

# Patient satisfaction in two Chinese provinces: rural and urban differences

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## Abstract

**Objective.** While international research on patient satisfaction on healthcare has grown tremendously in the past three decades, little research has been conducted concerning healthcare-related patient satisfaction in China. This study was designed to examine what factors including patients' characteristics and ease of access to care are associated with level of patient satisfaction and how such satisfaction might differ across rural and urban populations in China. This study also serves as an evaluation of the recent healthcare reforms that have taken place in China, which were expected to equalize satisfaction between rural and urban patients.

**Design.** A cross-sectional survey to assess satisfaction among patients attending county-level hospitals in China.

**Setting.** Forty county-level hospitals in two provinces of China.

**Participants.** Twenty-five patients from each of the 40 county-level hospitals.

**Main outcome measure.** Patient satisfaction measured with 15 questions.

**Results.** Perceived convenience was significantly associated with patient satisfaction among all participants. The new rural cooperative medical insurance scheme (NRCMIS) was associated with higher overall satisfaction among the rural residents. Age and income were significantly related to satisfaction only among rural patients.

**Conclusions.** Rural residents benefit greatly from the implementation of NRCMIS. Future reform could be more effective by catering the needs of each specific group (e.g. low-income population, rural population, etc.) identified by this study.

**Keywords:** China, healthcare, patient satisfaction, rural, urban

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## Introduction

With the effectiveness of medical care increasingly measured according to economic as well as clinical criteria, the inclusion of patients' opinions in assessments of services has gained greater prominence over the past 25 years [1]. In recent years, patient satisfaction levels have been identified as one of the major indicators of quality of care and are influenced by a range of factors [2, 3]. Patient satisfaction is a complex dimension affected by many different components of patient care. One version of the definition states that the satisfaction construct reflects three basic variables: the personal preferences of the patient, the patient's expectations and the realities of the care received [4].

Feedback from the users of healthcare facilities and institutions is generally considered to be vital for quality

assessment and quality assurance [5]. Evaluation of healthcare provision is essential in the ongoing assessment and consequent quality improvement of medical services [6]. Therefore, patient-perceived quality of care or patient satisfaction should be included, together with other measures, in quality improvement programs. The factors that can affect patient satisfaction include provider-related factors, such as infrastructure, access to care, interpersonal communication skills of the providers and patient-related factors, such as socio-demographic characteristics of patients, disease severity and health-related quality of life [7].

Several patient characteristics which have been associated with general patient satisfaction include demographic factors, socio-economic status and general health status [8–12]. The knowledge about one's own disease and wealth measured by household assets are two recently emphasized patient characteristics [13, 14]. Access to healthcare is a major health and development

issue, especially under resource-poor settings. The issue of access to care covers a series of issues including availability of health facilities, equipment, qualified staff, staff skills, protocols of diagnosis, treatment and quality of care [15].

China is the nation with the largest population in the world. Healthcare serves as the key issue to its people's wellbeing. Basic social medical insurance (BSMI) is the country-wide government system that serves as the primary third-party payer and the backbone for healthcare financing. The program has been expanding rapidly into both rural and urban areas in China over the past 5 years. Universal coverage through BSMI is expected to be achieved by 2011. BSMI consists of three schemes, including the basic social medical insurance scheme for urban employees initiated in 1998; the new rural cooperative medical insurance scheme (NRCMIS) for Rural Residents, which was officially established in 2003; and the basic social medical insurance for unemployed urban residents (e.g. elderly, students and children) which has been under a trial program in 79 cities since 2007 [16].

The NRCMIS is considered as the very first program promoting government coverage for rural residents' health expenses. The pooling funds are mainly used for hospitalization and outpatient expenses incurred in the treatment of critical diseases, aimed at alleviating the persistent phenomenon of poverty resulting from catastrophic diseases. NRCMIS has been running on a voluntary basis. In order to encourage participation, most counties have established individual accounts to manage individual contributions. Local governments are also given a certain degree of autonomy in the implementation of the scheme, including the authority to determine the deductible, ceiling and reimbursement ratios. By the end of 2007, 85.6% of counties in China had adopted NRCMIS and 86.2% rural residents (726 million people) were enrolled [16]. It has been reported that participating in the NRCMIS significantly decreases the use of traditional Chinese folk doctors and increases the utilization of preventive care, particularly general physical examinations [17].

While international research on patient satisfaction has grown tremendously in the past three decades, little research has been conducted to assess the quality of healthcare from patients' perspective in China [18]. By interviewing the 1000 patients recruited from 40 county-level hospitals in China, we examined and measured whether patients' demographic characteristics and ease of access to care contribute to overall patient satisfaction and how such level of satisfaction might differ across rural and urban populations. We also evaluated the recent healthcare reforms taken place in China from patients' perspective. The reforms were expected to equalize satisfaction between rural and urban patients.

