

BMJ Open Barriers and facilitators of family doctor contract services in caring for disabled older adults in Beijing, China: a mixed methods study

Zhiying Zhang,¹ Ruyi Zhang,² Yingchun Peng ,¹ Shaoqi Zhai,¹ Jiaying Zhang,¹ Qilin Jin,³ Jiaojiao Zhou,⁴ Hanlin Li,⁵ Jingjing Chen⁶

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ZZ and RZ contributed equally.

ZZ and RZ are joint first authors.

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For numbered affiliations see end of article.

Correspondence to

Dr Yingchun Peng;
pjcjql@ccmu.edu.cn

ABSTRACT

Objective To evaluate the current state of family doctor contract services (FDCS) in Beijing, identify the roles of family doctors who have worked with disabled older adults and investigate the barriers and facilitators faced by family doctors in providing care for them.

Design A convergent mixed methods study was carried out from October 2020 to January 2021 to collect and analyse both quantitative and qualitative data. The integration strategies in this study were connecting the results of the quantitative phase to data collection of the qualitative phase.

Setting A multi-stage sampling strategy was used to select 15 community health centres (CHCs) in four districts of Beijing. Of the four districts, two were from urban areas and two were from rural areas.

Participants The inclusion criteria for participants were (1) family doctors, (2) contracted with disabled older adults, (3) engaged in related work for disabled older adults more than 6 months.

Methods A cluster sampling of 283 family doctors was used in the questionnaire. A purposive sample of 30 family doctors from the same CHCs was selected during the same period. Frequency and rank, rank-sum test, Kruskal-Wallis test were conducted in qualitative data analysis, the views of the interviewees were analysed through the thematic framework method.

Results Currently, family doctors provided various services to satisfy the health needs of disabled older adults, while the usage of FDCS for disabled older adults is affected by many factors. The differences of the importance of family doctors' role ($p < 0.001$) and service satisfaction ($p = 0.004$) were significant among four districts. Compared with contracted health senior citizens, this study has identified five unique roles of family doctors, including 'psychological consultant', 'rehabilitation physiotherapist', 'health educator', 'health manager' and 'family health guardian'. Moreover, family doctors are confronted with a myriad of barriers (including high risks in the process of home visits, a lack of supervisory and incentive mechanisms, insufficiency of time and energy, etc) and facilitators (including establishing a doctor-patient trust relationship, developing humanistic care services, etc) in the FDCS for disabled older adults.

Conclusions Family doctors play a pivotal role in the FDCS for disabled older adults, while the effect and quality

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This study is the first time to identify the roles of family doctors in family doctor contract services (FDCS) for disabled older adults in Beijing.
- ⇒ This study has discovered the interests and demands of family doctors as well as potential obstacles and enablers in the implementation of FDCS for disabled older adults.
- ⇒ This study has examined many aspects of the current FDCS for disabled older adults in Beijing, and enriched the international discussion of similar topics.
- ⇒ This study collected data from one sector of health-care provider does not cover the perspective of all stakeholders in FDCS.
- ⇒ The representativeness of this study was limited since only a sample of family doctors in 4 districts chosen from 16 in Beijing.

of FDCS in China needs to be improved. It is suggested that further research needs to focus on solving existing barriers of FDCS to optimise the health of disabled older adults and improve the quality of their lives.

INTRODUCTION

With the global escalation of the ageing process and the extension of average life expectancy, more and more older adults tend to face a high risk of disability. *The World Report on Disability* manifested that there are more than 1000 million people with disabilities in the world, and disability disproportionately exerts a profound influence on vulnerable populations, in particular, the older adults.¹ At the end of 2020, there are more than 85 million people living with some type of disability in China.² Among them, the population of disabled older adults has reached 26.28 million, accounting for 9.95% of the overall ageing population.³ Beijing, as a typical example, is characterised by advanced age and a high disability rate. In 2021, there

are about 205 000 disabled older adults in Beijing, the disability rate of the senior citizens is 4.78% and the older adults with moderate or severe disability account for 70% of the whole disabled older adults.⁴

