The Effect of Medical Insurance on the Physical Function Health of the Elderly under Different Marital Status

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Abstract: In order to further improve China's medical insurance system and better protect the health rights and interests of the elderly under different marital status, this paper combines the data of China Health and Pension Tracking Survey (CHARLS), uses Logit regression analysis and propensity score matching method to analyze the medical insurance system implemented since 1998. Whether it has an impact on the physical function health of the elderly in different marital states. In this paper, the marital status of the elderly aged 65 and above in 2018 is divided into married and unmarried states, in which the married and surviving spouse means married, and married widows, divorces and lifelong single are all classified as unmarried. The self-rated health of the elderly reflects their physical function health, so as to conduct an empirical study. It is concluded that medical insurance has a positive effect on the physical function health of the elderly under different marital status, and the effect on unmarried elderly is greater than that on married elderly. To this end, this paper puts the following suggestions.

Keywords: Medical Insurance; Physical Function Health; Different Marital Status

1. Introduction

Since the founding of New China, along with the gradual improvement of our economic strength, our medical insurance system has gradually been on the right track. In general, it has experienced three stages: The beginning of 1978, our country has carried out a transformation and exploration on the basis of the traditional medical security system; Since 1992, our country has entered the next stage of development, namely, exploring the new basic medical insurance system (such as urban residents medical insurance, new rural cooperative medical system, etc.), and constructing corresponding frames; After 2009, our country has gradually devoted to the development and improvement of the national medical insurance system.

According to the seventh National census, the number of people over the age of 65 has exceeded 190 million, accounting for 13.5 percent of the total population. According to the report "Policy Options for China's Elderly Care Services: Building an Efficient and Sustainable Elderly Care Service System in China" released by the World Bank, it is expected that by 2050, the elderly population aged 65 and above will account for 26% of the total population in China, and the degree of population aging will be further deepened.

In 2021, the country will fully open its three-child policy, which means more pressure on parenthood and less money to spend on health care for the elderly. With the growth of age, a variety of diseases invade the elderly's weakening body, health has become the primary problem faced by the elderly, but the high cost of medicine has made many families with serious illness of the elderly prohibitive, leading to the elderly "minor illness drag into a serious disease" "long illness without medical treatment" situation is common, therefore, for the elderly to participate in the insurance without delay.

Marriage has a positive impact on the lifestyle and health status of the elderly. At present, the number of widowed elderly has exceeded 47.74 million, accounting for 26% of the elderly population. At the same time, the health level of the elderly population shows an increasingly serious differentiation phenomenon, which is shown as follows: The health status of the young elderly is better than that of the old, the health status of the urban elderly is better than that of the rural elderly, and the health status of the

married elderly is better than that of the widowed elderly [1]. So, is there any difference in the effect of medical insurance on the physical health of the elderly under different marital status? Is there a big difference? How can we close this gap? This paper discusses the above problems.

Based on this, this paper intends to take the elderly aged 65 and above in different marital states as the research object in 2018, and divide the marital status of the elderly into married and unmarried states. Among them, married and surviving spouse means married state, while married widowed, divorced and lifelong single all belong to unmarried state. This paper analyzes the effect of medical insurance on physical health of the elderly in different marriage states in order to provide the policy reference for improving the medical insurance system of our country and improving the health levels of the elderly in different marriage states.

Using the data of China Health and Retirement Tracking Survey (CHARLS), to understand and sort out the physical function and health status of the elderly aged 65 and above under different marital status in 2018, and then use Logit regression and propensity score matching method to conduct correlation analysis on the data. To study the influence of medical insurance on the physical function and health status of the elderly under different marital status and put forward corresponding suggestions.In this paper, the elderly aged 65 years and above are divided into two groups -- married (i.e. married and living spouse) and unmarried (including married widowed, divorced and single for life). In this study, the insurance status is taken as the independent variable, and the self-rated health of the elderly in the two groups (reflecting the physical function health) is taken as the dependent variable, and both of them are assigned as dummy variables. In this paper, the value of the elderly insured (participating in at least one kind of insurance) is 1, the value of the uninsured is 0; The self-rated health of the elderly is divided into five levels: very good, good, fair, poor and very poor. In this paper, the elderly who choose very good, good and average are defined as having good health status and assigned a value of 1, that is, healthy; The elderly with poor and very poor choices are defined as having poor physical health and assigned a value of 0, that is, unhealthy. This paper empirically analyzes the influence of medical insurance on the physical function health of the elderly in different marital states.

