

# The Impact of Child Care on the Physical and Cognitive Functioning of Older Chinese Individuals with Disabilities and Intellectual Disabilities

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## Abstract

The existing literature predominantly concurs that long-term informal caregiving significantly influences the health and functional status of elderly individuals with disabilities. Nevertheless, there is a paucity of studies that specifically investigate the effects of child care and its duration on the physical and cognitive functioning of older adults.

This study aims to ascertain whether child care acts as a protective factor against or a contributor to the decline in physical and cognitive functioning among older adults, and whether this effect varies over time. The data utilized in this research were derived from three longitudinal surveys conducted during 2011-2012, 2014, and 2017-2018 by the Chinese Longitudinal Healthy Longevity Survey (CLHLS). By extending the autoregressive cross-lagged model, we developed two cycles related to child care, disability, and dementia.

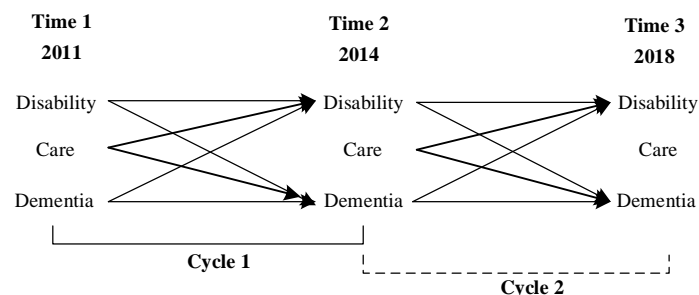


Figure 1. Bidirectional Causality Between Child Care and Elderly Disability and Dementia: Estimation Using a Cross-Lagged Panel Model

In this study, we tested two hypotheses in this research. The first hypothesis posits that children may experience adverse effects due to the burdens associated with long-term care, which could diminish their protective influence on the incapacity and dementia of older adults, potentially exacerbating these conditions. This hypothesis is partially supported by the regression analysis, which indicates that the beneficial effect of child care on the incapacitation status of older adults has persisted since the baseline survey conducted in 2011; however, it does not demonstrate a significant impact on dementia status (table2).

Table 2. The Impacts of Child Care Receipt on Future Functional Limitations

	Dependent variables (Disability or Dementia in wave 2 or 3)			
	Model 1: Disability		Model 1: Dementia	
	Wave 2	Wave 3	Wave 2	Wave 3
No informal care (reference)				
Informal care provided	0.042**(0.016)	0.039*(0.018)	-0.001(0.016)	0.004(0.019)
Age	0.005*** (0.001)	0.013*** (0.001)	0.009*** (0.001)	0.016*** (0.001)
Male (reference)				
female	0.051** (0.018)	0.030(0.021)	0.042* (0.018)	0.026(0.022)
Living in rural villages (reference)				
Living in city or town	0.013(0.015)	0.035* (0.018)	-0.005(0.015)	-0.000(0.019)

Married (reference)				
Single, divorced or widowed	-0.026(0.017)	0.006(0.020)	0.017(0.017)	0.050*(0.021)
No formal education (reference)				
Receipt of formal education	0.007(0.017)	-0.029(0.020)	0.057*** (0.017)	-0.113*** (0.021)
Income	-0.000(0.000)	0.001+(0.000)	0.000(0.000)	0.000(0.000)
Non-smoker(reference)				
Smoking	0.032(0.021)	-0.016(0.025)	-0.009(0.021)	0.013(0.026)
Do not drink (reference)				
Drinking	-0.015(0.019)	-0.026(0.024)	-0.005(0.019)	-0.037(0.025)
Number of children	0.001(0.001)	-0.002(0.001)	0.002(0.001)	0.001(0.001)
No chronic diseases (reference)				
Suffer from chronic diseases	-0.004(0.019)	0.049*(0.020)	0.027(0.019)	0.014(0.021)
No discomfort in the last 2 weeks (reference)				
Experienced health issues over the last 2 weeks	-0.012(0.020)	0.066** (0.024)	0.001(0.020)	-0.008(0.025)
Able to maintain self-sufficiency (reference)				
Disabled	0.169*** (0.026)	0.182*** (0.026)	0.100*** (0.026)	0.034(0.027)
Cognitive Normalization (reference)				
Dementia	-0.015(0.024)	0.062*(0.026)	0.237*** (0.024)	0.211*** (0.027)
Constant	-0.329*** (0.077)	-0.941*** (0.093)	-0.659*** (0.077)	-1.000*** (0.097)
Sample size	2396		2396	

