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Changing health status and health expectancies among older adults in China: Gender differences from 1992 to 2002

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ABSTRACT

Numerous studies document improvements in health status and health expectancies among older adults over time. However, most evidence is from developed nations and gender differences in health trends are often inconsistent. It remains unknown whether changes in health in developing countries resemble Western trends or whether patterns of health improvement are unique to the country's epidemiologic transition and gender norms. Using two nationally representative samples of non-institutionalized adults in China aged 65 years and older, this study investigates gender differences in the improvements in disability, chronic disease prevalence, and self-rated health from 1992 to 2002. Results from multivariate logistic regression models show that all three indicators of health improved over the 10-year period, with the largest improvement in self-rated health. With the exception of disability, the health of women improved more than men. Using Sullivan's decomposition methods, we also show that active life expectancy, disease-free life expectancy, and healthy life expectancy increased over this decade and were patterned differently according to gender. Overall, the findings demonstrate that China experienced broad health improvements during its early stages of the epidemiologic transition and that these changes were not uniform by gender. We discuss the public health implications of the findings in the context of China's rapidly aging population.

Introduction

Improvements in health and health expectancies (the average lifetime in different health states) among the elderly have recently attracted the attention of researchers and policymakers as longevity continues to increase. However, there are questions about whether declines in morbidity and disability will accompany the declines in mortality (Freedman et al., 2004; Freedman, Martin, & Schoeni, 2002; Robine, Jagger, Mathers, Crimmins, & Suzman, 2003). Studies show that improvements in health among the elderly are not universal and that the patterns of change are partly attributable to the stage of the epidemiologic transition in a given country (e.g., Myers, Lamb, & Agree, 2003; Robine & Michel, 2004). Another complication is that measures of health change often differ across studies and the evidence demonstrating a trend for one dimension of health (e.g., functional disability) may not accurately reflect changes in other dimensions of health (e.g., chronic disease) (Crimmins, 2004), both within and across nations. There are inconsistencies even among studies using data from the same country because of differences in sampling, survey methods, questionnaire wording (e.g., "getting help" vs. "having difficulty" with a task), and analytic strategies (Freedman et al., 2004; Hayward & Warner, 2005). With few exceptions (Jitapunkul & Chavovan, 2000; Saito, Qiao, & Jitapunkul, 2003; Tu & Chen, 1994; Zimmer, Martin, & Chang, 2002), most studies have not addressed health improvements among the elderly in developing countries or regions. Consequently, our current knowledge is primarily based on research from developed nations.

The purpose of this study was to document recent changes in health and health expectancies among older adults in mainland China (thereafter China). Our goals are fourfold. First, review the existing literature and empirical evidence of health changes in developed and developing countries as a basis for identifying and understanding recent trends in China. Second, using two large-scale national surveys from China, we examine a decade (1992–2002) of health change with measures of disability, morbidity, and

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self-rated health (SRH). Third, we focus on possible gender differentials in health improvements among the Chinese elderly. Finally, we estimate the relative impact of improvements in disability, morbidity, and SRH on the added number and proportion of years of health expectancies.

Changes in health and health expectancies in developed and developing countries

In low-mortality countries such as the United States, England, France, Finland, and the Netherlands, studies generally demonstrate increases in the prevalence of both fatal and non-fatal diseases among the elderly (Crimmins & Saito, 2000; Robine & Michel, 2004). Increases in the prevalence of chronic diseases are largely attributed to prolonged survival among those with fatal conditions rather than increases in disease incidence (Crimmins & Saito, 2000).

Despite similar trends of increasing disease prevalence, patterns of change in functional limitations and disabilities widely vary across Western nations. For example, evidence from cross-sectional and longitudinal studies shows that the United States and France witnessed marked improvements in physical functioning (defined in terms of climbing stairs and walking a quarter of a mile) and performing instrumental activities of daily living (IADL) from the 1980s to the 1990s (see Robine & Michel, 2004). Conversely, Canada, Great Britain, Australia, New Zealand, and the Netherlands experienced declines in physical functioning and IADL performance in the 1990s; whereas little change occurred in these functional domains among the Dutch elderly in the 1990s (Robine & Michel, 2004). During the 1990s, severe disability – measured with activities of daily living (ADL) – declined in most European countries, leveled in the United States, and increased in Japan and Australia (see Robine & Michel, 2004). Interestingly, despite these dissimilar changes in functional limitations, studies also documented consistent improvements in SRH and healthy life expectancy (HLE) (defined as life expectancy with good SRH) in many developed nations during the 1980s and 1990s (Aromaa, Koskinen, & Huttunen, 1999; Doblhammer & Kytir, 2001; Zack, Moriaarty, Ford, & Mokdad, 2004).

