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Perceived effect of financial risk protection by the Urban–Rural Resident Basic Medical Insurance Scheme: a mixed-methods study of rural residents in China

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ABSTRACT

Objectives It is to explore the perceived financial risk protection effect of the Urban–Rural Resident Basic Medical Insurance Scheme (URRBMI) and its influencing factors to provide evidence to further improve the URRBMI.

Design It is a cross-sectional survey.

Participants This mixed-methods study is conducted in five provinces in rural China. Through stratified cluster random sampling, 1681 rural residents participate in a cross-sectional questionnaire survey (1657 valid questionnaires are retrieved). Thirty rural residents participate in in-depth interviews.

Primary and secondary outcome measures A multivariate logistic regression analysis is adopted to identify factors influencing respondents' perceptions. Semistructured interviews are used to identify the reasons why some respondents believed the URRBMI to be ineffective.

Results Overall, 77.5% of respondents believe that the URRBMI is effective. Respondents, who are older, have a higher household income, prefer primary health facilities and provide a higher rating for critical illness compensation and maximum compensatory payouts. They are more likely to give the URRBMI a higher effectiveness rating than their counterparts. Qualitatively, participants who believe the URRBMI to be ineffective list the following reasons: low outpatient service coverage, insufficient or undersupplied drugs and services in the insurance list, problems in the arrangement of deductibles and maximum compensatory payouts, provider-induced behaviour and increased healthcare service price.

Conclusions This exploration focuses on the reasons why rural residents think the scheme is invalid, which are vital for policy reform. Policies should focus on benefits design and coverage, the assumption of a supervisory role, avoiding financial risk stemming from critical illness and cross-sectoral actions to strengthen the primary healthcare system and comprehensive social security wealth.

INTRODUCTION

As one of the three major components of the medical security system (medical assistance, basic medical insurance and supplementary

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Strengths and limitations of this study

► Multivariate logistic regression analysis is used to determine the factors affecting the financial risk perception of Urban–Rural Resident Basic Medical Insurance Scheme (URRBMI) .

► The method of cross-sectional survey is adopted to clarify the risks in the practical application of the URRBMI financial system.

► The results may be subjective due to the way of the questionnaire.

► The data are analysed by cross-section, so causality cannot be established according to the results.

► There is a certain difference between the analysis index of the URRBMI financial system provided and the existing research, which needs further demonstration and analysis.

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medical insurance), basic medical insurance not only improves the medical security level of residents, but also promotes social stability and fairness, and plays a very crucial role in the development of the insurance industry. According to statistics, by the end of 2017, 1176.81 million residents had participated in basic medical insurance in China, and the proportion of premium income in China's gross national product is as high as 10%. The development of the medical insurance industry has improved the speed of economic growth and the quality of economic development. The basic medical insurance for urban residents is mainly adopted to pay for the hospitalisation and outpatient serious illness and outpatient rescue medical expenses of the insured residents. The scope and standard of payment shall be implemented according to the drug catalogue, diagnosis and treatment items and the scope and standard of medical service facilities of the basic medical insurance for urban residents.

Among them, Urban Employee Basic Medical Insurance (UEBMI) is mainly for employees and retirees who have work units or are engaged in the individual economy. Medical insurance for urban residents mainly faces elderly residents, minimum living allowance recipients, severely disabled persons, students, children and other urban non-employees who have no jobs in urban registered residence. The reimbursement scope of basic medical insurance for urban residents involves: medical expenses of hospitalisation; medical expenses within the first 7 days of emergency observation and transfer to hospital treatment; medical expenses in accordance with the provisions of special diseases in outpatient department of urban residents; other expenses meeting the requirements. Although the basic medical insurance for urban residents has covered all large and medium-sized cities in China, there are still some problems in the financial risk protection of Urban–Rural Resident Basic Medical Insurance Scheme (URRBMI), which need to be further explored.

As of 2012, 98% of the Chinese population was covered by China's basic social medical insurance system, including UEBMI, launched in 1998, the New Rural Cooperative Medical Scheme (NRCMS, launched in 2003) and the URBMI, launched in 2007.[1] This accomplishment is the first step towards universal health coverage and is exemplary for many other nations.[2] However, these three schemes are administered separately and operated locally by different managing departments based on the insured's identity. The UEBMI covers urban employees, the URBMI covers unemployed urban residents and the NRCMS covers rural residents. The UEBMI and URBMI funds are pooled at the municipal level and managed by human resources and social security authorities, while the NRCMS funds are pooled at the county level and managed by health authorities.

