Cohort effects in the influence of adult children's education on their elderly parents' health in Taiwan

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Background

Education is increasingly characterized as a "fundamental cause" of health disparities (Link and Phelan 1995; Phelan and Link 2005), and the importance of education on health increases across cohorts (Lauderdale 2001; Lynch 2003; Masters et al. 2012; Mirowsky and Ross 2008). Zimmer and his colleagues have shown that not only one's own education is important but also the education of family members may be linked to health (Zimmer et al. 2002; Zimmer et al. 2007). However, it is still not clear whether cohort effects in the influence of adult children's education on their elderly parents' health, especially in societies in which families are highly integrated.

Taiwan as a Confucian society provides an ideal setting for studying the influence of adult children's education on their elderly parents' health. In Confucian societies, the norm of co-residence of the elderly with their children not only promotes children's education, occupation, or income, but also brings a high level of social support to the elders from the children, which might be expected to mitigate the relationship between education and health of the elderly. During the past

decades, Taiwan also experienced an upward trend in average years of schooling, and we wonder what implications this rapid upward trend in education among younger generations in Taiwan would have for older generation's health outcomes. In short, Taiwan provides a great opportunity to examine cohort changes in adult children's education and in the associations between adult children's education and their elderly parents' health.

In this study, we focus on cohort changes in adult children's education and investigate how these changes are associated with changes in their older parents' health over time. Given the living arrangements and the rapid growth in the level of education in Taiwan, our focus is on how younger cohorts' elevated education levels are linked with parental generations' health at the aggregate level. In Taiwan, it's been quite common for elderly Taiwanese adults to live with their married sons and for daughters-in-law to provide considerable care for their husbands' elderly parents. This co-residential arrangement and model of resource exchange between generations is rarely seen in the United States (Beckett et al. 2002; Brown et al. 2002; Hermalin et al. 1996; Kamo and Zhou 1994; Raymo et al. 2009). Living with adult children could benefit the health of elderly individuals, especially widowers (Zunzunegui et al. 2001). In addition, children's education attainment (and wealth) can have significant impacts on the health and mortality of the elderly (Zimmer et al. 2002; Zimmer et al. 2007), which may somehow weaken the linkage between a person's own education and health.

Data

The data is from the Survey of Health and Living Status (SHLS) of the Middle Aged and Elderly in Taiwan, a longitudinal survey of a nationally representative sample of the elder in Taiwan. It was launched in 1989 by the Taiwan Provincial Institute of Family Planning (which later became the Bureau of Health Promotion of the Taiwan Department of Health) and the

University of Michigan, with support from the Taiwan government and the U.S. National Institute on Aging (Martin et al. 2011). The first survey contained 4,049 respondents aged 60 and achieved a 92% response rate. The follow-up surveys were conducted in 1993, 1996, 1999, 2003, and 2007. The sample was also refreshed in 1996 and 2003 for those aged 50 and above (Martin et al. 2011; Zimmer et al. 2005). Due to lack of major disability information in the first wave in 1989, this study will use six observation waves (1993, 1996, 1999, 2003, and 2007) to understand the trends in the influence of adult children's education on their elderly parents' health in Taiwan.

Health measures

Disability – activities of daily living and instrumental activities of daily living.

Disability is conceptually different from functional limitation which refers to personal capability. Disability is a gap between personal capability and environmental demands. Disability can be mitigated at either side, by increasing capability or by reducing demand. Therefore disability is the "outcome" of functional limitations and environmental demands in the disablement process and refers to whether a person can live independently or provide self care (Verbrugge and Jette 1994). People with the same level of personal capability can have different levels of disability if they live in social conditions with different demands. Therefore, differences in environmental demands would produce differences in the disability even if the countries' populations had the same level of functional problems.

Disability was measured separately by difficulties with activities of daily living (ADLs) and instrumental activities of daily living (IADLs). ADLs are necessary for survival, and IADLs are necessary for maintaining a life in a given sociocultural setting (Verbrugge and Jette 1994). Two composite measures, one for ADLs and the other for IADLs, were created in this study. The

ADLs measure included five items: dressing, bathing, eating, bedding and walking. An individual was considered as having an ADL disability (i.e., unhealthy) if he/she had difficulties in performing at least one of the five ADL activities. The IADLs included six items: shopping, managing money, making phone calls, doing heavy housework, and using transportation. Therefore, a respondent was considered as having IADL disability if he/she had difficulties in performing at least one of the six IADL activities.

Functional Limitations

Functional limitations are restrictions in an individual's physiological ability to perform fundamental physical actions in daily life. They indicate overall abilities of the body to do purposeful work, such as stooping, lifting, and climbing, and they are less sensitive to social roles and environmental demands (Freedman and Martin 1998; Verbrugge and Jette 1994). Therefore, a cross-national comparison of population health using functional limitation as the metric can bring us closer to understanding the difference in the physical capacity of older people from Japan, the United States, and Taiwan.

Functional limitation was measured by assessing the difficulty in performing at least one of six NAGI items (Nagi 1965): stooping, raising both hands over your head, using fingers to grasp or turn objects, lifting or carrying something weighing 11-12kg, walking for 200 to 300 meters, walking up two or three flights of stairs.

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