

Raising Grandchildren and health in China

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Raising Grandchildren

An increase in number of
working mother in OECD
countries

71%
(2019)

An increase in dual-
income households in
the US

55%
(2017)

Grandparents' raising of grandchildren

USA

2.7 Million (2022)

Korea

64.5% (2018)
(1,000 grandparents at random)

**Grandparents' raising of grandchildren has become a
universal form of parenting around the world**

Background

Raising Grandchildren in China

Since mid-50s: Prevalence of
Three Generational Stem Family



1. **One-child
policy**

fertility rate dropped from
six births per woman
before 1970 to 1.55
(Greenhalgh, 2008): more
child-centered family



2. **Women's
employment**

Chinese women's
participation in the
labour force: among the
highest in the world
(United Nations, 2000).



3. **Limited Work
Flexibility**

Lack of Parental leave
policy, public childcare
and general mistrust
towards domestic
helpers

Significance

Raising Grandchildren = Compulsory?



What are the effects on grandchildren?
(Mental and Physical Health)

01

Health Status

02

Depression

03

Life Satisfaction

Significance

Positive Result

— Data

2nd~5th(2008~2014) data of the Korean Longitudinal Study of Ageing

— Characteristic

Having married children or not = Instrumental Variable

— Result (Positive)

1. Psychological Health
2. Relationship with children
3. Life Satisfaction
4. Cognitive Function

Negative Result

— Data

Korean Longitudinal Study of Aging Data from 2006 to 2012

— Characteristic

Using Linear Regression Analysis and Individual Fixed Effect Model

— Result (Negative)

1. Physical illness
2. Lose their appetite
3. Depression will increase

Positive Result

— Data

Survey on Aging and Intergenerational Relations in Baoding City, China, 1994

— Characteristic

Using multiple regressions controlling for individual and household characteristics

— Result (Positive)

1. Providing childcare has a significant positive association with the respondent's physical health ($b = 1.25, p < .001$)
2. Mental health status is also significantly associated with caregiving in a positive fashion ($b = 1.27, p < .05$)

Negative Result

— Data

China Health and Nutrition Survey (CHNS), wave: 1991, 1993, 1997, 2000, 2004, and 2006

— Characteristic

Using growth curve specifications of hierarchical linear models

— Result (Negative)

1. A steeper decline in health with age, despite their initial health advantage
2. Caregiving has varied effects by gender and urban/rural residence

Heterogeneity of Custodial Grandparents: Control Variable



Urban/Rural

Rural grandparents:
increased expenses associated
with parenting,
limited supportive service,
(Bailey, Haynes, & Letiecq, 2013).



Gender

Grandfathers:
worse health on average
than the grandmothers
engaged in the same
level of care
(Chen & Liu, 2012)



Live with partner

Married grandparents:
emotional **support** and
share in the tasks and
demands of caregiving
(Hughes et al., 2007;
Matzek & Cooney, 2009)



Social Activities

Social support:
mediate between poorer
health and depressive
symptoms
(Hayslip, Blumenthal, &
Garner, 2014, 2015).

Causality implication

Number of Married Children

1. **With health status/life satisfaction of Grandparents**

Correlated
Economically,
Social support, etc.
Not Causal
Benefits & Burden at
the same time

2. **Effect on the child-caring responsibilities of Grandparents**

Causal
larger number of
married children —
potentially larger
possibilities of being
custodial grandparents

3. **As-if randomly assigned**

NO child-policy
One-child policy was
not launched
yet before 1979,
Average child births
number is 6 in 1970s

China Health and Retirement Longitudinal Study (CHARLS)

- Nationally representative data
- 2011 Baseline Wave
- 10,000 households / 17,500 individuals
- This study: Wave 4 in 2018 ; 9,733 sample out of 11,499



中国健康与养老追踪调查
China Health and Retirement Longitudinal Study

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简介

中国健康与养老追踪调查 (China Health and Retirement Longitudinal Study, CHARLS) 旨在收集一套代表中国45岁及以上中老年人家庭和个人的高质量微观数据, 用以分析我国人口老龄化问题, 推动老龄化问题的跨学科研究。CHARLS全国基线调查于2011年开展, 覆盖150个县级单位、450个村级单位, 约1万户家庭中的1.7万人。这些样本以后每



