

Analysis on Medical Insurance Status of the Elderly in Urban Shaanxi Province of China

Shuman Li, Chanjuan Shan, Yue Yang, Qianyun Wang and Linping Xiong*

Department of Health Services Management, Second Military Medical University, Shanghai, China

*Corresponding author: Linping Xiong, Department of Health Services Management, Second Military Medical University, Shanghai, China, Tel: 862181871431; E-mail: xionglinping@aliyun.com

Received date: March 25, 2017; Accepted date: March 31, 2017; Published date: April 04, 2017

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Abstract

Objective: This paper contributed to summarize researches of population aging and medical insurance in China and Shaanxi Province and worked out the health service demands and medical insurance status of the elderly in Shaanxi Province. Moreover, it demonstrated the present situation and challenges of medical insurance of the elderly in urban areas in Shaanxi Province and explored effective ways of optimizing the medical insurance system of the elderly in urban China.

Methods: Methods including cluster random sampling, questionnaire survey and interview were conducted. Data analysis was performed by SPSS 21.0. And logistic regression analysis was used to analyse factors that affected the satisfaction rate.

Results: 1. The covering rate of China's urban basic medical insurance among interviewees is high (96.0%). 2. The ratio of reimbursement of hospitalization expenses (73.2%) was much higher than that of outpatient services (22.0%). 3. Self-paid expenses for outpatients on hypertension, hyperlipidemia and diabetes were high for 90.3%, 87.7% and 85.2%. 4. Interviewees who lived close to the nearest medical institution, participated in commercial medical insurances, had no physical examinations within one year and had bad subjective health status were more possible to be satisfied with the social basic medical insurance system.

Conclusion: The country should provide the elderly with convenience and new ways to meet their medical demands by strengthening preventions of chronic diseases of the elderly, improving the security level of the urban basic medical insurance and perfecting reimbursement system of medical expenses paid in other cities.

Keywords: Population aging; Elderly in urban areas; Medical insurance

Introduction

In majority of towns and villages in China's central and western areas where the economic development levels are behind the eastern coastal areas, it's common to see that young and middle-aged labor force go out to work, leaving the elderly and children in the towns and villages. The tasks of doing housework and taking care of children fall on the old. To study and improve health and medical security status of the elderly in central and western China is not only the inevitable trend of China's aging process, but also the need to ensure the healthy growth of children they take care of,

Population aging of China has becoming increasingly significant

China has the population aged 65 and over for about 1/5 of the world's total [1]. As the 1% National Population Sample Survey in 2015 shown that the population aged 60 and over was 16.15% of the total and 65 and over accounted for 10.47% [2]. Furthermore, study suggested that it is from 2001 to 2020 that China has entered a rapidly

aging stage in which has an average increase of the elderly population for 5.96 million each year, and the annual growth rate is 3.28% which is largely higher than the annual growth rate of the total population of 0.66%. Also, it was estimated that from 2021 to 2050, the aging population of China will further speed up and remain negative growth [3]. The aging problem not only leads to the decline of social labour force, but also causes great changes to the population structure of the whole country, which makes a negative effect on social development and stability. In order to deal with these problems, China has been scientifically strengthening top-level designs and eliminating a series of social problems caused by population aging.

The development of population aging in China has an obvious regional characteristic from east to west, with developed eastern areas significantly more severe than that in underdeveloped western regions. Located in the northwest of China, Shaanxi Province has also entered the critical period of coping with aging since its first baby boomers becoming old. At the end of 2015, the population aged 60 and older in Shaanxi Province reached 6.01 million, accounting for 15.85% of the total population of the province (Table 1) and the elderly dependency ratio was 22.63%, which had been increased by 4.89% over the last year.

Year	≥60 years old		≥65 years old	
	Nmillion	Proportion%	Nmillion	Proportion%
2012	5.20	14.61	3.37	8.97
2013	5.51	14.83	3.55	9.43
2014	5.84	15.48	3.76	9.97
2015	6.01	15.85	3.83	10.11

Table 1: Information of the elderly from 2012 to 2015 in Shaanxi Province (Note: this table is from the website of Shaanxi Provincial Bureau of Statistics [4]).