## Methods

### Study sample

We recruited 25 patients from each of the 40 participating hospitals in two provinces of China. We then had 1000 participants in total.

During the recruitment process, trained recruiters made initial contacts with potential participants in the waiting room at a selected hospital on a first come first served basis. The recruitment was considered random as we assumed patients came to the hospital in a random manner. We then recruited all eligible patients to assure randomness.

If a patient showed interest in participating, the research staff then gave full details and asked for informed consent from him/her in the privacy of an interview room. Research staff followed a standardized script to emphasize that participation was completely voluntary and the survey was anonymous. The staff also mentioned about the \$6 (45 Yuan) compensation during this recruitment process but the participants received the payment only upon completion of the survey. Recruitment ended when a total of 25 patients from each hospital gave their consent to participate. The refusal rate for patients was about 13% across all hospitals. Recruitments at each hospital were completed on the same day.

The survey for each patient was conducted as personal interviews and lasted about 30 min. Patient participants received \$6 (45 Yuan) in cash to compensate their time spent upon the completion of the survey. The study was reviewed and approved by the Institutional Review Board (IRB) of UCLA and China Center for Disease Prevention and Control.

### Measures

*Demographic characteristics.* The demographic information collected for the current study included each participant's gender, age, type of resident, marital status, education level and household income. The type of resident is classified as rural, urban or suburban (both considered urban residents in later analysis). The monthly household income was measured in Chinese Yuan as a continuous variable.

*Ease of access to care.* An important factor measuring access to care was the type of insurance plan with which a patient was covered. The participants could choose among no insurance and four types of insurance plan based on whatever applied to them. In addition, they were allowed to name their own insurance plan in case it was not listed.

Number of visits to the hospital during the past year was originally measured as a continuous variable. To adjust for any possible bias by over-sampling people who visit a hospital more than one time as against first-time comers (the former group tended to be more satisfied as they were willing to make a second visit), we created a dichotomous variable comparing patients who made multiple visits with first-time visitors.

Time spent travelling to the hospital was reported in hours and minutes, and converted into minutes for the analysis. The participants could indicate their perceived convenience as either 'convenient' or 'not convenient'. We asked about whether a patient visiting the hospital in the company of family members or friends, and in the analysis, those who were accompanied by at least one person were considered as being 'with company'.

**Patient satisfaction.** Patient satisfaction was measured with 15 questions; each question was on a 3-point Likert scale with 1 as 'agree', 2 as 'not sure' and 3 as 'disagree'. The score range was 15–45. Some of the questions were reversed for scoring purposes. We considered a score of 3 implying higher level of satisfaction than a score of 2 and a score of 1. Some of the questions were based on the work of Ware *et al.* [19] to measure overall satisfaction with service received at a hospital. Only questions which were culturally relevant to Chinese patients were selected. We added five questions to measure perceived stigma from service providers. These five questions were validated in one of our previous studies. The whole set of questions was validated in our pilot study. The Cronbach's alpha of the scale was 0.81, indicating good reliability for the measure. The complete list of the questions was given in Appendix 1.

### Data analysis

SAS statistical software (Version 9.1) was used for data analysis. Firstly, we compared means of patient satisfaction across levels of demographic characteristics and access to care variables. A *P*-value was generated by using *t*-test (for those independent variables with two levels) or ANOVA (for those independent variables with more than two levels).

Subsequently, a linear random effect model was applied to the whole sample, the rural sample and the urban sample. We had the issue of clustering of participants since participants from the same hospital could be correlated with regard to some covariates. We then included a random intercept to account for the correlation. The regression coefficients and their significant levels were reported.

### Results

Among all participants, ~40% were male; one-third of them fell into each of the age categories: below 30, 31–40 and above 41 (Table 1). Slightly more than half of the participants classified themselves as rural residents. Approximately 85% were married. About half of the participants (55.6%) completed secondary to high school in education. Approximately one-third reported monthly household income less than 1000 Yuan, another 41.9% reported an income between 1001 Yuan and 3000 Yuan and the rest 24.4% earned more than 3000 Yuan on a monthly basis.

Slightly more than 60% of the participants were now covered by the NRCMIS; another 11.1% reported no insurance, whereas the rest were covered by various types of insurance plans other than NRCMIS. About 22% of the participants were first-time visitors to the hospital and the other 78% had had at least one visit prior the current visit. There were 47.3% of the patients who travelled less than 20 min to get to hospitals; another 39.7% took 20–80 min and the rest 13% used more than 80 min. About 85% perceived that it was convenient for them to travel to hospital. About two-third visited the hospital in the company of a friend or a relative.

