

Who is willing to participate in and provide Family Doctor Contract Service?

A cross-sectional study based on the medical staff's perspective in China

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Abstract

China encourages medical staff from non-primary hospitals (higher-level hospitals) to participate in and provide Family Doctor Contract Service (FDCS) due to a lack of primary medical resources in community health service centers. This study aims to explore the factors affecting the willingness of family doctor contracting from the tertiary hospital medical staff's perspective.

An anonymous self-administered survey was conducted among the medical staff from tertiary hospitals in Hangzhou, Zhejiang Province. Information of the socio-demographic characteristics, the willingness of participating in FDCS and its related reasons, and factors that might affect willingness were investigated. A multivariate logistic regression was used to identify the statistically significant variables associated with willingness.

A total of 346 medical staff were recruited in the survey, and 37.86% of them were willing to participate in and provide FDCS. Medical staff with the following characteristics had stronger will:

- (1) with higher education level;
- (2) having better knowledge with family doctor;
- (3) being more attracted by the national policy of FDCS;
- (4) thinking it help for income increase.

The majority of willing doctors (25.95%) believed that participating in FDCS could help them achieve their personal value, and the reason chosen most for unwilling reason was "low income and unrealized personal value (32.21%)."

It is necessary for the government to establish the essential matching mechanisms to guarantee the development of the family doctor, including increasing the final financial support for primary health facilities, and developing the national incentive mechanism for family doctors.

Abbreviations: CHSC = community health service centers, FDCS = Family Doctor Contract Service.

Keywords: affecting factors, contracted services, family doctors, medical staff, tertiary hospital

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All participants were provided with a plain language statement explaining the study and gave the informed consent in the questionnaire survey. The survey obtained approval by Scientific Research Ethics Committee of School of Medicine, Hangzhou Normal University.

The authors have no conflicts of interest to disclose.

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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1. Introduction

Family doctors are family physicians or general practitioners trained to provide primary and continuing care for all inhabitants, and to arrange for other health specialists to provide related healthcare services as needed.^[1] The family doctor system plays an important role of “gate-keeper”^[2–7] in the primary healthcare system, and has been implemented in more than 50 countries (i.e., USA^[8] and UK^[9]) with gratifying results.

However, in China, the family doctor system started later, and also developed more slowly than Western countries. The idea of “family doctor” was introduced in China in the 1980s, but it was not promoted due to inadequate government funding, shortages in the skilled workforce, and poor quality of care.^[10–12] It was not until 2011, that the promulgation of “Guiding Opinions on Establishing a General Practitioner System” suggested an establishment of the family doctor system at the national level.^[13] Later, in 2016, according to “Guiding Opinions on Promoting Family Doctor Contract Services (FDCS),”^[14] the policy of FDCS was fully implemented in 200 pilot prefectural-level divisions across the country (the total number of prefectural-level divisions in China is 333). To achieve quick coverage, in 2017, the goal of the contracting rate was set at 30% for the total population and 60% for target groups (the elderly, children, populations with common chronic diseases, and so on). In fact, by the end of 2017, the goal was achieved. The contracting rate reached 35% in the entire population and 65% in the target population.^[15] Moreover, by 2020, the FDCS was aimed to benefit the entire population and required 2 to 3 family doctors for every 10,000 people.^[16]

However, with the vigorous implementation of the FDCS, the FDCS policy-related problems had also emerged. Numerous studies have explored these problems from the patients’ perspective. For instance, in different provinces of China, the inhabitants’ awareness of FDCS was not very high (71.5% in Zhejiang,^[17] 57.4% in Jiangsu,^[18] and 67.3% in Guangdong,^[19] etc). Also, the inhabitants always lacked the motivation to contract with a family doctor. The factors influencing inhabitants’ contract behavior included socio-demographic variables (age, education, marital, etc), awareness of FDCS, chronic disease history, satisfaction, and so on.^[17,20] Moreover, among the contracted inhabitants, the utilization of FDCS was not high. Only 51.9% of them would choose community health service centers (CHSC) as their preferred medical institution when they had common diseases such as cold and cough.^[21]