The disabled older adults, as a priority group of society, have extremely complex conditions and diversified needs. Nieboer *et al* found that different ageing groups have different values for long-term care services.⁵ Important factors including the physical, mental and family financial conditions of disabled older adults have a significant influence on their choice of health and care services.^{6 7} A related study indicates that the disabled older adults' care not only need daily care, but also medical care and rehabilitation training care services.⁸ Due to poor physical conditions, many disabled older individuals have difficulty moving, they hardly can go to the hospital by themselves. Community health centres (CHCs) may become the only way for them to obtain medical treatment. Moreover, most older adults with severe disabilities have lost normal physiological functions, they have to rely on external devices, such as a gastric tube, and a urinary catheter to support their daily physical needs. However, changing the gastric tube or urinary catheter is a knotty problem for those bedridden people and their families. Therefore, satisfying the health and care needs and improving the basic living conditions of disabled older adults is not only an urgent need of the seniors and their families, but also a serious social issue to be considered.

To address the challenges of rapid growth and massive demand of the older adults with disability, China has released a series of policies. *The Law of the People's Republic of China on the Protection of the Rights and Interests of the Elderly (2012)*, which clearly stated that local government at all levels should give care subsidies to older adults who are unable to take care of themselves for a long time or have difficulties in finance based on their disability level. In 2016, the State Council Medical Reform Office and other seven ministries launched the *Guiding Opinions on Promoting Family Doctor Contract Services (FDCS)*, it marked the formal implementation of FDCS in China and had a positive significance on enhancing the health level of community residents and achieving the goal of hierarchical diagnosis treatment. The National Health Commission in 2019 gave further guidance on FDCS, which required family doctors to provide door-to-door healthcare services for disabled older adults, terminally ill patients and other people who are in urgent need, and extend the contracted services from institutions to communities and families.⁹ In 2022, the State Council issued a *guideline to promote the development of national undertakings for the aged and improve the elderly care service system during the 14th Five-Year Plan period (2021–2025)*, which encouraged medical and health institutions providing FDCS such as family care beds or home visits to solve the basic care needs of disabled older adults. With relevant policies on disabled older adults released in recent years, the living conditions and standard of living of disabled older adults have improved. However, China has not yet established a long-term care system for disabled

older adults due to lots of factors, such as lack of qualified professionals, limited service types, unrealised integrated care, etc.¹⁰

As a core component of the primary healthcare system, FDCS is the most available healthcare services to cater to older adults' long-term care needs in China.¹¹ Like other developed countries, such as USA, UK and Germany, family doctors play a more and more vital role in the primary care system.¹² As the gatekeeper of residents' health, family doctors play six roles in the primary care system, including triage and treatment, resource allocation, surveillance and monitoring, preventive care, integrated care and continuity of care.^{13–15} By using FDCS, family doctors in CHCs establish a long-lasting, ongoing and stable contractual relationship with disabled older adults. And it is natural to provide medical care, and essential public health management services for them, including establishing health records, physical examinations, chronic disease follow-ups, etc. At the end of 2021, there are 1435 million family doctors across the whole country and they have formed 431 000 teams to provide FDCS for residents. As one of the first pilot areas of FDCS, Beijing's contracted residents have reached 8.016 million in 2021, and the signing rate of key groups has remained above 90%.¹⁶

Although the number of contracted residents is increasing every year, the overall performance of using FDCS at CHCs is in a bad condition. Previous studies have shown that FDCS is plagued with severe problems, such as lack of community health resources, the shortage of family doctors,¹⁷ the low awareness of contracted residents to FDCS¹² and the absence of supporting policies,¹² which results in no increase of the actual usage of FDCS. Meanwhile, the current effect of using FDCS for disabled older adults is not obvious in Beijing due to limited medical resources, less service types of FDCS, and low contract spirit between doctors and patients.¹⁸

Family doctors, as ideal medical service providers, are expected to take a pivotal role in the provision of medical care services for the disabled older adults and meet the disabled older adults' diversified needs. However, no previous study has explored the roles of family doctors in the process of providing FDCS for disabled older adults, and there is less research to figure out what barriers and facilitators of FDCS will have in the process of caring for disabled older adults based on the viewpoints of healthcare providers. To solve the dilemma of FDCS and motivate family doctors to provide more high-quality services for disabled older adults, this study is the first to identify the roles of family doctors contracted with disabled older adults in Beijing and investigated the barriers and facilitators of using FDCS from the perspectives of family doctors.