It is widely accepted that the three schemes lead to considerable fragmentation of the medical insurance system. Considering the NRCMS, there were 2851 counties in China in 2016, which implies that there were 2851 independently operating NRCMS schemes. The fragmentation of the funding pool weakens the effectiveness of insurance funds; it is a major source of shallow financial risk protection.[3] The NRCMS plays a limited role in reducing financial risk[4–6] while exerts no effect on the reduction of financial risk.[7–9] Moreover, differences in the source and level of financing result in different reimbursement levels and benefit packages across the three schemes. The rural population has experienced more restricted access to healthcare and a larger financial burden than urban residents, as the reimbursement rate is lower and the service coverage is smaller for the NRCMS than those of the URBMI or UEBMI.[10]

Medical insurance system reform is proposed to integrate urban and rural medical insurance systems[11] to provide more affordable and equitable healthcare for the Chinese population. In early 2016, the Chinese government officially endorsed a unified medical insurance scheme: the URRBMI, which merged the URBMI and the NRCMS because of similarities in their source and level of financing.[12] The URRBMI adopts the principle of 'choosing the higher rather than the lower level among the old schemes' on merging the URBMI and the NRCMS, comprising the following six aspects: population coverage, financing mechanism, benefits package and reimbursement level, insurance reimbursement list, designated health facilities and fund management.[13] URRBMI funds are mainly at the city level, which can provide a higher proportion of reimbursement for the majority of rural residents. There are more county-level cities in China, and most of the rural population is concentrated in county-level cities. Therefore, the difficulty of overall reimbursement is relatively high, providing a greater burden for medical services for rural residents.

Currently, the effects of the URRBMI on rural residents' financial risk protection are unclear due to grossly insufficient research on integrated insurance. As the main beneficiaries of the URRBMI, how do rural residents perceive the financial risk protection effectiveness of the URRBMI? What factors influence their perceptions? What are the challenges and bottleneck problems? Answers to these essential questions are vital in the performance evaluation of the current integrated insurance scheme and provide evidence support for future medical insurance reform. Given the voluntary nature of the URRBMI, rural residents' perceptions of the insurance would affect their willingness to participate in the scheme; thus, identifying the factors influencing their perceptions will also improve residents' enthusiasm to participate and increase the sustainability of the URRBMI.

This study provides new insights through specific, mixed-methods investigation of rural residents' perceptions of the financial risk protection effectiveness of the URRBMI. This study can provide timely treatment and analysis for the implementation of the URRBMI policy system and the problems existing in the financial risk, and further improve the rural residents' trust in the URRBMI system.

METHODS

The research methods used are questionnaire and quantitative analysis. With the perception of URRBMI as the problem orientation, the questionnaire is designed and improved by reading the literature and combining with the problems found in the presurvey. The investigator is responsible for asking questions and recording answers when distributing the questionnaire, and the interviewees give oral answers. The quantitative analysis method is mainly an empirical analysis of URRBMI perception. SPSS software is adopted to process and analyse the questionnaire data, the multiple logistic model is selected, and the multicollinearity test is carried out before regression. All the participants provided informed consent.

Quantitative analysis

1. Research objects: five provinces of Shandong, Liaoning, Shanxi, Heilongjiang and Guizhou are mainly analysed, which are the main representatives of different social and economic development levels and geographical regions in China. Two counties are selected in each province according to the following criteria. (A) The level of social and economic development should be quite different, to analyse the influence of the economy on the financial risk guarantee of URRBMI. (B) The province has implemented the URRBMI financial risk protection system for more than 1 year. Note: the theme is to study the perception effect of financial risk protection of URRBMI, so the research object focuses on the people who have used URRBMI. The reason is that the people who have not used urban and rural medical insurance do not have financial risk, so the comparison is meaningless. Four villages are selected in each county. The selection of these villages is mainly based on the principle of randomness. In each village, 40–50 local subjects are randomly selected for investigation. 1681 subjects are finally collected.

2. Questionnaire design: first, descriptive statistical analysis: it is mainly related to the age, gender, education level, family economic status, health status of the respondents. Then, financial risk analysis. Finally, perception survey. We investigated participants' perception regard with the financial risk protection and the reimbursement issues of URRBMI, and evaluate each aspect in the 5-point Likert scale (from very reasonable/unreasonable enough/insufficient). These variables are converted into binary measures and coded as 1=reasonable/sufficient for regression modelling and 0=unreasonable/sufficient. Demographic and socioeconomic characteristics (eg, age, gender, chronic disease status, education, marital status and occupation) are controlled.

