

Factors influencing residents' decision to sign with family doctors under the new health care reform in China

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Summary

Background: As an important means through which to promote Chinese health care reform, the family doctor policy has attracted attention from various fields. This study aimed to explore the factors influencing residents' decision to sign with family doctors, with a view to informing the changes necessary to encourage additional residents to do so, thereby enhancing the efficacy of primary health care system reform.

Methods: The residents of five communities in Xianning, Hubei Province, were selected, by convenience sampling, to participate in the study. We developed and administered a questionnaire to collect data, from which we obtained 725 valid response sets. Socio-demographic characteristics were summarized using descriptive statistics; and Pearson chi-squared test and binary logistic regression were performed to identify the factors influencing residents' decision to sign with family doctors.

Results: We found that the factors influencing residents' decision to sign include their education level, medical insurance, chronic diseases, medical treatment habits, awareness of the family doctor policy, perception of the medical skills of family doctors, and attitudes towards family doctors' signing services ($P < .05$).

Conclusion: To encourage more residents to sign with family doctors, we recommend the implementation of the

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following: increasing publicity for the family doctor policy, promoting the reasonable distribution of high-quality resources, augmenting the standard of general medical education, and improving the skills and competencies of family doctors.

KEYWORDS

China, health care reform, factors influencing decision to sign, family doctor policy, signing with family doctors

1 | INTRODUCTION

Family doctors are not only primary health care providers but also coordinators of individual patient and community health needs.^{1,2} As the “gatekeeper” of residents’ health, family doctors have become an important part of the health care system globally.³ They play a pivotal role in satisfying public medical needs, optimizing the allocation of health resources, providing health care services, and controlling the increase in medical expenditure.⁴⁻⁷ Many challenges arise as a result of the rapid aging of China’s social population. These challenges include difficulty in access to medical treatment, unreasonable distribution of medical resources and what this entails, out-of-order phenomenon in seeking medical treatment, increasing medical costs, and so on. In 2009, the Chinese government proposed a new medical reform plan, in which it emphasized improving the medical services of community health centers (CHCs) as one of the most important goals of the medical reform. Given that residents make less use of CHC resources than they do large hospitals, it is difficult for CHCs to play their role. The establishment of the family doctor system is an effective means, under the current circumstances in China, to improve the utilization of CHCs and achieve the goals of the new medical reform. In September 2015, the State Council issued a document, Guidelines on Promoting the Construction of a Graded Diagnosis and Treatment System (Guidelines), which indicated that it is necessary to build talent teams of general practitioners.

The foundation of the primary health care system in China is quite different from those in developed countries, such as Britain and the United States. The guidelines indicate that, at present, family doctors in China are mainly community doctors.⁸ However, due to the delayed implementation of the community health service in China, most of the community doctors are not well-educated; their education, training, and professional development are still in their initial stages. Their service mode and professional title assessment are still based on the clinical specialist model, which differs from the actual needs of the residents.^{4,9-14} In addition, because China does not implement a strict primary health care system and the professional level of CHCs is the lowest in the urban tertiary health care network, large general hospitals, which are at the top of the network, are overcrowded whereas there are few people in the CHCs.^{6,15,16}

There are many studies about the problems of community health service in China. For example, Lou et al³ indicated that, under normal circumstances, the community health service is not the first choice for residents when they fall ill, and Tang et al⁵ found that the passion of doctors in grassroots medical institutions is poor. Additionally, the 2017 Chinese flu epidemic demonstrated the following limitations of community health services: (a) the distribution of high-quality medical resources is uneven, and the resources of CHCs are poor and the hardware facilities are inadequate^{10-12,17}; (b) the general practitioner training model is imperfect, the quantity of general practitioners is insufficient, top-ranking talent is scarce, and medical skills and service quality are deficient¹¹; and (c) the enthusiasm of general practitioners cannot be fully engendered due to the lack of effective, scientific performance appraisal criteria, and incentive mechanisms. This is also an important reason for the significant problems in CHCs, such as that