These above problems were due to the uneven distribution of medical resources in China. Primary hospitals lacked highly educated and highly skilled doctors because these doctors had gone to higher-level hospitals. In other words, this is precisely the lack of primary medical resources in China. Primary health care institutions lack quality medical resources. In order to better implement the policy of FDCS, it was necessary to encourage the medical staff in secondary or tertiary hospitals to assist in the primary hospitals. In 2015, China introduced a policy called “Guidance on Further Standardizing the Management of Community Health Services and Improving Service Quality,” stating that the family doctor team should be composed of medical staff from the secondary or tertiary hospitals and also those from primary health institutions. It also encouraged medical staff at the higher-level hospitals to participate in the policy of FDCS.^[22] However, due to the lack of necessary corresponding mechanisms and fiscal subsidies,^[23]

the work of “building family doctor teams” did not proceed smoothly.

Therefore, in order to encourage doctors from higher-level hospitals to be family doctors, this article aims to investigate the willingness of the medical staff from tertiary hospitals to participate in FDCS and its influencing factors, which can help to increase the coverage of FDCS, help build family doctor teams, and provide a basis for the government to formulate related policies.

2. Methods

2.1. Study design

In order to find out who are willing to be a family doctor, a cross-sectional survey was conducted among tertiary hospitals in Hangzhou, Zhejiang. The respondents of this study were the medical staffs from tertiary hospitals, who were qualified to participate in and provide FDCS.

Zhejiang, a province in the economically developed region of eastern China, implemented the FDCS policy in 2015.^[24] By the end of 2018, the contracting rate of Zhejiang was 34.90% among the total population and 75.18% among the target population.^[17] Hangzhou is the capital of Zhejiang and has 14 districts/counties. The “integrated medical treatment and nursing care system” contracted service model in Hangzhou was also a typical representative of many FDCS implementation models in China.

In China, hospitals are classified into 3 grades according to their ability to provide medical care, medical education, and conduct medical research, including

- (1) primary,
- (2) secondary, and
- (3) tertiary.

Primary hospitals are usually CHSC. Secondary hospitals are regional hospitals that provide health services across several communities. Tertiary hospitals are large hospitals that provide health services across regions, cities, and provinces. They have scientific research capabilities and are mostly concentrated in provincial capitals. This study was based on the tertiary hospitals.

2.2. Data collection and questionnaire

Data were collected from May to June 2019. First, all the tertiary hospitals in Hangzhou were listed. According to the district/county and local economic level, 12 hospitals were chosen using a purposive sampling (there are about 42 tertiary hospitals in Hangzhou). Second, the convenience sampling method was used to conduct a survey with the medical staff in hospitals. Finally, a total of 360 medical staff in the 12 tertiary hospitals were selected. After providing the informed consent, the respondents answered an anonymous self-administered questionnaire. However, 14 questionnaires were abandoned for incompleteness and 346 questionnaires were valid. The effective rate was 96%. The survey obtained approval by Scientific Research Ethics Committee of School of Medicine, Hangzhou Normal University.

The questionnaire consisted 3 parts: the socio-demographic characteristics (age, marital status, education level, etc), the willingness of participating in FDCS and its related reasons, and other assumed factors that might affect willingness (knowledge of the family doctor, the attraction of national policy, etc).

2.3. Definition of the research variables

The willingness to participate in FDCS was obtained from the questionnaire by the question “Are you willing to participate in and provide FDCS?” In the following statistical analysis, the respondents who answered “yes” were regarded as cases, and those who answered “no” were regarded as controls. The reasons for their willingness or unwillingness were also investigated simultaneously.

By searching the relevant literature,^[25,26] 5 factors that might affect willingness were selected. In the questionnaire, they were obtained by the following questions:

1. How much do you know the FDCS?
2. How attractive is the national policy of FDCS to you?
3. What do you think of the performance of basic health services by local medical institutions?
4. In your personal opinion, how much help for income increase if you be a family doctor?, and
5. Do you think you have the work competency to provide inhabitants with all the contents specified in the contract service package?

The answers to each question were divided into 5 levels according to the degree. Level 5 was the most level and Level 1 was the least level. Level 3 was generally regarded as the average level.

