Does Long-term Care Insurance Improve the Health Performance of the Elderly?

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Abstract. With the intensification of China's population aging, long-term care insurance, as an important social security system, plays an increasingly prominent role in improving the health performance of the elderly. This article aims to explore the impact of long-term care insurance on the subjective welfare of the elderly, especially their mental health. Based on the data from 2015 and 2018 China Health and Retirement Longitudinal Study (CHARLS), this article evaluates the implementation effect of long-term care insurance policy using a difference-in-differences model. Results show long-term care insurance policy significantly reduces the mental stress of the elderly and improves their mental health. Further heterogeneity analysis shows that there is a significant heterogeneity effect of long-term care insurance policy among different groups: urban residents achieve a greater reduction in mental stress from long term care insurance compared to rural residents, and the mental stress reduction is greater for the disabled elderly. This article not only enriches the theory of active aging, but also provides empirical support for building a new development pattern of long-term care insurance with universal coverage.

Keywords: Long-term care insurance; the elderly; mental health; social security

1   Introduction

With the continuous socioeconomic development in China, the advancement of medical technology, and the improvement of living standard, people generally have a longer life expectancy. Meanwhile, the continuous decline in the birth rate has resulted in the deepening and accelerating population aging in China. According to the data from the 7th national census, as of 2020, the population aged 65 and above in China has reached 205 million, accounting for 14.20% of the total population, an increase of 6.14 percentage points compared to 2010[1]. According to the World Population Prospects released by the United Nations in 2019, it is predicted that China's population aging will further intensify in the future. By 2035, the proportion of people aged 65 and above will exceed 20%, by 2050 it will exceed 26.1%, and will remain at a high level of 30% in the 2nd half of this century. The irreversible trend of aging poses significant challenges to society. With the intensification of population aging, the problem of aging is becoming

increasingly prominent, which is often related to the increased risk of disability among the elderly.

According to the "2018-2019 China Long-term Care Survey Report", the survey shows that 7% of elderly people are in a state of severe disability, and 4.8% of elderly people are in a state of moderate disability. About 25.4% of these disabled elderly people require all-round daily care. It is predicted that by 2050, the number of disabled elderly people in China will reach 62.82228 million, and the long-term care expenses are expected to reach 3,556.5-5,927.5 billion yuan[2], causing a huge burden to the country and families. Due to the continuous decline in the fertility rate and the trend towards smaller family structure in China, informal care provided by family members in the future will not be able to meet the long-term care needs of the elderly population. Therefore, a social security system will be needed to provide support. Fig. 1 further indicates that in the past decade, the elderly population in China has been on the rise, and so has the elderly dependency ratio (the elderly dependency ratio is the number of elderly people to be supported by every 100 population at the working age), which seriously affects the balance of population structure and economic development, and imposes enormous economic pressure on families and individuals. The long-term care insurance policy is implemented to protect the (physical and psychological) health of the elderly. From this perspective, this policy is very suitable for the current national situation in China.
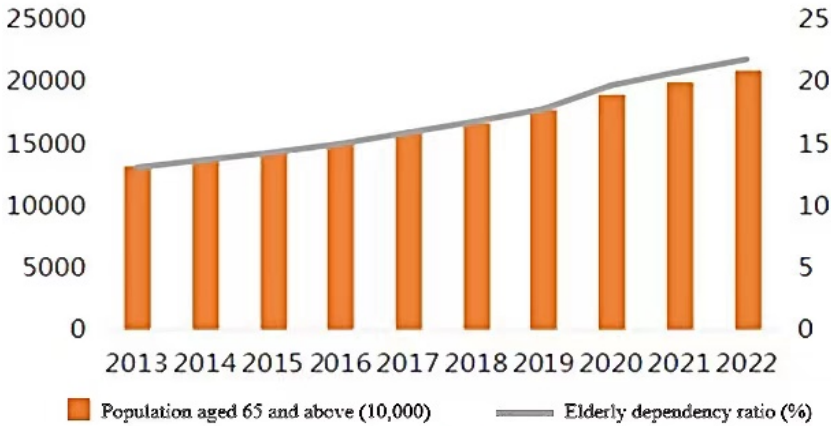

