

# Study on the Long-Term Care Service System for Disabled Elderly People in China

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**Abstract:** In this study, the national baseline survey data from CHARLS 2015 and 2018 were selected, the ADL scale was judged for the elderly disability, and the elderly over 60 years old were selected to analyze the influencing factors of elderly disability. The results showed that self-rated health, depression, body pains, age, and gender were important factors affecting disability in the elderly. While the degree of aging is gradually deepening, the scale of the disabled people is also expanding rapidly, leading to the increasing demand for long-term care.

## 1 INTRODUCTION

Population aging is one of the major problems facing in China's social and economic development, and the risk pressure of long-term care is increasing. In 1999, China's population over 60 years of age was about 88.13 million, accounting for 10% of the total population in the same period, marking China's official entry into an aging population society. In recent years, with the change of population size and structure in China, the degree of population aging is increasing, and at the same time, the disabled patients have also increased rapidly. According to the latest data released by the China Commission on Aging, the number of disabled and semi-disabled elderly people in China has exceeded 40 million. The problem of long-term care guarantee for disabled people is becoming more and more prominent, and it needs to be solved urgently. The fourth sampling survey of the elderly in China shows that the incidence of oral disability in China is 18.3%. According to a rough estimate, the number of disabled elderly people in China will reach 66.3375 million by 2030, an increase of 26 million compared with 2015. It can be seen that with the aggravation of the aging population, the increasing number of disabled elderly people, and the reduction of family functions, China's long-term care service demand will increase sharply, and the long-term care cost sharing and fund raising guarantee mechanism need to be improved, so the long-term care

insurance system needs to be established and improved.

As the key guarantee object of long-term care insurance, the disabled elderly is the core content of providing high-quality and efficient long-term care service to that of the disabled elderly, and the establishment and improvement of the long-term care service system for the disabled elderly is the meaning of the problem to deal with the aging problem in China.

## 2 RESEARCH ANALYSIS ON LONG-TERM CARE INSURANCE AT HOME AND ABROAD

In recent years, under the background of an aging society, the long-term care insurance system has been paid more and more attention in many countries. According to foreign research, the construction of long-term care insurance system in developed countries is relatively earlier, and the relevant literature research is naturally relatively rich. In theory, foreign research on the long-term care insurance system is divided into three modes: the social insurance model represented by Japan and Germany, the business operation model represented by the United States, and the commercial insurance model supplemented by the UK allowance. As the

pioneers of the establishment of the long-term care insurance system, the Netherlands and Germany have established a relatively mature long-term care insurance system and a relatively perfect social security system (Frederik, 2010). For these developed countries that have entered the period of development and reform (Mosca, 2017), foreign scholars have shifted their research focus to how to control the service expenditure of long-term care insurance to establish sustainable development policies (Dai, 2021).

According to domestic research, due to the different national conditions, social culture, population aging degree and social system, China's long-term care insurance system started relatively late, and it is still in the pilot stage. Many scholars take this as the starting point to study the pilot situation of Chinese long-term care insurance system, mainly focusing on the following three aspects: one is to explore the local long-term care insurance system suitable for China based on the dialectical study of foreign experience; the second is to analyze the current situation and problems of the existing pilot cities and make targeted suggestions; the third is the disability scale measurement and demand analysis. Although domestic scholars have made corresponding results in studying the long-term care insurance system, there are still two deficiencies. First, the adopted data lag behind and lack timeliness, and it is difficult to meet the latest policy and social development situation. The second is to be limited to regional data research, while ignoring the nature of long-term care socialization, and the lack of systematic and holistic research, but this also leaves room and possibility for this study. Based on the existing research results, this paper uses the national data provided by CHARLS to explore the influencing factors of the elderly oral disability in China (Yang, 2016), so as to provide a reference for improving the long-term care service system of the disabled elderly population.

### 3 DATA PROCESSING AND VARIABLE SETTINGS

#### 3.1 Data Processing

This article selects the China Health and Retirement Longitudinal Study data (CHARLS). The project was officially launched in 2011 and was presided over by the China Economic Research Center of the National Academy of Development of Peking University. It

mainly collects micro data on individual and family collection of middle-aged and above in China. It is a set of representative and high-quality database. The CHARLS database covers a wide range and has strong tracking ability, involving 28 provinces, cities, autonomous regions, 150 counties and 450 villages, and more than 20,000 middle-aged and elderly respondents, tracked every two to three years (Wang, 2020).