2.4. Statistical methods

The *Chi-square* tests were used to examine differences in the motivation, as well as the differences in the reasons for willingness or unwillingness, among the different variable groups. A multivariate logistic regression was used to identify the statistically significant variables associated with the willingness. All analysis was conducted using R 3.6.3, and $P < .05$ was considered statistically significant.

2.5. Power

Statistical power calculation needs 3 major statistical parameters, including effect size, level of significance, and sample size. Also, the calculation method will change with different types of statistical tests.

In this study, *Chi-square* tests and a multiple regression analysis were used. Therefore, we had calculated the power for each statistical test. First, a two-tailed significance level (α) was set to 0.05 for all statistical tests. Second, the sample size was 346 for each test. Third, according to the formulas,^[27,28] the effect sizes were calculated. For *Chi-square* tests, the values of the effect sizes range from 0.10 to 0.22. For multiple regression, the effect size was 0.43. Then powers were calculated using PASS 15 (2017). The most of powers were greater than 0.8. Therefore, the sample size of 346 in this study was sufficient.

3. Results

3.1. Respondents' demographic characteristics

A total of 346 medical staff were recruited in the survey. The demographic characteristics are illustrated in Table 1. Among them, 43.06% were male, and 37.86% were aged 31 to 50 years. About 72.25% were married, and the most common education level was a master's degree and above (43.93%). Most

respondents were western medicine clinicians (57.22%), held the primary title (42.20%), and 42.77% had worked for 1 to 10 years. Their most common daily working hours were 8 to 10 hours (45.95%), and the most common monthly income was 8001 to 15,000 Yuan (32.08%) (1 USD=6.3856 CNY, 2021-06-11, the same below).

3.2. Motivation for participating in FDCS and its influencing factors

The results showed that 37.86% of all respondents were willing to participate in FDCS, and the unwilling rate was 62.14%. There were differences in the motivation in terms of monthly income, the attraction of national policy of family doctor, and having the work competency or not (all *Chi-square* test P values $< .05$).

Further, using the multivariate logistic regression, we observed that medical staff with the following characteristics had stronger will

- (1) with higher education level (master and above: OR=2.920, 95%CI=1.445–5.903);
- (2) having better knowledge with family doctor (Level 5: 3.084, 1.224–7.771);
- (3) being more attracted by national policy of FDCS (Level 4: 2.999, 1.140–7.893; Level 5: 5.347, 2.031–14.078);
- (4) thinking it help for income increase (Level 5: 3.079, 1.106–8.575).

On the contrary, compared to the lowest monthly income (< 3000 Yuan), those with higher monthly income were less motivated to participate in FDCS. In other words, lower-paid doctors (< 3000 Yuan) were more motivated to participate in FDCS.

3.3. Reasons for willingness or unwillingness of participating in FDCS

Among respondents who were willing to participate in FDCS ($n = 131$), the main reason for their willingness was investigated (Fig. 1). The majority of willing doctors (25.95%) believed that participating in FDCS could help them achieve their personal value. Also, 25.95% of medical staff thought they were having a superior working environment which was good for providing family doctor service. Moreover, 21.37% of medical staff looked forward to join in family doctor team to increase their income. Another 12.98% were willing to participate in FDCS due to good policy incentives. There were no differences in willing reasons between the different variable groups (all *Chi-square* test, $P > .05$).

The reasons for not participating in FDCS were also investigated (Fig. 2), including “low income and unrealized personal value (32.21%),” “unclear development prospects and no social reputation (21.15%),” “bad working environment (20.67%),” “imperfect related policies (12.02%),” and others (13.94%). There were differences in unwilling reasons among different education levels ($P = .046$). The proportion who chose the reason “bad working environment” in the undergraduate group seemed to be higher than that in other groups. Moreover, compared to those with shorter working years, among the medical staff with 21 to 30 or > 30 working years, a higher proportion was observed to choose the reasons “low income and unrealized personal value” ($P = .017$).