Fig. 1. Aging population and elderly dependency ratio in China

In order to address the issue of aging and solve the problem of caring elderly people with disability and dementia, the Fifth Plenary Session of the 18th Central Committee proposed the policy of "Exploring the establishment of a long-term care insurance system". In the context of this policy, the Ministry of Human Resources and Social Security established 15 cities including Shanghai, Qingdao, Chongqing, and Guangzhou as the first pilot cities in 2016, and began exploring the establishment of a long-term care

insurance system. Subsequently, the National Healthcare Security Administration issued the "Guiding Opinions on Expanding the Pilot of Long-term Care Insurance System" in September 2020, proposing to systematically expand the pilot scope and add another 14 new pilot cities. At present, each pilot city has issued relevant policy documents based on local actual situation. Some pilot areas are constantly innovating and improving their local long-term care insurance systems. For example, Qingdao has established a long-term care insurance system of "Dedicated person, full responsibility" to provide personalized care services for the population with disability and dementia, thereby effectively reducing the care burden and economic pressure on families. With the continuous expansion of the pilot scope and coverage of long-term care insurance in China, more and more disabled elderly people are enjoying the benefits offered by the long-term care insurance. As of March 2022, the number of people participating in the long-term care insurance in China has reached 145 million, with a cumulative total of 1.72 million beneficiaries and the per capita average annual payment of approximately 16,000 yuan[3]. The long-term care insurance, as a social insurance system arrangement aiming to alleviate the care burden of long-term disabled persons, can provide disabled people with care services and psychological comfort services. This not only reduces the burden on caregivers and improves the quality of life for the elderly, but also effectively alleviates the economic burden arising from long-term disability, and improves the welfare level of disabled population and their families[4]. According to the "Guiding Opinions on Expanding the Pilot of Long-term Care Insurance System", we also need to "deeply explore the establishment of a long-term care insurance system that adapts to China's national situation, further improve a more fair and sustainable social security system, and continuously enhance the sense of gain, happiness, and security of the people in jointly building and sharing the development". Therefore, the improvement of welfare, such as sense of happiness and quality of life, is not only the original intention of designing the long-term care insurance system, but also an important basis for evaluating its implementation effectiveness. However, current studies on whether long-term care insurance can improve the subjective welfare of the elderly population is still limited. This article will focus on exploring the impact of participation in the long-term care insurance on the subjective welfare of the elderly population, which is the main target population of long-term care insurance.

On this basis, this article aims to promote the development of active aging in the field of mental health, further enrich the theoretical research results of active aging, and facilitate the high-quality development of population aging; and from the perspective of active aging, provide new development directions for the long-term care insurance, thus building a new development pattern of long-term care insurance with universal coverage. In the meantime, this article is also conducive to the optimization and upgrading of long-term care insurance products, and better plays the risk support role of long-term care insurance; and actively develop the silver economy, enriching aging-friendly products, and improving the elderly care system, thereby striving to establish an elderly-friendly society in China.

2   Literature Review and Hypothesis Testing

Previous literature focused on the impact of long-term care on the elderly, and found that the implementation of long-term care insurance in China reduced the mental health problems of the elderly and the economic burden of their families, as well as the level of disability among the elderly [5]. Based on the research in Qingdao, Ma Chao found that the implementation of long-term care insurance significantly reduced the depression state of the elderly and improved their mental health. Ma Chao pointed out that long-term care insurance exhibited significant heterogeneity among different groups and between urban and rural areas. It not only successfully solved the problem of caring for disabled families, but also alleviated the economic, psychological, and other pressures of families who have lost their only child [6]. Based on the reality, the medical and elderly care structure and services in cities are more advanced and have a greater coverage. Using data from South Korea, eon found that the national public long-term care insurance had a positive impact on the satisfaction of the elderly with life, and this impact was gradually strengthened over time [7]. Lee and Wolf evaluated long-term care insurance and basic pension insurance in South Korea and found that the combination of these two policies improved on the satisfaction of the elderly with economic conditions [8]. Based on this, hypothesis H1 and hypothesis H2 are summarized in this article:

Hypothesis H1: Long-term care significantly improves the mental health of the elderly.