Standard errors in parentheses

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

The second hypothesis suggests that the negative effects of child care are expected to intensify with an increased duration of care, holding other factors constant. This hypothesis is only corroborated by the disablement results from the second wave of data collection. Furthermore, the relationship between care intensity and the incapacity status of older adults appears to reverse as the duration of child care increases, while there remains a consistent lack of significant effect on dementia status among older adults(table3).

Table 3. The Impacts of Child Care Intensity on Future Functional Limitations

	Dependent variables (Disability or Dementia in wave 2 or 3)			
	Model 1: Disability		Model 1: Disability	
	Wave 2	Wave 3	Wave 2	Wave 3
No informal care (reference)				
1-10 hours/week	0.038(0.026)	0.075*(0.031)	-0.020(0.026)	-0.000(0.032)
10-20 hours/week	0.080*(0.032)	0.054(0.042)	0.026(0.032)	-0.037(0.044)
More than 20 hours/week	0.037*(0.017)	0.031(0.019)	-0.001(0.017)	0.008(0.020)
Age	0.005*** (0.001)	0.013*** (0.001)	0.009*** (0.001)	0.016*** (0.001)
Male (reference)				
female	0.051** (0.018)	0.030(0.021)	0.043* (0.018)	0.026(0.022)
Living in rural villages (reference)				
Living in city or town	0.011(0.015)	0.036* (0.018)	-0.004(0.015)	-0.000(0.019)
Married (reference)				
Single, divorced or widowed	-0.027(0.017)	0.006(0.020)	0.017(0.017)	0.050*(0.021)
No formal education (reference)				
Receipt of formal education	0.008(0.017)	-0.029(0.020)	0.057*** (0.017)	-0.112*** (0.021)
Income	-0.000(0.000)	0.001+(0.000)	0.000(0.000)	0.000(0.000)
Non-smoker(reference)				
Smoking	0.033(0.020)	-0.016(0.025)	-0.009(0.021)	0.012(0.026)
Do not drink (reference)				
Drinking	-0.014(0.019)	-0.027(0.024)	-0.004(0.019)	-0.037(0.025)
Number of children	0.001(0.001)	-0.002(0.001)	0.002(0.001)	0.001(0.001)

No chronic diseases (reference)				
Suffer from chronic diseases	-0.004(0.019)	0.048*(0.020)	0.028(0.019)	0.015(0.021)
No discomfort in the last 2 weeks (reference)				
Experienced health issues over the last 2 weeks	-0.011(0.020)	0.066**(0.024)	0.001(0.020)	-0.008(0.025)
Able to maintain self-sufficiency (reference)				
Disabled	0.170*** (0.026)	0.177*** (0.026)	0.101*** (0.026)	0.036(0.027)
Cognitive Normalization (reference)				
Dementia	-0.017(0.024)	0.064*(0.026)	0.237*** (0.024)	0.211*** (0.027)
Constant	-0.325*** (0.077)	-0.935*** (0.093)	-0.657*** (0.077)	-1.006*** (0.097)
Sample size	2396		2396	

Standard errors in parentheses

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Mendes de Leon et al. (2001) and Lin and Wu (2011) reported that the provision of informal care in the United States has an overall detrimental impact on, or may facilitate the progression of, limitations in Activities of Daily Living (ADL) or Instrumental Activities of Daily Living (IADL). Our findings corroborate these conclusions, indicating that child care can contribute to the disabling conditions of older adults. Furthermore, our research supports the assertion that child care does not have a significant effect on the dementia status of older adults.