The result of mean comparisons on patient satisfaction by demographic characteristics and ease of access to care variables is presented in Table 1. Age appeared to be significantly associated with patient satisfaction, with patients who were older than 40 years reporting higher levels of satisfaction. Rural patients were generally more satisfied with health-care service compared with urban and suburban residents. Patient satisfaction decreased with level of education and household income. Those who were covered by NRCMIS showed higher levels of satisfaction compared with those who were either without insurance or who were covered with other type of insurance plans. Those who perceived travelling to the hospital as convenient were generally more satisfied.

The regression results are presented in Table 2. Among all participants, those patients with family income <2000 Yuan (the median income level) per month were generally more satisfied. In addition, older participants reported higher levels of satisfaction. Patients covered by the NRCMIS reported higher levels of satisfaction compared with those who were not covered by any insurance. Those who considered the hospital 'convenient to access' were more satisfied.

Among rural participants, gender was a significant predictor of patient satisfaction, with males reporting lower levels of satisfaction. Age remained a significant predictor for rural participants. Low-income rural participants reported significantly higher level of satisfaction. Those covered by NRCMIS showed significantly higher level of satisfaction. Perceived convenience to get access to a hospital was strongly associated with level of satisfaction. For urban participants, age, household income and type of insurance plans were no longer associated with patient satisfaction. However, people who perceive it was convenient travelling to the hospital were generally more satisfied.

### Discussions

This study revealed that the enrollment in The NRCMIS was significantly associated with higher satisfaction among rural patients, while having other insurance plans than NRCMIS was not associated with higher levels of patient satisfaction among urban participants. This finding indicates that basic healthcare services are considered adequate in cities compared with the countryside in China and the urban residents then do not perceive an impact of the healthcare reform as great as rural residents. Given the fact that our urban sample was collected from a county hospital, we anticipated that the difference between urban and rural residents would be larger if we have had included the participants from big cities in our study.

From the 1950s to the early 1980s, there existed a huge disparity of healthcare spending between urban and rural areas. Free medical coverage was provided to people in urban areas while very limited coverage was provided to people in rural areas [20, 21]. Since 1980s, China abandoned its free universal healthcare system and privatized it. The direct consequence was that many people lost their access to healthcare, including farmers in rural China. In 1984, village

**Table 1** Sample description and overall patient satisfaction by patients' characteristics and ease of access to care variables ( $n = 1\,000$ )

	$n$ (%)	Satisfaction score <sup>a</sup>	$P^*$
<b>Gender</b>			
Male	58.9	36.8	0.95
Female	41.1	36.8	
<b>Age</b>			
30 or younger	38.0	36.3	<0.001
31–40	26.0	36.4	
41 or older	36.0	37.8	
<b>Residency</b>			
Rural	52.4	37.3	0.002
Urban/suburban	47.6	36.3	
<b>Marital status</b>			
Married	84.5	36.9	0.27
Not married	15.5	36.4	
<b>Education</b>			
Elementary or lower	24.7	38.0	<0.001
Secondary to high school	55.6	36.6	
College or higher	19.7	36.2	
<b>Family monthly income (Yuan)</b>			
1000 or less	33.7	37.8	<0.001
1001–3000	41.9	36.8	
3001 or more	24.4	35.6	
<b>Health insurance</b>			
Not covered	11.1	35.7	<0.001
New rural cooperation plan	60.2	37.2	
Other types of insurance	28.7	36.5	
<b>Number of visits to the hospital</b>			
First time	22.4	36.7	0.60
More than one time	77.6	36.9	
<b>Time travelled (min)</b>			
20 or less	47.3	36.7	0.12
20–80	39.7	36.7	
80 or more	13.0	37.7	
<b>Perceived convenience</b>			
Convenient	84.8	37.1	<0.001
Not convenient	15.2	35.6	
<b>With company to the hospital</b>			
Yes	62.2	36.9	0.66
No	37.8	36.8	

<sup>a</sup>The satisfaction score is ranged from 15 to 35.

\* $t$ -test and ANOVA were used to test difference cross categories of each covariate.

coverage had dropped to 4.8%. In 1998, only 9.5% of the rural population was insured [22]. For most of the people living in rural areas, to have basic medical coverage under the new medical insurance plan is beyond their expectations. As a consequence, rural patients covered by NRCMIS in our study reported overall significantly higher level of satisfaction compared with those who were without any insurance. Since people with adequate insurance coverage are expected to go through more thorough physical check-ups and can afford more choices of treatments, higher satisfaction level then

follows. The findings in our study provided evidence of the initial success of The NRCMIS with the healthcare reform as discussed by Yi *et al.* about the substantial improvements in terms of coverage and participation [23].