MATERIALS AND METHODS

Study design and sample selection

A questionnaire survey and semi-structured interviews were carried out on family doctors in the CHCs of Beijing,

the capital city of China, from October 2020 to January 2021. A multistage sampling strategy was adopted.¹⁹ In the first stage, four districts of Beijing (two from urban areas, namely Xicheng District, Fengtai District; two from rural areas, namely Daxing District and Huairou District) were selected based on the level of economic development and the linear distance from Tiananmen Square. The prominent feature of Xicheng District is the functional core area of Beijing. As one of six urban districts of Beijing, Xicheng District is the core bearing area of political centre and cultural centre, the protection of famous historical and cultural city, and also is 'an important window' to reflect the national image and international communication. Fengtai District is the central city area of Beijing. It is positioned as 'an important guaranteed area for supply high quality life services in the capital' from the Beijing City Master Plan. Daxing District is located in the southeast of Beijing, which is an important base of agricultural and sideline food production. Huairou District is one of rural areas of Beijing, located in the northeast of cities. It has many mountains, which formed the natural barrier of Beijing. Huairou District is also called the Green Great Wall of Beijing. In the second stage, 3–4 CHCs were selected in each district based on the status of using FDCS, a total of 15 CHCs participated in our research. In the third stage, due to 3–5 family doctor teams in each CHC, and the family doctor team was composed of three medical-nursing-prevention personnel, so all the family doctor teams were selected by using cluster sampling method. There were a total of 283 family doctors participating in this study. At the same period, 2–3 family doctors were selected from 15 CHCs by purposive sampling method and joined in-depth interview. Finally, the research team (one graduate tutor and three graduate students) went to each sampling CHC to conduct this study.^{20 21}

Convergent mixed methods^{22 23} were used in data collection and the analytical process, which collected and analysed qualitative and quantitative data independently and simultaneously, and evaluated and combined with qualitative and quantitative results. The process of mixed methods is shown in [figure 1](#) and described in detail.

In the quantitative phase, a cross-sectional survey using a self-designed questionnaire was conducted on family doctors. The self-designed questionnaire mainly investigated the current status of FDCS for disabled older adults, including the usage of FDCS, the workload for home visits by family doctors and the performance evaluation of FDCS based on the family doctors.

In the qualitative phase, a one-to-one and semi-structured in-depth personal interview for family doctors was used to supplement and support the study. As thematic framework methods adopted,²⁴ the content of the interview mainly is to focalise two perspectives, one is the differences in health management between contracted healthy senior citizens and disabled older adults, and the other is the barriers and facilitators of FDCS in caring for disabled older adults.

In this study, the quantitative and qualitative phase were conducted in parallel and then integrated. The integration strategies in this study were connecting the results of the quantitative phase to data collection of the qualitative phase. Quantitative methods were adopted to understand the current status of FDCS in caring for disabled older adults and the main factors which affect family doctors to provide contracted services for disabled older adults. Then based on the results of the quantitative phase, this study further explored the roles of family doctors and barriers and facilitators of FDCS in caring for disabled older adults. In this study, both quantitative and qualitative results are applied to make a better understanding of the roles and challenges faced by family doctors in the process of providing contracted services for disabled older adults and the factors associated with better quality of FDCS for disabled older adults.

Quantitative phase

Under the national and Beijing's relevant policies of FDCS for disabled older adults, the research team has considered the humanistic environment, regional characteristics and the actual situation of the contracted services in Beijing and compiled a self-designed questionnaire after an extensive review of relevant literature and repeated discussion by panel experts. The questionnaire was revised based on feedback from a pretest performed in one CHC. Moreover, the questionnaire design and the whole process of questionnaire exploring were applied the Guideline Implementation Planning Checklist developed by Gagliardi *et al.*^{25 26}

Instruments

To explore the status of FDCS for disabled older adults in Beijing, the questionnaire consisted of four sections. The first part was a total of four questions regarding demographic characteristics of family doctors, including gender, age, regions, education level and position title. The second part was the usage of FDCS for disabled older adults. It consisted of four multiple choice questions: (1) the type of contract services that family doctors provided for disabled older adults; (2) the top three services that disabled older adults needed most from the perspective of family doctors; (3) the most concerning factors of disabled older adults while family doctors providing medical services; (4) the main factors that affect family doctors to provide contracted services for disabled older adults. Respondents needed to list the top three answers in question 2 and question 4. The third part was the workload for home visits by family doctors, to describe the workload of home visits by family doctors, three aspects were taken into consideration: (1) the frequency per year of home visits provided by each family doctor for disabled older adults; (2) the treatment time in hours quantified the time of treatment for each home visit; (3) the workload for home visits by family doctors was calculated by multiplication of the treatment time with the frequency per year. The final part was the performance evaluation