Hypothesis H2: Urban residents are more affected by welfare policies.

At the macro level, scholars mainly explored the impact of long-term care insurance on the government's expenditure in health. Some studies suggested that the implementation of long-term care insurance could reduce the government's expenditure in health and alleviate financial pressure. For example, Campbell et al. suggested that the long-term care insurance system in Japan effectively reduced the government's financial pressure and met the healthcare needs of the elderly [9]. However, other studies suggested that the implementation of long-term care insurance might increase medical costs. Taking the study conducted by Yu Xinliang and others using panel data at the urban level from 2000 to 2016 as an example, they found that after the implementation of the long-term medical care insurance system in 2012, the per capita medical expenses in Qingdao temporarily decreased, but then rapidly increased. They believed that this result might be due to the fact that the reduction in medical care expenses in the early stage of the policy was greater than the increase in costs arising from the release of care needs for disabled elderly people. As the policy continued to be rolled up, the release of care needs for disabled elderly people led to a continuous increase in medical expenses, ultimately resulting in an overall increase in medical expenses [10].

At the micro level, existing literature focused on the impact of the implementation of long-term care insurance on elderly people and their family members. The studies on the elderly mainly focused on whether the services provided by long-term care insurance could reduce the medical expenses of their families and improve the health conditions of the elderly. For example, Ma Chao et al. used analyzed data from the

China Health and Retirement Longitudinal Study and found that after the implementation of long-term care insurance, the outpatient expenses, number of outpatient visits, average annual hospitalization expenses, and number of visits of middle-aged and elderly people in Qingdao were significantly reduced, and their mental health was also improved [11]. Therefore, elderly people with high level of disability were more affected by policies, because after their medical expenses were reduced, they had greater potential for improving their mental health, and also received more care and psychological counseling. Based on this, the hypothesis H3 of this article is summarized as follows:

Hypothesis H3: Long-term care insurance has more significant effect of on disabled population.

Compared with the above literature, the innovation of this article is the research perspective of active aging, focusing on exploring the impact of long-term care insurance on the mental health of the elderly. By taking the three pillars of active aging (health, participation, and security) as a theoretical perspective, this article constructs a new development path for long-term care insurance in improving the mental health of the elderly. This research direction aims to actively respond to the trend of population aging in China, and constantly seek new paths to meet the multi-level and all-round retirement needs of the elderly, thereby providing rich perspectives for the research in the field of long-term care insurance. In terms of research perspective, this article introduces mental health into the coverage of long-term care insurance, uses the CESD score of elderly people in the China Health and Retirement Longitudinal Study to measure their mental health, and introduces it into the model.

3   Measurement Model and Data

3.1   Data Source

In view of the large population and wide distribution of the elderly in China, and data availability, this study chooses to conduct the research based on the China Health and Retirement Longitudinal Study (CHARLS) data. CHARLS is a large-scale interdisciplinary survey project aiming to collect data on the individual and family life of people aged 45 and above, in order to more effectively address the issue of population aging in China. Therefore, it is highly favored by a great number of scholars. CHARLS covers a wide range of topics, with a total of 15,000 respondents, including personal and family information, health status, insurance, income and consumption, and is representative nationally.

3.2   Variable Selection

3.2.1. Explained Variables and Data Preprocessing

The CES-D scale is widely used by scholars as a standard for measuring mental health, so this article also adopts the results of the questionnaire of this scale. 10 questions are selected in this article, including eight negative questions ("I am troubled by some trivial things", "I find it difficult to concentrate when doing things", "I am low in

mood", "I find it difficult to do anything", "I feel scared", "I don't sleep well", "I feel lonely", and "I feel like I can't move on") and two positive questions ("I am hopeful about the future" and "I am happy"). The answer to each question consists of four responses ("Rarely or not at all", "Not too much", "Sometimes or half of the time", and "Most of the time"), which are assigned values of 1-4 in sequence. In this article, positive questions are negatively numbered. By summing up the answers to 10 questions, it can be known that the larger the sum, the poorer the mental health of the elderly. The explained variable is mental stress.

