The Role of Chinese Critical Illness Insurance Program on Medical Burden: A Literature Review

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Abstract. Critical illness insurance is a medical insurance system for critical diseases in China, developed since 2012, based on China's basic insurance system and the NCMS, which has been continuously improved and promoted throughout the country. By sorting out and summarizing the research results of the existing Chinese critical illness insurance by bearing the burden of out-of-pocket medical expenses and catastrophic expenditure, and analyzing the existing research results, deficiencies and problems existing in the system itself, it is believed that the existing research is not strongly related to the population with a high incidence of critical illness insurance, and there are also problems at the level of compensation mechanism in critical illness insurance, so as to make suggestions for further improving the insurance system and pointing out the research prospects. Suggestions include further exploring the effectiveness of critical illness insurance in academic research for middle-aged and elderly people, and strengthening research efforts at the macro and micro levels with a longer time dimension.

Keywords: Critical illness insurance program, medical burden, Literature review.

1. Introduction

With the development of the global population pattern, the classification criteria determined by the UN in 1956, that is when the number of people who are Over 65 years of age in a country or a region reaches 7% or more of the population, it can be seen that the country or region is an aging country or region. Recently, the aging process in China has gradually accelerated, and the NBS in China has released the main data of the sixth national census with 0:00 on November 1, 2010 as the standard time point on April 28, 2011, indicating that the acceleration of aging has become one of the main trends of China's population. As the age group of middle-aged and elderly people with gradual aging and susceptibility to diseases, the growth of population aging is bound to form a close relationship with health risks and medical costs of related diseases [1]. Feng et al. found that by 2030, the per capita medical expenses of the elderly aged 65 and above in China will increase by 163.74% compared with 2010, suggesting that the health risks and medical costs of the elderly in China are both current and future, and the health risks and medical costs of the elderly are issues that should be paid attention to and urgently solved [2]. In 2012, the insurance policy of the Major sickness insurance was introduced in response to the insurance gap in the basic health insurance system and the NCMS, and its practical role has attracted extensive attention and research. A review of relevant research literature can help find valuable breakthroughs and strong support for future academic research and system improvement. Therefore, this study summarizes and summarizes the existing research on the burden of out-of-pocket medical expenses and the burden of catastrophic medical expenses in the medical burden by briefly summarizing the process of the Major sickness insurance, and puts forward relevant suggestions on the system itself and the shortcomings of the existing research.

2. Elaboration of Important Concepts

2.1. Critical Illness Insurance

Major sickness insurance has a purpose of reimbursing highly medical cost incurred by residents suffering from critical diseases, so as to alleviate the problem of urban and rural residents "poverty

caused by disease and return to poverty due to disease ", reduce the economic risk of serious illness of residents, and protect life and health of them.

Major sickness insurance is formed that is based on China's basic healthcare insurance system and the NCMS. In 2009, China established the status of the NCMS as a basic medical security system for rural areas, and in 2011, the goal of universal basic medical insurance was essentially accomplished by China, covering about 95% of the population. However, the previous medical insurance system is still unable to bear the huge medical expenses caused by critical illnesses due to its low level, and the introduction of critical illness insurance in 2012 is to make up for the blank areas of medical insurance before, and its practical utility has become one of the research hotspots of domestic and foreign scholars.

Major sickness insurance in China has gone through more than a decade of development since its pilot implementation in 2012. In August 2012, six departments of the State Council issued the "the country's healthcare insurance system to include the treatment of critical illnesses" and began to implement it on a pilot basis. In 2015, the General Office of the State Council issued the "Opinions on the Comprehensive Implementation of Critical Illness Insurance for Urban and Rural Residents", which affirmed the previous pilot and promoted the major sickness insurance nationwide. In 2017, "Guiding Opinions on the Implementation of the Health Poverty Alleviation Project" and the "Three-year Action Implementation Plan for Poverty Alleviation by Medical Security (2018-2020)" were issued to provide guidance for the further implementation of the system. In 2020, China issued the "Opinions of the Central Committee of the Communist Party of China and the State Council on Deepening the Reform of the Medical Security System", which proposes to strengthen the triple guarantee function of basic medical insurance, serious illness insurance and medical assistance. In August 2021, the National Health Insurance Administration (NHSA) and the Ministry of Finance (MOF) issued the Opinions on the Establishment of a Medical Security Treatment List System, which lowers the principle of the minimum payment standard of the major sickness insurance and increases payment ratios, making the relevant standards more friendly and humane to the poor. After more than 10 years of innovation, the critical illness insurance system has gradually expanded in scope and strengthened in implementation.