This paper uses the panel data of "CHARLS" in 2015 and 2018 for empirical analysis to explore the status and influencing factors of elderly disability in China. Under this study topic, the latest two-phase data samples were screened to retain the disabled elderly samples. Since the study subjects were disabled elderly, this paper judged whether the elderly are disabled according to the ten questions about the daily activities (ADL) in the CHARLS questionnaire. At the same time, drawing on the age classification standard of the elderly in China, the elderly population over 60 was selected, and the final remaining sample was 2,492 people.

#### 3.2 Variable Settings

In the whole sample, 565 disabled people and 1,927 nondisabled people, accounting for 22.67% and 77.33% of the total sample number, respectively. The number of men was 1,191, representing 47.79% of the total sample population, with a mean age of 68.93 years. The number of women was 1,301, representing 52.21% of the total sample population, with a mean age of 68.76 years. 80.30% of the elderly were married or cohabiting, and the remaining 19.70% were unmarried, separated, divorced, and widowed.

The elderly generally have low education. About 80.14% of the elderly have education below primary school, 11.24% of primary school education, 5.54% of junior high school education, and 3.09% of high school education or above. On the basis of the relevant domestic study, nine variables including disability, self-rated health, depression, body pains, chronic diseases, age, marry, gender, education were selected in combination with this study topic, See Table 1 for details.

Table 1: Variable-definition.

Variables	Assignment description	Obs	Mean	Std. Dev.	Min	Max
disability	1=Disability, 0=Non-disabled	2492	0.226	0.418	0	1
self-rated health	-1=Poor, 0=Fair, 1=Good	2442	-0.208	0.600	-1	1
depression	The difference is 0-30, the higher the worse	2174	8.599	6.737	0	3
body pains	1=Yes, 0=No	2440	0.347	0.476	0	1
chronic diseases	Number of chronic diseases affected in individuals	2492	0.113	0.515	0	6
age	Individual age	2492	68.846	6.396	61	101
marry	1=Married, 0= Not in marriage	2492	0.802	0.397	0	1
gender	1=Male, 2=Female	2492	1.522	0.499	1	2
education	1=Elementary school below, 2=Elementary school, 3= Middle school, 4= High school and above	2492	0.828	1.034	0	4

### 3.3 Model Construction

This paper uses the fixed effect model as the benchmark regression to identify the influencing factors of oral disability in China. The model is set as follows:

$$Y_{pt} = \beta_0 + \beta_1 X_{pt} + \mu_t + \alpha_p + \varepsilon_{pt}$$

Among them, the explained variable  $Y_{pt}$  is the elderly disability status,  $p$  represents the province, and  $t$  represents the time. Disabled judgment criteria is according to the CHARLS questionnaire ADL scale, specific problems including the elderly in clothes, bath, eat, get up or out of bed, go to the toilet, control defecation, do housework, cooking, to buy grocery, take medicine ten daily life difficulties, and according to the completion of the above activities will be divided into mild, moderate, severe. Based on existing studies, self-rated health status, depression, body pains, number of chronic diseases, age, marry, gender, and education level were selected as the explanatory variable  $X_{pt}$ ,  $\beta_1$  represents the coefficient of the explanatory variable, and  $\beta_0$  represents the constant term. The  $\mu_t$  indicates time fixed effect,  $\alpha_p$  indicates province fixed effect and  $\varepsilon_{pt}$  indicates random error.

## 4 INTERPRETATION OF RESULT

### 4.1 Regression Analysis

The results of Table 2 show that self-rated health, depression, body pains, age, and gender were factors affecting elderly disability and were statistically significant ( $P < 0.01$ ). When older elderly self-rated health, the lower the likelihood of disability. With the deepening of the degree of depression, the incidence of disability in the elderly is also getting higher and higher. It can be seen that psychological factors also affect the physical health status of the elderly. We should also pay attention to the psychological status when providing long-term care services to the elderly. The increased degree of physical pain is positively associated with the incidence of disability in the elderly, the more likely disability when physical pain is felt in the elderly, otherwise the opposite. While the elderly age increases, the physical function keeps deteriorating, and the physical health degree also gradually decreases, so the incidence of disability also gradually increases. Furthermore, the incidence of disability was relatively higher in women than in men. When the elderly improve their health, the lower the probability of disability; the increase of depression, physical pain, and age, and women are higher than men.

Table 2: Variable-definition.