3.2.2. Explanatory Variables and Data Preprocessing

In this article, the interaction term of whether it is the year when the policy was implemented and whether it was a pilot area (treati * timet) as the explanatory variable. Since the years of CHARLS data currently updated include 2011, 2013, 2015, and 2018, this article ultimately takes 2015 and 2018 as the years of study. Due to the timing of the first implementation of long-term care insurance in 2016, the data in 2015 was used as the control group, and the date in 2018 was used as the experimental group.

11 cities covered by long-term care insurance were used as the processing group, including Shangrao, Chengdu, Anqing, Qiqihar, Guangzhou, Ningbo, Chongqing, Chengde, Jingmen, Shanghai, and Suzhou. 13 provinces that were not included in the pilot were included in the control group, including Yunnan, Fujian, Qinghai, Xinjiang, Beijing, Inner Mongolia, Liaoning, Shaanxi, Guangxi, Shanxi, Henan, Hunan, and Guizhou provinces, municipality and autonomous regions. It is noteworthy that cities within the two important provinces of Shandong and Jilin, as well as Nantong and Shihezi, were not included in the processing group. This is because Shandong and Jilin may independently formulate long-term care insurance policies, which may cause policy uncertainty and potentially have a knock-on reaction on other cities, affecting the implementation effectiveness of policies. Therefore, in order to avoid endogeneity issues and with reference to the approach of previous studies, these cities were removed from the processing group. Meanwhile, as Shihezi and Nantong were not within the scope of CHARLS study, they were also not included in the study.

3.2.3. Selection of Control Variables

Individual factors: The mental health of the elderly is significantly subject to gender, with men having a superior mental health compared to women; Zhao Rui et al. indicated that the education level of the elderly had a significant impact on their mental health [12]; disability and chronic diseases had a negative impact on the mental health of the elderly, and their physical health was directly related to their mental health [13]. Elderly people with chronic diseases or disability often suffered from illness all year round, and might be bedridden or require long-term medication due to poor physical condition, and their tendency towards depression was more prominent. Cheng Cheng and Ke Xiwang, through further research, found that at the county level, the negative impact of income on the mental health of the elderly was more rapid and stable [14].

Thus, at the individual level, age, highest level of education, chronic disease, and annual personal consumption expenditure are chosen as control variables. Chronic diseases are processed as follows: 14 types of chronic diseases are included in CHARLS, and if any person suffers any one of them, assigned the value of 1 to it, while the others are assigned a value of 0. The index of annual consumption expenditure for individuals is processed as follows: Since there is no survey on the income level of individuals in CHARLS, this article uses consumption level as an index to measure economic level. Since only monthly consumption expenditure for households is available in CHARLS, and the question is about the expenditure of each part, this article summarizes the responses to nearly 30 questions and multiplies them by 12 to obtain the annual consumption expenditure for households. In the meantime, the number of household population is found, and the two are divided to obtain the average consumption expenditure of individuals.

Moreover, in order to verify hypothesis H3 of this article, a variable of disability is defined to distinguish elderly people in different states. Due to the six indexes in CHARLS that measure daily living capabilities, including dressing, bathing, eating, getting in and out of bed, using the bathroom, and tidying up the room, if any person can't complete any of the abovesaid item independently, he will be considered disabled with a value of 1 assigned, while the others are considered healthy with a value of 0 assigned to this variable.

Family factors: There are urban-rural differences in the mental health of elderly people [15].

Thus, as for family factors, this article chooses marital status as the control variable because partners play a role in companionship and care. Intuitively, even if a person has high level of income or education, he or she will often feel lonely without emotional communication and companionship. The data for marital status is processed as follows: Since there are 5 responses to the question, only response 1 is Married, and the response 2-4 are Married but separated, Widowed, etc., the situations in the responses 2-4 cannot reflect the companionship of partners, so they are all assigned 0 as "Single" status. In addition, in order to verify the hypothesis H2 of this article, the variable of residence is defined as (rural/urban).