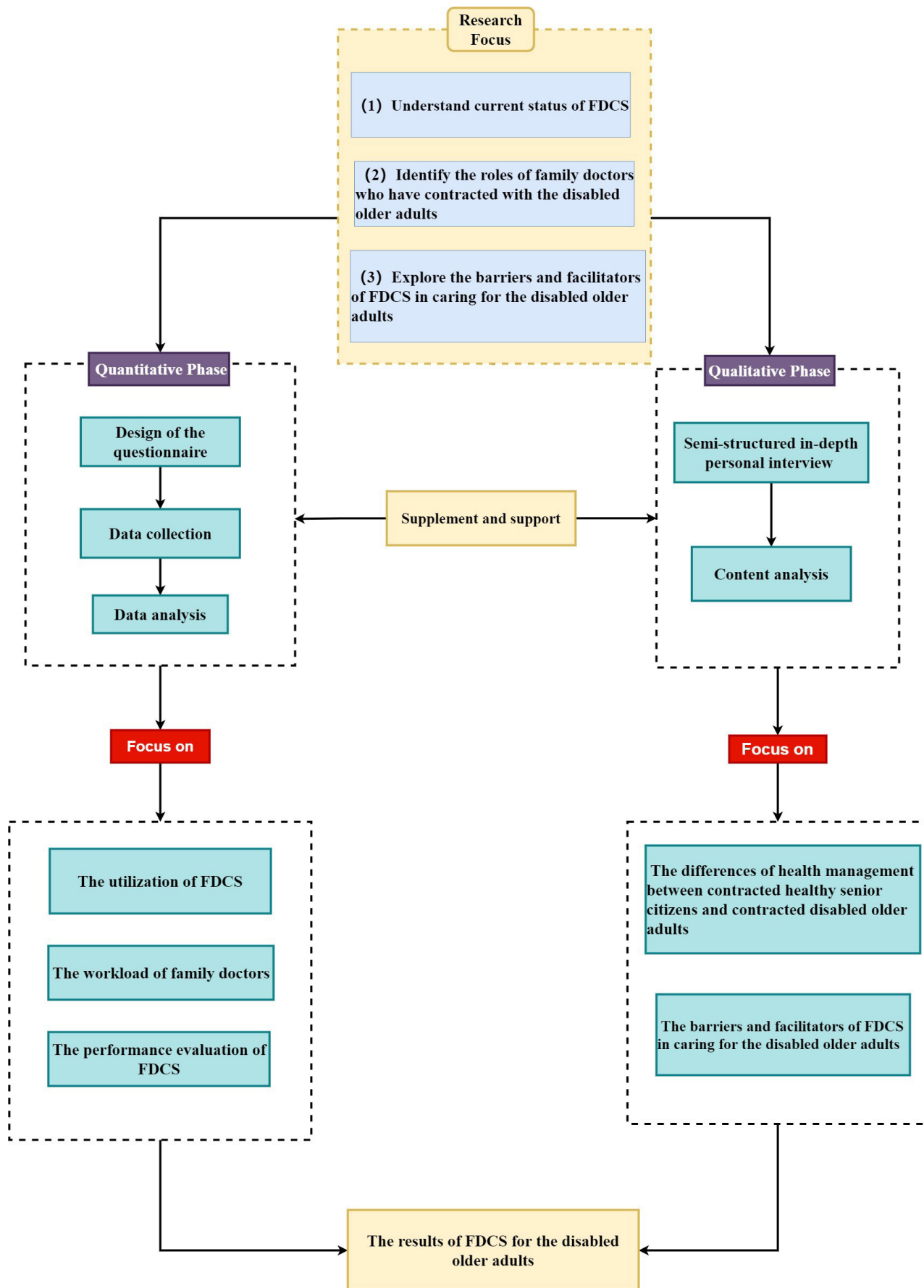


Figure 1 Process of the mixed methods research. It intuitively reflects the purpose of our research, the main content and methods of each stage. FDCS, family doctor contract services.

of FDCS based on family doctors, which included three multiple choice questions: (1) the cooperation frequency of disabled older adults and their families when family doctors operate home visits service; (2) the importance of family doctors' role in the FDCS for disabled older adults; (3) the extent to which FDCS meet the medical needs of disabled older adults. To measure the performance evaluation of FDCS based on family doctors, we discovered that the independent was different regions and the dependent variable was cooperation frequency of disabled older adults and their families, importance of family doctors' role and the extent to which FDCS meet the medical needs of disabled older adults.

