Disparities in Activities of Daily Living Between Elderly Males and Females in China

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Research purpose

- Describe and identify the disparities in ADL between the elderly males and females
- Interpret the gender difference of ADL from a socioeconomic point of view
Sex differences of risk in health

Research questions

Factors:
- education
- Financial status
- occupation
- Medical insurance
- Social support
- Mental health
- Health-related behaviors
- Living arrangement
- Marital status
- Position in family

Sex differences in morbidity and injury

Sex disparities in ADL among elderly

Intervenable factors:
- GENDER

Unintervenable factors:
- SEX
About this study:

- **Data source**
  One-time sampling survey of the elderly living in rural and urban areas of China in 2006.
  - Urban sample: 10016
  - Rural sample: 9931

- **Variables and measurement**
  The prevalence of BADL-disability
  The severity of BADL-disability: Minor-Moderate-Serious-Complete loss
  SES indicators: education, marriage, self-perceived financial status, position in family, living arrangement, medical insurance…

- **Method**
  Age-standardization
  Blinder-Oaxaca decomposition model
Sex-specific characteristics of the sample by:

- age
- Rural-urban
- Regional
- SES
- Each item of BADL
Age by sex and rural-urban

- Rural female
- Rural male
- Urban female
- Urban male

- 60-64
- 65-69
- 70-74
- 75-79
- 80-84
- 85+

0% 20% 40% 60% 80% 100%
Self-perceived financial status by sex and rural-urban.
The decision-maker of family property;
Not hospitalizing due to lacking financial support;
accessibility to medical insurance

Urban

Rural
Living arrangement by sex and rural-urban

- **Rural female**
  - Living with spouse and children: 20%
  - Living with spouse only: 40%
  - Living with children only: 30%
  - Living with non-spouse and non-children: 5%
  - Living alone: 5%

- **Rural male**
  - Living with spouse and children: 20%
  - Living with spouse only: 40%
  - Living with children only: 30%
  - Living with non-spouse and non-children: 5%
  - Living alone: 5%

- **Urban female**
  - Living with spouse and children: 20%
  - Living with spouse only: 40%
  - Living with children only: 30%
  - Living with non-spouse and non-children: 5%
  - Living alone: 5%

- **Urban male**
  - Living with spouse and children: 20%
  - Living with spouse only: 40%
  - Living with children only: 30%
  - Living with non-spouse and non-children: 5%
  - Living alone: 5%
social isolation by sex and rural-urban

![Social isolation by sex and rural-urban](image-url)
Sex-specific BADL by:

- age
- Rural-urban
- regional
- SES
- Each item of BADL
Sex-specific BADL-disability prevalence by age

Urban

Rural
Sex-specific BADL-disability severity by age

Urban

Rural
Sex-specific BADL-disability prevalence by rural-urban

Urban

Rural

M
F
Sex-specific BADL-disability severity by rural-urban
Sex-specific BADL-disability prevalence by region

Urban

North

South

Rural

North

South
Sex-specific BADL-disability severity by region

Urban

North

South

Rural

North

South

M

F
Prevalence of Male

Urban

Prevalence of Female

Severity of Male

Severity of Female

Rural
Sex-specific independence of BADL

Urban

Rural

M
F

eating
dressing
transferring
toileting
bathing

M
F

eating
dressing
transferring
toileting
bathing
Sex-specific dependence of BADL

Urban

Rural

eating dressing transferring toileting bathing

eating dressing transferring toileting bathing
Factors contributing to the disparity of prevalence of BADL-disability between elderly males and females

- Based on the logit model (Urban)
- Based on the logit model (Rural)
### Decomposition of the sex disparity of prevalence of BADL-disability based on the logit model (Urban)