Of aging has outpaced the speed of economy development, which brings multiple demands to the medical service system, but also causes great pressures. The elderly is suffering from serious illnesses and chronic diseases, which causes a constant increase of disability. They hold higher demands for medical services and medical expenses than others [5]. Troubles will get in the way to the aged if these pressures can't be eased by the social basic medical insurance system; also bring great challenges to the whole social health care system.

Widely covered medical insurance system is still hard to meet the demands of the elderly

By the end of 2015, there had been 665 million 700 thousand people in China participating the urban basic medical insurance, getting an increase of 68 million 230 thousand compared with the previous year [6]. 98.9% of the elderly in urban areas had been insured by the urban basic medical insurance which showed that China had basically achieved a full coverage of the basic medical insurance system for the elderly in urban areas [7]. 12 million 472 thousand people in Shaanxi Province [8] had participated in the urban basic medical insurance system, accounting for 98.5% of the total [9].

However, the income of the elderly in urban areas depends mainly on pensions so there is not much left to afford expenses of health care except for basic living expenses. From mentioned above, demands cannot really be transferred into effective medical needs due to the limitations by their ability of paying although the elderly have a lot of medical service demands [10]. It has become a new social problem to protect the rights of the elderly since there hasn't been a targeted system of medical insurance to the elderly in urban areas.

Researchers have undertaken lots of studies of medical insurance for the elderly of China in a variety of fields. But few researches have been conducted on the analysis of medical insurance for the elderly in urban areas, especially adopting a research method of questionnaire survey to analyse a specific area of urban elderly. This paper contributed to work out the health service demands and medical insurance status of the elderly in Shaanxi Province by questionnaires and statistics on the background of population aging. Moreover, it demonstrated the present situation and challenges of medical insurance of the elderly in urban areas in Shaanxi Province and explored factors that affected the satisfaction rate of the basic medical insurance system.

Methods

Questionnaire survey

Questionnaire survey was conducted by home visits and face-to-face communication among 927 urban residents aged 65 and over from different streets and communities in 3 cities (Yulin, Xi'an and Ankang) of Shaanxi province from August to October, 2014. Indicators included individual socio-demographic characteristics, status of health and medical insurances, chronic disease, outpatient diseases within 2 weeks and satisfaction on the social basic medical insurance system. In order to further study the security level of the urban basic medical insurance for the elderly, deep understanding and analysis on hospitalization expenses and the structure of the payments were made among 590 inpatients in Yulin City and Ankang City, of which 159 had been hospitalized within one year.

Organizing and implementing

The survey was carried out in both urban and suburban districts of the three cities. With the principles of centralized and comprehensive, we adopted three methods to carry out the research including cluster random sampling, questionnaire survey and interviews, making the data representative. The investigation received the support and assistance of local governments and won informed consents of every interviewee. 950 interviewees aged 65 years and over whom had urban residential registrations been interviewed, of which 927 valid samples were collected (97.6% effective).

Analysis methods

Data analysis was performed using SPSS 21.0. First, based on interviews and the questionnaire survey in Shaanxi, we conducted a descriptive analysis to describe the medical insurance status of the elderly in urban areas of Shaanxi Province, including their insured status and the security level. Second, explored factors affecting the satisfaction rate of the urban basic medical insurance system of the urban elderly in Shaanxi Province by using logistic regression analysis. At last, after data analysing, we put forward useful suggestions for pointing out the directions of the urban basic medical insurance system.

Results

Demographic characteristics of 927 interviewees are shown in Table 2. Among them, 402 men (43.4%) and 525 women (56.6%) had an average age of 72.9, a maximum of 102 and a minimum of 65 years old.

379 were young-aged (65-70 years), 435 were middle-aged (71-80 years) which accounted most of the total number for 46.9%, and the rest 113 were old-aged (80 years and over).