The research team has discussed the rationality and appropriateness of each question, and the content validity of the questionnaire was tested by an expert with extensive experience in FDCS and a clinical expert who work in a CHC. After experts' feedback, a pilot study was conducted in a CHC with 40 samples two times within a 2-week interval to check reliability of the questionnaire. The 40 samples were same population and they have same characteristics as those used in the present study. The test-retest reliability coefficient after 2 weeks was 0.73.

Data gathering

The inclusion criteria of the questionnaires were as follows: (1) family doctors, (2) contracted with disabled older adults, (3) engaged in the related work for disabled older adults more than 6 months. Two hundred and eighty-three family doctors participated in the questionnaire survey in the 15 selected CHCs. The returned questionnaires with invalid data were to the exclusion of data analysis, and hence final samples of 276 were gathered.

Statistical methods

Statistical description

Data were recorded into EpiData V.3.1 system and processed by SPSS V.21.0 statistical software. The mean and SD were used to statistically describe the measurement data, and the counting data were presented by composition ratio, frequency, and parity arrangement.

Data analysis

Frequency and rank were applied to display the quantitative data of family doctors including demographic characteristics, gender, age, regions, education and positional title, rank-sum test was used to analyse the content of the performance evaluation of FDCS based on family doctors, in which Wilcoxon rank-sum test pointed to for two groups and Kruskal-Wallis test (K-W test) for multiple groups. After K-W test, we used least significant difference method to compare pairwise group.

Qualitative phase

Sampling and interviews

The sampling strategies applied in this stage were purposive sampling. At the start of this research, purposive sampling was used to select family doctors who met the following inclusion

criteria: (1) family doctors, (2) contracted with disabled older adults, (3) engaged in the related work for disabled older adults at least 5 years. The exclusion criteria was that family doctors were unwilling to participate or not able to cooperate with the research. The research team initially connected with 15 managers of CHCs by telephone, email, WeChat to confirm the time, place and the number of family doctors who may accepted interview. Then, the manager of CHC provided a list containing contact information of family doctors who meet the eligibility criteria and their contact information. The research team members contacted the intended interviewees and provided a detailed introduction to the research purpose. Finally, 30 family doctors had informed consent and voluntarily participated in the interview.²⁶

Data collection

The interview outline was formulated based on an extensive review of relevant literature and repeated discussion by panel experts. And two participants were also invited to conduct pre-interviews before the formal interview to ensure the integrity of the outline content. The content of the interview outline contained the demographic characteristics of family doctors, the differences of health management between contracted healthy senior citizens and disabled older adults, and the barriers and facilitators of FDCS for disabled older adults. One-to-one, semi-structured in-depth personal interviews were conducted in this study. All the interviewers have received a unified standard training in advance, so as to avoid the induced problems and reduce research subjective biases. Before the interview, the interviewer introduced the research purpose, methods, content, and confidentiality principles to the interviewees in detail, and obtained informed consent.²⁷ During the interview, the interviewee or the research assistant took note (field note) the main issue and after completing the interview verified the content. The notes were used to compare with the verbatim transcription. Due to a verbatim transcript captures every single spoken word in the recording and puts it into text. The data saturation of our research is defined as the point when the interviewees did not show any new content or views in the latest round of interviews.²⁸ Thirty family doctors reached the maximum of data saturation. After the interview, the recorded content will be transcribed in detail within 24 hours by members of the research group to ensure the authenticity of the interview content. The interviewees were anonymised, and family doctors were coded with N1–N30.