3. Questionnaire distribution and data collection: these areas are the first pilot areas, so the number of villages selected in these areas is large. Some towns and streets have better location conditions in rural areas. There are no suburban villages (such as Guicheng Street), and the number of respondents in each village is less than that in other villages. First, three villages are selected for pre survey, and 300 questionnaires are issued. Some contents of the questionnaire are adjusted based on data collection. Then, the existing questionnaire is employed to conduct a large-scale research. Finally, 40 villages are selected and 1681 questionnaires are sent out. The final sample is 1657 after incomplete data are excluded, and the effective recovery rate is 98.57%.

Qualitative analysis

The semistructured method is employed to conduct in-depth investigation and interview, and 30 people are interviewed. Audio recording is adopted as the data content of follow-up research and analysis. In each village, two respondents, aged between 20 and 50 years, are selected.

The issues involved are as follows. On the view of URRBMI, the following questions are asked: 'how do you know about URRBMI in the following aspects: reimbursement rate, deductibles, maximum compensatory payouts, service coverage and critical illness compensation?' The other equation is 'for the URRBMI that you participate in, when you use healthcare, how do you evaluate its effectiveness in providing financial risk protection? The topic analysis is carried out on the interview data. The two researchers read the transcripts repeatedly and verify them with audio recordings. Then, they independently produce descriptive notes describing the potential meaning of the text. A set of initial code comes from data, which is improved to produce smaller topics. The coding framework is continuously iteratively revised during the analysis. Next, the researchers develop a thematic framework that explains why some respondents find the URRBMI ineffective. Finally, they discuss the framework for consensus in the integrated meeting attended by the entire project team.

Data processing and analysis of questionnaire

(1) Reliability and validity analysis: reliability represents the reliability and consistency of data, which can reflect the stability and concentration of data. Cronbach α reliability coefficient is the most commonly used reliability coefficient, and it evaluates the consistency of the scores of each item in the scale, which belongs to the internal consistency coefficient. This method is suitable for the reliability analysis of attitude and opinion questionnaire, and it is used for analysis here. The reliability of the valid questionnaire is tested by SPSS V.25.0 software, and the Cronbach α coefficient=0.763. The reliability coefficient is greater than 0.6, indicating that the reliability of the questionnaire is good.

Validity refers to the ability of measuring tools to accurately measure the real situation of things, which can reflect the accuracy of data. The correlation between the measured score and the effective standard score is investigated by Pearson correlation analysis. The validity analysis of the scale data is performed by the factor analysis method combined with the content validity. Statistical analysis suggests that Kaiser-Meyer-Olkin (KMO) value in this survey is greater than 0.6, factor load coefficient of the corresponding factors of the items is greater than 0.4, cumulative variance contribution rate is greater than 50%, communality is greater than 0.4, and there is no serious deviation between the corresponding relationship between the items and factors. The above results prove the rationality of the questionnaire.[14]

[3] Multiple logistic regression analysis: χ^2 test is conducted to analyse the score differences of independent variables at different levels. Multiple logistic regression analysis is adopted to predict the factors influencing the respondents' rating of the financial risk protection effect of URRBMI.

Construction of susceptibility model

Participants' overall rating of the financial risk protection effectiveness of the URRBMI is the dependent

variable. Respondents answer the question, 'regarding the URRBMI that you are involved in, how do you rate its effectiveness in providing financial risk protection when you use healthcare?' Answers are provided using a 5-point Likert scale (1=very effective, 2=effective, 3=medium, 4=not effective and 5=extremely not effective). Since its distribution is slightly negatively skewed (mean=2.73 and median=3), the responses are collapsed into two categories with a midpoint of 3: 'effective' (the former three items) and 'not effective' (the latter two items). The ratings are collapsed into two categories for the logistic regression modelling: effective=1 and not effective=0.

The selection of independent variables is guided by the theoretical framework of Andersen's Behavioural Model.[15] It suggests that individuals' healthcare use is affected by their predisposition to use services (predisposing factors which pertain to sociocultural characteristics), their ability to use services (enabling factors that support or impede use) and their need for services (need factors which lead to the seeking of care).[16] Beyond medical care utilisation, this model is widely adopted in literature concerning medical cost, perceived health outcomes and patient satisfaction,[17–20] as it provides a comprehensive framework to understand factors related to healthcare. The predisposing factors include demographic factors such as gender, age, marital status, education attainment and occupation; enabling factors include household income and medical insurance (having used the URRBMI or not and respondents' perceptions of the URRBMI). Need factors are assessed based on whether participants have a history of chronic illness.

Patient and public involvement
There is no involvement from patients or members of the public in the design, or conduct, or reporting, or dissemination plans of the research.

RESULTS
Ratings of the financial risk protection effectiveness of the URRBMI
Overall, 77.5% of respondents believe that the URRBMI provides effective financial risk protection, including 6.7% for very effective, 40.5% for effective and 30.4% for medium (table 1). These ratings are significantly associated with respondents' age, educational attainment, household income, occupation, preference for health facility level and with their perceptions of the URRBMI (table 2). Table 2 presents the details of the respondents' characteristics.