By calculating propensity score (PS) values, this study compared the self-reported health of older adults enrolled in Medicare (interference group) with a sample with similar characteristics to the interference group, but not enrolled in Medicare (control group), with a view to attributing the difference between the two groups to the effect of participation in Medicare. The average treatment effect on the treated(ATT) is estimated accurately.

In propensity score matching, the Average Treatment Effect on the Treated (ATT) of the interference group was equal to the Treatment effect of the interference group minus the effect of the control group.

$$ATT=E(Y1|T=1)-E(Y0|T=0)=E(Y1-Y0 \mid T=1) \quad (1)$$

Where, Y1 represents the potential result of intervention measures, and Y0 represents the potential result of no intervention measures. T represents the treatment variable, equal to 1 represents the interference group and equal to 0 represents the control group. In ATT's estimation, we must know that since the jamming group has been disturbed, the state in which the jamming group is not disturbed is an imaginary state, that is to say, it does not exist, so the result Y0 is not observable.

Based on the above reasons, the selection propensity score matching method (PSM) was compared and analyzed in this paper. Firstly, the propensity score was calculated by Logit regression. Secondly, the nearest neighbor matching method was used to match the interference group and the control group according to the propensity matching scores. Finally, the standard error and P-value levels before and after matching were compared to analyze whether the participation of medical insurance would have a significant impact on the physical function and health status of the elderly with different marital status.

In recent years, the aging of the population has been deepening, and the country has taken corresponding measures for this phenomenon. At present, the academic circle has been quite rich in the study of medical insurance and the health status of the elderly. Academic researchers at home and abroad offer suggestions for the health of the elderly from different research perspectives. However, according to the specific research results, these studies focus more on the technical level, and

most of the results show that medical insurance promotes the physical health of the elderly. In the process of research, this paper selects and analyzes the data of China's Health and Pension Tracking Survey (CHARLS), introduces Logit regression theory and propensity score matching theory, empirically analyzes the relationship between medical insurance and the physical health of the elderly under different marital status, and puts forward comprehensive countermeasures and suggestions. This also reflects the innovation of theoretical application in this paper.

Objectively speaking, the sample size used in this study is too small and the types of control variables are insufficient, which will have a certain impact on the credibility of subsequent propensity score matching results. In addition, there are few Chinese and foreign literatures on the influence of medical insurance on the health of the elderly under different marital status, so relevant literatures cannot be cited as the basis of this study.

Subjectively speaking, the researcher is inexperienced and has not done relevant research before. He is unfamiliar with data collation, analysis and application of research methods. Researchers should read more relevant literature, solid basic skills, improve academic quality.

2. Literature Review

2.1 Study on the Influence of Domestic Medical Insurance on the Physical Function and Health of the Elderly

2.1.1 Literature review of the impact on the health of the rural elderly

Cao Xinzhi (2022) established the differential propensity score matching model based on the data of China Health and Pension Tracking Survey (CHARLS), and found that the implementation of the integration of medical insurance for urban and rural residents enhanced the service utilization of rural middle-aged and elderly people, and thus improved the health level of rural middle-aged and elderly people. Moreover, it can promote the control of basic and instrumental daily life ability of the elderly in rural areas [2]. Liu Wei (2018) used the survey data of China General Social Survey (CGSS) in 2015 to build an ordered Logistic regression model. The study showed that participation in social insurance had a significant promoting effect on the health status of the elderly in rural areas, but social insurance had different effects on the health of the elderly in rural areas with different genders [3].

