

The extra cost of ADL disability and cognitive decline among middle-aged and older adults in China

Jiamin GAO, Yichen Jiang

Summary

Background: Disability and dementia are two of major global aging health concerns. They affected approximately 1.5 billion people worldwide and more than 46% were adults aged 60 years and over. Prevalence of disability and cognitive decline are expected to rise in the near future, especially in China. China is experiencing a rapid growth of population aging. The recent 7th national census in China reported that the mean age of the total population was 38.8 years old, with an increasing tendency of middle-aged and aged population. Additionally, the incidence as well as prevalence of disability and cognitive decline has risen year by year, and the affected age became youthful. Despite the high prevalence of disability and cognitive decline among middle-aged and older adults in China, little is known about their burden on households.

The aim of this study is to offer an estimate of the ‘extra’ costs of disability and cognitive impairment for households in such a population in China using a standard of living approach (SoL), where the extra cost refers to the over-cost faced by households with members with functional or cognitive impairment to reach a given level of well-being compared to similar households with non-impaired members. Our work is based on Amartya Sen’s concept on equalizing people’s basic capabilities. The standard of living was affected by functionings and capabilities. Disability or cognitive impairment can be characterized as a functional limitation that resulting in a loss of autonomy, poor performances of some of daily activities, or worse medical condition, which may increase the cost of reaching a given level of well-being. Therefore, the ‘extra’ cost of disability or cognitive impairment can be considered as the total cost that includes not only the direct expenditure related to the medical conditions, such as medical or rehabilitative expenditures, but also indirect costs, such as opportunity cost, productivity loss by households’ other members for caring and etc.

Methods: Data were obtained from 2018 China Health and Retirement Longitudinal Study (CHARLS), a total sample of 19 426 aged ≥ 45 years was included. Disability was measured by Barthel index of activities of daily living, and cognitive impairment was measured by Mini-mental State Examination (MMSE). We constructed SOL indices using information on household asset ownership indicators, and principal components analysis (PCA) with polychoric adjustments were applied to capture households' living standard. SOL approach was used to estimate the extra cost of functional impairment. SOL approach is a method that consists of estimating the effect of income and disability on welfare in order to determine how much income is needed to compensate for the existence of older adults with disabilities in the household, given a level of welfare. Covariates included both individual and households' conditions. OLS regressions with robust standard errors was employed in this study.

Results: The extra cost associated with having a disabled middle-aged and older adult was estimated to be 226% of annual household income, or valued about US\$6,301, and 334% of annual household income or valued about US\$9,158 for having a cognition-impaired adult, respectively. The extra cost of diagnosed demented symptoms was greater than cognitive impairment, with a relative cost of 381% annual income, or valued about US\$10200. Middle-aged adults who were disabled or cognition-impaired experienced greater extra costs than the elderly, suggesting that the impacts of functional impairment were much greater in work-aged adults though the severity level of impairment was less severe. The additional cost of ADL disability or cognitive decline varied by severity and residence. Households with more severe functional impaired member tend to suffer from greater loss of living standard, and those lived in urban area had a higher relative additional cost compared to households in rural area.

Conclusions: The marginal contribution of this paper has been to firstly present an empirical evidence on the cost of ADL disability and cognitive decline among middle-aged and older adults in China using the standard of living approach. The first important finding of this study is that households with functional impaired members may encounter greater risk of being trapped in poverty. With the same level of income, disability or cognitive decline in mid- and late-life was associated with reduced households' living standard

compared to non-disabled or non-impaired members' households. Disability- or dementia-adjusted poverty intervention are needed to increase the income or reduce the economic burden of families with functional limitation members, especially for those with dysfunction middle-aged members.