Factors associated with respondents' ratings of the financial risk protection effectiveness of the URRBMI in the logistic regression analysis
In the logistic regression model, five variables are significantly associated with the effectiveness ratings of the URRBMI. Older people (ORs ranging from 0.906 to 2.332), those who have a higher household income (ORs ranging from 1.396 to 2.592), and those who prefer primary healthcare facilities (OR=1.544) are more likely to give a high rating. Respondents who perceive reasonable maximum compensatory payouts (OR=1.607) and sufficient critical illness compensation (OR=1.915) are also significant predictors of high ratings (table 3).

QUALITATIVE ANALYSIS OF THE REASONS RESPONDENTS BELIEVED THE URRBMI TO BE INEFFECTIVE
Thirty participants who believe the URRBMI to be ineffective at providing financial risk protection participate in in-depth interviews. These participants provide reasons for their negative evaluation of the URRBMI and the reasons are categorised into three themes (figure 1).

Theme 1: individual level
This theme includes low household income and preferring non-primary health facilities. In China, a household is a basic unit to withstand disease. Household economic status influences the household's ability to withstand the financial risk posed by disease. Moreover, the individual's preference of healthcare facilities exerts an impact on the medical cost burden as China stipulates different reimbursement for different levels of health facilities.

Some rural residents confirm that 'my household income level is low; we have little money left except food and children's school expenses; we have no capacity to pay the medical costs when my family members get ill, even though the medical insurance reimburses some expenses; my family will fall into great financial difficulty once a critical illness occurs, such as cancer or cardiovascular disease.'

Rural residents often do not go to hospitals although the insurance provides generous reimbursement for primary healthcare facilities. Most rural residents hold the following idea. Because the medical technology level of local primary healthcare institutions is too low to provide us with good treatment, we would like higher-level hospitals for advanced and high-quality treatment. Thus, this is costlier for us.

Table 1 Participants' self-reported ratings of the effectiveness of the URRBMI

	Frequency	Percentage
Very effective	111	6.7
Effective	671	40.5
Medium	503	30.4
Not effective	304	18.3
Extremely not effective	68	4.1

URRBMI, Urban–Rural Resident Basic Medical Insurance Scheme.

Table 2 Ratings of the financial risk protection effect of the URRBMI according to respondents' characteristics

	Respondents n (%)	Rating of the URRBMI		P value
		Effective n (%)	Not effective n (%)	
Predisposing factors				
Sex				
Male	799 (48.2)	625 (78.2)	174 (21.8)	0.526
Female	858 (51.8)	660 (76.9)	198 (23.1)	
Age (years)				
≤30	389 (23.5)	302 (77.6)	87 (22.4)	0.002
31–40	513 (31.0)	377 (73.5)	136 (26.5)	
41–50	361 (21.8)	275 (76.2)	86 (23.8)	
≥51	394 (23.8)	331 (84.0)	63 (16.0)	
Marital status				
Married	1260 (76.0)	983 (78.0)	277 (22.0)	0.418
Other	397 (24.0)	302 (76.1)	95 (23.9)	
Educational attainment				
≤Primary school	364 (22.0)	289 (79.4)	75 (20.6)	0.029
Junior high school	681 (41.1)	506 (74.3)	175 (25.7)	
≥Senior high school	612 (36.9)	490 (80.1)	122 (19.9)	
Occupation				
Farming	520 (31.4)	396 (76.2)	124 (23.8)	0.009
Migrant labour	607 (36.6)	474 (78.1)	133 (21.9)	
Individual businesses	279 (16.8)	221 (79.2)	58 (20.8)	
Formal employee	62 (3.7)	58 (93.5)	4 (6.5)	
Unemployed	189 (11.4)	136 (72.0)	53 (28.0)	
Preference for healthcare facility level				
Primary healthcare facility	910 (54.9)	737 (81.0)	173 (19.0)	<0.001
Non-primary healthcare facility	747 (45.1)	548 (73.4)	199 (26.6)	
Enabling factors				
Annual household income (¥)				
≤¥30 000	711 (42.9)	506 (71.2)	205 (28.8)	<0.001
¥30 001–¥50 000	418 (25.2)	324 (77.5)	94 (22.5)	
≥50 001	528 (31.9)	455 (86.2)	73 (13.8)	
Having used the URRBMI				
Yes	1251 (75.5)	986 (78.8)	265 (21.2)	0.030
No	406 (24.5)	299 (73.6)	107 (26.4)	
Reimbursement rate				
Reasonable	1023 (61.7)	818 (80.0)	205 (20.0)	0.003
Unreasonable	634 (38.3)	467 (73.7)	167 (26.3)	
Deductibles				
Reasonable	953 (57.5)	775 (81.3)	178 (18.7)	<0.001
Unreasonable	704 (42.7)	510 (72.4)	194 (26.7)	
Maximum compensatory payouts				
Reasonable	893 (53.9)	744 (83.3)	149 (16.7)	<0.001
Unreasonable	764 (46.1)	541 (70.8)	223 (29.2)	
Service coverage				

