age mortality (p. 59), I do not believe that his analysis was conducted in a manner that could have revealed the actual contribution of cohorts. A complete discussion of this topic is well beyond the scope of this review, but there are two aspects of Kannisto's analysis which may explain his failure to find cohort effects. First, his analysis of mortality trends in this section is based exclusively on five-by-five age-period squares (in a Lexis diagram), which include the (weighted) average experience of 10 single-year cohorts. The mortality history of each cohort is thus split between two consecutive observations in each age group, so the magnitude of cohort variations, if any, is inevitably dampened. To reveal cohort effects on a par with period effects, it would be necessary also to use an age-cohort organization of the raw data. Secondly, if period factors are, indeed, dominant, then cohort effects may only be revealed after removing the larger period-specific oscillations by using some statistical technique and examining the residuals. It would surprise me if such methods failed to show at least some cohort-based discontinuities in mortality trends of the very old, although I would not expect them to rival the magnitude of their period-specific counterparts.

Overall, Kannisto's recent book is a *tour de force* in the analysis of mortality change among the very old in industrialized countries. We should hope that the data archive in Odense will continue to expand and merge these data for ages 80 and above with data for younger ages, although the crucial task of documentation must not be neglected. We should also hope that other researchers will avail themselves of the opportunity to analyse these data (as suggested in the preface) so that the changes they document can be understood from a variety of perspectives.

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Challenges in Reproductive Health Research: Biennial Report 1992–1993. Edited by J. KHANNA, P. F. A. VAN LOOK and P. D. GRIFFIN. Geneva: World Health Organization, 1994. Pp. 202. Sw.Fr. 39 (Developing Countries Sw.Fr. 19.50). ISBN: 92-4-156170-X.

This report emanates from the World Health Organization in Geneva, where the Special Programme of Research, Development and Research Training in Human Reproduction was founded in 1972. Over the years their remit has widened from the development and monitoring of contraceptive methods to include prevention and management of infertility, integration of family planning with maternity and child health services, and co-ordination of worldwide research effort in these fields – for example in researching the vertical transmission of the HIV virus. Their funding is derived from contributions from developed and developing countries and other sponsors – with the largest donations during this period coming from the U.K., UNFPA and the World Bank. The U.S.A. and Canada had been notable absentees, but restored modest donations in 1993.