Effects of Care Arrangement on Community-dwelling Chinese Older Adults’ age of institutionalization

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Background

Definitions of some key words in the study

• Institutionalization
  – Older adults reside in or being placed in a Long-term care (LTC) home established as an institution, custom, or common practice

• Care arrangement
  – Who take primary responsibility of caring for community-dwelling older adults
Background

At the end of 2014

• 222 million older adults (aged 60+)
• 24 million “oldest old” (aged 80+)
• 100 million-with one or comorbid chronic diseases
• 37.5 million-with functional disabilities

Background

Elderly (Aged 60 & Over), as a Percent of the Population in China and the United States, History and UN Constant Fertility Scenario, 1970-2050

Source: UN (2003)
Background

Long-term care resources in China

Home-based care (>85%)

Paid Domestic helpers
3C work
Migrants from rural areas
Local laid-off or retired women
Migrants from southeastern Asia
Background

- Population mobility
- Family structure
- Living arrangement
- Female employment rate
- Perception of filial piety
- Government investment

Socioeconomic changes

- Rapid population aging
- Institutionalization rate
  0.86% - 1.51% (2005-2012)
- Number of older residents
  1.25 - 2.93 million (2005-2012)

(Wu 2014)
Figure 2. Development of Long-term Care Facilities (2000-2012)

Background

• Long-term care facilities in China
Background

• Early institutionalization
  – limited formal LTC resources
  – A burden on the country and taxpayers

• Understand risk factors

• The effect of care arrangements on their age of institutionalization have been overlooked
Objective

• To examine care arrangement of community-dwelling older adults in China
• To explore longitudinal effects of care arrangements on community-dwelling Chinese older adults’ age to move into long-term care facilities (institutionalization)
Hypothesis

We hypothesized that different types of care arrangements will have significant impacts on community-dwelling older adults’ age of institutionalization.
Methods

Secondary data analysis using a true longitudinal national dataset
Methods

• Data Source
  – Chinese Longitudinal Healthy Longevity Survey (CLHLS)*
  – Sampling and data collection*
    • Study sample was randomly selected from half of the counties and cities in the 22 provinces of China, representing 85% of the total population of the country.
    • Data were collected through face-to-face interviews using internationally-standardized questionnaires adapted to Chinese cultural and social context

*Sponsored by US National Institute on Aging, the United Nations Fund for Population Activities, and the China National Foundation for Social Sciences. Peking University (Beijing, China) and Duke University
*Goodkind, 2009; Gu & Dupre, 2008; Zeng & Gu, 2008
Methods

• Study sample

Older adults who were surveyed in 2002, and followed up in 2005, 2008 and 2011 (n=15475)

Samples included (n=2628)
• Moving to LTC institutions in 2005, 2008, or 2011 (n=233)
• Age in place (n=2395)

Participants excluded (n=12815)
• Those who deceased
• Missing data of the included variables of our samples (less than 5%)
• Lost to follow-up
Methods

• Outcome variable - Institutionalization
  – Correspondent questions is “current co-residence”
  – Defined as residing in a LTC facility at follow-up
  – A fixed event that is unlikely to change once happened
  – Time to event

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event=0 (community-dwelling)</td>
<td>Age in 2011</td>
</tr>
<tr>
<td>Event-1 ) reside in LTC facilities</td>
<td>Age at institutionalization</td>
</tr>
</tbody>
</table>
Methods

• Independent variable

Different care arrangements

– Correspondent question is ”Who primarily takes care of you?”
– 8 Options are: spouses; son and daughter-in-law’; son and daughter; grandchildren and their spouses; other relatives; friends; and nobody
Methods

• Covariates
  – Gender
  – Place of current residence (city, town, and rural)
  – Self-rated health
  – Ability of performing activities of daily living (need help or not)
  – Financial independence
Methods