"excellent talents cannot be attracted or retained."¹⁸⁻²⁰ (d) In developed countries, such as Britain and the United States, family doctors are required to be educated and trained to ensure their competence. In contrast, the posts of general practitioners in China are mainly held by the original community doctors from CHCs, who only attended short-term training. Consequently, general practitioners are ill-equipped and residents are, therefore, distrustful.^{3,5,13,21-24} To improve the service level, the government launched the reform, which requires family doctors to sign service contracts with residents, thereby establishing a long-term and stable service relationship between family doctors and residents. In 2016, the notice of the issuing of Guidelines on the Promotion of Family Practice Contract services was promulgated, which called for active pilot programs for family doctor contract services, and proposed expanding the family doctor contract service nationally by 2020.⁹

It is of paramount importance to promote the family doctor contract system as a means through which to advance the primary health care service. However, as the family doctor signing service has only recently been introduced, its content and form are still evolving. Therefore, the purpose of this study was to analyze the factors influencing residents' decision to sign with their family doctors to inform the changes necessary to encourage more residents to sign and, thereby, enhance the effectiveness of the health care reform.

2 | METHOD

2.1 | Sampling

Hubei Province is located in the central region of China. The per capita GDP and per capita income of its residents are ranked 11th and 12th, respectively, among the 31 Chinese provinces. Located in the southeastern part of Hubei Province, Xianning is a prefecture-level city and, as such, its development level in all aspects is basically in line with the national average. Using convenience sampling, we selected the residents of five Xianning communities to participate in this study. A total of 740 questionnaires were distributed, of which 725 valid answer sheets were returned, yielding a response rate of 97.97%. In order to ensure the quality of the responses, the questionnaire was administered individually, in person.

2.2 | Questionnaire

We designed the questionnaire to include three sections: socio-demographic information, residents' intention to sign the contract, and factors influencing their decision to sign it. Socio-demographic information included gender, age, marital status, household monthly per capita income (Renminbi) (RMB), education level, medical insurance, etc. Residents' intention to sign was determined by asking whether they planned to sign a contract with family doctors. Factors influencing the decision to sign were established through questions on included residents' health status, chronic diseases, medical treatment habits, awareness of the family doctor policy, perceptions of the medical skills of family doctors, and attitudes towards the family doctors' signing service. Questions falling within the latter two sections were answered using a 5-point Likert scale, ranging from very dissatisfied (1) to very satisfied (5).

2.3 | Statistical analysis

SPSS 23.0 was used to establish the database and to analyze the data. Socio-demographic characteristics of residents were summarized using descriptive statistics. Pearson chi-squared test was performed to assess whether socio-demographic variables, and other factors were related to residents' decision to sign. Binary logistic regression was conducted to determine the significant factors influencing residents' decision to sign, with the following dependent variable: the resident has signed with a family doctor (1) or the resident has not signed with a family doctor (0). To select meaningful variables for regression, only those deemed statistically significant based on Pearson chi-

squared test were included in the model ($P < .05$). The odds ratio (OR) was reported with a 95% confidence interval (CI), where applicable. All tests were conducted at the 5% level of significance.

3 | RESULTS

3.1 | Socio-demographic characteristics

The socio-demographic information obtained from participants, presented in Table 1, can be summarized as follows: the proportion of the elderly (over 60 years old) was large (39.2%); the 93.1% residents surveyed had medical insurance; the largest proportion of educational level was junior middle school and below (32.3%); and the largest proportion of household income per month (RMB) ranged from ¥1501 to ¥3000 (40.6%).