Indicator	Yulin City		Ankang City		Xi'an City		Total	
	Cases	Ratio (%)	Cases	Ratio(%)	Cases	Ratio (%)	Cases	Ratio (%)
Sex								
Male	155	43.5	110	47.0	137	40.7	402	43.4
Female	201	56.5	124	53.0	200	59.3	525	56.6
Age								
65-70	136	38.2	98	41.9	145	43.0	379	40.9
71-80	174	48.9	100	42.7	161	47.8	435	46.9
>80	46	12.9	36	15.4	31	9.2	113	12.2

Table 2: Demographic characteristics of 927 interviewees.

The insured status

The medical insurance coverage of the interviewees is shown in Table 3. 96.0% of the interviewees had participated in various types of medical insurances in the system of the urban basic medical insurance. The two main medical insurances for urban residents - the urban workers' medical insurance and the urban residents' medical insurance had together covered 93.6% of total interviewees. More interviewees in Yulin City had participated in the urban residents' medical insurance,

while more in Xi'an and Ankang had participated in the medical insurance for urban workers. Overall, the number of people who had participated in the medical insurance for urban workers was bigger than that of other urban social basic medical insurance. This showed that most of the elderly in urban areas in Shaanxi Province had reliable medical securities, and the urban social basic medical insurance system had basically achieved a full coverage in the elderly in urban areas.

Types	Yulin City		Xi'an City		Ankang City		Total	
	cases	Ratio (%)	Cases	Ratio (%)	Cases	Ratio (%)	Cases	Ratio (%)
The urban workers' medical insurance	124	34.8	236	70.0	111	47.4	471	50.8
The urban residents' medical insurance	211	59.3	79	23.4	107	45.7	397	42.8
Other urban social basic medical insurances	16	4.5	3	0.9	3	1.3	22	2.4
Not insured	5	1.4	19	5.7	13	5.6	37	4.0
Total	356	100	337	100	234	100	927	100

Table 3: The insured status of the interviewees.

The security level of the urban basic medical insurance

Situations of reimbursement of chronic diseases

The drug payment structure within six months of the "three-high" chronic diseases (hypertension, hyperlipidemia and diabetes) was investigated, shown in Table 4. Analysis showed that the morbidity rates of hypertension, hyperlipidemia and diabetes were high and the diseases usually lasted long. The proportion of self-paid expenses on drug use for outpatients of those three diseases was more than 85%.

The burden caused dissatisfaction with the reimbursement of medical insurance policies. The survey found that the high proportion of out-of-pocket payments was due to the fact that most of the elderly were suffering from chronic diseases for long and were rarely hospitalized. Most them chose to take cheap long-term medications. The amount of money they paid for medicines each time was usually lower than the deductible line of their medical insurance, resulting in a high ratio of self-paid expenses.

Disease	Morbidity rate (%)	Average sick time (month)	The drug payment structure within six months
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			Amount (Yuan)	Self-paid expenses (Yuan)	Ratio of self-paid expenses (%)
Hypertension	43.4	132.8	1590.6	1435.6	90.3
Hyperlipidemia	25.7	84.9	1977.3	1655.7	87.7
Diabetes	15.4	88.5	1911.6	1627.7	85.2

Table 4: Situations of chronic disease reimbursement of the urban social basic medical insurance.

Situations about reimbursement of medical expenses

To further study the security level of the urban basic medical insurance on the burden of medical expenses of the elderly, deep understanding and analysis on hospitalization expenses and the structure of the payments were made.

From the analysis on time and cost of hospitalization, the average length of stay was 16.7 days, with the longest 70 days and the shortest 1 day. The average hospitalization cost was 11,168.9 yuan, with the most 50,000 yuan and the minimum 300 yuan. The average daily cost of hospitalization was 668.8 yuan. From the analysis on the structure of the payments, 2,607.6 yuan on average were paid by individual accounts, and an average of 2,458.0 yuan was self-paid expenses, and 6,607.1 yuan on average were paid by reimbursement of social medical insurances. Compared with reimbursement on outpatient services, the average reimbursement ratio of hospitalization expenses was 59.2% and that of outpatient expenses was 22.0%. The ratio of reimbursement of hospitalization expenses was much higher than that of outpatient services, as shown in Figure 1.

