

Smoking and Functional Health among Older Adults in Beijing

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Study Aims

To examine the association between smoking behavior and functional health outcomes in old age in China by (1) estimating life and active life expectancies for smokers and non-smokers and (2) examining the effect of smoking on functional health transitions, controlling for various social, economic and demographic factors.

Background

While robust detrimental effect of tobacco smoking on longevity and individual diseases (i.e., cancer, CVD, respiratory disease) are known, less is understood regarding the impact of smoking on more general health conditions, including functional health, in old age. This is especially the case in developing countries such as China where little research of this nature has taken place. Yet, smoking prevalence in China is very high, and there is a very good chance that efforts to encourage smoking cessation can make a significant impact on population health. Moreover, China has one of the fastest aging populations, and there is an urgent need to understand determinants of health among older adults and relate them to changes in policy.

Data

Data come from three waves (1992, 1994 and 1997) of the Beijing Multidimensional Longitudinal Study of Aging. This is a survey of older adults, aged 55+ at baseline, conducted in three districts within the Beijing municipal area (Huai Rou, Xuan Wu, DaXing). The study includes both rural and urban areas within the Beijing municipality. The sample size at baseline is 3,257.

Method

We use two-step procedure for estimating life and active life expectancies based on the interpolative estimation of Markov Chains. The first step involves determining transition probabilities between functional states for smokers and non-smokers using maximum likelihood estimates. This estimation consists of death as an absorbing state and being functionally limited and not limited as non-absorbing states. Functional limitation is defined as needing help in performing at least one of six tasks: walking 300 meters, getting on and off a bed, eating, dressing, bathing, and walking up and down stairs to the second floor. The estimates for transitions control for other covariates such as age and sex. The second step involves applying the probability estimates to set of multistate life tables that determine time expected in functionally health and unhealthy states at each

age for smokers and non-smokers who are male versus female. Both steps are conducted using IMACh software (see <http://euroreves.ined.fr/imach/>).

Finally, we will estimate multinomial logistic regression models to examine the effect of smoking on changes in functional status over a five-year period, controlling for various sociodemographic characteristics. We will use 1992 and 1997 waves of panel data for the analysis. Possible changes we will examine are from either “not functionally limited” or “functionally limited” in 1992 to “not functionally limited”, “functionally limited”, and “deceased” in 1997.

Preliminary results

Preliminary results of life and active life expectancy estimates are provided in Figures 1 and 2. These figures indicate that:

- a) Older adults who have ever smoked regularly have shorter life expectancy (LE), active life expectancy (ALE), and inactive life expectancy (IALE), compared to those who have never smoked. The results are similar for both men and women.
- b) The differences in LE remains significant into older ages, but the differences in ALE and IALE are not statistically significant at conventional levels.
- c) Older adults who have ever smoked regularly live a higher proportion of their remaining life in active state than the never smokers.

Discussion

Both males and females who have never smoked have distinct advantages in life and active life expectancies over their ever smoking counterparts, even at advanced ages. Given the prevalence of smoking in China, this translates into substantial benefits that can be accrued through changes in smoking behaviors. Further analysis that we will conduct for this presentation will examine how smoking affects functional health transitions, net of various social, economic, and demographic factors. Conclusions will compare results to the few studies that have been conducted in developed countries.

Figure 1: Life and Active Life Expectancies by Smoking Status: Males

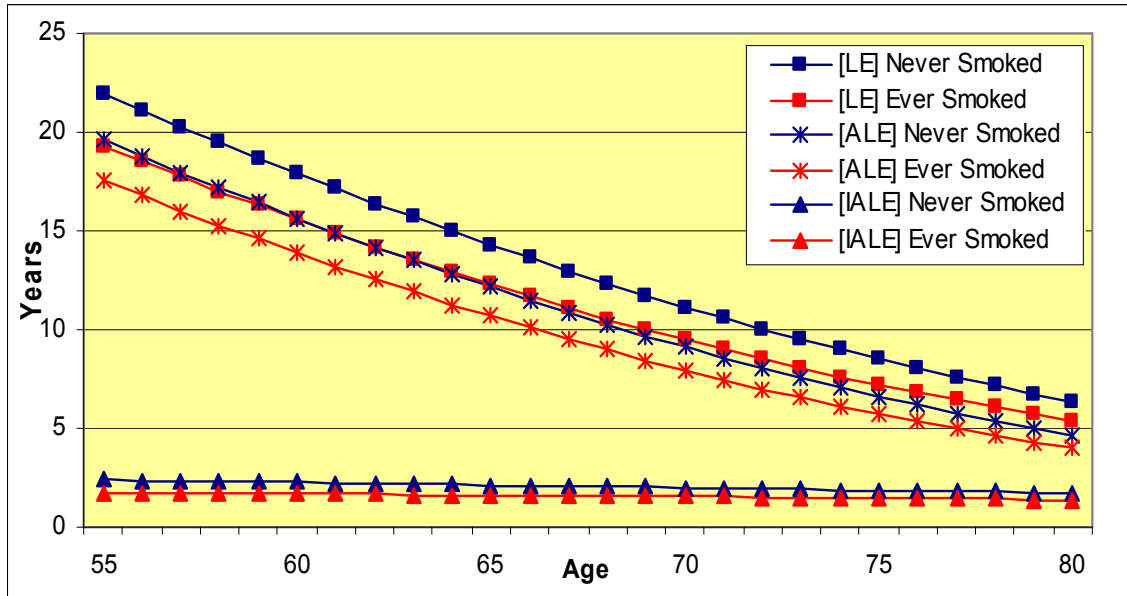


Figure 2: Life and Active Life Expectancies by Smoking Status: Females