2.2. Medical Burden

Medical burden refers to the direct and indirect expenses incurred by the insured in the process of treating diseases, including the treatment expenses, drug expenses, and diagnosis and treatment service fees incurred in the process of medical treatment as direct medical expenses, as well as the travel expenses and accommodation expenses incurred in order to participate in the medical treatment. Since critical illness insurance mainly compensates for direct medical expenses, the medical burden is mainly reflected in direct expenses.

2.3. Catastrophic Expenditures

Foreign scholars generally use "catastrophic health expenditure" to determine whether a family is at risk of critical illness and whether it needs critical illness protection, so some research on critical illness insurance also focuses on catastrophic health expenditure. There are two basic methods for determining catastrophic expenditure, which are divided into the basic method and the affordability method, where the basic method holds that a catastrophic health expenditure occurs when a household’s health expenditure exceeds a certain percentage of the total budget of the household [3]. The affordability method believes that catastrophic health spending occurs when a family's health spending exceeds a certain percentage of the family's ability to pay [4]. In 2002, according to the recommendations of the WHO, a household is considered to have incurred catastrophic health expenditures when its cash health expenditure exceeds 40 per cent of the household's ability to afford it.

3. A Review of the Role of Chinese Critical Illness Insurance Program on Medical Burden

Previously, the relevant research on critical illness insurance mainly focused on three parts, namely system positioning, system design and system implementation effect.

In terms of system positioning, scholars in China mainly focus on status of sickness insurance in China's healthcare insurance system, and their views focus on two aspects: Chinese Critical Illness Insurance Program is a component of basic healthcare insurance system and Chinese Critical Illness Insurance Program should be regarded as supplementary insurance.

In terms of system design, domestic and foreign scholars have different interpretations of the critical illness insurance program according to their national conditions, including the study of the rheological changes of critical illness insurance policies since the earliest South Africa, and the study of dividing critical illness insurance into three models: commercial health insurance, critical illness insurance program in the social insurance system, and universal free medical insurance system [5]. At the same time, it also includes the research of domestic scholars on the development process and related policies of China's critical illness insurance system, such as Zhu Minglai and Sun Heyang summarized the ten-year development process of Chinese Critical Illness Insurance Program and put forward relevant policy suggestions [6].

In terms of the implementation effect of the system, there are relevant studies on critical illness insurance in consumption and industry at home and abroad. Foreign scholars such as Finkelstein and McKnight have studied the elderly in US and found that health insurance can reduce the burden of out-of-pocket medical expenses and its risk [7]. Prinjaetal found that health insurance has no effect on it in the course of a literature review of Indian health insurance plans [8]. Domestic scholars have conducted relevant studies on the impact of critical illness insurance program on consumption, industry and medical burden in terms of the effect of system implementation, among which, the impact on the medical burden of critical illness insurance is particularly direct and significant, so this is divided into two categories: out-of-pocket medical expenses and catastrophic medical expenses.

3.1. The Role of Chinese Critical Illness Insurance Program on Out-of-pocket Medical Expenses

Some scholars believe that critical illness insurance program can reduce the medical burden by reducing direct expenses, and some scholars believe that this is not the case with critical illness insurance, but believe that although the emergence of critical illness insurance can reduce the out-of-pocket medical expenditure of patients with serious illnesses, it may also increase patients' demand for medical services, thereby increasing medical expenses [9-11].