Table 1**Factors affecting the motivation for participating in and providing FDGS in Hangzhou, Zhejiang.**

Factors	Would you like to participate in FDGS?		OR (95%CI)*
	Yes (N, %) (N=131, 37.86%)	No (N, %) (N=215, 62.14%)	
Sex			
Male	54 (36.24)	95 (63.76)	Reference
Female	77 (39.09)	120 (60.91)	1.183 (0.689–2.032)
Age group			
≤30	46 (37.10)	78 (62.90)	Reference
31–50	48 (36.64)	83 (63.36)	1.108 (0.583–2.108)
≥51	37 (40.66)	54 (59.34)	1.549 (0.725–3.306)
Marital status			
Married	95 (38.00)	155 (62.00)	Reference
Others	36 (37.50)	60 (62.50)	1.018 (0.528–1.964)
Education level			
Junior college student or lower	26 (33.33)	52 (66.67)	Reference
Undergraduate	38 (32.76)	78 (67.24)	1.016 (0.491–2.104)
Master and above	67 (44.08)	85 (55.92)	2.920 (1.445–5.903)**
Qualification for practicing medicine			
Western medicine clinician	81 (40.91)	117 (59.09)	Reference
Traditional Chinese medical doctor	39 (36.79)	67 (63.21)	0.907 (0.492–1.670)
Others	11 (26.19)	31 (73.81)	0.509 (0.212–1.222)
Job title			
No title	49 (42.24)	67 (57.76)	Reference
Primary title	53 (36.30)	93 (63.70)	0.764 (0.408–1.431)
Intermediate title	17 (29.82)	40 (70.18)	0.474 (0.201–1.120)
Senior professional post	12 (44.44)	15 (55.56)	1.204 (0.437–3.320)
Working hours per day			
<8h	33 (40.74)	48 (59.26)	Reference
8–10h	62 (38.99)	97 (61.01)	1.190 (0.610–2.325)
>10h	36 (33.96)	70 (66.04)	0.718 (0.344–1.501)
Monthly income (RMB)			
<3000 Yuan	43 (50.59)	42 (49.41)	Reference
3000–8000 Yuan	36 (36.36)	63 (63.64)	0.506 (0.252–1.016)
8001–15,000 Yuan	37 (33.33)	74 (66.67)	0.460 (0.228–0.929)*
>15,000 Yuan	15 (29.41)	36 (70.59)	0.284 (0.114–0.706)**
Years of working			
1–10	60 (40.54)	88 (59.46)	Reference
11–20	49 (37.12)	83 (62.88)	0.931 (0.498–1.742)
21–30	13 (28.89)	32 (71.11)	0.478 (0.202–1.129)
>30	9 (42.86)	12 (57.14)	1.059 (0.305–3.683)
Knowledge of the family doctor†			
Level 1 (not at all-least level)	27 (34.62)	51 (65.38)	Reference
Level 2 (not too much)	40 (42.55)	54 (57.45)	1.328 (0.634–2.781)
Level 3 (a little-average level)	29 (35.37)	53 (64.63)	0.824 (0.372–1.826)
Level 4 (more)	15 (30.00)	35 (70.00)	0.925 (0.357–2.398)
Level 5 (very well-most level)	20 (47.62)	22 (52.38)	3.084 (1.224–7.771)*
Attraction of national policy of family doctor†			
Level 1 (least level)	15 (26.32)	42 (73.68)	Reference
Level 2	34 (38.64)	54 (61.36)	2.315 (0.955–5.608)
Level 3	31 (31.31)	68 (68.69)	1.552 (0.667–3.613)
Level 4	22 (41.51)	31 (58.49)	2.999 (1.140–7.893)*
Level 5 (most level)	29 (59.18)	20 (40.82)	5.347 (2.031–14.078)***
Performance of basic health services by local medical institutions†			
Level 1 (least level)	5 (23.81)	16 (76.19)	Reference
Level 2	15 (42.86)	20 (57.14)	2.737 (0.694–10.797)
Level 3	8 (29.63)	19 (70.37)	1.426 (0.333–6.103)
Level 4	60 (42.25)	82 (57.75)	1.725 (0.532–5.598)
Level 5 (most level)	43 (35.54)	78 (64.46)	1.391 (0.417–4.636)
Help for income increase to be a family doctor†			
Level 1 (least level)	23 (34.33)	44 (65.67)	Reference
Level 2	34 (37.78)	56 (62.22)	1.339 (0.606–2.962)
Level 3	36 (33.64)	71 (66.36)	1.054 (0.495–2.244)
Level 4	22 (46.81)	25 (53.19)	2.075 (0.794–5.423)*
Level 5 (most level)	16 (45.71)	19 (54.29)	3.079 (1.106–8.575)*

(continued)

Table 1
(continued).