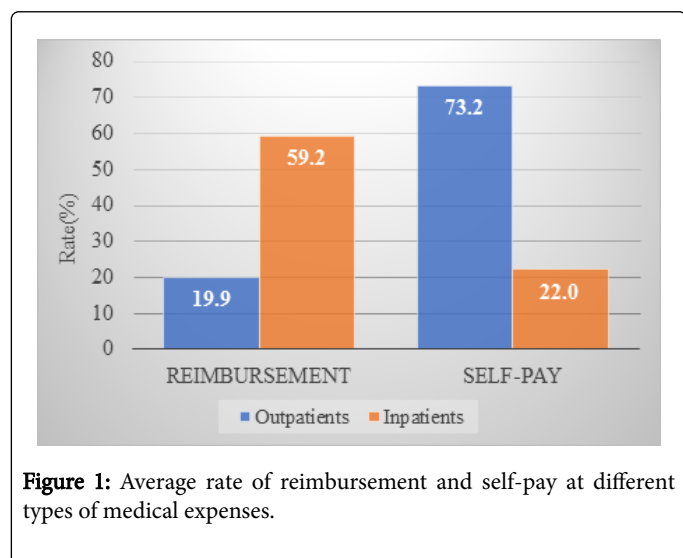


Figure 1: Average rate of reimbursement and self-pay at different types of medical expenses.

For the burden situation, the number of people who had no burden on self-paid expenses was 77 (48.4%); the number of people who had a few burdens and needed to be helped by their children was 36 (22.6%); the number of people who were difficult to afford and mostly relied on the help of their children or others was 46 (28.9%). There were no statistically significant differences in the burden of hospitalization expenses between Yulin and Ankang City.

Analysis on factors that affected the satisfaction rate of China's social basic medical insurance system

There were 552 interviewees feeling satisfied with China's basic medical insurance system, taking up 59.5% of the total. Indicators from the survey were analyzed with the use of chi-square analysis to compare satisfaction rate of China's basic medical insurance among the elderly of different characteristics. The differences of satisfaction rate of the medical insurance among different interaction frequencies with children and that with others (including neighbours, friends and acquaintance), smoking history, drinking history, minimum distance from the medical institution, insured by commercial medical insurance or not, whether had a good subjective health, and whether had any physical examinations in one year etc. were statistically significant ($P < 0.05$), and those of different ages, sexes, cultural standards and whether had been insured by social medical insurance were not ($P > 0.05$). The details are as shown in Table 5.

Indicator	Type	Satisfaction Cases	Satisfaction Rate (%)	χ^2	P-Value
Age	Aged 65-70	154	16.6	0.493	0.781
	Aged 71-80	285	30.7		
	Aged 80 and over	113	12.2		

Sex	Female	305	32.9	0.900	0.343
	Male	247	26.6		
Cultural standards	Illiteracy/lower than primary	139	15.0	0.932	0.627
	Primary to senior high	308	33.2		
	Higher than senior high	105	11.3		
Interaction frequency with children	Seldom	12	1.3	7.099	0.029
	Sometimes	44	4.7		
	Usually	496	53.5		
Interaction frequency with others	Seldom	32	3.5	6.183	0.045
	Sometimes	59	6.4		
	Usually	461	49.7		
Smoking history	Have	408	44.0	5.459	0.019
	Not have	144	15.5		
Drinking history	Have	484	52.2	4.406	0.036
	Not have	68	7.3		
Minimum distance from the medical institution	Within 2 km	436	47.0	10.944	0.004
	2-4 km	90	9.7		
	Above 4 km	26	2.8		
Insured by social medical insurance	No	18	1.9	1.900	0.168
	Yes	534	57.6		
Insured by commercial medical insurance	No	547	59.0	11.392	0.001
	Yes	5	0.5		
Subjective health status	Bad	305	32.9	21.611	0.000
	Good	247	26.6		
Have any physical examinations in one year	No	166	17.9	8.798	0.003
	Yes	386	41.6		

Table 5: Comparison of the basic medical insurance system among the elderly with different characteristics.