Wen Shaojun (2013) conducted a systematic analysis on the influence of medical insurance on the health needs of the elderly in rural China based on the Investigation data of Influencing Factors of Health and Longevity of the elderly in China from 2005 to 2008 and found that medical insurance is likely to be ineffective in improving the health level of the elderly in rural China [4]. Perhaps this shows that there are still many deficiencies in the medical insurance system, which can not enable every old person to enjoy reasonable medical insurance services.

2.1.2 Literature review of the impact on the health of the elderly in urban areas

Hu Hongwei (2012) integrated the data of The State Council on urban housing protection from 2008 to 2010, evaluated the effect of urban housing protection on residents' health by using propensity score matching and the method of combined difference and difference. The research showed that urban housing protection is beneficial to the health improvement and utilization of health services of the low-health groups. In particular, it can promote the health improvement and utilization of health services for the elderly, low-income and low-health people [5]. Huang Feng (2010) made use of the Survey Data on Influencing Factors of Health and Longevity of the Elderly in China (CLHLS) from 2002 to 2005 and found that the elderly enjoying medical insurance benefited more from medical expenditure and life span than the elderly without insurance, and China's medical insurance played a positive role in promoting the health of the elderly in urban areas [6].

Ye Wenjun (2016) built an orderly Logit model based on the data of China Health and Pension Tracking Survey (CHARLS) in 2013 to study whether medical insurance for urban residents can promote the health level of the elderly in China. It has been found that the health status of the uninsured elderly people in urban residential insurance is better than that of the insured people, which may be related to adverse selection and moral hazard [7]. There are many uncontrollable factors in the influence of medical insurance on the health of the elderly, leading to medical insurance can not realize its function as expected.

2.2 Study on the Influence of Foreign Medical Insurance on the Physical Function and Health of the Elderly

Finkelstein (2012) showed that medical insurance increased the opportunity for the elderly to use more medical services by improving their financial accessibility to medical care, thus promoting their physical health [8]. Ram, R. (2009) Research points out that the social insurance system reduces the incidence of poverty among the elderly by moderately adjusting the income level of different strata, thus indirectly improving the health level of the elderly [9]. Cutler Vigdor(2005) used the DID method and panel data to study whether people aged 51-65 had health changes after facing the impact of diseases. The results showed that compared with uninsured people, People enjoying medical insurance have less deterioration of health after being affected by chronic diseases [10]. It can be seen that in foreign countries, medical insurance has a certain positive impact on the physical health of the elderly.

2.3 Study on the Physical Function and Health Status of the Elderly in Different Marital States

Chen Lu (2017) used the longitudinal data of the China Aging Health Factors Tracking Survey (CLHLS) from 2008 to 2011 to verify the theory of the protective effect of marriage on the health of the elderly, and the results showed that married status has a protective effect on the health of the elderly [1].

Zhao Xiaohang (2022) analyzed the influence of widowing on various health indicators of the elderly in China by using data from the six-period "CLHLS" Follow-up Survey. The study found that losing a spouse can have an impact on health outcomes in older adults. Among them, there is a gender difference in the influence of widowhood on the cognitive function of the elderly. Widowhood reduces the cognitive function of the elderly men, but in a certain period, the cognitive function of the elderly women will be improved [11].

Anqi Li (2020) established the PSM model and the multi-stage multiplier method based on the data of the Chinese Elderly Health Factors Tracking Survey (CLHLS), and the research showed that remarriage has a protective effect on the health of the elderly. The intensity of protection varies with the duration of remarriage and shows significant urban-rural heterogeneity [12].

Through the literature review, it can be found that the function of medical insurance on the physical health of the elderly presents two sides in the rural and urban areas of our country. Due to the incomplete development of medical insurance system in our country and the existence of various external factors, the influence of medical insurance on the physical health of the elderly remains to be investigated. And there is some difference between the characteristics of medical insurance system of foreign countries and our country. It also shows a trend that medical insurance can promote the function of health of the elderly. In addition, the physical health of the elderly varies greatly under different marital status: married status has a protective effect on the physical health of the elderly; The loss of a spouse can affect the cognitive function of the elderly. So, does medical insurance have an effect on the physical health of the elderly under different marital status? If so, is there a difference? This is the question that will be explored below.