Social factors: Payment for pension insurance can help improve the mental health level of the elderly [16].

In terms of social factors, this article selects whether the elderly receive pension, medical insurance, and social condition. The reason for controlling medical insurance is that elderly people who participate in medical insurance are more inclined to believe that their lives are subject to certain security, which may affect the effectiveness of long-term care insurance. The social condition is based on the survey of 11 social interaction activities in the CHARLS database. As long as the elderly participate in any one of them, he will be assigned a value of 1 in this article. The specific variable details are shown in Table 1.

Table 1. Formula of main variables and corresponding meaning

Variable	Meaning	Variable	Meaning
gender	Gender	self spi	Mental stress

resi	Residence	chro	Chronic disease
hi edu	Highest education level	exp	Family consumption expenditure
mar	Marital status	num	Number of family members
age	Age	aver exp	Average consumption expenditure
pen	Pension	year	Year
med insurance	Medical insurance	n	Number of household population
phy diff	Physical difficulty	urban nbs	City
soci	Social activity	policy	Policy variable

3.2. 4. Descriptive statistics of Variables

The figures are shown in Table 2

Table 2. Descriptive statistics of variables

Variable	Number of observations	Mean	Standard deviation	Minimum	Maximum
self spi (mental health)	8450	18.421	6.531	10	37
Gender (gender)	8450	.585	.493	0	1
Resi (urban/rural)	8450	.178	.383	0	1
hi edu (highest education level)	8450	6.726	4.448	1	12
Mar (marital status)	8450	.728	.445	0	1
Age (age)	8450	67.109	6.458	57	86
Pen (pension)	8450	.188	.391	0	1
med insurance (medical insurance)	8450	.806	.564	-1	1
phy diff (disability)	8450	.254	.435	0	1
Soci (social)	8449	.528	.499	0	1
Chro (chronic disease)	8450	.588	.492	0	1
Exp (annual family expenditure)	8448	20123.619	50340.542	0	2003412
Num (family population)	8450	1.784	.413	1	3
aver exp (personal expenditure)	8448	10629.954	17358.228	156	126088
Year (year)	8450	2016.5	1.5	2015	2018
Policy (policy variable)	8456	.096	.294	0	1

3.3   Measurement Model Design

This study evaluates policy effectiveness using a Difference in Differences (DID) model. By controlling for the differences in the research subject before and after the event, the DID model can effectively separate the impact results of the policy, and thus

has been widely applied in the field of policy evaluation. The basic settings of this model are as follows

$$Y_{it} = \beta_0 + \beta_1 \text{treat}_i * \text{time}_t + X_{it} + \gamma_i + \theta_t + \varepsilon_{it} \tag{1}$$

Where, 'Y_{it}' is the explained variable, which indicates an individual's self-evaluation of mental stress (the higher the score, the worse the mental state); '**treat$_i$**' is the policy variable, **i**=1 is the processed group, **i**=0 is the control group; '**time$_t$**' is the time variable, since 2015 is before the policy is implemented, **i**=0 means the year of 2015, **i**=1 means the year of 2018; '**treat$_i$ * time$_t$**' is the interaction term of time policy, '**β_1**' reflects the impact of long-term care insurance on the mental health of the elderly; '**X_{it}**' is the control variable, including gender, age, years of education, chronic diseases (if anyone suffers from any one of the 14 chronic diseases, a value of 1 is assigned), degree of disability (six types of daily living capability are surveyed, and if anyone cannot completed any of them independently, it is judged as disability and assigned a value of 1), personal annual consumption expenditure, marital status (Married=1, Single/Widowed/Separated=0), place of residence (Urban=1, Rural=0), social interaction (a survey for 11 basic social activities, if anyone participates in any one of them, he is assigned a value of 1). In addition, this article also includes the fixed effect '**γ_i**' and time effect '**θ_t**'of the city in which the individual is located to prevent omitted variables of urban characteristics and inherent development trend from affecting the identification results of this article.

