



## Full Length Article

## Healthy aging in China

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## ARTICLE INFO

## Article history:

Available online 4 November 2014

## Keywords:

Healthy aging  
China  
Retirement

## ABSTRACT

China has aged rapidly and the rate is accelerating in decades to come. We review positive and negative forces for healthy aging in China now and in the future. The most positive force is the spectacular growth in education over time especially for Chinese women, which should improve all dimensions of cognitive and physical health and eliminate vast gender disparities in healthy aging that currently exist.

Other positive forces include increasing detection and treatment of disease and the availability of health insurance and health services so that diseases like hypertension and diabetes do not remain silent killers in China. Transparency is eased on the research level by publicly available data such as CHARLS, a sharp departure from prior scientific norm in China.

Negative forces center on disturbing trends in personal health behaviors such as growing rates of smoking (among men) and obesity (for both genders), and pollution—, especially in urban centers. Public health campaigns and incentives are needed on all these fronts so that predictable long-term consequences of these behaviors on older age disease are not realized.

There will not be a simple demographic fix to healthy aging in China as fertility rates are unlikely to rise much, while migration will likely continue to rise leaving growing numbers of elderly parents geographically separated from their adult children. Government policy will have to allow migration of elderly parents to live with their adult children while reducing the rigid connection of policy (health insurance and health services) with place of residence.

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## Introduction

China has entered into an aging society and will continue to age rapidly in the future while many elderly Chinese remain quite poor. The challenge of population aging in China will come from two sides—economic support and elderly care. Healthy aging can potentially lessen burdens in both areas by reducing or delaying the need for economic support and elderly care. In addition, the future pattern of elderly care in China is likely to fundamentally change due to past fertility reductions and migration patterns that increasingly geographically separate parents from their adult children. The “problem” of population aging is easy to state—to provide income and health security at older ages and to do so at affordable budgets (Smith, 2012; Lee and Mason, 2010).

Throughout this paper we will use data from The China Health and Retirement Longitudinal Study (CHARLS). CHARLS, directed

by the lead author of this paper (Zhao et al., 2013), is a nationally representative longitudinal survey of those 45+ in China and their spouses. CHARLS includes assessments of social, economic, family, and health circumstances of community residents (Zhao et al., 2014a). The purpose of CHARLS is to provide publicly available data to researchers in China and around the world and to those in government free of charge to help prepare China for health and economic adjustments to rapid population aging in China. The national baseline survey was conducted between June 2011 and March 2012 on 17,708 respondents living in 10,257 households in 450 villages/urban communities with an average response rate of 80.5%.

Three sampling stages were used. In the first stage, all county-level units in the country, outside Tibet, were stratified by region, within region by urban district or rural county, and by GDP per capita. After this stratification, 150 counties or urban districts were chosen with probability proportional to population size (Zhao et al., 2014a). For each county-level unit, 3 PSUs (villages and urban neighborhoods) were randomly chosen with probability proportional to population (Zhao et al., 2014a). Hence CHARLS is nationally representative and representative of both rural and urban areas within China. Counties and districts in 28 provinces

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are included in the CHARLS sample. In light of the outdated household listings at the village/community level due to population migration, CHARLS designed mapping/listing software making use of Google-earth map images to list all dwelling units in all residential buildings to create sampling frames within PSUs.

CHARLS respondents will be followed every two years using a face-to-face CAPI interview. Physical measurements are conducted in every wave so far, while blood sample collection takes place every two waves. CHARLS is closely modelled after the Health and Retirement Surveys around the world so that tight comparisons can be made across countries at various stages of economic development. The data in this paper are all weighted using sampling weights, adjusted for survey non-response.

We organize the paper as follows. The next section summarizes salient past and future trends in population aging in China. The second section discusses health patterns of Chinese elderly and what those trends imply for the future. These health patterns include cognitive health, physical health outcomes, health behaviors, and the provision of health care. Section 3 presents a parallel discussion for living arrangement of the Chinese elderly.

### Population aging in China

There are several key demographic trends with rapidly changing population aging around the world, and China is no exception. In 1950, average life expectancy was around 40 years in China, but over the subsequent 60 years life expectancy improved dramatically—to around age 70 (Chinese Academy of Social Sciences, 2010). Nor is there any sign of much abatement in these trends. The best demographic projections foresee additional added years of life with China reaching life expectancies of about 80 years, double the level that existed 100 years earlier (Chinese Academy of Social Sciences, 2010).