Content analysis

A thematic framework method was employed in the qualitative study. The data are classified and analysed by identifying themes, labelling data and extracting core information.²⁹ With the help of the grounded theory,^{30 31} the data were divided into discrete parts that represented raw data and open-coded in order to dig out as many themes as possible.³² The dominant themes were extracted from the comment that appeared repeatedly. Data reduction was performed manually. We classified the related comments into various categories. In

Table 1 Demographic characteristics of family doctors

Items	Number of surveys (%)
Gender	
Male	83 (30.1)
Female	193 (69.9)
Age	
20~	47 (17.0)
30~	130 (47.1)
40~	78 (28.3)
50~	15 (5.4)
60~	6 (2.2)
Regions	
Xicheng District	55 (19.9)
Fengtai District	93 (33.7)
Daxing District	69 (25.0)
Huairou District	59 (21.4)
Education	
High school or technical secondary school	4 (1.4)
Junior college	41 (14.9)
University	177 (64.1)
Postgraduate degree or above	54 (19.6)
Positional title	
Chief physician	4 (1.4)
Associate chief physician	48 (17.4)
Attending physician	135 (48.9)
Resident	85 (30.8)
None	4 (1.4)
Total	276 (100.0)

this regard, cooperation and division of labour coexist. Specifically, two coders initially read the transcripts and edited the data into codes, and then reread and identified transcripts and coded them into emerging categories.³³ In the next stage, the codes were later organised into themes and further expanded into broader domains after adequate discussion. Finally, the theme-based variables were determined by reaching a consensus.

Patient and public involvement

No patients or public were involved in the design, or conduct, or reporting, or dissemination plans of this research.

RESULTS

Quantitative findings

The demographic characteristics of 276 family doctors are displayed in [table 1](#). Men occupied less than half (30.1%) of the participants. The proportion of women is about two times that of men. Approximately 47.1% of family doctors are between 30 and 40 years old, and

the average age of 276 family doctors is 38.93 ± 8.63 years old. There are 93 (33.7%) family doctors from Fengtai District, 69 (25.0%) family doctors from Daxing District, 59 (21.4%) family doctors from Huairou District and 55 (19.9%) family doctors from Xicheng District. Almost 83.7% of the participants obtained bachelor's or above degree. Only four family doctors have not gotten any positional title, family doctors with the positional title of 'resident' or 'attending physician' comprised 30.8% and 48.9%, respectively.

[Table 2](#) revealed the usage of FDCS for disabled older adults in Beijing. The contracted services provided for disabled older adults comprise primary care, home visits, medical examination, health consultation and education, medication guidance, telephone follow-up, psychological counselling and family care. After ranking above services by proportion of person time by month hour, this study has shown that primary care is the most common services for disabled older adults, followed by health consultation and education, and medication examination. According to the situation of service needs for disabled older adults, family doctors hold the idea that the medication guidance, medical examination and home visits are the top three services which disabled older adults desired most. Attitude in the service is the most concerned factor of disabled older adults. There are many reasons that exert an influence on family doctors to offer services for disabled older adults, for instance, short of hands and intensive work is one of the biggest obstacles for family doctors to serve disabled older adults.

Home visits are one of the most desired services for disabled older adults, which is a bridge of effective communication between family doctors and disabled older adults. Due to the poor physical condition and immobility of disabled older adults, home visits also are the main service content of family doctors' work for disabled older adults. Therefore, it is necessary to measure and reflect the workload for home visits by family doctors when performing contracted services for disabled older adults. As shown in [table 3](#), approximately 27.2% of family doctors provided home visits services for disabled older adults once a year. Sixty-eight (24.6%) family doctors serve disabled older adults at their home once a month. The frequency of home visits provided by family doctors from Fengtai District is the highest, nearly 5.4 times/year. The frequency of home visits in the Huairou district is the lowest, around 2.5 times a year. The treatment time of 139 (50.4%) family doctors is from 0.5 hours to 1 hour. The average treatment time for each home visits of 276 family doctors is nearly 1.03 hours. The average treatment time of home visits, during which family doctors from Huairou District spend the most, is around 1.11 hours. The total yearly workload for home visits provided by family doctors is around 4.33 hours. The yearly workload of home visits from Fengtai District is the highest and Huairou District is the lowest, almost 5.72 hours and 2.78 hours, respectively.