3. Studies Hypothesis and Model Construction

3.1 Research the Hypothesis

In summary, based on domestic and foreign literature studies, medical insurance is beneficial to the physical function and health of the elderly to a certain extent, but there are some individual studies with different attitudes; The physical function and health status of the elderly in different marital states are also different. Based on this, this paper proposes the following research hypotheses:

Hypothesis 1: Medical insurance has no effect on the functional health of the elderly with different marital status.

Hypothesis 2: Medical insurance has a reverse effect on the physical health of the elderly with different marital status.

Hypothesis 3: Medical insurance has a positive effect on the physical function health of the elderly with different marital status, and the effect on married elderly is greater than that on unmarried elderly.

Hypothesis 4: Medical insurance has a positive impact on the physical function health of the elderly with different marital status, and its impact on the married elderly is less than that on

the unmarried elderly.

3.2 Selection and Construction of Econometric Model

3.2.1 Calculation of propensity score

Logit mode:

$$\log\{[p(Y=1|X)/(1-p(Y=1|X)]\}=\beta_0+\beta_1\times x_1+\beta_2\times x_2+...+\beta_n\times x_n \quad (2)$$

$$P(Y=1|X)=\{1/[1+e^{-(\beta 0+\beta 1\times x1+\beta 2\times x2+...+\beta n\times xn)}]\} \quad (3)$$

p on the left side of the equation 2 represents the probability that Y equals 1 after x is given, which is the propensity score obtained by this study; The content on the right side of equation 2 is consistent with that on the right side of equation of conventional linear regression model. The Logit model was converted into a formula so that the left side of the equation had only the probability of Y=1, i.e., Equation 3). When regression coefficient β and the corresponding independent variable value of each individual were obtained through regression, the propensity score value could also be calculated.

3.2.2 Calculating the Average Treatment Effect (ATT) of the Treatment Group

$$ATT=E(y|t=1)-E(\_y|t=1) \quad (4)$$

For all individuals of interference groups, the average value of their eigenvalues is calculated, and the average value of their matched objects is calculated, and the difference between the two is ATT.

3.3 Data Sources

The data used in this research were collected from the China Health and Pension Tracking Survey (CHARLS), a large-scale interdisciplinary survey project sponsored by the National School of Development of Peking University and jointly carried out by the China Social Sciences Survey Center and the Youth League Committee of Peking University, which is a major project funded by the National Natural Science Foundation of China. The CHARLS national baseline survey was carried out in 2011 and conducted in 150 counties and 450 communities (villages) in 28 provinces (autonomous regions and municipalities directly under the Central Government) in 2011, 2013, 2015 and 2018 respectively. By the time the national follow-up survey was completed in 2018, Its sample covered 19,000 respondents in a total of 12,400 households.

In order to reduce experimental errors and ensure high accuracy of experimental results, based on the CHARLS data of 2018, this study excluded samples of older people over 65 years old, and selected samples of older people with similar data characteristics (such as disease status and living style, etc.) except whether they were insured or married for empirical study.

3.4 Variable Selection

3.4.1 Explained variables

Old people physical function health. Body function refers to the life activities of the whole human being and its organs and systems. In order to show the health status of the elderly more directly, this study used the self-rated health of the elderly to measure their physical function health level.

3.4.2 Core explanatory variables

medical insurance for individual elderly people. Medical insurance, generally referred to as basic medical insurance, is a social insurance system established to compensate workers for economic losses caused by disease risks. There are many kinds of medical insurance, and this article only divides it into insured (at least one kind of insurance) and uninsured. Dummy variables were set for the above two situations in the study, which are explained below.

Group dummy variable. The setting methods of "interference group" and "control group" were as follows: the sample of elderly people participating in medical insurance was set as "interference group"; Elderly people without Medicare were set up as the "control group."

3.4.3 Control Variables

In order to make the research results more reliable, some important variables that may affect the physical health of the elderly are selected and controlled, including: Age, sex, marital status, residential address, education, emotional problems and disability, brain injury, hypertension, dyslipidemia, diabetes, cancer, chronic lung disease, liver disease, heart disease, stroke, asthma, etc.

