

The National Center for Health Statistics

This project investigates the trends in functional limitations for Americans age 65 and over from 1992 to 2003 and found decreases in years spent with functional limitations.

Lead Agencies:

Centers for Disease Control and Prevention,
National Center for Health Statistics (NCHS)

Agency Mission:

The mission of NCHS is to provide statistical information that will guide actions and policies to improve the health of the American people. As the Nation's principal health statistics agency, NCHS leads the way with accurate, relevant, and timely data

Principal Investigator:

*Liming Cai, Ph.D.
Senior Service Fellow
National Center for Health Statistics
3311 Toledo Road, Rm. 6330
Hyattsville, MD 20782*

General Description:

Background

Life expectancy for older Americans has risen substantially over the past five decades due to reductions in mortality from chronic diseases, especially cardiovascular disease. Whether these added years are mostly free of disability has been the focus of debate. Different hypotheses of trends in population aging have been proposed: compression of morbidity, expansion of morbidity and dynamic equilibrium (an increase in moderate disability and a decrease in severe disability, as medical advances increase survival from chronic diseases and lessen their effects).

This study uses functional status (activities of daily living and instrumental activities of daily living (ADLs and IADLs), e.g., ability to perform tasks of everyday life like bathing, dressing, housework) to measure morbidity among Americans age 65 and over. We investigate whether the years spent with functional limitations have decreased (compression of morbidity), increased (expansion of morbidity) or if the picture is mixed (dynamic equilibrium) in the period 1992 to 2003.

Data

We used data from the Medicare Current Beneficiary Survey (MCBS), a nationally representative, multistage, longitudinal survey of the Medicare population, sponsored by the Centers for Medicare and Medicaid Services. Based on a person's difficulty or inability to perform ADLs and IADLs due to health problems, we constructed four mutually exclusive states:

1. Active health (no difficulty with IADLs or ADLs)
2. Moderate disability (difficulty with at least one or more IADLs and/ or two or less ADLs)
3. Severe disability (difficulty with at least three ADLs)
4. Death (the fourth and absorbing state)

The analysis sample consists of 40,320 beneficiaries of age 65 and over, including 23,958 women, with 131,141 person-year observations and 90,821 pairs of observations.

Method

This project applied a multi-state life table model to longitudinal person-level data to develop probability estimates for incidence of and recovery from disability, as well as death. After age-specific transition probabilities are estimated, the authors simulate a large cohort of 65-year olds, by year and sex, and record their complete trajectories of changes in disability status until death. Simulation is a powerful computation technique that facilitates estimation of those statistics that are difficult to obtain otherwise.

Results

This project found that all of the increase in life expectancy during 1992-2003 period was accounted for by an increase in life spent without functional limitations. The time spent with severe limitations decreased due to a combination of factors, including delayed onset, reduced incidence, shorter episodes and increased probability of recovery.

During the study period, elderly men spent more years without limitations than elderly women ; this may reflect the greater gains in total life expectancy for men in the last decade. In addition, all persons 85 years of age experienced gains in time spent without limitations and reductions in time spent with severe limitations.

Conclusion

These trends are consistent with elements of both the theory of compression of morbidity and the theory of dynamic equilibrium. We will continue monitoring these trends using the latest MCBS data to see if time spent with functional limitations continues to decrease.

Excellence: What makes this project exceptional?

This project is the first U.S. study to comprehensively evaluate the latest trends in functional health to test whether they support the two most popular theories predicting the future health of the elderly population—expansion versus compression of morbidity. It used innovative statistical methods, including multi-state life table approaches and micro-simulation to gain insights that are otherwise hidden. For example, it finds that the recent decrease in life spent with severe functional limitations is due to a combination of factors, including delayed onset of limitations, reduced incidence, shorter episodes and increased probability of recovery. It has advanced our knowledge of the nature of trends in the health of older persons and has developed methods that will be used to track future trends.

Significance: How is this research relevant to older persons, populations and/or an aging society?

This project focuses exclusively on the American elderly of age 65 and over. Its analysis revealed the complex pattern of trends in functional health among the elderly, and identified a number of factors associated with the recent improvement. This provides critical background information for policy makers to assess the direction of future trends in elderly health as the first wave of baby boomers enter Medicare. It may also assist the development of a range of health and public policies to reduce health disparities among the elderly and improve the overall wellbeing of the nation's older population.

Effectiveness: What is the impact and/or application of this research to older persons?

The finding may lead to policies affecting the lives of older persons. The findings demonstrate that a combination of improved risk factor profiles and medical advances has likely increased health life expectancy for older persons. The findings support increased emphasis on health promotion activities among the middle aged and older populations. The findings also support policies to encourage work force participation by the 65 and over population as a way to ease pressure on Social Security and

Medicare, since the proportion of the older population with limitations that might hinder employment is decreasing.

Innovativeness:

Why is this research exciting or newsworthy?

It demonstrates that the older Americans have experienced an increase in years without functional limitations and highlights the importance and the feasibility of following future trends to see if the good news continues.