The second and more important driving demographic force in Chinese population aging is trends in fertility. Using 1950 again as the starting point, average fertility in China was around six children per woman (United Nations, 2012). The speed of the subsequent decline to below replacement levels was rapid in China, no doubt partly due to the one-child policy although the fertility decline did precede implementation of the strict one child policy rules (Lei et al., 2014d). However, a comparison of fertility trends in India and China from levels of six children per woman in 1950 to below replacement levels of 1.9 in both countries by 2050 suggests that Chinese fertility decline would have happened anyway, although not at the same rapid speed (Smith, 2012). It also suggests that future relaxation of one child policy rules in China will not result in large increases in fertility, implying that this possible demographic change will not be a significant part of adjustments necessary to population aging.

While declining mortality and especially fertility contribute to population aging by making populations on average “older,” it is important to remember that both these fundamental causes of population aging represent enormous progress in the human condition around the world and especially in China.

At the same time, population aging raises important challenges in ensuring a good life for older people in China as they attempt to maintain income security and lower health risk at older ages. Fig. 1 plots Chinese population shares for four age groups—60 plus, 65 plus, 70 plus and 80 plus across a one hundred year period starting in 1950. Over the first fifty years plotted in Fig. 1 up to the year 2000 changes due to population aging in China were relatively small. To illustrate, the fraction of Chinese people over age 59 was 10% in the year 2000 compared to 7.5% 50 years earlier in 1950. Similarly the fraction over age 79 was not only very small but it did not change much over this time period (from 0.3% to 1%).

The next 55 years will be quite different as these Chinese older age population shares will increase at accelerating rates. In the 50 years between 2000 and 2050 the fraction of the Chinese population who are over age 59 more than triples from 10% to 33%.<sup>2</sup> Especially after calendar year 2025, the fraction of the Chinese population eighty years or older begins to accelerate reaching 6.5% in 2050.

We included the fraction of the Chinese population over age 64 and over age 69 in Fig. 1 for a reason. Support ratios are meant to provide a simple summary of the fraction of the elderly population not receiving financial income from work and so will need to be supported in some other way. If the average age of retirement increases from age 60 to age 65 or even to age 70, a comparison of fractions of the population over age 60 and those over age 64 or over age 69 informs us in a simple way about changing fractions of elderly who need financial support from sources other than their current work. In the year 2050 these fractions are quite different as one-third of the population will be over age 60 while 24% of the population will be age 65 or older and 17% will be age 70 or older.

Increases in the retirement age not only make it easier to support growing numbers of elderly because the numbers of those needing support would be lower but also because the numbers providing support as workers will be larger. The conventional method of demonstrating this is to use support ratios—the number of workers divided by the numbers of elderly. In 2015, the elderly support ratio at a retirement age of 60 is 4.1 workers (defining 20 as work starting age) per person 60 and older. If the retirement age remains at age 60, this support ratio would fall to 1.4 workers per retiree in 2050. If workers had to fully finance retirees at incomes equal to their own the tax rate to finance elderly income benefits would rise from 20% in 2015 to 41% in 2050.

If instead the retirement age rises to age 65 by 2050, the elderly support ratio would be 2.4 workers per retiree instead of 1.4 and the required tax rate would rise to 30% instead of the 41% rate with no change in retirement age. Similarly if the retirement age rises to age 70 by 2050, the elderly support ratio would be 3.6 workers per retiree and the required tax rate would be 22%. Thus an increase in the average retirement age from age 60 to age 65 and especially to age 70 would make a significant contribution toward financing income support for the elderly in China.

Presently retirement is an alien concept for most Chinese elderly because in rural areas where the majority of elderly Chinese live there is no such thing as retirement. People work as long as they are physically able to. This means that the current support ratio is far higher than what the demography implies. However, the great majority of younger people are already living in cities or in nonfarm employment even though they may be living in rural areas. Urbanization is likely to accelerate in decades to come. When these people become old in 2050, they are very likely to retire from the formal retirement system afforded to urban workers today and the support ratio will become binding. Current retirement age for urban people is 60 for men, 50 for female workers and 55 for female cadres. With population aging so rapidly, this will become unsustainable.

Postponing retirement age by itself cannot do the full job. Whether or not retirement can be postponed critically depends on the health status of the elderly. If the extra years of life are healthy, then it would be feasible for the elderly to contribute part of it toward supporting themselves.

### Health patterns of Chinese elderly

In this section we highlight salient facts about the health of the older Chinese population using nationally representative CHARLS

<sup>2</sup> Numbers in the rest of this section are calculated from United Nations, 2012.

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