Active life expectancy of the elderly Japanese: 1987, 1990 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 estimate active life expectancy in 1987, 1990 and 1999 in order to examine changes in the level of disability among the elderly Japanese over the period employing two nationally representative longitudinal surveys conducted in Japan. The questions we address are: 1) Were there changes in active life expectancy over the period? 2) Do changes in active life expectancy, if any, differ by severity of disability? 2) Do changes in active life expectancy differ by gender?

Extended Abstract

Introduction

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. (Crimmins, Saito, and Reynolds, 1997; Manton, Stallard, and Corder, 1997; Robine, Mormiche, and Sermet, 1998). It seems, however, a very little is known about trends

in health status of the elderly Japanese in the recent past (Saito, 2001). Of course, if we equate overall population health to life expectancy, then we might conclude that we have been witnessing improvements in health of the elderly Japanese over the 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 health any more for developed countries such as Japan, where a large number of the elderly suffer from chronic diseases and functional disabilities.

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 Japanese was the healthiest population among WHO member countries as long as expected years of healthy life were concerned. DALE at age 60 for both males and females was also the longest for Japan. However, we are not quite sure how these estimates are computed and the measure is not very intuitive. We also do not know how the level of health status was achieved in the particular year because we do not have statistics to compare against in the past years.

In the study, we estimate active life expectancy using Sullivan method for years 1987, 1990 and 1999 employing two nationally representative sample surveys conducted in Japan. The questions we address are:

1. Were there changes in active life expectancy over the period?

2. Do changes in active life expectancy, if any, differ by severity of disability?

3. Do changes in active life expectancy differ by gender?

Data

Two nationally representative longitudinal surveys started in 1987 and 1999 are used in the study. The former survey started in 1987 is the National Survey of the Japanese Elderly jointly conducted by University of Michigan and Tokyo Metropolitan Institute of Gerontology. 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. The second wave of this survey was conducted in 1990. Proxy response was not allowed for the first wave. We used these two waves of the longitudinal survey as cross-sectional survey data.

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

We used two sets of measures to compute active life expectancy. The first set includes bathing, shopping for personal items, managing money, and making a phone call. These measures are available for both 1987 and 1999 surveys. The second set includes 6 ADL measures, i.e., bathing, dressing, eating, go in/out of bed/chair, going out, and toileting; and 4 IADL measures, i.e., shopping for personal items, managing money, making a phone call, and do the light housework. These measures are only available in 1990 and 1999 surveys and this is the reason we use two waves of the longitudinal survey. We created two composite measures for each set. One is based on whether a respondent have difficulty performing at least one activity in each set. This is a less sever measure of disability. The other one is based on whether a respondent have a lot of difficulty or unable to perform at least one activity in each set. This indicates the respondent may need help of others in everyday life. In addition, we used number of days in bed during the past 2 weeks to compute disability-free life expectancy for 1990 and 1999.

Method

In order to compute active life expectancy we used Sullivan method. Based on the age-gender specific rates of disability and the published life table for corresponding year, we computed active life expectancy. As suggested in the above, we compare two sets of active life expectancy, that is, between 1987 and 1999, and between 1990 and 1999 by gender and severity of disability.

Results

Rates of disability by 5 year age group, gender, and severity for each year are as follows:

1987 TMIG W1

data

	at least 1 a
at least 1 difficulty	lot/unable

	males	females	males	females
65	3.26	4.59	1.86	2.95
70	10.60	10.87	5.99	5.80
75	18.52	26.99	9.63	14.11
80	27.40	41.77	15.07	27.85
85	29.17	68.42	25.00	63.16

1999 NUJLSOA W1 data: 1987 data

definition

	at least 1 difficulty		at least 1 a lot/unable	
	males	females	males	females
65	4.42	6.78	2.04	3.57
70	9.42	7.56	6.77	3.46
75	12.53	15.14	8.87	7.92
80	23.46	29.32	14.96	18.58
85	42.33	53.71	26.25	40.02

1990 TMIG W2

data

	at least 1 difficulty		at least 1 a lot/unable	
	males	females	males	females
65	5.58	5.30	2.58	2.98
70	6.13	9.35	1.84	3.74
75	12.14	19.70	7.86	9.60
80	32.14	40.79	17.86	22.37
85	55.17	68.00	31.03	64.00

1999 NUJLSOA W1 data: 1990 data

definition

	at least 1 difficulty		at least 1 a lot/unable	
	males	females	males	females
65	5.50	9.04	2.19	4.22
70	11.39	10.34	8.04	4.73
75	16.48	19.36	9.54	9.83
80	26.45	36.17	16.41	20.07

85	44.35	61.18	30.48	43.09