3.4.4 Descriptive Statistics

Table 1 provides descriptive statistics for the above three variables. As can be seen from the statistical results in Table 1, the total sample size of this study was 1,933 elderly people aged 65 and above. The average value of self-rated health, as an indicator reflecting the physical function health of the elderly, reached 0.76. The higher the value, the higher the health level. The average value of medical insurance even reached 0.97, indicating that 97 out of 100 elderly people participated in medical insurance. It can be seen

that the participation rate of the elderly aged 65 and above was high in 2018. Combined with the data of the self-rated health of the elderly, it can be inferred that the health status of the elderly may be improved after the participation. However, the marital status of 0.80 indicates that most of the elderly are married, and marriage has a positive impact on the health status of the elderly. Therefore, it cannot be ruled out that the physical status of the elderly is not closely related to whether they participate in insurance.The residential address is 0.25, indicating that most elderly people in this study live in rural areas. The highest and lowest indexes of several diseases in the latter part of the table are 0.14 and 0.01, indicating that the number of elderly people suffering from these diseases is small, which is convenient for subsequent data matching propensity score.

Table 1. Descriptive Statistics of Variables

Variable	Sample size	Mean	SD	Min	Median	Max
Self-rated health	1933	0.76	0.428	0	1	1
Medical insurance	1933	0.97	0.172	0	1	1
Gender	1933	0.50	0.500	0	1	1
Marital status	1933	0.80	0.398	0	1	1
Residential address	1933	0.25	0.431	0	0	1
Schooling	1933	3.00	1.871	1	2	10
Age	1933	73.35	6.533	65	72	100
Disability	1933	0.02	0.146	0	0	1
Cerebral injury	1933	0.03	0.160	0	0	1
Hypertension	1933	0.14	0.346	0	0	1
Dyslipidemia	1933	0.10	0.301	0	0	1
Diabetes	1933	0.06	0.237	0	0	1
Cancer	1933	0.01	0.113	0	0	1
Chronic lung disease	1933	0.06	0.238	0	0	1
Hepatopathy	1933	0.03	0.171	0	0	1
Heart disease	1933	0.09	0.288	0	0	1
Stroke	1933	0.05	0.219	0	0	1
Emotional problem	1933	0.01	0.088	0	0	1
Asthma	1933	0.02	0.124	0	0	1

In this chapter, the influence of medical insurance on the physical health of the elderly under different marital status was studied and the research hypothesis and model were constructed. Based on the content of the above chapters, this chapter puts forward four research hypotheses, constructs the Logit model to calculate the propensity score value, explains the data sources and variable selection, and makes descriptive statistics of the variables in the study, making the data of each variable more clear and intuitive. In the following paper, propensity score matching method will be used to evaluate the balance after data matching and calculate the average treatment effect on the treated (ATT).

4. Empirical Results

4.1 Match Check

Table 2 shows the results of propensity score matching between the interference group and the control group. By comparing the standard bias and error reduction of the two groups of variable factors, it can be found that the absolute value of the standard bias of most variables decreases after matching, indicating that the deviation between these variables and the mean value decreases after matching, which makes the data more accurate. Gender, diabetes, cancer and liver disease of the elderly showed a slight increase in absolute value of standard bias after matching propensity score, but their standard bias was lower than 10%, within the acceptable range. After matching, the absolute value of dyslipidemia in the elderly increased significantly, indicating that the deviation from the mean value increased after matching, resulting in low accuracy of the data.

Figure 1 shows the normalization deviation of each variable before and after matching. The abscissa is the percentage of standardized difference between the interference group and the control group, and the ordinate is the influencing factor/co variable. As can be seen

from the figure, the standardization deviation of each variable before matching has a large dispersion degree, and the maximum standardization deviation exceeds 50%. After matching, the dispersion degree of standardization deviation of each variable is small, and the absolute value of standardization deviation of most variables decreases, while the absolute value of a few variables increases.

On the whole, the interference group and the control group were matched by propensity score, the final results are more reliable.