4 Empirical Testing and Analysis

4.1 The Impact of Artificial Intelligence (AI) Investment on Industrial Comparative Advantages

4.1.1. Benchmark Regression Results

The benchmark regression results of this article are shown in Table 3. Results show that the estimated coefficient of the main explanatory variable, long-term care insurance policy (Policy), are significantly positive at the confidence level of 1%, which is consistent with the expected results. The policy has led to a decrease of 0.907 in mental stress among the elderly population. In order to increase the robustness of the study results, regression tests are conducted to control for personal factors, family factors, and social factors. The results are shown in columns (2) - (4) of Table 3. According to the results given in each column of Table 3, regardless of whether control variables are added or whether OLS method or propensity score matching method is used, the main results remain consistent. In addition, with the continuous addition of fixed effects, the absolute value of each coefficient tends to decrease, meaning that different groups of control variables control the uncontrolled omitted variables in the (1) column of the regression equation, though the coefficients remain robust. Finally, after controlling social factors and conducting propensity score matching tests, this study finds that the impact of long-term care insurance policy remains significantly positive at 1%, indicating the accuracy of the identification. In summary, the hypothesis H1 proposed in this

article has been validated, and long-term care performance significantly improves the mental health of the elderly.

Table 3. Benchmark regression results

Regression method	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) PSM
policy	-1.006***	-0.973***	-0.985***	-0.907***	-1.016***
	(0.258)	(0.254)	(0.253)	(0.254)	(0.278)
age		-0.017	-0.039***	-0.023*	-0.020
		(0.013)	(0.014)	(0.013)	(0.014)
hi_edu		-0.196***	-0.176***	-0.107***	-0.105***
		(0.025)	(0.024)	(0.025)	(0.026)
chro		1.888***	1.900***	1.902***	1.932***
		(0.147)	(0.147)	(0.145)	(0.152)
aver_exp		-0.000***	-0.000***	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)
mar			-1.585***	-1.481***	-1.497***
			(0.203)	(0.200)	(0.207)
pen				-2.391***	-2.330***
				(0.190)	(0.223)
med_insurance				-0.071	-0.065
				(0.129)	(0.134)
soci				-1.098***	-1.096***
				(0.150)	(0.150)
Fixed effect of year	Control	Control	Control	Control	Control
Fixed effect of region	Control	Control	Control	Control	Control
Observation value	8,450	8,448	8,448	8,447	8,447

Note: "*", "**", and "***" represent the significance at 10%, 5% and 1%, respectively, with t values given in the parentheses.

4.2   Verification of Hypothesis

H2: Heterogeneity of urban and rural residents

The benchmark regression results show that long-term care performance significantly improves the mental health of the elderly. However, the effect of long-term care insurance policy is closely related to the level of policy accessed to by residents in the region, and regional heterogeneity of residents may have an impact on the above relationship. In fact, urban residents have more retirement welfare than rural residents, because urban residents have access to more complete retirement infrastructure anad public services, as well as better conditions for drinking water, food, medical and health care. Therefore, urban residents are subject to greater impact. This article distinguishes between urban and rural residents and analyzes the heterogeneous effect of long-term care insurance policy on the mental health of the elderly.

Table 4. Analysis of heterogeneity: urban and rural residents

Sample	(1) Urban	(2) Rural	(3) Urban	(4) Rural
Policy	-1.006***	-0.973***	-0.985***	-0.907***
	(0.258)	(0.254)	(0.253)	(0.254)
Fixed effect of year	Control	Control	Control	Control
Fixed effect of region	Control	Control	Control	Control
Observation value	3,360	5,087	3,360	5,087

Note: "*", "**", and "***" represent the significance at 10%, 5% and 1%, respectively, with t values given in the parentheses.

This article presents the sample regression results based on the regions (urban/rural) to which residents belong in the CHARLS study, as shown in Table 4. From columns (1) and (2) of Table 4, it can be seen that after grouping residents according to urban and rural regions, the impact of long-term care insurance policy is still significant for both types of residents, though the coefficient is greater for urban residents. For urban residents, the long-term care insurance policy has an impact of reducing mental stress by 1.006, while for rural residents, the impact is only 0.973. In order to further ensure the robustness of the heterogeneous regression results, a propensity score matching test is conducted in this article by controlling social factors followed by the regression. The results are consistent with the above conclusion. This indicates that the policy welfare has a greater impact on urban residents, which verifying the hypothesis H2 in this article.