In the existing research in China, most scholars point out that the emergence of critical illness insurance program has reduced the burden of out-of-pocket medical burden. Li Jiaosi pointed out that critical illness insurance can effectively reduce the medical burden of middle-aged and elderly people in rural areas by 14.4 percentage points, which is helpful to reduce medical burden, and has a significant effect on middle-aged people and middle-income groups [12]. Xu et al. founded out that critical illness insurance program effectively reduces the risk of out-of-pocket hospitalization expenses and catastrophic health expenditures for families, which is helpful to reduce the medical burden [13]. However, some scholars founded out that the impact mechanism of critical illness insurance program is closely related to its compensation mechanism, so a more specific impact effect can be obtained by further research on the classification of patients at different age or regional levels, as discussed below. In conclusion, in the existing research, most scholars have concluded that the emergence of critical illness insurance has a reduced effect on the medical burden through progressive difference-in-difference and empirical research.

3.2. Impact of Critical Illness Insurance Program on the Burden of Catastrophic Expenditures

In addition to the research on the impact of critical illness insurance on the burden of out-of-pocket medical expenses, some domestic and foreign scholars have studied the impact of critical illness insurance on the burden of catastrophic medical expenses. In the existing foreign research, some scholars believe that the perfection and coverage rate of the medical insurance can improve the ability of residents to resist medical economic risks, but some scholars believe that participating in medical insurance does not improve the capacity of resisting risks, but will increase the overall medical and health expenses of the family, thereby the probability of the occurrence of Catastrophic Expenditures [14-16]. However, in the existing studies in China, some scholars believe that this program has no significant impact on the burden of catastrophic expenditures, but some scholars believe that it has a certain effect on reducing the burden, but still has no significant effect on the incidence, and put forward policy suggestions for this situation.

Xu Minmin and Dong Xiaoding also studied the health poverty alleviation effect of basic healthcare insurance system and critical illness insurance, and selected the hospitalization cost of cardiovascular and cerebrovascular rural patients in Henan Province as the research object, and analyzed the poverty alleviation effect of basic healthcare insurance system and critical illness insurance [17]. It is concluded that the adjustment of the policy has an adjustment effect on rural residents' medical burden, so that the gap between the out-of-pocket medical expenses and the catastrophic expenditure standard of the same year is decreasing. However, he also pointed out that while basic medical insurance and critical illness insurance reimburse part of the out-of-pocket expenses, the out-of-pocket expenses after reimbursement are still more than the catastrophic medical standards of some families, and families with low incomes are more probably to fall into poverty. Zheng et al. analyzed the impact of critical illness insurance on the incidence and intensity of catastrophic expenditure through Logic and linear regression models based on the panel data of the 5th phase of the China Household Longitudinal Survey, and concluded that the impact of critical illness insurance on the incidence and intensity of catastrophic expenditure was not significant in the field of statistics ($P>0.05$), and concluded that the actual protection effect of critical illness insurance was weakened due to the high threshold set in most provinces and cities. The above studies show a negative evaluation of the impact on critical illness insurance on the burden of catastrophic expenses [18].

However, Li et al. concluded through empirical analysis that although the current critical illness insurance system has reduced the incidence of catastrophic health expenditure in middle-aged and elderly families, it has not significantly reduced its occurrence intensity and failed to effectively reduce the medical economic burden [19]. Gao Guangying et al. combined with the evaluation of the effect of the NCMS and critical illness insurance system on catastrophic health expenditure, and concluded that the incidence and gap of catastrophic health expenditure after the compensation of NCMS critical illness insurance decreased but were not obvious [20]. Zhu Minglai et al. proposed three major critical illness insurance compensation schemes based on practical data of critical illness insurance, which can significantly reduce the probable incidence of catastrophic expenditure in China [21]. The above studies believe that critical illness insurance can or effectively reduce family catastrophic medical expenses at some level, but some studies also classify and discuss patients at different levels and in different regions, and believe that critical illness insurance has a different impact, which is detailed below.

3.3. Differential Impact of Critical Illness Insurance

As mentioned above, some scholars believe that critical illness insurance has a differential impact on out-of-pocket medical expenses and the burden of catastrophic medical expenses, and its differential impact is mainly concentrated in age and urban and rural areas.