TABLE 1 Socio-demographic characteristics of residents interviewed in five communities in Xianning

Characteristics	Residents (n = 725)	Percentage, %
Gender		
Male	295	40.7
Female	430	59.3
Age, y		
≤30	101	14
31-40	141	19.4
41-50	110	15.2
51-60	89	12.3
61-70	152	21.0
>70	132	18.1
Education level		
Junior middle school and below	234	32.3
Senior high school	171	23.6
Junior College	189	26.1
Bachelor degree	111	15.3
Master degree	20	2.7
Marital status		
Married	615	84.8
Unmarried	43	5.9
Divorce	16	2.2
Widowhood	51	7.1
Medical insurance		
Have	675	93.1
Not have	50	6.9
Household income per month (RMB)		
≤1500	77	10.6
1501-3000	294	40.6
3001-5000	238	32.8
>5000	116	16.0

3.2 | Rate of signing with family doctors

Among the 725 residents surveyed, 46.9% signed with family doctors, which approximates the anticipated goal of the reform. As illustrated in Table 2, the results indicate that residents' decision to sign is correlated with their education level, medical insurance, chronic diseases, medical treatment habits, awareness of family doctor policy, perceptions of the medical skills of family doctors, and attitudes towards the family doctors' signing service ($P < .05$).

In addition, results suggest that residents' attitudes towards the family doctors' signing service may also affect the rate of signing. Among the 725 residents surveyed, 51.4% were enthusiastic about the reform of family doctors' signing services, 11.9% passively accepted the policy, 33.2% were apathetic, and 3.5% refused to accept it.

3.3 | Multivariate analysis of factors influencing residents' decision to sign

In order to isolate the main factors influencing residents' decision to sign with family doctors, binary logistic regression was performed to analyze the statistically significant variables obtained in the Pearson chi-squared test. As indicated in Table 3, statistically significant relationships were found between residents' decision to sign and their perceptions of family doctors' medical skills, awareness of the family doctor policy, and attitudes towards family doctors' signing services ($P < .05$).

In particular, the likelihood of enthusiastic residents signing was 9.104 times greater than for those who refused to accept the policy (OR = 9.104; 95% CI, 1.723-21.616; $P = .005$). In addition, the likelihood of residents who were aware of the family doctor policy signing was 10.349 times greater than for those who were not aware thereof (OR = 10.349; 95% CI, 1.780-40.164; $P = .005$). The likelihood of residents who were satisfied with the medical skills of family doctors signing was 7.698 times greater than for those who were dissatisfied in this regard (OR = 7.698; 95% CI, 1.265-46.830; $P = .027$).

4 | DISCUSSION

The results of the study indicate that residents had low confidence and trust in family doctors. Furthermore, we found that many residents were unclear about whether they had signed with a family doctor or received the services offered by their family doctors. This suggests that "passive signing" and "signing but not receiving service from doctors" occur frequently and that many CHCs focus only on the act of signing and, subsequent to this, do not provide the contracted services.

According to the results of the multivariate analysis, the three significant factors influencing residents' decision to sign are their awareness of the family doctor policy, attitudes towards family doctors' signing services, and perceptions of family doctors' medical skills.

Residents' awareness of the family doctor policy may be related to the degree of government publicity provided. Although the Chinese government promoted the family doctor policy, residents in third-tier and fourth-tier cities still have limited knowledge of the policy, indicating insufficient publicization. Firstly, therefore, it is necessary to continue to increase publicity measures. Secondly, medical insurance should be adjusted to provide better benefits to contracted residents. These measures may enable more residents to understand the family doctor policy content and participate actively in the reform of family doctors' contract services.

Residents' attitudes towards the family doctors' signing service are closely related to whether family doctors can play the role of "health gatekeeper." The results of our study indicate little difference between the work of family doctors and that of doctors in traditional health service communities. The service model of family doctors was similar to the previous model, in which doctors passively admitted patients to CHCs for treatment. Family doctors had not yet fully embraced their work enthusiasm and creativity, instead continuing to adopt the service model of specialist doctors.¹⁹ Therefore, family doctors do not meet the needs of residents, no matter their work content or service

TABLE 2 Analysis of socio-demographic factors correlated to residents' decision to sign