Table 2 Continued

	Respondents n (%)	Rating of the URRBMI		P value
		Effective n (%)	Not effective n (%)	
Sufficient	775 (46.8)	633 (81.7)	142 (18.3)	<0.001
Insufficient	882 (53.2)	652 (73.9)	230 (26.1)	
Critical illness compensation				
Sufficient	851 (51.4)	720 (84.6)	131 (15.4)	<0.001
Insufficient	806 (48.6)	565 (70.1)	241 (29.9)	
Need factors				
Chronic disease				
Yes	215 (13.0)	173 (80.5)	42 (19.5)	0.272
No	1442 (87.0)	1112 (77.1)	330 (22.9)	

Primary healthcare facilities refer to the village clinic and township health centre for rural areas; non-primary healthcare facilities refer to the county-level hospital and higher.
URRBMI, Urban–Rural Resident Basic Medical Insurance Scheme.

Theme 2: insurance scheme level

This theme includes benefits package coverage and reimbursement arrangements, which might have a fundamental impact on financial risk protection.

The coverage reimbursement list and service coverage (outpatient service and inpatient service) determine the breadth of insurance benefits to some extent. The reimbursement list of the URRBMI is more extensive than that of the NRCMS after integration. However, the undersupply and lack of coverage for costly medical services or drugs are two key concerns. Most rural residents hold the following idea. First, we often cannot buy the drugs or consumables on the insurance's list. The reason may be that the hospital does not have them, or the doctors are less likely to prescribe them. Therefore, we must pay high out-of-pocket (OOP) costs to buy alternative medicines not covered on the insurance's reimbursement list; second, many costly medical services or drugs that are needed for some serious conditions are not included in the insurance reimbursement list.

Besides, lack of outpatient service coverage leads to a reduction in provided medical benefits. In China, inpatient services are a priority covered by insurance. Although common outpatient services have been added to the coverage of the URRBMI, it now merely covers primary health institutions (village clinics, township hospitals and community healthcare centres). All rural residents think that 'the designated agencies for outpatient reimbursement are few and the outpatient reimbursement level is too low.'

The arrangements for reimbursing the medical expenses are crucial not only for medical insurance to achieve cost-sharing for its beneficiaries, but also for the containment of health insurance fund expenditures. In the case of increasing policy reimbursement rate, the design of maximum payouts and deductibles are the main factors influencing residents' benefits. One respondent holds that, 'for instance, cancer … it needs several courses of chemoradiotherapy; I need to pay threshold fees (deductibles) at each visit, but the cap-line (the maximum compensatory payouts) is accumulated in 1 year. When the cost exceeds the cap-line, the insurance will stop reimbursement; I will have to pay subsequent costs myself. Subsequent costs for some serious conditions are usually too high to be afforded.'

Theme 3: health service system level

This theme includes providers' service behaviour and the increasing healthcare price, which might hinder financial risk protection.

The health service system factors, which are the external environment of the insurance scheme, may offset the effectiveness of the scheme. The increasing price of healthcare and excessive or expensive healthcare services as induced by providers, forced the insured to pay more than warranted, despite insurance reimbursement. Some people hold that doctors provide excessive healthcare services for profit, leading to high health expenditures. OOP costs are undoubtedly high, even though there is insurance reimbursement. Moreover, some people believe that doctors encourage them to seek high-tech care and more expensive drugs that are not covered by insurance and they must bear the cost by themselves. Furthermore, most people believe that the prices of health services and drugs are constantly increasing, leading to unaffordable medical care costs after insurance reimbursement.