Factors	Would you like to participate in FDSC?		OR (95%CI) [*]
	Yes (N, %) (N = 131, 37.86%)	No (N, %) (N = 215, 62.14%)	
Work competency to provide the contract service [†]			
Level 1 (least level)	11 (36.67)	19 (63.33)	Reference
Level 2	8 (21.62)	29 (78.38)	0.363 (0.103–1.278)
Level 3	6 (14.29)	36 (85.71)	0.236 (0.065–0.859)
Level 4	61 (42.96)	81 (57.04)	1.646 (0.630–4.304)
Level 5 (most level)	45 (47.37)	50 (52.63)	2.343 (0.854–6.434)

FDSC = Family Doctor Contract Service.

^{*} P for logistic regression. ^{*} P < .05, ^{**} P < .01, ^{***} P < .001.

[†] The answers to each question were divided into 5 levels according to the degree. Level 5 was the most level and Level 1 was the least level. The Level 3 was generally regarded as the average level.

4. Discussion

The family doctor policy is at the recommended stage in China, but it is not without shortcomings. For example, “signing but not fulfilling,” which means that even residents have signed a family doctor, they do not make any appointment with the family doctor when ill. But this policy is currently the main policy that promotes the sinking of medical resources to the primary hospitals. Although the number of medical institutions in China was a regular triangle (there are more primary hospitals than secondary or tertiary hospitals), it was an inverted triangle in terms of technology and specialists. The clinical technology of the secondary or tertiary hospitals was much better than that of

the primary hospitals. So the patients distrusted in the quality of primary care and would rather go to secondary or tertiary hospitals.^[29] However, even if there are shortcomings, the policy is still being vigorously promoted in order to solve related medical problems.

In this study, among the medical staff from the tertiary hospitals, the willingness rate of participating in and providing FDSC was 37.86% in Hangzhou, Zhejiang. We could not find the corresponding motivation data at the national level, and therefore, the willingness of this study could not be compared with that of the entire country. Moreover, published studies had shown that 65.5% of medical staff from the CHSC was willing to respond to FDSC in Wenzhou, Zhejiang (very responsive: 6.8%; more responsive: 20.6%; responsive: 38.1%).^[30] Wenzhou is