Residents	Sign (n = 340)		No Sign (n = 385)		χ^2	P
	n	%	n	%		
Gender						
Male	147	43.2	148	38.4	1.719	.190
Female	193	56.8	237	61.6		
Age, y						
≤30	30	8.8	71	18.4	6.274	.069
31-40	64	18.8	77	20.0		
41-50	60	17.6	50	13.0		
51-60	42	12.4	47	12.2		
61-70	79	23.2	73	19.0		
>70	65	19.1	67	17.4		
Education level						
Junior middle school and below	127	37.4	107	27.8	15.264	.004
Senior high school	84	24.7	87	22.6		
Junior College	84	24.7	105	27.3		
Bachelor degree	36	10.6	75	19.5		
Master degree	9	2.6	11	2.9		
Marital status						
Married	300	88.2	315	81.8	7.960	.057
Unmarried	12	3.5	31	8.1		
Divorce	6	1.8	10	2.6		
Widowhood	22	6.5	29	7.5		
Medical insurance						
Have	329	96.8	346	89.9	13.367	.001
Not have	11	3.2	26	10.1		
Household income per month (RMB)						
<1500	28	8.2	49	12.7	5.301	.151
1501-3000	144	42.4	150	39		
3001-5000	118	34.7	120	31.2		
>5000	50	14.7	66	17.1		
Health condition						
Good	142	41.8	180	46.8	1.983	.371
General	169	49.7	172	44.7		
Poor	29	8.5	33	8.6		
Chronic disease						
Have	181	53.2	157	40.8	11.257	.001
Not have	159	46.8	228	59.2		
Medical treatment habits						
Grassroots medical institution	250	73.5	199	51.7	37.501	.000
Above secondary hospital	90	26.5	186	48.3		

(Continues)

TABLE 2 (Continued)

Residents	Sign (n = 340)		No Sign (n = 385)		χ^2	P
	n	%	n	%		
Awareness of the family doctor policy						
Know	327	96.2	266	69.1		
Do not know	13	3.8	119	30.9	88.946	.000
Perceptions of the medical skills of family doctors						
Satisfied	312	91.8	292	75.8		
Moderately satisfied	27	7.9	93	24.2		
Dissatisfied	1	0.3	0	0	44.241	.000
Residents' attitudes towards the family doctors' signing services						
Enthusiastic	264	77.6	198	51.4		
Passively accepted	34	10.0	46	11.9		
Apathetic	41	12.1	128	33.2		
Refuse to accept	1	0.3	13	3.5	63.776	.000

model. In order to cater to residents more effectively, it is necessary to improve the work content, service model, and work status of family doctors.

The perception of family doctors' medical skills is closely related to factors such as the distribution of medical resources, the general practitioner training model, and provision of incentives. Firstly, the allocation of medical resources in China is unequal, such that high-quality resources are concentrated in grade II and grade III hospitals. Given the delayed implementation of community health services, resources are inadequate and infrastructure and related supporting measures are imperfect. In addition, in recent years, the unreasonable structure of medical resources has seriously affected the medical skills of family doctors. Secondly, the imperfect medical education system results in the inferior competence of family doctors. In Britain, family doctors are required to be trained under the "5 + 2 + 3" training model¹² and are only permitted to practice following stringent examination. Moreover, family doctors are afforded high social status and income, and career paths are clear. Its strict "first contact care" system ensures that general practitioners are fully equipped to play the role of "gatekeeper" fully. Compared with Britain, at this stage, China has a large deficit in the number of family doctors,²⁵ and the standard of general practitioner training is lagging behind.¹² As the posts of general practitioners are mainly held by the original community doctors, with short-term training, competence and skill are limited. Finally, CHCs incentive provision is inadequate. Family doctors earn only a third of the income of clinicians in large hospitals. Furthermore, the implementation of the essential drug system has limited the use of drugs in CHCs, making them unable to provide better treatment. All of these have resulted in a serious lack of enthusiasm and innovation in the work of family doctors,^{3,26} which is one of the main reasons why "excellent talents cannot be attracted or retained."¹⁶