The adverse impact of caregiving on the dementia status of older individuals can be attributed, in part, to the labor-intensive nature of caregiving. Existing literature typically categorizes caregiving intensity based on the number of hours dedicated per week, with thresholds of 10 and 20 hours serving as common criteria (OECD, 2011; Chen et al., 2019; van Den Berg et al., 2014). In the context of China, families with elderly members suffering from dementia often experience significant caregiving stress due to the high demands placed on them. According to stress process theory, a combination of contextual factors (e.g., individual characteristics, family dynamics), stressors (e.g., cognitive decline, role-related stress), and available resources (e.g., coping mechanisms, social support) can adversely affect caregiver outcomes, including mental health issues, physical health deterioration, and employment challenges. These negative consequences may evolve over time; as emotional health declines, physical health may also deteriorate, prompting caregivers to either reduce their caregiving responsibilities or cease them altogether, resulting in a state of incapacitation. Additionally, the influence of China's fertility policy plays a significant role in this dynamic. The period from 2011 to 2018, which is the focus of this study, coincided with ongoing changes in the country's fertility regulations. In November 2013, the government announced a shift towards a policy allowing couples, where one partner is an only child, to have two children. This was followed by the introduction of the two-child policy in 2015, which was formalized in the amended Population and Family Planning Law, stating that State promotes the birth of two children by one couple. the context of this gradual liberalization of childbearing policies, the caregiving experiences of adult children at Time 2 and Time 3 are particularly influenced by the challenges of role overload and role conflict, as they navigate the demands of providing care to both their aging parents and their own children.

Our research indicates that China's traditional paradigm of children to prevent old age is being influenced by several factors, including accelerated aging, shifts in family structure, heightened pressures associated with parenting and support, and a limited labor supply within

society. Consequently, the trend in child support appears to be developing unfavorably, aligning more closely with patterns observed in Western countries. Nevertheless, it is noteworthy that since 2016, China has been implementing a long-term care insurance system across 49 cities, including Changchun. This initiative has significantly mitigated the adverse effects experienced by families engaged in high-intensity caregiving. The introduction of welfare and market-based care services has alleviated the burdens of child care while simultaneously reducing the negative repercussions on the well-being of the elderly population.

The long-term negative consequences of child care do not imply that the responsibility for caring for the elderly with disabilities and cognitive impairments should rest solely with the market or the government. Child care plays a crucial and direct role in addressing the diverse needs of the elderly, including a sense of belonging, self-worth, and emotional well-being. Rather, it is essential to leverage the effective roles of policies, systems, and markets to alleviate the burdens associated with child care. Support policies for family care differ globally due to variations in cultural contexts, social welfare systems, and family structures; however, certain measures, such as respite care and employment support, are widely implemented. Drawing from practical experiences and existing models, China should continue to enhance direct support for caregivers, which may include services such as counseling, respite care, training, financial allowances, holidays, and policy concessions. Additionally, indirect support for those receiving care should be developed, encompassing services such as caregiving, emotional support, social exchanges, and expedited access to resources. The government should establish a comprehensive resource platform for care services and optimize the relationships among families, society, the market, and government to create a robust support system for family care.

**Limitations of This Study** This study presents several limitations that warrant consideration. Firstly, while the literature review provides valuable insights, it does not adequately explore the intricate relationship between child care, incapacity, and dementia. It is plausible that distinct mechanisms underlie the varying impacts associated with incapacity and dementia, necessitating further analysis to elucidate the multidimensional effects through dynamic assessments. Secondly, although some researchers have established criteria for Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) to evaluate the influence of informal care on changes in these activities, the current Mini-Mental State Examination (MMSE) Dementia Scale is limited to broadly accepted normal and non-normal classifications. This limitation hinders a nuanced examination of the progression of dementia, which requires more in-depth analysis in future research. Thirdly, the establishment of a more comprehensive system of control variables, as suggested in the literature, could mitigate endogenous issues. In this study, we employ a cross-lagged panel model to address potential endogenous bias stemming from reverse causality; however, it is important to acknowledge that such bias may not be entirely eliminated. Recent advancements in econometric methodologies, such as the Arellano-Bond estimator based on the generalized method of moments and dynamic structural equation modeling utilizing maximum likelihood estimation (Allison et al., 2017), offer promising avenues for causal exploration that could enhance the findings of this paper.