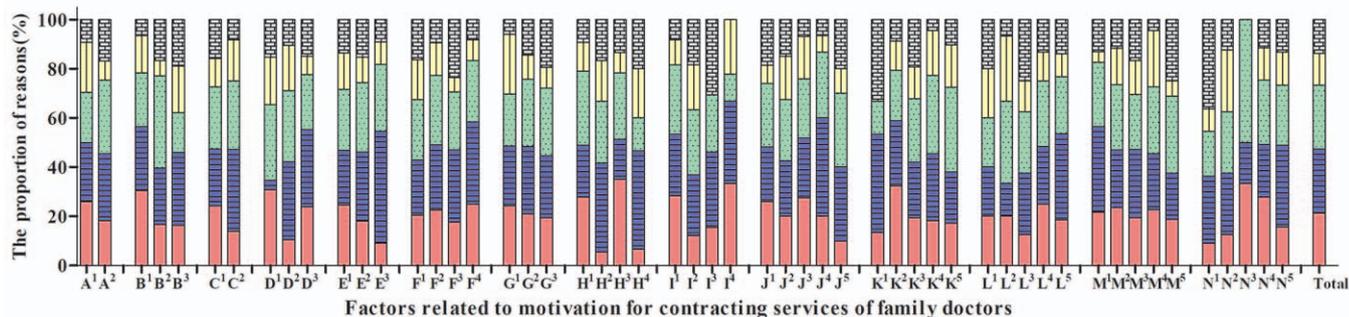


Table. Index of related factors

Code	Factor	Numbering				
		1	2	3	4	5
A	Sex	Male	Female			
B	Age group	≤30	31-50	≥51		
C	Marital status	Married	Others			
D	Education level	Junior college student or lower	Undergraduate	Master and above		
E	Qualification for practicing medicine	Western medicine clinician	Traditional Chinese medical doctor	Others		
F	Job title	No title	Primary title	Intermediate title	Senior professional post	
G	Working hours per day	<8h	8-10h	>10h		
H	Monthly income (RMB)	<3000 Yuan	3000-8000 Yuan	8001-15000 Yuan	>15000 Yuan	
I	Years of Working	1-10	11-20	21-30	>30	
J	Knowledge of the family doctor	Level 1 (least level)	Level 2	Level 3	Level 4	Level 5 (most level)
K	Attraction of national policy of family doctor	Level 1 (least level)	Level 2	Level 3	Level 4	Level 5 (most level)
L	Performance of basic health services by local medical institutions	Level 1 (least level)	Level 2	Level 3	Level 4	Level 5 (most level)
M	Help for income increase to be a family doctor	Level 1 (least level)	Level 2	Level 3	Level 4	Level 5 (most level)
N	Work competency to provide the contract service	Level 1 (least level)	Level 2	Level 3	Level 4	Level 5 (most level)

Figure 1. Reasons for willingness of participating in FDSC.

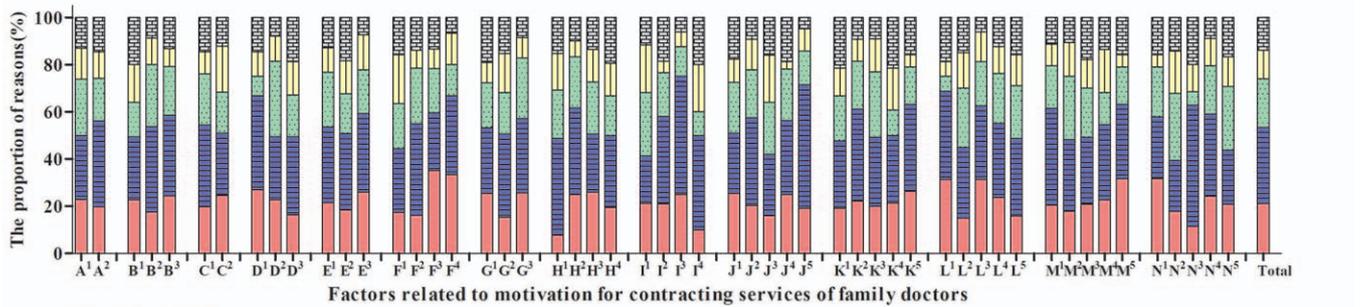


Table. Index of related factors

Code	Factor	Numbering				
		1	2	3	4	5
A	Sex	Male	Female			
B	Age group	≤30	31-50	≥51		
C	Marital status	Married	Others			
D	Education level	Junior college student or lower	Undergraduate	Master and above		
E	Qualification for practicing medicine	Western medicine clinician	Traditional Chinese medical doctor	Others		
F	Job title	No title	Primary title	Intermediate title	Senior professional post	
G	Working hours per day	<8h	8-10h	>10h		
H	Monthly income (RMB)	<3000 Yuan	3000-8000 Yuan	8001-15000 Yuan	>15000 Yuan	
I	Years of Working	1-10	11-20	21-30	>30	
J	Knowledge of the family doctor	Level 1 (least level)	Level 2	Level 3	Level 4	Level 5 (most level)
K	Attraction of national policy of family doctor	Level 1 (least level)	Level 2	Level 3	Level 4	Level 5 (most level)
L	Performance of basic health services by local medical institutions	Level 1 (least level)	Level 2	Level 3	Level 4	Level 5 (most level)
M	Help for income increase to be a family doctor	Level 1 (least level)	Level 2	Level 3	Level 4	Level 5 (most level)
N	Work competency to provide the contract service	Level 1 (least level)	Level 2	Level 3	Level 4	Level 5 (most level)

Figure 2. Reasons for unwillingness of participating in FDCS.

also a prefecture-level city in Zhejiang Province. The proportion of grassroots medical staff in other provinces who were willing to be family doctors was also above 60%.^[31] However, in our study, the willingness of medical staff from tertiary hospitals was 37.86%. In other words, the willingness rate of medical staff from the tertiary hospitals was much lower than that of those from the CHSC.