<table>
<thead>
<tr>
<th>Factors</th>
<th>Absolute contribution (%)</th>
<th>Absolute contribution (%)</th>
<th>Absolute contribution (%)</th>
<th>Absolute contribution (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>education</td>
<td>0.0162 *** 26.50</td>
<td>0.0207 *** 32.59</td>
<td>0.0236 *** 38.90</td>
<td>0.0148 *** 24.06</td>
</tr>
<tr>
<td>Decision maker of family's property</td>
<td>0.0025 *** 4.04</td>
<td>0.0023 *** 3.63</td>
<td>0.0027 *** 4.44</td>
<td>0.0023 *** 3.69</td>
</tr>
<tr>
<td>age</td>
<td>-0.0005 -0.75</td>
<td>0.0035 *** 5.48</td>
<td>-0.0045** -7.35</td>
<td>0.0015 -2.43</td>
</tr>
<tr>
<td>Financial status</td>
<td>0.0123 *** 20.13</td>
<td>0.0204 *** 33.60</td>
<td>0.0072 *** 11.71</td>
<td>0.0072 *** 11.71</td>
</tr>
<tr>
<td>Medi-insurance</td>
<td>0.0117 *** 19.01</td>
<td>0.0090 *** 14.82</td>
<td>0.0102 *** 16.61</td>
<td>0.0102 *** 16.61</td>
</tr>
<tr>
<td>employment</td>
<td>-0.0054 -8.73</td>
<td>-0.0066 -10.82</td>
<td>-0.0050 -8.10</td>
<td>-0.0050 -8.10</td>
</tr>
<tr>
<td>Not hospitalizing</td>
<td>0.0005 * 0.81</td>
<td>0.0005** 0.80</td>
<td>0.0004 * 0.67</td>
<td>0.0004 * 0.67</td>
</tr>
<tr>
<td>N of chr-disease</td>
<td>0.0155 *** 25.34</td>
<td>0.0146 *** 23.06</td>
<td>0.0139 *** 22.62</td>
<td>0.0139 *** 22.62</td>
</tr>
<tr>
<td>exercise</td>
<td>-0.0002 -0.35</td>
<td>0.0024 *** 3.71</td>
<td>0.0012 *** 1.92</td>
<td>0.0012 *** 1.92</td>
</tr>
<tr>
<td>depression</td>
<td>0.0051 *** 8.01</td>
<td>-0.0131 -21.50</td>
<td>0.0045 *** 7.41</td>
<td>0.0045 *** 7.41</td>
</tr>
<tr>
<td>Marital status</td>
<td>-0.0007 -1.03</td>
<td>-0.0131 -21.50</td>
<td>-0.0064 -10.40</td>
<td>-0.0064 -10.40</td>
</tr>
<tr>
<td>LA</td>
<td>0.0076 12.02</td>
<td>0.0149 24.51</td>
<td>0.0100 16.24</td>
<td>0.0100 16.24</td>
</tr>
<tr>
<td>Social support</td>
<td>0.0001 0.10</td>
<td>0.0003 0.51</td>
<td>-0.0003 -0.52</td>
<td>-0.0003 -0.52</td>
</tr>
<tr>
<td>The proportion being explained</td>
<td>0.0527 <strong>86.01</strong></td>
<td>0.0557 <strong>87.66</strong></td>
<td>0.0474 <strong>77.94</strong></td>
<td>0.0542 <strong>89.47</strong></td>
</tr>
</tbody>
</table>

*P<0.05, **P<0.01, ***P<0.005.
## Decomposition of the sex disparity of BADL-disability prevalence based on the logit model (Rural)

<table>
<thead>
<tr>
<th>Number of case</th>
<th>Model1</th>
<th>Model2</th>
<th>Model3</th>
<th>Model4</th>
</tr>
</thead>
<tbody>
<tr>
<td>9867</td>
<td>9898</td>
<td>9706</td>
<td>9898</td>
<td></td>
</tr>
</tbody>
</table>

The sex difference of BADL-disability prevalence (Female-Male)