Generally speaking, family doctors, disabled older adults and their families have a good cooperation, 133

Table 2 The usage of family doctor contract services for disabled older adults

Items	Results	
Types of contracted services which family doctors provided	Total person-time	Rank
Primary care	254	1
Home visits	176	6
Medical examination	222	5
Health consultation and education	239	2
Medication guidance	234	3
Telephone follow-up	233	4
Psychological counselling	162	7
Family care bed	30	8
The most desired services for disabled older adults	Total points*	Rank
Primary care	255	5
Home visits	284	3
Medical examination	295	2
Health consultation and education	270	4
Medication guidance	316	1
Telephone follow-up	84	6
Psychological counselling	76	7
Family care bed	74	8
The most concerned factors of disabled older adults while family doctors providing medical services	Total person-time	Rank
Diagnostic level	224	2
Service attitude	233	1
Charge standard	196	3
Drug effectiveness	159	4
Others	9	5
The main reasons that affect family doctors to provide services for disabled older adults	Total points†	Rank
Poor compliance of disabled older adults and their families	200	3
Lack of government policy support	469	2
Short of hands and intensive work	533	1
Unreasonable content of contracted services	137	5
More complicated and difficult conditions to look after the disabled older adults	178	4
Additional demands from disabled older adults and their families beyond contracted services	75	6
Others	1	7

*Number of people selected for the first desired service×3+number of people selected for the second desired service×2+number of people selected for the third desired service×1.
 †Number of people selected for the first main reason×3+number of people selected for the second main reason×2+number of people selected for the third main reason×1.

(48.2%) family doctors indicate that disabled older adults and their families often cooperate with them while enjoying FDCS, as displayed in [table 4](#). Approximately 89.8% of family doctors think that the contracted services for disabled older adults take into effect, they believe that they have played an important role in the FDCS for disabled older adults. Compared with the other three districts, family doctors from Fengtai district have the highest level of evaluation about contracted services, 83 (89.3%) family doctors regard themselves as a vital promoter in providing contracted services for disabled older adults. One hundred and seventy-two (62.2%) family doctors acknowledge that the contracted service they provided can meet the medical needs of disabled older adults, but it is not very high of the extent to which FDCS required to meet the medical needs of disabled older adults. Only 40 (14.4%) family doctors think that service satisfaction of disabled older adults has achieved the degree of ‘more satisfactory’ or ‘most satisfactory’.

There are significant differences among the four districts in the aspects of the importance of family doctors’ role ($p<0.001$) and the extent to which FDCS meets the medical needs of disabled older adults ($p=0.04$). Cooperation frequency of disabled older adults and their families among four districts show no significant difference ($p=0.222$).

Through difference analysis between urban and rural areas, there is no significant difference ($p=0.955$) in the cooperation frequency of disabled older adults and their families. The importance of family doctors’ role between urban and rural areas indicates a significant difference ($p<0.001$). To be more specific, family doctors from urban areas believe they play a more important role in FDCS for disabled older adults than family doctors from rural areas. By analysing the extent to which FDCS meets the medical needs of disabled older adults, there is a significant difference ($p=0.025$) between urban and rural areas. Rural family doctors hold the belief that their services are better than urban family doctors to meet the medical needs of disabled older adults.

Qualitative findings

Eight (26.3%) male and twenty-two (73.3%) female family doctors participate in the interview and provide demographic characteristics information displayed in [table 5](#). Seventeen (56.7%) family doctors are aged between 30 and 40 years, with an average age of 30 family doctors is 38.33 ± 6.00 years old for the first 30 family doctors. There are nine (30.0%) family doctors from Xicheng District, which accounts for the largest number of family doctors. Most of the interviewees (93.3%) had a bachelor’s degree or higher.

The information from this interview can be distilled into three themes using the thematic framework methodologies as follows:

- The differences in health management between contracted healthy senior citizens and disabled older adults.