4.2 Aggregate Result Analysis

Table 3 shows the average processing effect (ATT) of the sample population obtained through propensity score matching. As can be seen from the table, the self-rated health of the elderly is not significant before and after matching, but ATT is positive, indicating that participation in medical insurance has a positive impact on the self-rated health of the elderly.

4.3 Heterogeneity Analysis of the Effect of Insurance Coverage on the Health of the Elderly Under Different Marital Status

It can be seen from the above table that medical insurance has a positive impact on the self-rated health of the elderly under different marital status. In order to further explore the difference of the impact of medical insurance on the health of the elderly under different marital status, this paper divides the elderly into two groups according to their marital status: married elderly (married and living spouse) and unmarried elderly (married and widowed, divorced and single for life). Heterogeneity analysis was conducted.

Table 4 shows that there are significant differences in the influence of medical insurance on the health of the elderly under different marital status. Among them, the self-rated health score of the married elderly is -0.035, indicating a negative correlation with medical insurance, while the self-rated health score of the unmarried elderly is 0.081, indicating a positive correlation with medical insurance, indicating that under the premise that medical insurance has a positive impact on the health status of the elderly, the influence of the unmarried elderly is greater than that of the married elderly, hypothesis 4 is valid.

5. Conclusion and Suggestion

5.1 Research Conclusion

This paper searched, analyzed and collated the data of China Health and Pension Tracking Survey (CHARLS), and used the propensity score matching method to empiricallystudy the impact of medical insurance on the health of elderly people aged 65 and above with different marital status in 2018. The results showed that: Medical insurance has an overall promoting effect on the physical function health of the elderly in different marital states, but it is not significant, and its influence on the unmarried elderly is greater than that of the married elderly.

5.2 Policy Suggestions

Based on the empirical analysis conclusion, this paper puts forward corresponding policy recommendations: first, realize the insured and uninsured to enjoy medical services at the same price. Through field investigation and analysis, the phenomenon that the insured must buy medicine at twice the price of the uninsured appears in the rural medical insurance system, which not only makes most of the elderly people in rural areas unwilling to participate in the insurance, but also violates the original intention of the medical insurance to compensate workers for the economic losses caused by disease risks. Second, accelerate the pace of narrowing the gap between urban and rural medical insurance resources. Most medical resources are concentrated in urban areas, which also leads to the elderly in rural and remote areas can not enjoy the same medical services, and the urban-rural gap is aggravated. Third, we should promote people-oriented insurance services, put the needs of the elderly first, and improve the level of medical insurance coverage.

Table 2. Test of Matching Results

Variable	Unmatched Matched	Mean		Bias(%)	Error reduction (%)	T-test		V(T)/ V(C)
		interference group	control group			t	p>|t|	
Gender	Unmatched	0.5048	0.42373	16.2		1.23	-5.84	.
	Matched	0.5048	0.59925	-18.9	-16.5	0.220	0.000	.
Marital status	Unmatched	0.81003	0.57627	52.1		4.46	4.69	.
	Matched	0.81003	0.74653	14.2	72.8	0.000	0.000	.