<table>
<thead>
<tr>
<th>Factors</th>
<th>Model1</th>
<th>Model2</th>
<th>Model3</th>
<th>Model4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absolute contribution (%)</td>
<td>Absolute contribution (%)</td>
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<td>Absolute contribution (%)</td>
</tr>
<tr>
<td>Age</td>
<td>0.0147*** 15.35</td>
<td>0.0175*** 18.36</td>
<td>0.0179*** 18.89</td>
<td>0.0173*** 18.07</td>
</tr>
<tr>
<td>Decision maker of family's property</td>
<td>0.0142*** 14.86</td>
<td>0.0126*** 13.22</td>
<td>0.0154*** 16.18</td>
<td>0.0126*** 13.25</td>
</tr>
<tr>
<td>education</td>
<td>0.0048 5.01</td>
<td>0.0046 4.80</td>
<td>0.0076 8.04</td>
<td>0.0029 3.07</td>
</tr>
<tr>
<td>Medi-insurance</td>
<td>-0.0014*** -1.47</td>
<td>-0.0005** -0.50</td>
<td>-0.0008*** -0.83</td>
<td></td>
</tr>
<tr>
<td>Financial status</td>
<td>0.0027*** 2.81</td>
<td>0.0036*** 3.76</td>
<td>0.0006 0.58</td>
<td></td>
</tr>
<tr>
<td>Not hospitalizing</td>
<td>0.0000 0.04</td>
<td>0.0002 -0.26</td>
<td>0.0000 -0.03</td>
<td></td>
</tr>
<tr>
<td>N of chr-disease</td>
<td>0.0225*** 23.55</td>
<td>0.0211*** 22.05</td>
<td>0.0214*** 22.39</td>
<td></td>
</tr>
<tr>
<td>exercise</td>
<td>0.0022*** 2.26</td>
<td>0.0023*** 2.43</td>
<td>0.0022*** 2.27</td>
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<tr>
<td>depression</td>
<td>0.0006 0.63</td>
<td>0.0010*** 1.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td>-0.0084 -8.84</td>
<td>-0.0057 -6.03</td>
<td>-0.0071 -7.44</td>
<td></td>
</tr>
<tr>
<td>LA</td>
<td>0.0047 4.97</td>
<td>0.0013 1.39</td>
<td>0.0033 3.44</td>
<td></td>
</tr>
<tr>
<td>Social support</td>
<td>0.0002 0.19</td>
<td>0.0007* 0.72</td>
<td>0.0002 0.26</td>
<td></td>
</tr>
</tbody>
</table>

The proportion being explained

<table>
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<tr>
<th></th>
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<th>Model2</th>
<th>Model3</th>
<th>Model4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.0597</td>
<td>0.0550</td>
<td>0.0407</td>
<td>0.0336</td>
</tr>
</tbody>
</table>

|                      | 62.51  | 57.63  | 42.84  | 35.13  |

*P<0.05, **P<0.01, ***P<0.005.
Factors to explain the sex disparity of BADL-disability prevalence (Based on Model 4)

Urban
- Education
- Number of chronic diseases
- Medical insurance—Self-perceived financial status
- Depression
- Decision-maker of family property
- Physical exercises

Rural
- Number of chronic diseases
- Age
- Decision-maker of family property
- Physical exercises
- Depression
Findings

- Risk of occurrence is higher for females while severity of loss is higher for males.

- Education level, age, number of chronic diseases, economic status, property ownership, health care coverage rate, mental health and distribution of health care show clear sex differences and these differences can, to varying degrees, explain the gender difference in the loss of ADL function among the elderly.
Clear differences in social, economic and health levels between the elderly living in urban and rural areas.

The sex gap of BADL-disability prevalence is wider for the elderly living in rural areas than for those living in urban areas. The factors explaining this difference are not the same for the rural and urban elderly.
Discussion

The influence of gender socialization on gender gap in health should be eliminated. Education should strive to reduce the idea that boys are better than girls, which has led to a gender imbalance in China. The same rights to proper nutrition, health care and education must be shared equally between the genders. Through policies and laws, the gender barrier in occupations and the workplace must be torn down to allow both men and women the equal rights of free choice in public and private life. At the same time, we should consider the specific needs related to the female reproductive role. In public policy making, gender-blindness should be avoided.
The socio-economic, cultural and health disparities between rural and urban areas are clear. Policies are required to take into account the differing needs of the populations living in these areas. Additionally, these disparities require the development and implementation of policies to rapidly reduce the gap and end the history of discriminatory policies between rural and urban areas while promoting equal opportunity for all people.

Reducing gender health gap relies upon social reform more than medical technique improvement itself.
Thanks