Dependent Variables

	Measurement	Scale
Health Status	Self-perceived health status	1 (Very poor) ~ 5 (Very good)
Depression	Center for Epidemiologic Studies Depression Scale (CESD-10)	1 ~ 30 Scale Degree of depression
Life Satisfaction	Self-perceived life satisfaction	1(Not at all satisfied) ~ 5(Completely satisfied)

Independent Variable



Time raising Grandchildren Per Year

Total hour = Number of grandchildren *

Weeks spent * Hours per week

Instrumental Variable



Number of Married Children

Number of Children who is ever married

“Married”/ “Divorced” /“Widowed” = Ever Married

Control Variables



Individual Characteristics

- Gender
- Age
- Education Level
- Physical Exercise
- Disease
- Activity of Daily Living (ADL)
- Social Activities



Household Characteristics

- Residency (city/rural)
- Financial Deposit
- Living with partner

Descriptive Statistics

Main Variables

Variables	N	Mean	St. Dev.	Min	Max
<i>Health Status</i>	9,733	3.00	1.02	1	5
<i>Depression</i>	9,733	9.06	4.92	0	27
<i>Life Satisfaction</i>	9,733	3.22	0.82	1	5
<i>Hours spend Raising Grandchildren/ year</i>	9,733	981.86	1,941.66	0	26,208
<i>Number of Married Children</i>	9,733	2.17	1.47	0	10
<i>Age</i>	9,733	62.26	9.49	45	85

Descriptive Statistics

Individual Characteristics

Variables	N	Variables	N
<i>Gender</i>		<i>Disease</i>	
Female	5,143 (53%)	Yes	5,252 (54%)
Male	4,590 (47%)	No	4,481 (46%)
<i>Highest Level of Education</i>		<i>Activity of Daily Living (ADL)</i>	
Primary School	6,371 (65%)	Active	4,553 (47%)
Secondary School	2,116 (22%)	Impaired	5,180 (53%)
High School	1,071 (11%)	<i>Social Activity</i>	
Higher Education	175 (1.8%)	Yes	4,407 (45%)
<i>Physical Exercise</i>		No	5,326 (55%)
Yes	3,691 (38%)		
No	6,042 (62%)		

Household Characteristics

Variables	N
<i>Residency</i>	
Rural	4,407 (45%)
City	5,326 (55%)
<i>Financial Deposit</i>	
2k	6,041 (62%)
10k	1,659 (17%)
50k	1,511 (16%)
100k	480 (4.9%)
500k	42 (0.4%)
<i>Live with partner</i>	
Yes	2,786 (29%)
No	6,947 (71%)

Baseline Regression: OLS

$$Y_i = \beta_0 + \beta_1 Raisetime_i + \beta_2 X_i$$

Y: Outcome variable, including life satisfaction, health status, and depression

Raisetime: Number of hours taking care of grandkids

X: controls

i: individuals

Problem with OLS

$$Y_i = \beta_0 + \beta_1 \text{Raisetime}_i + \beta_2 X_i + \varepsilon$$

The amount of time spent on grandkids may be influenced by a series of unobservables.

For example: how much one values family.

Solution: Instrumental variable approach

(1) Instrument: the number of married children

(2) Justification for the instrument variable:

Relevance assumption: having married children will increase the time spent on raising grandkids.

Exclusion restriction: the number of married children does not have a causal effect on the outcome (eg. health status)

Exogeneity assumption: the number of married kids is random

2SLS Regression: instrumental variable approach

$$Raisetime_i = \alpha_0 + \alpha_1 MarriedChildren_i + \alpha_2 X_i \quad (1)$$

$$\widehat{Raisetime}_i = \widehat{\alpha}_0 + \widehat{\alpha}_1 MarriedChildren_i + \widehat{\alpha}_2 X_i \quad (2)$$

$$Y_i = \beta_0 + \beta_1 \widehat{Raisetime}_i + \beta_2 X_i \quad (3)$$

Y: Outcome variable, including life satisfaction, health status, and depression

Raisetime: Number of hours taking care of grandkids

MarriedChildren: Number of married children. Instrument.