Residential address	Unmatched Matched	0.2508 0.2508	0.11864 0.27108	34.4 -5.3	 84.7	2.32 0.020	-1.41 0.158	. .
Schooling	Unmatched Matched	3.0251 3.0251	2.2373 2.7364	46.4 17.0	 63.4	3.19 0.001	4.97 0.000	1.56* 1.26*
Age	Unmatched Matched	73.237 73.237	76.814 73.07	-50.2 2.3	 95.3	-4.16 0.000	0.84 0.403	0.70* 1.29*
Disability	Unmatched Matched	0.02028 0.02028	0.0678 0.00427	-23.2 7.8	 66.3	-2.47 0.014	4.46 0.000	. .
Cerebral injury	Unmatched Matched	0.02561 0.02561	0.05085 0.01601	-13.1 5.0	 61.9	-1.19 0.234	2.06 0.039	. .
hypertension	Unmatched Matched	0.13714 0.13714	0.20339 0.07898	-17.6 15.5	 12.2	-1.45 0.148	5.76 0.000	. .
Dyslipidemia	Unmatched Matched	0.10085 0.10085	0.08475 0.22252	5.5 -41.8	 -655.3	0.41 0.685	-10.25 0.000	. .
Diabetes	Unmatched Matched	0.05977 0.05977	0.05085 0.08111	3.9 -9.3	 -139.4	0.28 0.776	-2.55 0.011	. .
Cancer	Unmatched Matched	0.01281 0.01281	0.01695 0.00213	-3.4 8.8	 -157.6	-0.28 0.782	3.80 0.000	. .
Chronic lung disease	Unmatched Matched	0.05923 0.05923	0.08475 0.06297	-9.8 -1.4	 85.4	-0.81 0.417	-0.48 0.633	. .
Hepatopathy	Unmatched Matched	0.03042 0.03042	0.01695 0.01227	8.8 11.9	 -34.7	0.60 0.551	3.85 0.000	. .
Heart disease	Unmatched Matched	0.09232 0.09232	0.05085 0.07737	16.1 5.8	 64.0	1.09 0.276	1.64 0.101	. .
Stroke	Unmatched Matched	0.05176 0.05176	0.01695 0.03095	19.2 11.5	 40.2	1.20 0.230	3.20 0.001	. .
Emotional problem	Unmatched Matched	0.00747 0.00747	0.01695 0.00213	-8.6 4.8	 43.7	-0.82 0.414	2.36 0.018	. .
Asthma	Unmatched Matched	0.01494 0.01494	0.0339 0.02081	-12.2 -3.8	 69.0	-1.16 0.246	-1.36 0.175	. .

Note: (1) "Unmatched" refers to the samples before propensity score matching, and "Matched" refers to the samples after propensity score matching. (2) ***, **, * represents a significant correlation at the level of 1%, 5%, 10%.

Table 3. Average Treatment Effect of the Sample Population

Variable	Sample	Interference group	Control group	ATT	S.E	T-stat
Self-rated health	Unmatched	0.759338314	0.711864407	0.047473907	0.056657951	0.84
	Matched	0.759338314	0.696905016	0.062433298	0.11579001	0.54

Note: "Unmatched" refers to the samples before propensity score matching, and "Matched" refers to the samples after propensity score matching.

Table 4. Regression Analysis

	(1)	(2)
Variable	Self-rated health of married older adults	Self-rated health of unmarried elderly adults
Medical insurance	-0.035	0.081
	(-0.499)	(0.908)
gender	0.046**	0.082*
	(2.055)	(1.722)
Residential address	0.071***	0.273***
	(2.743)	(4.953)
Schooling	0.017***	-0.010
	(2.633)	(-0.739)
Age	-0.001	-0.001
	(-0.446)	(-0.375)
Disability	-0.024	-0.066
	(-0.333)	(-0.450)
Cerebral injury	-0.232***	-0.255**

	(-3.327)	(-2.272)
Hypertension	-0.040	0.058
	(-1.316)	(0.953)
Dyslipidemia	0.010	-0.113
	(0.286)	(-1.449)
Diabetes	-0.119***	-0.140
	(-2.752)	(-1.321)
Cancer	-0.522***	-0.554***
	(-5.441)	(-3.315)
Chronic lung disease	-0.172***	-0.130
	(-3.671)	(-1.420)
Hepatopathy	-0.051	-0.098
	(-0.822)	(-0.851)
Heart disease	-0.174***	-0.308***
	(-4.803)	(-3.701)
Stroke	-0.197***	-0.112
	(-4.076)	(-1.175)
Emotional problem	-0.350***	0.703**
	(-3.105)	(2.212)
Asthma	-0.063	-0.476**
	(-0.715)	(-2.587)
Con_	0.829***	0.737***
	(5.423)	(3.062)
Total	1552	381

Note: ***, ** and * represent significant correlation at 1%, 5% and 10% respectively.

In this paper, the study on the influence of medical insurance on the physical function and health of the elderly under different marital status is still in the initial stage. Due to the insufficient sample size, some deviation may occur in the matching results and affect the final results. Moreover, this paper has not conducted a deeper analysis of the data of this study, and relevant studies need to be strengthened.

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