Set the dependent variable as whether the interviewee was satisfied with the basic medical insurance system (0 = no, 1 = yes). Multi-factor Logistic regression analysis was used to analyze independent variables including interaction frequency with children, interaction frequency with others, smoking history, drinking history, minimum distance from medical institutions, insured by commercial medical insurance or

not, subjective health status and whether to have any physical examinations in one year, totally 8 indicators which were statistically significant in the single factor analysis. Concrete analysis is as shown in Table 6.

Influencing factors	Reference factor	β	Wald χ^2	P-Value	OR	95% C.I.	
						Lower	Upper
Interaction frequency with children			5.896	0.052			
Seldom	Usually	0.283	0.261	0.609	1.327	0.448	3.928

Sometimes		-0.535	5.516	0.019	0.586	0.375	0.915
Interaction frequency with others			5.347	0.069			
Seldom	Usually	0.179	0.340	0.560	1.196	0.655	2.183
Sometimes		0.602	5.170	0.023	1.826	1.087	3.070
Smoking history	Not have	-0.219	1.347	0.246	0.804	0.556	1.162
Drinking history	Not have	-0.360	1.817	0.178	0.697	0.413	1.178
Minimum distance from the medical institution			10.920	0.004			
Within 2 km	> 4 km	0.811	8.367	0.004	2.251	1.299	3.900
2-4 km		0.457	2.134	0.144	1.580	0.855	2.918
Have any physical examinations in one year	No	-0.397	7.313	0.007	0.672	0.504	0.896
Insured by commercial medical insurance	No	1.613	9.404	0.002	5.016	1.789	14.058
Subjective health status	Bad	-0.686	21.891	0.000	0.504	0.378	0.671
Constant		-0.827	1.701	0.192	0.437		

Table 6: Multi-factor logistic regression analysis of satisfaction rate of basic medical insurance system.

Analysis results shows that the satisfaction rate of interviewees who lived within 2 km from the nearest medical institution was 2.251 times higher than those lived 4 km above (OR = 2.251), meaning that the closer one live from the nearest medical institution, the more he or she is satisfied with the basic medical insurance system. The satisfaction rate of interviewees who had participated in commercial medical insurance was 5.016 times higher than those who hadn't (OR = 5.016), meaning that those who had participated in both social and commercial medical insurances were more satisfied with the basic medical insurance system. The satisfaction rate of interviewees who had had physical examinations within one year was 0.504 times lower than those who hadn't (OR = 0.504), meaning that those who hadn't had any physical examinations within one year were more satisfied with the basic medical insurance system. The satisfaction rate of interviewees who had a bad subjective health status was 0.378 times lower than those who had a good one (OR = 0.378), meaning that those who had a bad subjective health status were more satisfied with the basic medical insurance system.

The physical examinations mentioned in the survey mean comprehensive medical examinations which were organized by the interviewees' units, or initiatively by themselves in order to understanding their health conditions and preventing diseases, not those made during diseases or cures. Most of the elderly had wishes and needs to get health examinations, but the medical expenses of health examinations are not included in the current reimbursement scope of basic medical insurance. The expenses were far beyond the acceptance of the elderly themselves, thus limiting them to get physical examinations initiatively and on the contrary making those who had paid for physical examinations on their own suspicious about the basic medical insurance system. Interviewees who had bad subjective health status were suffering from diseases and had more needs of medical services. They had gotten more preferential policies while accepting

medical services so that they were more possible to be satisfied with the system for it helped to solve their difficulties.

Discussion

In recent years, Chinese governments at all levels pay increasing attention to the social basic medical insurance system, but the social basic medical insurance system of the elderly is still facing many challenges. Combined with the current problems of the medical insurance system, we summarized three points through the investigation on optimizing the medical insurance system of the elderly in urban Shaanxi Province.