While the higher satisfaction among rural patients could result from increased availability of medical infrastructure under the healthcare reform, caution should be made that this might be a phenomenon of a transient nature. It is highly possible that, with further development and rapid urbanization, medical resources allocated to rural China will

**Table 2** Multiple regressions of overall patient satisfaction on all, rural and urban participants

	Patient satisfaction					
	All ( <i>n</i> = 1000)		Rural ( <i>n</i> = 524)		Urban ( <i>n</i> = 476)	
	$\beta$	<i>P</i>	$\beta$	<i>P</i>	$\beta$	<i>P</i>
Male	-0.08	0.80	- <b>0.93</b>	0.04	0.71	0.15
Age	<b>0.03</b>	0.03	<b>0.04</b>	0.04	0.02	0.25
Married	0.15	0.74	-0.34	0.60	0.51	0.46
Year of education	0.02	0.74	0.03	0.72	0.01	0.85
Low monthly income (vs. >2000 Yuan)	<b>0.83</b>	0.01	<b>1.32</b>	0.003	0.20	0.70
NRCIMS (vs. no insurance)	<b>1.03</b>	0.05	<b>1.55</b>	0.04	0.62	0.40
Any insurance other than NRCIMS (vs. no insurance)	0.55	0.33	1.51	0.13	0.001	0.99
More than one visit (vs. first visit)	0.11	0.77	0.26	0.58	0.06	0.92
Time travelled	0.01	0.15	0.002	0.62	0.01	0.13
Convenient	<b>1.81</b>	<0.001	<b>1.68</b>	0.001	<b>2.14</b>	0.02
With company	0.16	0.61	0.24	0.60	0.18	0.69
Urban residence (vs. rural residence)	0.49	0.20	-	-	-	-

Random effect model was used to adjust for clustering of respondents from the same hospital.

continue to increase in proportion. Under this circumstance, expectations of the people living in rural areas may increase so much so that the discrepancies would gradually disappear. The satisfaction shown in our study should not be taken as the endpoint of service improvement. Further actions can be taken to promote easy and accessible services to rural patients. Rural residents in China usually travel long distance from the village to county or higher level hospitals to deal with complicated situations and to receive better services. How to make healthcare service more accessible remains an important issue for future healthcare reforms. For example, efforts should be made to enhance healthcare infrastructures and to train more qualified staff in both township health centers and village clinics. Furthermore, to improve transportation availability to healthcare in rural areas could also be a feasible measure.

Following the same reasoning, rural patients who are older and who have lower income are more satisfied and have better chance to benefit from NRCMIS, because they were more unlikely to afford the medical expenses before the implementation of NRCMIS. The findings showed inconsistencies with studies done in the USA. Malat [24] reported that higher socioeconomic status predicted higher rating of both respect shown by healthcare provider and time spent with healthcare provider. It has also been reported that physicians were more verbally dominant and tended to be less patient centered in their approach with African American patients than with White patients [24]. Because of disparity in resources availability, low expectations among these patients may be a contributing factor to higher satisfaction, as expectations emerge repeatedly as having a fundamental role in expressions of satisfaction [1]. Age usually serves as an indicator of fewer years in education or poor ability to communicate. Williams *et al.*, reported that patients with poor health literacy had a complex array of communication

difficulties, which may affect health outcomes [25]. Such patients reported worse health status and had less understanding about their medical conditions and treatment; they may have had increased hospitalization rates. This study underscores the importance of calling for better attention and improved communication skills among the service providers to further meet patients' needs as a goal of the future healthcare reform in China.

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## Appendix I Individual questions of patient satisfaction scale

1. This hospital needs more health providers.
2. This hospital needs more medical supplies.
3. This hospital overcharges.
4. The waiting time is too long in this hospital.
5. The health providers do not treat patients well
6. It took me a long time to come to this hospital.
7. Do you feel that any providers preferred to avoid you because of your disease?
8. Do you feel that any provider treated you as an inferior because of your disease?
9. Do you feel that any provider would refuse your service if they think your illness is infectious?
10. Do you feel that any provider treated you as an inferior because of your economic status?

(continued)



## Appendix I Continued

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11. Overall, do you feel any unfair treatment from providers at this hospital?
  12. I am satisfied with the services I received in this hospital.
  13. Health providers in this hospital respect me.
  14. Health providers in this hospital were warm with me.
  15. Health providers in this hospital follow working ethics.
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The response categories are: 1 = agree; 2 = not sure; and 3 = disagree. Some questions were reversed to make a higher score indicating higher level of satisfaction.

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