In developing countries, data on health expectancies are primarily static (Robine et al., 2003) and studies seldom focus on changes in health status and the consequences of health expectancies. From what is known, research has shown significant improvements in SRH and HLE among the elderly in China and Thailand during the late 1980s (Jitapunkul & Chavovan, 2000; Saito et al., 2003). Similarly, in China and Taiwan, there are documented improvements in ADL functioning in the late 1980s (Saito et al., 2003; Tu & Chen, 1994). The evidence from these studies suggests that improvements in SRH and functioning occurred during periods of rapid economic development and an epidemiologic transition. However, other findings from Taiwan indicate that functional limitations (i.e., walking or climbing stairs) increased from 1993 to 1999 (Zimmer et al., 2002). There is some evidence to suggest that the worsening trend in Taiwan may be attributed to the implementation of universal health insurance in 1995 that influenced the reporting of limitations among elderly Taiwanese (Zimmer et al., 2002).

China experienced a similar pattern of economic growth and an epidemiologic transition in the 1990s as did Thailand and Taiwan in the 1980s (Yang et al., 2008). Therefore, we expect that the Chinese population would witness comparable improvements in health during the 1990s – particularly as older generations are becoming replaced by younger cohorts who had better conditions in earlier life and healthier lifestyles (Wu et al., 2004; Zhu & Xie, 2007). However, the pattern of improving health in China may be complicated by a couple of factors. First, healthcare reforms were implemented in China in the mid-1980s and led to reductions in access to health services into the 1990s. A second confounding factor is that cultural values and the family structure in China also began to shift during this period. As part of a Confucian dominant society, Chinese elders are traditionally bestowed the highest respect from family members and society (i.e., filial piety). Research has shown that Chinese elders who received such respect had significantly better rated physical and mental health than those with children who do not have a sense of filial piety (Yu, Zhang, Draper, Kassab, & Miles, 1997). However, it is plausible that health perceptions change as these cultural norms and expectation are fading. For example, there are increasing numbers of older Chinese living alone due to modernization and the out-migration of children because of work or family preference. On one hand, these changes may negatively affect SRH and functional capacity due to the lack of support and caregiving resources in the household; on the other hand, more elders living alone may improve their daily functioning and sense of control (Gu, Dupre, & Liu, 2007; Gu & Zeng, 2004). Considering these various factors, it is unclear whether the health trends documented in many developed and some developing countries would be observed in China in the 1990s.

Explanations for changes in health and health expectancies

There are several hypotheses explaining how changes in health relate to health expectancies: compression of morbidity, expansion of morbidity, and dynamic equilibrium (Fries, 1980; Gurenberg, 1977; Manton, 1982). In the context of population aging, Robine and Michel (2004) proposed a general theory of healthy aging that includes four stages of progression related to morbidity, disability, and mortality. They argue that an expansion of morbidity occurs first as sick persons experience greater overall improvements in survival, followed by equilibrium between increased disability and reduced mortality due to greater control of disease progression. Cohort replacement gradually produces a compression of morbidity as mortality continues to decline and new cohorts have better profiles of health and risky behaviors. Finally, a re-expansion of morbidity is possible as new medical advancements improve the survival of increasingly old and frail populations. Similarly, some scholars maintain that patterns of disability change are associated with the epidemiologic transition and that patterns of health change may differ across stages of the transition (see Myers et al., 2003), which also may account for the various findings across time periods and countries.

However, a lingering concern is whether the observed changes in health represent actual improvements or declines or whether they simply reflect compositional shifts occurring in the population. Indeed, studies suggest that factors such as sociodemographic characteristics, health resources, and health behaviors significantly affect population rates of disability, morbidity, and self-rated health (e.g., Crimmins, 2004). Therefore, failing to account for several key covariates can produce biased estimates and erroneous conclusions about the apparent improvements in health and health expectancies (Freedman et al., 2004; Szaflarski & Cubbins, 2004).

Gender differences in changes in health and health expectancies

The gender paradox in health is widely recognized (e.g., Lamb, 1997). However, the reasons why women enjoy greater longevity but worse health are complex and are generally attributed to differences in socioeconomic status, genetic and acquired risks, immune-system responses, hormones, disease patterns and prevention, and health-reporting behaviors (Crimmins & Saito,