DISCUSSION

Medical insurance has always been a crucial part of the development of people's livelihood. Hospitals are the main medical institutions for residents to seek medical treatment, and their financial management content of medical insurance exerts an crucial impact on the medical

Table 3 Factors associated with respondents' ratings of the financial risk protection effectiveness of the URRBMI in the logistic regression analysis

	β	P value	OR (95% CI)
Predisposing factors			
Age (years)		<0.001	
≥51	0.847	0.001	2.332 (1.424 to 3.820)
41–50	0.116	0.576	1.123 (0.747 to 1.688)
31–40	−0.091	0.621	0.906 (0.637 to 1.310)
≤30 (reference)			
Occupation		0.155	
Farming	0.264	0.241	1.303 (0.838 to 2.026)
Migrant labour	0.433	0.046	1.541 (1.008 to 2.357)
Individual businesses	0.189	0.461	1.208 (0.731 to 1.997)
Formal employee	1.008	0.075	2.741 (0.905 to 8.303)
Unemployed (reference)			
Educational attainment		0.546	
≥Senior high school	0.183	0.442	1.200 (0.753 to 1.913)
Junior high school	0.012	0.954	1.021 (0.682 to 1.913)
≤Primary school (reference)			
Preference for healthcare facility level			
Primary healthcare facility	0.434	0.002	1.544 (1.174 to 2.029)
Non-primary healthcare facility			
Enabling factors			
Household yearly income (¥)		<0.001	
≥¥50 001	25.314	<0.001	2.592 (1.788 to 3.756)
¥30 001–¥50 000	25.314	<0.001	1.396 (1.016 to 1.917)
≤¥30 000 (reference)			
Having used the URRBMI			
Yes	0.304	0.074	1.356 (0.971 to 1.892)
No (reference)			
Reimbursement rate			
Reasonable	0.058	0.697	1.060 (0.791 to 1.4213)
Unreasonable (reference)			
Deductibles			
Reasonable	0.215	0.161	1.240 (0.918 to 1.676)
Unreasonable (reference)			
Maximum compensatory payouts			
Reasonable	0.474	0.002	1.607 (1.187 to 2.176)
Unreasonable (reference)			

Continued

Table 3 Continued

	β	P value	OR (95% CI)
Service coverage			
Sufficient	0.122	0.439	1.130 (0.829 to 1.539)
Insufficient (reference)			
Critical illness compensation			
Sufficient	0.650	<0.001	1.915 (1.427 to 2.568)
Insufficient (reference)			
Constants	−0.673	0.038	0.510

URRBMI, Urban–Rural Resident Basic Medical Insurance Scheme.

insurance work.[21 22] In recent years, the relevant system of medical insurance in China has been developing and improving, which requires the hospital to understand and carry out the work of accounting and financial management of medical insurance. However, there are still many problems and risks in the financial management of medical insurance due to various objective factors, which restrict the further development of medical insurance. Hospitals need to focus on relevant contents and effectively promote the continuous improvement of medical insurance financial management level.[23 24] Besides, in-depth understanding of the wishes of rural residents is also a problem that governments at all levels need to face, which has crucial reference value for the formulation and implementation of policies.

1. Research conclusion: the perceived effect of financial risk protection risk of URRBMI is investigated based on this. Overall, about two-thirds of respondents believe that URRBMI is effective in providing financial risk protection. Older respondents with higher household income prefer county-level health facilities, as well
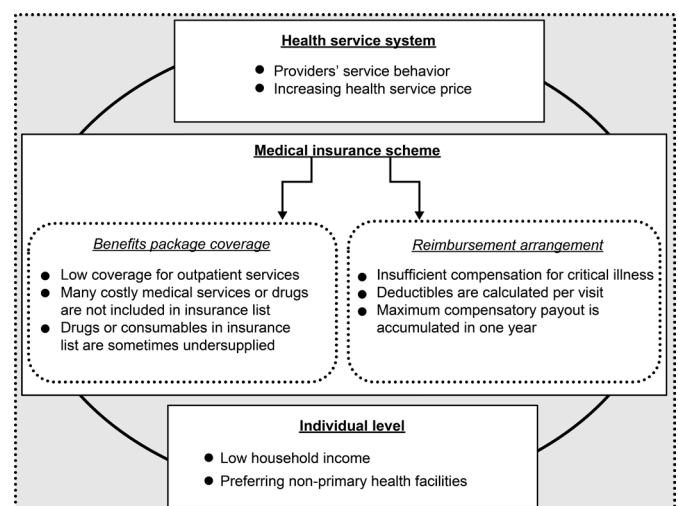

Figure 1 Qualitative analysis of the reasons respondents believed the URRBMI to be ineffective. URRBMI, Urban–Rural Resident Basic Medical Insurance Scheme.