In terms of age level, Wei Yun pointed out in her research on the impact on critical illness insurance on residents' medical burden that on the one hand, critical illness insurance can stimulate

residents' medical needs, but at the same time, it also has a promoting effect on residents' total medical expenses, which increases the total medical expenses of residents [22]. At the same time, he also mentioned that critical illness insurance has shown a distinct "pro-poor" characteristic in the release of demand. In response to this situation, Gomege suggested that differentiated payment standards should be implemented for urban and rural residents and different income groups, the reimbursement scope and compensation ceiling of critical illness insurance should be relaxed, the allocation of medical resources should be optimized, and the level of primary medical services should be improved [23].

In terms of urban and rural areas, Gomege conducted a study which is based on data from Shandong Province and concluded that there are significant urban-rural differences in the impact of critical illness insurance on mitigating catastrophic health expenditures, which can reduce the probable incidence of catastrophic expenditures among urban households effectively [23]. There is also a significant income difference in the impact of this insurance on reducing catastrophic health expenditures, and the effect of this insurance on low-income households to reduce the incidence of catastrophic health expenditures is obvious, but the effect on middle-income families and high-income households is not obvious. Zou Guohao and Zhang Ying also spent critical illness insurance in the study of the mechanism of critical illness insurance, which has a more important effect on narrowing the gap between rural areas, eastern regions and areas with a dependency ratio of the elderly population [24]. Xu Weiwei et al. argued that although the reimbursement of critical illness insurance has improved the distribution of out-of-pocket expenses among the population [13]. There has also been a trend which shows the occurrence of catastrophic health expenditure is more concentrated in poor households. Zhu Minglai et al. proposed three compensation schemes for critical illness insurance in view of such problems of the existing critical illness insurance, and improved the existing compensation mechanism by adjusting the compensation standards and compensation objects [21].

4. Conclusion

In summary, the existing studies on medical burden of critical illness insurance are in two aspects: the burden of out-of-pocket medical expenses and the burden of catastrophic expenditures. In the research on the role of critical illness insurance on medical burden, most of the existing studies empirically study the difference in difference and other methods, and conclude that the emergence of critical illness insurance has a reducing effect on the medical burden, and put forward relevant suggestions. In the study of whether critical illness insurance has an effect on the burden of catastrophic medical expenditures, most scholars believe that this insurance has no significant effect on the burden of catastrophic expenditures, and some scholars believe that it has a certain effect on the burden reduction, but still has no significant effect on the incidence, and put forward policy suggestions for this situation. At the same time, the research in both fields shows that there are different influencing factors for critical illness insurance for different regions and patients with different characteristics, and put forward suggestions for the compensation mechanism of critical illness insurance.

However, as mentioned above, critical illness insurance is mainly aimed at compensating the burden of medical expenses for critical illnesses, but there are deficiencies in this aspect in the process of operation, so relevant suggestions are put forward for the improvement of its compensation mechanism. This includes the implementation of differentiated minimum payment standards for residents in everywhere and residents with different incomes, so as to enhance the "people-friendly" nature of critical illness insurance and strengthen the protection effect of critical illness insurance for low-income groups. Second, it is necessary to strengthen financial support and relax the reimbursement scope and compensation ceiling of critical illness insurance, so as to not only include more diseases in the security system, but also further increase the protection of people's health. Optimize the allocation of medical resources and improve the level of primary medical services. At

the same time, in order to further ensure people's health and reduce their medical burden, it is necessary to improve the deficiencies in the field of medical care and education, such as better medical equipment and education services for medical personnel.

Secondly, most of the existing studies have been conducted for empirical research on small regions or multi-age levels, and have not yet been implemented in the research of middle-aged and elderly groups in line with China's existing national conditions, and the policy research is not targeted enough and the research is not in-depth enough. The following recommendations are made. First, future research will continue to focus on the middle-aged and elderly population, and conduct more targeted research on the utility of the middle-aged and elderly population, which often occurs in critical illness insurance. Second, expand the geographical scope of existing research, and research at the national and municipal levels should develop in both directions, and look at the macro and micro situations of critical illness insurance. At the same time, most of the existing studies have studied the period from 2012 to 2015, that is, the period from the implementation of critical illness insurance to the whole country, but the critical illness insurance system is still developing, so future research can consider using methods such as difference-in-strength to conduct a diachronic study on the improvement process of critical illness insurance.

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