• **Data Analysis (SAS 9.3)**
  - Univariate statistics: to examine care arrangements, current residence and other covariates.
  - Multivariate Cox Regression Model: to investigate longitudinal effects of caregiving arrangements on community-dwelling older adults’ age to move into LTC facilities.
    - Significance level was set a 0.01
    - Hazard ratio
    - Adjusted Kaplan-Meier Survival Curves
### Table 1. Characteristics of the study samples (n %).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Total (n=2628)</th>
<th>Institutionalized (n=233)</th>
<th>Not institutionalized (n=2395)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Care arrangements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spouse</td>
<td>625 (23.78)</td>
<td>21 (9.01)</td>
<td>604 (25.22)</td>
</tr>
<tr>
<td>Son and daughter-in-law</td>
<td>1258 (47.87)</td>
<td>54 (23.18)</td>
<td>1204 (50.27)</td>
</tr>
<tr>
<td>Daughter and Son-in-law</td>
<td>312 (11.87)</td>
<td>29 (12.45)</td>
<td>283 (11.82)</td>
</tr>
<tr>
<td>Son and daughter</td>
<td>154 (5.86)</td>
<td>28 (12.02)</td>
<td>126 (5.26)</td>
</tr>
<tr>
<td>grandchildren</td>
<td>79 (3.01)</td>
<td>12 (5.15)</td>
<td>67 (2.80)</td>
</tr>
<tr>
<td>Other informal caregivers</td>
<td>69 (2.63)</td>
<td>33 (14.16)</td>
<td>36 (1.50)</td>
</tr>
<tr>
<td>Domestic helpers</td>
<td>56 (2.13)</td>
<td>29 (12.45)</td>
<td>27 (1.13)</td>
</tr>
<tr>
<td>Nobody</td>
<td>75 (2.85)</td>
<td>27 (11.59)</td>
<td>48 (2.00)</td>
</tr>
</tbody>
</table>
Results

- Care arrangement is a predictor of older adults’ age of institutionalization
  – Reference: cared for by spouses

<table>
<thead>
<tr>
<th>Parameter</th>
<th>DF</th>
<th>Parameter estimate</th>
<th>SD</th>
<th>P&gt;chisq</th>
<th>Hazard Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Son and daughter-in-law</td>
<td>1</td>
<td>-0.65</td>
<td>0.27</td>
<td>0.02</td>
<td>0.52</td>
</tr>
<tr>
<td>grandchildren</td>
<td>1</td>
<td>-0.39</td>
<td>0.37</td>
<td>0.30</td>
<td>0.67</td>
</tr>
<tr>
<td>Daughter and son-in-law</td>
<td>1</td>
<td>0.16</td>
<td>0.29</td>
<td>0.59</td>
<td>1.17</td>
</tr>
<tr>
<td>Son and daughter</td>
<td>1</td>
<td>0.91*</td>
<td>0.29</td>
<td>&lt;0.002</td>
<td>2.49</td>
</tr>
<tr>
<td>Other informal caregivers</td>
<td>1</td>
<td>1.39*</td>
<td>0.29</td>
<td>&lt;0.0001</td>
<td>4.03</td>
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<tr>
<td>Domestic helpers</td>
<td>1</td>
<td>1.53*</td>
<td>0.29</td>
<td>&lt;0.0001</td>
<td>4.64</td>
</tr>
<tr>
<td>nobody</td>
<td>1</td>
<td>1.72*</td>
<td>0.30</td>
<td>&lt;0.0001</td>
<td>5.59</td>
</tr>
</tbody>
</table>
Results

- Place of residence (Reference: town)
- Need for ADL help

| Parameter               | DF | Parameter estimate | SD | P>|chisq | Hazard Ratio |
|-------------------------|----|--------------------|----|--------|-------------|
| Residence               |    |                    |    |        |             |
| city                    | 1  | 0.45*              | 0.18| 0.01   | 1.57        |
| rural                   | 1  | -0.58*             | 0.17| 0.0007 | 0.56        |
| ADL                     |    |                    |    |        |             |
| Need help               | 1  | -0.67*             | 0.16| <0.0001| 0.50        |
| Financial dependence    |    |                    |    |        |             |
| dependent               | 1  | 0.41               | 0.18| 0.02   | 1.51        |
adjusted Kaplan-Meier survival curves
Discussion

• Increased institutionalization rate
• Care arrangements
  – Sons and daughters-in-law take primary responsibilities
  – Problems in shared responsibilities among sons and daughters: dilemma and family disputes
  – Underprepared workforce and working environment (domestic helpers)*
  – Empty nest families and regional disparities of community-based support

Discussion

• Living in rural areas (protective factor)
  – Continuity of traditional family elder care support provided by sons or daughters-in-law in rural areas
  – Limited access to elder care in LTC facilities in rural areas
Limitations

• Inherent in the structure of the CLHLS dataset
• Lack of information about migration history of adult children and attitudes of participants and their families toward institutionalization.
Thank you!

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