Variables	Coef.	Std. err.	t	P> t	[95%Conf. Interval]	
self-rated health	-0.096	0.015	-6.13	0.000	-0.126	-0.065
depression	0.010	0.001	7.12	0.000	0.007	0.013
body pains	0.080	0.021	3.74	0.000	0.038	0.122
chronic diseases	-0.001	0.019	-0.09	0.926	-0.040	0.037
age	0.008	0.001	5.59	0.000	0.005	0.011
marry	0.015	0.024	0.63	0.532	-0.032	0.063
gender	0.072	0.016	4.55	0.000	0.041	0.104
education	0.004	0.007	0.56	0.575	-0.010	0.018
_cons	-0.659	0.123	-5.34	0.000	-0.902	-0.416

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### 4.2 Robustness Test

To ensure the robustness of the results, this study was retested by controlling only province fixed effects

(Table 3) or only control year fixed effects (Table 4), and the results are shown in Table 3, and self-rated health, depression, body pains, age, and gender remained significant by the sequential increase of control variables, still significant at the 1% level.

Table 3: Robustness analysis of fixed effects in controlled provinces based on disability status.

Variables	disability
self-rated health	-0.0996*** (0.0162)
depression	0.0109*** (0.00140)
body pains	0.0815*** (0.0219)
age	0.00952*** (0.00154)
gender	0.0680*** (0.0163)
chronic diseases	-0.0115 (0.0168)
marry	0.0152 (0.0243)
education	-0.000106 (0.00697)
_cons	-0.705*** (0.122)
N	2,171
Adjusted R-squared	0.150

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 4: Robustness analysis based on the fixed effects of years of disability status control.

Variables	disability
self-rated health	-0.0960*** (0.0157)
depression	0.0104*** (0.00146)
body pains	0.0803*** (0.0215)
age	0.00875*** (0.00156)
gender	0.0728*** (0.0160)
chronic diseases	-0.00185 (0.0198)
marry	0.0153 (0.0244)
education	0.00404 (0.00720)
_cons	-0.660*** (0.124)
N	2,172
Adjusted R-squared	0.137

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

## 5 CONCLUSIONS AND SUGGESTIONS

In this paper, we analyzed the factors affecting disability in the elderly empirically using two panel data from CHARLS 2015 and 2018. The results of this study showed that self-rated health, depression, body pains, age, and gender are the factors affecting disability in the elderly group. As the degree of aging deepens and the increase of disabled elderly, the demand for long-term care will increase. In this regard, this paper summarizes the policies issued by China at the present stage and puts forward the following suggestions based on the above analysis, hoping to provide reference significance for improving the long-term care service system for the disabled elderly people in China:

In the early stage of the system development, it is necessary and urgent to give priority to solving the long-term nursing support needs for severely disabled personnel. We should improve the assessment

standards for disability and dementia as soon as possible. First, based on the existing assessment standards, actively summarize the assessment experience of moderate, mild disabled and dementia personnel, introduce unified assessment standards, disability assessment scales and assessment tools adapted to China's national conditions as soon as possible, and improve the recruitment and supervision mechanism, form an authoritative, unified and professional assessment system; second, appropriately increase the guarantee strength, expand the scope of guarantee objects, pay attention to the guarantee of different age levels, prevent individual disability, and realize accurate assessment and accurate guarantee as soon as possible.

The proportion of the elderly population in rural areas of China accounts for 45.97% of the national elderly population. The disability rate and disability scale of the rural elderly are also higher than that of cities (Dai, 2018). The long-term care demand for the rural elderly is greater and more urgent. So, we should expand the scope of population coverage. First,

explore the rural care service plan as soon as possible, strengthen the construction of rural nursing service capacity, narrow the gap between urban and rural areas, and ensure the nursing needs of rural disabled people; second, based on the theory of large number rule, the more the insured number, the better the long-term care risk sharing effect. Based on this, on the basis of meeting the basic guarantee needs of long-term care insurance, a multi-level security system can be adopted according to different income levels to solve the nursing needs of the insured objects (Han, 2020).

At present, the long-term care service system mainly includes the basic life care and related medical care services, and mainly provides the basic level guarantee (Yang, 2020). However, in addition to the needs of physical care, the disabled elderly also need psychological comfort. However, there are few areas with spiritual support and cover few projects. We will expand payment projects. First, divide responsibilities between medical care services and life care related nursing services to prevent unreasonable expenses and reduce unreasonable expenses of long-term care insurance fund. Second, pilot cities can, appropriately, phased, focus, and increase psychological care, health care, care and hospice care., and can guarantee the disabled elderly.

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