Changes in the Health of Elderly Japanese between 1987 and 1999

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Short Abstract

In a number of countries changes in health over the past two decades have been documented. For instance, in both France and the United States disability decreased over the last two decades but the prevalence of some major diseases increased. We examine changes in three dimensions of health of the elderly Japanese over a 12 year period: diseases/conditions/impairments, functional loss, and disability employing two nationally representative sample surveys conducted among older persons in Japan. The questions we address are: 1) Were there changes in these three dimensions of health over the period? 2) Did health improve or deteriorate among the elderly in Japan between 1987 and 1999? 2) Did the relationship among the three dimensions of health change over the period?

Extended Abstract

Introduction

There has been considerable research on trends in health of the older population in developed countries (Crimmins, Saito, and Reynolds, 1997; Manton, Stallard, and Corder, 1997; Robine, Mormiche, and Sermet, 1998). It seems, however, that very little is known about trends in the health status of elderly Japanese in the recent past

(Saito, 2001). Of course, if we equate overall population health to life expectancy, then we would conclude that we have been witnessing improvements in health of the elderly Japanese over recent years. Life expectancy at age 65 has been steadily increasing from 18.9 in 1985 to 23.0 in 2003 for females and for males, from 15.5 to 18.0 over the same time period. However, life expectancy may not be a good measure of population health for developed countries such as Japan, where a large number of the elderly suffer from chronic diseases and functional disabilities.

The World Health Organization first introduced a summary measure of population health which combines mortality and morbidity, called DALE (Disability-Adjusted Life Expectancy) in 2000 in their World Health Report. Their estimates indicated that according to this indicator, the Japanese were the healthiest population among WHO member countries as the DALE at age 60, for both males and females, was the longest for Japan. However, this measure is not intuitively clear and the method of computation remains unclear. We also do not know how the level of health status achieved in the particular year compares to other years because we do not have statistics for past years.

In this study, we examine changes in three dimensions of health of the elderly Japanese, namely, diseases/conditions/impairments, functional loss, and disability between 1987 and 1999 employing two nationally representative sample surveys conducted in Japan. The questions we try to answer are:

1. Are the levels of three dimensions of health improved or worsened among the elderly in Japan between 1987 and 1999?

2. Did the relationship among the three dimensions of health change over the period?

Data

Two nationally representative sample surveys conducted in 1987 and 1999 are used in the study. The 1987 survey is the National Survey of the Japanese Elderly jointly conducted by University of Michigan and Tokyo Metropolitan Institute of Gerontology. The sample population is non-institutionalized persons age 60 years and over as of November 1987 and multi-stage sampling method was used to draw 3,288 sample persons and obtained answer from 2,200 sample persons. For this study, 1,506 respondents age 65 and over were used from the survey. Proxy response was not allowed for this survey.

The 1999 survey is the first wave of Nihon University Japanese Longitudinal Study of Aging. Sample population for this survey is non-institutionalized persons age 65 years and over as of November 1999. Multi-stage sampling method was used to draw 6,700 sample persons and 4,997 of them agreed to be interviewed. Proxy response was

allowed for the 1999 survey.

Measures

For each dimension of health, sets of measures are used to examine changes in health of the elderly over time. For diseases/conditions/impairments, prevalence of diseases, conditions, and impairments available in both surveys are examined one by one. These include arthritis or rheumatism, eye diseases, asthma and other respiratory illness, hypertension, heart diseases, circulatory diseases, diabetes, digestive diseases, Renal or urinary tract ailments, stroke, and back pain. For functional loss, a composite measure is created based on 6 among 10 Nagi measures, including walking 200 to 300 meters, standing for 2 hours, stooping and kneeling, raising hands above head, grasping with fingers and lifting an object weighing approximately 10 kg. Five ADL/IADL measures are used to create a composite measure for disability in order to test change in prevalence of disability over time.

Method

In order to examine the significance of change over time in each dimension of health, we pool data from the two surveys and look at the effect of being in the later year on disease presence, functional loss, or disability in a series of sex-specific logistic regression analyses including only two covariates: age and year of survey indicated by a dummy variable. This use of the regression technique allows us to summarize the effect of time change across all ages. We also test the effect of age/year of survey interactions which would indicate age differences in time change. When the coefficient indicating change over time is statistically significant, we use the results of these equations to estimate the prevalence of diseases, functional loss, and disability at the particular age for 1987 and 1999 to indicate the change over time.

We also use logistic regression analysis to estimate disability and functioning problem among those with diseases included in the study and estimate disability among those with functioning problems. These sets of analyses should implicitly indicate transition from diseases to functional loss or disability and functional loss to disability.

We use OLS regression analysis to examine change in severity of functional loss and disability among those with specific diseases over time. For this analysis, numbers of Nagi and ADL/IADL measures with difficulty performing are used as dependent variables and age and year of survey are introduced as control in the equation.

Results

The following preliminary results indicate that over all, there seems to be increase in prevalence of diseases, functional problem, and disability. However, the changes are

not always the same direction. These results are not controlled by age and gender. We will apply the method described above to examine the change in health status of the Japanese elderly between 1987 and 1999.

Disease Prevalence

	1987	1999
arthritis or rheumatism	12.2	7.7
eye diseases	15.6	29.5
asthma and other respiratory illness	4.7	4.3
hypertension	28.9	29.0
heart diseases	11.4	12.4
diabetes	3.9	6.5
digestive diseases	9.2	12.9
Renal or urinary tract ailments	3.0	3.5
stroke	2.0	7.1

Prevalence of functional problem

	1987	1999
walking 200 to 300 meters	9.0	16.2
standing for 2 hours	34.1	30.3
stooping and kneeling	19.9	23.1
raising hands above head	16.3	6.4
grasping with fingers	6.2	4.9
lifting an object weighing approximately 10 kg	28.6	29.0

Prevalence of disability

	1987	1999
shopping for personal items	9.1	11.2
managing money	10.3	6.7
making phone call	6.7	6.6
going out using public transportation	13.2	14.5
bathing	3.7	6.5