In order to improve the service capabilities of CHCs, we propose the following suggestions. (a) Increase investment in CHCs, provide more resources to support,¹⁸ and promote interconnectedness between the large general hospitals and the CHCs to improve the medical standard through mutual cooperation. This may not only relieve the pressure on large general hospitals but may also promote the scientific and rational allocation of medical resources. (b) Improve the drug list of CHCs and expand the supply scope of drugs. More frequently consumed drugs should be included. This can remove obstacles to the implementation of the general practitioner system. (c) Thoroughly implement the hierarchical medical system, and define the service scope and allocation of functions in both large general hospitals CHCs. (d) Improve the development of skills, broaden the scope of training methods, and promote the standardization, specialization, and systematization of general practitioner training,¹² strengthen the development of

TABLE 3 Multivariate analysis of factors influencing residents' decision to sign

Residents	Reference Category	B	P	OR	95% CI
Residents' education level	Junior middle school and below				
Senior high school		-0.221	.693	0.801	(0.267-2.403)
Junior College		-0.116	.836	0.890	(0.295-2.684)
Bachelor degree		0.070	.902	1.072	(0.357-3.223)
Master degree		0.497	.395	1.643	(0.523-5.163)
Medical insurance	Have				
Not have		-1.053	.062	0.494	(0.154-0.790)
Chronic disease	Have				
Not have		-0.35	.108	0.705	(0.460-1.080)
Residents' attitudes towards the family doctors' signing services	Refuse to accept				
Enthusiastic		1.809	.005	9.104	(1.723-21.61)
Passively accepted		1.949	.017	7.019	(1.097-14.56)
Apathetic		1.557	.046	7.745	(1.022-5.103)
Awareness of family doctor policy	Do not know				
Know		2.337	.005	10.349	(1.780-40.164)
Medical treatment habits	Above secondary hospital				
Grassroots medical institution		2.146	.077	8.533	(0.907-3.383)
Perceptions of the medical skills of family doctors	Dissatisfied				
Satisfied		2.041	.027	7.698	(1.265-46.830)
Moderately satisfied		0.973	.188	2.645	(0.621-11.266)

Abbreviations: CI, confidence interval; OR, odds ratio.

general medical disciplines and improve the quantity and quality of general practitioners.²⁶ (e) Establish effective performance appraisal criteria, raise income levels,²⁰ perfect incentive provision, and stimulate family doctors' work enthusiasm.^{3,14} Conduct quality management and assessment of the services provided by medical staff, and ensure that performance incentives are used to encourage the enthusiasm of family doctors. In addition, the government's investment in and support of the family doctor policy represents an important undertaking to improve the work enthusiasm of family doctors. Therefore, the government should continue to increase investment and policy support to encourage family doctors to actively enrich service content, innovate the service model, improve the medical standard and service quality, and fully support the role of family doctors in health management.

5 | CONCLUSIONS

The results of this study indicate that the overall signing rate in the region is 46.9%. Residents' decision to sign with family doctors is influenced by many factors, chiefly their attitudes towards the family doctors' signing service, awareness of family doctor policy, and perceptions of the medical skills of family doctors. Therefore, to improve the efficacy of the new health care reform, we recommend increasing publicity for the family doctor policy, improving the skills and competence of family doctors by augmenting the standard of general medical education, reforming salary distribution, and scientifically defining performance appraisal criteria.

AUTHOR CONTRIBUTIONS

Xiaoyan Zhang carried out the fieldwork, collaborated in conceptualizing and designing the study, undertook analysis, and drafted the manuscript. Xiaona Zhang collaborated in designing the study, gathering and analyzing data, and writing and revising this article. Shiyu Yang participated in the analysis and interpretation of data and writing and revising this article. Yuxuan Wang assisted to gather data and provided critical inputs in the revising of the article. All authors read and approved the final manuscript.

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