Our study also showed the influencing factors of motivation. One of these factors was social-demographic characteristics, including education level and monthly income. The medical staff with higher education levels (master or above) seemed to be more willing to participate in FDCS, and the reason for the willingness they chose the most was to achieve personal value (Fig. 1). This might be because highly educated people had a better understanding of family doctor policies. They wanted to realize their own value and built a better career path by participating in the family doctor policy. As for monthly income, it was easily understood that the lowest income group was the most urgent to increase their income by accepting more work tasks (i.e., participating in FDCS).

Besides the socio-demographic characteristics, the factors affecting motivation also included: having better knowledge of the family doctor, being more attracted by the national policy of FDCS, thinking it helps for income increase. By extension, “being more attracted by national policy of FDCS” could be revised to “national government factors”; “having better knowledge of the family doctor and thinking it help for income increase” could be revised to “contracted doctor-related factors.” The national government could develop a uniform health insurance policy, the state essential drug system and the basic medical service plan, all of which will improve the access and affordability of primary

health care.^[11] The “contracted doctor-related factors” were the internal motivation of the medical staff. For instance, family doctors’ work cognition may play a role in their work competency, and their competency could also affect their work stability.^[32] But unfortunately, no associations were found between motivation and “performance of basic health services by local medical institutions”. “Performance of basic health services by local medical institutions” could be revised to “work environment factors.” Therefore, the “work environment factors” was not associated with motivation, which was not consistent with other published studies.^[33]

Furthermore, among the reasons for willingness or unwillingness, the most chosen were both “contracted doctor-related factors (achieve personal value or not),” followed by “work environment factors,” and finally “national government factors.” However, the ranking of the factors in this study differed from the other studies. Some studies showed that among the medical staff in community health service centers, the ranking of these 3 factors should be “national government factors,” “work environment factors (community health service agency factors),” and “contracted doctor-related factors.”^[33] The difference in the ranking might be due to the different hospital sources of the survey subjects.

In view of the above influencing factors, actionable measures to increase the motivation should be proposed.^[23,34] First, from the perspective of the national government, it is necessary to establish the essential matching mechanisms to guarantee the development of the family doctor. Several aspects deserve more attention: increase the final financial support for primary health facilities, and develop the national incentive mechanisms for family doctors, especially those that encourage medical staff at upper-

level hospitals to participate in FDCS at primary hospitals. Second, from the perspective of the contracted doctor-related factors, the shortage of family doctors with higher competency, higher education level, senior titles, and younger age should be filled by strengthening the medical education, especially the general practitioners education.^[35]

There are 3 limitations in this study. Firstly, it is a cross-sectional study, so causation cannot be inferred. Secondly, other factors that might affect willingness were not included in the questionnaire, such as patients-related factors (i.e., doctor-patient relationship). Thirdly, each factor had better cover multiple items and a scale design may be more reasonable for this study. Since the family doctor policy is still in the promotion stage in China, the purpose of this study is to conduct an exploratory analysis and interpretation of this topic. In future research work, ore in-depth related reasons can be explored by means of scales.

5. Conclusions

In conclusion, medical staff with higher education levels and lower monthly income were more willing to participate in and provide FDCS. The national government factors, the contracted doctor-related factors were also factors affecting the willingness. In order to alleviate the current shortage of family doctors, China needs to encourage more and highly capable doctors to participate in FDCS. Therefore, mobilizing the enthusiasm of medical staff in all aspects is an important guarantee for the current implementation of the FDCS policy.

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Project administration: Ye Ding.

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Visualization: Shangren Qin, Ye Ding.

Writing – original draft: Shangren Qin.

Writing – review & editing: Ye Ding.

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