Preventing before getting ill in order to strengthen the prevention and treatment of chronic diseases of the elderly

"Preventing before curing" is an important point of view in Chinese medicine, which means preventing diseases before their occurrences and controlling their developments. The World Health Organization defines disease preventions as "methods and behaviours to reduce the risk and possibility of diseases, to stop or slow the process of diseases, or to reduce disability" [11]. Worldwide, 14 million deaths per year due to cardiovascular disease, cancer, chronic respiratory disease, diabetes and other chronic diseases can be prevented by minimizing or reducing risk factors [12]. Report of Chinese Residents Nutrition and Chronic Disease Status (2015) [13] pointed out that in 2012 the mortality rate of chronic diseases among Chinese residents was 0.53%, 86.6% of total deaths, and chronic disease deaths accounted for more than 80% of the total deaths, which is seriously threatening people's physical health and quality of life, especially for the elderly.

China's New Reform of Health Care System has started to implement chronic disease prevention and controlling measures, such as increasing the compensations of major chronic diseases, trying to

prevent and control chronic disease risk factors and establish a comprehensive monitoring system for chronic disease prevention, early detection and intervention and so on [14]. It improves the efficiency of disease prevention greatly to make plans for different groups and diseases to develop preventive measures while implementing universal preventive measures at the same time [15].

Perfecting the medical insurance system and enhancing the level of compensation of medical insurance

China has basically achieved a full coverage of the social basic medical insurance, which makes all the urban residents have basic securities for medical treatments, and plays a positive role to promote the health of residents and to meet their medical needs. However, the scope and level of the basic medical insurance system in urban areas vary among different regions, groups of people and conditions of diseases. Moreover, the urban basic medical insurance for outpatient medical expenses and hospital medical expenses reimbursement ratio exist a large difference, so outpatient medical expenses reimbursement needs to be enhanced. Improving the security level of the basic medical insurance is gradually becoming one of the most important goals in the reform of China's medical insurance after the realization of the full cover [16].

The scope of medical insurance includes medical treatments, disease preventions, health care and rehabilitations in some countries. In Germany, it also covers visual inspection and dental services; while China's basic medical insurance covers only medical treatments [17]. Considering to achieve the universal health coverage, bringing health care and rehabilitation projects into the scope of reimbursement of medical insurance helps to improve the level of national health. The further expansion in these areas is also clearly an urgent need for the elderly with high prevalence of chronic diseases.

Perfecting the system of reimbursement, and letting commercial insurances play their roles

Currently, the reimbursement of medical expenses produced in other places is low, with complicated procedures and inconsistent standards. Although some areas have begun to explore the unified settlement methods in different places, but there is still not a unified formation for the whole country to obey due to large differences in the modes of operation of medical insurance caused by differences in the level of economic development. It is feasible to develop the medical insurance settlement network on province level by unifying reimbursement catalogues, settlement methods, reimbursement procedures and proportions [18,19].

Based on the basic medical insurance, commercial medical insurance provides a higher level of security and a wider scope. In 2009, the supplementary role of commercial medical insurance was affirmed by China's Health Care System Reform [20]. However, the elderly in Shaanxi Province participated in commercial medical insurance accounted for a relatively low proportion for only 2.7% due to the mixed-quality commercial medical insurances and the lack of strong supervision. The survey showed that only 2.3% of all interviewees had participated in commercial health insurances. It needs more supervision to standardize the commercial medical insurance organizations, helping to create a healthy developing environment to protect the rights and interests of the elderly. Understanding the needs of the elderly on the commercial medical insurance and to carry out targeted designs for the elderly, also to

avoid exaggerated advertising. Government's purchasing medical services and Critical Illness Insurance have been realized in some districts. It also shows the combination of efficiency and fairness to unite market mechanisms and the social basic medical insurance system.

Acknowledgement

We are grateful for the enthusiastic cooperation of the local governments of Yulin, Xi'an and Ankang, Shaanxi Province. This research was supported by the Technology Planning Program of Shaanxi Province (2014K11-04-02).

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