X: controls

i: individuals

First-Stage Regression

First-Stage Regression

	<i>Hours spend Raising Grandchildren/year</i>
<i>Number of Married Children</i>	<i>0.4914*** (0.0335)</i>
<i>Controls</i>	<i>YES</i>
<i>Constant</i>	<i>6.2776*** (0.3350)</i>
<i>Observations</i>	<i>9,733</i>
<i>R²</i>	<i>0.0503</i>
<i>Adjusted R²</i>	<i>0.0488</i>
<i>Residual Std. Error</i>	<i>3.5172 (df = 9716)</i>
<i>F Statistic</i>	<i>32.1785*** (df = 16; 9716)</i>

Results

Results

Health Status Regression Results

	<i>Health Status</i>	
	<i>OLS</i>	<i>2SLS</i>
	(1)	(2)
<i>Hours spend Raising Grandchildren/year</i>	0.0046** (0.0023)	-0.0496*** (0.0182)
<i>Controls</i>	YES	YES
<i>Constant</i>	2.3997*** (0.0719)	2.8193*** (0.1152)
<i>Observations</i>	9,733	9,733
<i>R²</i>	0.0292	0.1506
<i>Adjusted R²</i>	0.0276	0.1492
<i>Residual Std. Error (df = 9716)</i>	0.8084	0.9387
<i>F Statistic</i>	18.2451*** (df = 16; 9716)	

Results

Depression Regression Results

	<i>Depression</i>	
	<i>OLS</i>	<i>2SLS</i>
	<i>(1)</i>	<i>(2)</i>
<i>Hours spend Raising Grandchildren/year</i>	-0.0006 (0.0134)	0.1104 (0.0915)
<i>Controls</i>	YES	YES
<i>Constant</i>	13.2887*** (0.4185)	12.7993*** (0.5793)
<i>Observations</i>	9,733	9,733
<i>R²</i>	0.0867	0.0803
<i>Adjusted R²</i>	0.0852	0.0787
<i>Residual Std. Error (df = 9716)</i>	4.7042	4.7207
<i>F Statistic</i>	57.6414*** (df = 16; 9716)	

Results

Life Satisfaction Regression Results

	<i>Life Satisfaction</i>	
	OLS	2SLS
	(1)	(2)
<i>Hours spend Raising Grandchildren/year</i>	-0.0018 (0.0026)	0.0577*** (0.0161)
<i>Controls</i>	YES	YES
<i>Constant</i>	2.6088*** (0.0821)	2.1654*** (0.1019)
<i>Observations</i>	9,733	9,733
<i>R²</i>	0.1784	-0.0239
<i>Adjusted R²</i>	0.1770	-0.0256
<i>Residual Std. Error (df = 9716)</i>	0.9232	0.8302
<i>F Statistic</i>	131.8554*** (df = 16; 9716)	

Raising grandchildren will lead to...



Negative impact to health

- A solid **casual** relationship
- Raise awareness: **parenting support** needed for grandparents
- Shed a light on how to better **protect** their physical health: what could be the moderator?
- Children's care and support, **public medical resources**, etc.



Improve satisfaction to life & No sign for depression

- Consistency with previous correlation studies
- Help parents to make better decisions on custodial responsibilities sharing
- Other possibly **applicable areas**?
- Between schools or orphanage & nursing home, etc.

Implication

Limitation

Measurement

Internal validity of Financial status

Data

Future study

Panel data → Long-term effects

Robustness Check

Future study

-other instrumental variables

Grandparents' raising of grandchildren is becoming a universal form of parenting in China

Positive? Negative?

Instrumental variable



Health Status

Negative



Life Satisfaction

Positive



Depression

No result

Summary

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Thanks !