as compensation for critical diseases and the highest compensatory expenditure, which can make URRBMI have a higher efficiency level than its peers. There are still some people who are worried about the financial risks of URRBMI although most of the respondents believe that URRBMI can effectively protect financial risks. Among them, in the quantitative and qualitative analysis, family income is related to the income of the respondents. Specifically, higher income and URRBMI have higher perception ability, which is mainly because that the higher-income families may have a higher dependence on social insurance. Hence, they are more likely to be satisfied with social welfare. In addition, Gu *et al* also pointed out that compared with low-income people, high-income people are more willing to get more benefits from medical insurance because they know more policy information,[25] which may explain the result that higher income and URRBMI have higher perception ability. Moreover, lower-income families are less likely to provide enough medical expenses if they encounter serious diseases, which limits their willingness to use medical insurance for treatment.[26] The main source of rural household income is agriculture or animal husbandry, and these incomes will be affected by weather and human factors.[27–29] In rural families, the expenditure on daily life, children's education, housing and marriage is increasing, making rural residents face more financial pressure.[30] The existing medical policy can reduce the living pressure of rural families to a certain extent. Although there are still some medical expenses to pay after the medical insurance reimbursement, this has greatly eased the medical problems of rural families.

2. Problem analysis: the Chinese government has tried to expand the scope of medical insurance and reduce the price of medicine, which really passes the preferential treatment on the farmers. The government's goal is to establish a health promotion policy system covering all sectors of the economy and society in 2022, improve the level of health literacy among the whole population, accelerate the promotion of a healthy lifestyle, curb the incidence rate of major chronic diseases such as cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes, effectively prevent and control key infectious diseases, serious mental disorders, endemic diseases and occupational diseases, reduce the risk of disability and death, and improve the health status of key population.[31] However, the effect of these efforts is limited. Especially, many provinces have attached great importance to the financial risk of URRBMI, and issued a series of measures to integrate the existing information system to support the operation and function expansion of urban and rural residents' medical insurance system. It is essential to promote the business collaboration and information sharing between urban and rural residents' medical insurance information system and designated institutions' information system and medical assistance information system,

do a good job in the necessary information exchange and data sharing between urban and rural residents' medical insurance information system and commercial insurance institutions' information system participating in the service, and strengthen information security and patient information privacy protection.[32 33] Personnel, medical technology, drugs and equipment of major rural facilities still have great limitations due to the distribution of health resources.[34 35] Rural residents tend to bypass primary healthcare facilities to go to higher-level hospitals for better treatment, but at higher costs and replication costs. This may be related to some respondents' negative ratings on the financial risk protection effect of URRBMI.

3. In-depth exploration: in URRBMI, public outpatient care has been added to cover major healthcare facilities projects to attract patients to primary healthcare facilities. However, the reimbursement rate is only about 50%, and the maximum payment limit is about ¥450 per year. Hence, the treatment level and outpatient service coverage are seriously insufficient for urban residents. Besides, about half of the respondents indicate that they would like to go to some county-level medical institutions for common clinical conditions, but this proportion is far lower than the actual statistical analysis results of the existing literature.[36 37] The former that finds the medical technology level is the predominant criterion when selecting health facilities. In the current study, rural residents also believe that low-grade medical technology is a barrier to select primary facilities. There is a contradiction between the needs of rural residents and the policy intention. Thus, it is insufficient to guide patients' care-seeking behaviour through cost measures alone. More efforts should be channelled towards strengthening the primary healthcare system by altering the allocation of health resources and establishing a strong primary healthcare workforce that can provide high-quality healthcare and proper health management to improve rural residents' health at a considerably low cost.

4. Policy impact: it is found that participants who believe the maximum compensatory payouts to be reasonable are 1.607 times higher to give a positive evaluation on the URRBMI than their counterparts. Notably, one of the initiatives of the integration reform is to increase the maximum compensatory payouts. In the URRBMI, the amount of maximum compensatory payouts is usually no lower than eight times the per capita disposable income of the rural insured population (six times prior to the reform), and the amount reaches to about ¥120 000–¥150 000. However, these increases do not satisfy rural residents. One reason is that the maximum compensatory payouts are accumulated annually, which still leads to a perception of its insufficiency to cover the costs for populations with critical illnesses and multi-morbidities. Chen noted that the annual accumulation model may cause differentiation in reimbursement depending on whether the patients

finished the treatment in 1 year.[38] Besides, the cost of deductibles per visit also leads to a significantly lower actual reimbursement rate than the actual reimbursement rate per the policy. Although some scholars have put forward the view of cancelling deductibles and maximum payouts,[38 39] the long-term balance between affordability of insurance funds and residents' needs must be considered first. Furthermore, nearly half of the respondents negatively evaluate the critical illness compensation. Those who perceive sufficient compensation for serious illness are more likely to positively evaluate the URRBMI than those who perceive insufficient compensation. Critical illness characterised by severe clinical symptoms inevitably leads to particularly high medical costs.[26] For example, per patient expenditure for common cancers is approximately ¥10 000,[40] which approximates to the per capita disposable income of rural residents (¥13 432).[41] Thus, once a family member experiences critical illness, the family will experience financial hardships due to the unaffordable medical expenditures. Studies show that 71% of patients who have a stroke and more than 50% of patients with acute cardiovascular disease have experienced catastrophic health expenditures.[42 43]