4.3 Verification of Hypothesis

H3: Population Heterogeneity

The impact of long-term care insurance policy is not consistent for all elderly groups, but also depends on the physical condition of the elderly themselves. As described in the hypothesis H3 of this article, elderly people with high level of disability have a stronger capability of improving their mental health after reducing their medical expenses, and they also have a greater reduction of economic pressure and receive more care and psychological counseling. Therefore, this section distinguishes between disabled and non-disabled groups and analyzes the heterogeneous impact of long-term care insurance policy on the mental health of the elderly.

Based on the CHARLS database, elderly people are divided into disabled and non-disabled groups for grouping regression analysis. The regression results are shown in Table 5. From the regression results, it can be seen that for different groups, the impact of long-term care insurance policy still holds, that is, the policy has a significant effect on improving mental health. For disabled elderly people, the long-term care insurance policy has an impact of reducing mental stress by 1.323, while for non-disabled elderly people, the impact is only 0.777. After further utilizing the propensity score matching method to control social factors followed by regression analysis, the results remained consistent as described above. This indicates that long-term care insurance has a more

significant impact on the disabled population, which confirms the hypothesis H3 in this article.

Table 5. Analysis of heterogeneity: disabled or non-disabled

Sample	(1) Disabled	(2) Non-disabled	(3) Disabled	(4) Non-disabled
policy	-1.323**	-0.777***	-1.396**	-0.909***
	(0.630)	(0.264)	(0.666)	(0.290)
Fixed effect of year	Control	Control	Control	Control
Fixed effect of region	Control	Control	Control	Control
Observation value	2,148	6,299	2,148	6,299

Note: "*", "**", and "***" represent the significance at 10%, 5% and 1%, respectively, with t values given in the parentheses.

5　　Conclusion and Policy Recommendations

The implementation of long-term care insurance policy helps the elderly reduce their medical and healthcare costs, alleviate financial pressure to a certain extent, and is very important when China enters the deep aging society phase with urbanization not completed yet. How will the long-term care insurance policy affect the mental stress of elderly people, whether it is "strengthening stress" or "relieving stress"? To answer this question, this chapter further extracts three research hypotheses based on existing studies, and empirically tests the impact of long-term care insurance policies on the elderly population using data from the China Health and Retirement Longitudinal Study (CHARLS) between 2015 and 2018, with a focus on exploring the heterogeneity of their impact scope. The empirical results indicate that long-term care performance significantly improves the mental health of the elderly and reduces their mental stress. According to heterogeneity regression, this article sequentially examines the differences in the impact of long-term care insurance policy on urban and rural residents, as well as residents with different health levels. The heterogeneity test at the urban-rural level shows that have more retirement welfare than rural residents, because urban residents have access to more complete retirement infrastructure and public services, as well as better conditions for drinking water, food, medical and health care. Heterogeneity tests at the level of health indicate that long-term care insurance has a greater impact on the disabled population. This is because elderly people with higher levels of disability have a stronger capability of improving their mental health after reducing their medical expenses, and can also reduce financial pressure and receive more care and psychological counseling.

　　The long-term care insurance policy has brought many opportunities for the retirement cause, effectively reducing the mental stress of the elderly and making them truly happy. Based on this, two pieces of policy recommendation are proposed in this article:

(1) Efforts need to be made to enhance the capacity to supply retirement infrastructure and public services in rural areas, facilitate the flow between urban residents and rural residents, and strengthen the external radiation capacity of urban public health services. With the concept of "sharing" in the new development philosophy, we should ensure that the development achievements can be shared by the people, allowing the healthcare industry to truly benefit a wider range of people.

(2) We should enhance the coverage of targeted long-term care insurance policy for disabled population. We should reasonably define the scope of application for disabled population, strengthen overall information coordination, and cover a wider range of disabled population. At the same time, we should also take specific measures moderately expand the scope of long-term care insurance policy for disabled population, so that more links and complete processes can be covered by the policy.

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