# *Does marriage affect survival among the elderly in China?*

*Q. HUANG, G. CHEN. **Does marriage affect survival among the elderly in China?** Geron-technology 2014; 13(2):214;* doi:10.4017/gt.2014.13.02.329.00   **Purpose**   Marriage provides key social ties that can offer both economic and social advantages and thus protect people against poor health outcomes[1]. However, research related to the link between marriage and mortality are not as rigorous as other research topics due to limitations in research such as selection bias and limited sampling, when compared with the links between marriage and other health outcomes[2,3]. This paper attempts to present more rigorous evidence by using the Cox Model to analyze the relationship with longitudinal data and provide some insight on this issue. **Method**   Five sets of data collected in 1998, 2000, 2002, 2005 and 2008 are derived from the Chinese Longitudinal Healthy Longevity Survey (CLHLS) and 8,589 subjects were included after deleting samples with missing data. To enhance the statistical power, missing data was input using the values of the same variable in the former or latter survey. Current marital status is divided into two categories including 'married' and 'unmarried', and the quality of previous marriages were measured by the total evaluation scores of all relationship histories with former spouses. Basic survival function curves and correlative methods (log-rank tests) were used to explore associations between socio-demographic factors together with dynamics of current marriages, marital history status and changes in survival time. Cox's semi-parametric regression model was used to explore the marital effects on survival time.   **Results & Discussion**   Of people analyzed in this study, 37%, 33.1%, 49.7%, 45.8% of the subjects died in 1998–2000, 2000–2002, 2002–2005 and 2005–2008, respectively. The total time at risk was 341,311 person-months; average survival time was 39.7 months. Those who were married were more likely to survive longer than unmarried people (*Figure 1*) and the survival rate between married and unmarried people were significantly different throughout the log-rank tests. The hazard ratio of death of married people is 23% lower than those who are unmarried (*p*=0.000) and those who have a better evaluation of marriage history are likely to survive longer than unmarried people (*p*=0.057) after controlling for other covariates. For the elderly, marriage can protect health by providing emotional support and care services; thus married people live longer than those who are not married. This result is consistent with other studies[4]. Social initiatives, such as designing specific marriage markets as well as social networking and communication tools that help elderly get remarried, or entertainment robots to reduce loneliness for singles or widows should be launched to reduce the negative effects of being unmarried in order to improve the longevity of the elderly.

*Table 1. Basis characteristic of sample*

| Category | Total | Per subject | | | |
|---|---|---|---|---|---|
| | | **Mean** | **Min** | **Median** | **Max** |
| # subjects | 8,589 | | | | |
| # records | 16,818 | 1.96 | 1 | 2 | 4 |
| Time at risk | 341,311 | 39.74 | 1 | 31 | 134 |
| failures | 6,461 | 0.75 | 0 | 1 | 1 |
| Survival time | 17(25%) | 38(50%) | | 71(75%) | |

**References**
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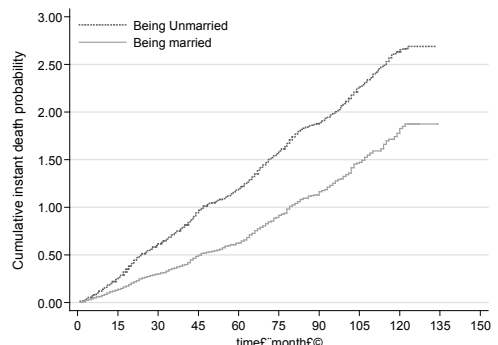*Address*: Peking University, Beijing, China
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*Figure 1. Nelson-Aalen cumulative hazard function curve by marriage*