Moreover, critical illness may also result in decreased household income due to patients' inability to work and loss of employment.[44] Gao's study showed that critical illness decreases the average per capita income of rural residents by 5%–6%, and the negative impact will last for nearly 15 years.[45] This may lead to economic vulnerability among families. Specifically, poverty due to illness accounts for 42% of all rural poor households.[46] Besides, there are also problems in the scheme design, which leads to residents' negative views. On the one hand, some high-tech medical equipment and imported drugs for treating critical illnesses are not included in the reimbursement list, and they are expensive. On the other hand, URRBMI funds do not cover rehabilitation and long-term care. Thereby, even though once-off treatment costs are affordable, the cumulative long-term costs inevitably place a tremendous burden on rural households. Considering these factors, it is understandable that rural residents find the critical illness compensation to be insufficient.

The increase in medical costs is related to the absence of provider-side cost control mechanisms and the rising healthcare prices.[47 48] Fee-for-service is the leading insurance payment method; it also plays a small role in incentivising healthcare providers to control medical care costs.[49] An unregulated environment, reduced government funding and low healthcare prices set by the health administration have created strong internal incentives for healthcare providers to shift from the cost-effective drugs and services included in the insurance list to high-margin services and overprescribing.[50] China has resolved to address this misaligned incentive phenomenon through policies such as the Zero-Markup Drug Policy and increasing the healthcare service price.[51] In 2017, all public hospitals implemented the Zero-Markup Drug Policy and adjusted the healthcare price accordingly.[52] Further, China's National Bureau of Statistics reported that the consumer prices for medical care increased by 6% in 2017 compared with 2016, which is well ahead of the increase of consumer prices in other fields. Nevertheless, the medical cost burden does not seem to be reduced by these policies. Currently, providers undertake excessive examination and encourage repeated visits to increase revenue, while promoting patients to buy drugs at a higher price from their cooperative drugs stores.[53] Therefore, there are still obstacles to the perceived effectiveness of the URRBMI.

Limitations

There are still several limitations. First, as quantitative data are collected through a self-reported questionnaire, subjective bias may exist. Second, causal relationships based on the results cannot be established due to the cross-sectional design. Third, considering residents' education levels and comprehension ability, the questions posed during quantitative and qualitative data collection are simple and brief, which means that some potentially valuable information might not have been examined. Fourth, only participants from five provinces are surveyed due to time and resource restrictions, and the generalisability of findings is limited. To obtain a more accurate estimation, further studies that involve a wider range of populations across regions and schemes are needed.

CONCLUSION

China's reform of the urban–rural medical insurance system integration is proceeding vigorously. Until now, a limited number of empirical studies have demonstrated its achievements. The current study shows that 75% of insured rural residents believe that the financial risk protection of the URRBMI is effective; however, there are still challenges that require consideration by policymakers. These are not only limited to the benefits design or benefits coverage of the insurance scheme itself, but also the low-income levels of rural residents and the increasing medical costs. A benefits design aimed at balancing the expansion of benefits and fund sustainability is essential. Furthermore, more efforts should be channelled towards the regulation of providers' behaviours and bargaining ability. Besides, protecting rural residents from financial risk due to critical illness should be adopted as the core goal of the URRBMI. Strategies ought to emphasise broader reform of China's healthcare system. On the one hand, patients who are still unable to pay OOP expenses after reimbursement by insurance should be absorbed into the medical assistance system. On the other hand, rural residents can better prevent major diseases, reduce medical costs, and improve the early detection and treatment of diseases if physical examination service is included in medical insurance. At present, China is still in the primary stage of socialism with rapid economic

growth, but the overall level is still not high. Considering the social and economic affordability, the financing level of basic medical insurance, especially that of residents, is relatively low. The present per capita financing level of medical insurance for urban and rural residents is only about ¥700. Therefore, because of the overall development of the current medical insurance system, the needs of the masses for disease treatment, the financing level of medical insurance funds and the ability to resist risks, the current basic medical insurance system is mainly based on providing basic medical security for the masses, focusing on meeting the basic medical needs, and paying per capita through outpatient services. Some of them undertake the health promotion work of family doctors' contract service fee and other measures to encourage family doctors and insured people's health management, but they are not able to expand the payment scope to include non-therapeutic and preventive screening projects such as physical examination. Cross-sectoral actions are recommended to strengthen the primary healthcare system and achieve comprehensive social security. These strategies are also crucial for China to improve the provision of high-quality medical services and control the rising costs of rural residents.

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