Table 3 The workload for home visits by family doctors

Items	Regions				Total
	Xicheng District	Fengtai District	Daxing District	Huairou District	
Frequency per year N (%)					
Once a month	11 (20.0)	34 (36.6)	17 (24.6)	6 (10.2)	68 (24.6)
Once per quarter	10 (18.2)	19 (20.4)	15 (21.7)	9 (15.3)	53 (19.3)
Once half a year	6 (10.9)	4 (4.3)	10 (14.5)	6 (10.2)	26 (9.4)
Once a year	16 (29.1)	9 (9.7)	21 (30.4)	29 (49.2)	75 (27.2)
None	7 (12.7)	10 (10.8)	2 (2.9)	3 (5.1)	22 (8.0)
Others	5 (9.1)	17 (18.3)	4 (5.8)	6 (10.2)	32 (11.6)
Total	55 (100)	93 (100)	69 (100)	59 (100)	276 (100)
Mean (time/year)	3.6	5.4	4.4	2.5	4.2
Treatment time in hours N (%)					
0~	11 (20.0)	16 (17.2)	7 (10.1)	10 (16.9)	44 (15.9)
0.5~	32 (58.2)	42 (45.2)	37 (53.6)	28 (47.5)	139 (50.4)
1.0~	1 (1.8)	27 (29.0)	21 (30.4)	13 (22.0)	71 (25.7)
2.0~	10 (18.2)	5 (5.4)	3 (4.3)	5 (8.5)	14 (5.1)
3.0~	1 (1.8)	3 (3.2)	1 (1.4)	3 (5.1)	8 (2.9)
Total	55 (100)	93 (100)	69 (100)	59 (100)	276 (100)
Mean (hours)	1.03	1.06	1.04	1.11	1.03
Yearly workload hours					
Total	3.71	5.72	4.58	2.78	4.33

In accordance with disabled older adults' personalised service needs, sometimes the frequency of home visits by family doctors is uncertain, we generalise such case into the 'others' category. When calculating the family doctors' workload, such section of the data was not included.

- ▶ The facilitators of FDCS in caring for disabled older adults.
- ▶ The barriers of FDCS in caring for disabled older adults.

After identifying the meaning units from themes, this study has coded associated subthemes related to three themes, the analysis process of family doctors from the interviews as displayed in online supplemental table 1.

As shown in online supplemental table 1, there are many differences of health management between contracted healthy senior citizens and disabled older adults. The service content of FDCS should be tailored to the specific needs of disabled older adults because they have greater health demands than those contracted healthy senior citizens. In addition, because of the complicated physical conditions of older adults with disabilities, providing FDCS is significantly riskier and requires more medical and human resources on the part of family doctors. Additionally, family doctors should pay closer attention to their physical and mental health and give them more humanistic care, because the majority of older adults with disabilities have little interaction with other people.

In the process of providing contracted services for disabled older adults, family doctors are confronted with many facilitators and barriers. On the one hand, through FDCS, family doctors regularly interact with disabled older adults and their families, improve their health knowledge, directly provide them with some counsel

on nutrition and medication use, which can build trust between the doctor and patient. Meanwhile, FDCS has significantly reduced the strain on neighbourhood hospitals and eased the financial burden on older people with disabilities and their families. On the other hand, there are many barriers hindering the development of FDCS. The majority of family doctors have acknowledged that labour scarcity is a problem. They often work intensively and sometimes even sacrifice their rest time to provide services for disabled older adults. However, because there are no supervision or incentive programmes in place for family doctors, their losses and gains are not directly proportional. Besides, some problems always haunt family doctors, such as high risks in the process of home visits, lack of continuity in FDCS, poor compliance of disabled older adults and their families, and insufficient publicity of FDCS, etc.

DISCUSSION

Performance of FDCS for disabled older adults in Beijing

The development of primary care is inseparable from the escort of family doctors. At present, over 50 countries and regions have implemented FDCS, which are vital for dealing with the burden of those countries' health-care system.¹² According to the results, 248 (89.8%) family doctors regard themselves as an important role in providing contracted services for disabled older adults.

Table 4 The performance evaluation of family doctor contract services based on family doctors

Items	Regions				Total (n=276)
	Urban areas (n=148)		Rural areas (n=128)		
	Xicheng District (n=55)	Fengtai District (n=93)	Daxing District (n=69)	Huairou District (n=59)	
Cooperation frequency of disabled older adults and their families N (%)					
Always	15 (27.2)	23 (24.7)	25 (36.2)	8 (13.6)	71 (25.7)
Usually	8 (14.5)	15 (16.1)	5 (7.2)	10 (16.9)	38 (13.8)
Often	24 (43.6)	43 (46.2)	33 (47.8)	33 (55.9)	133 (48.2)
Seldom	4 (7.2)	10 (10.8)	6 (8.7)	7 (11.9)	27 (9.8)
Never	4 (7.2)	2 (2.2)	0 (0)	1 (1.7)	7 (2.5)
Mean rank ^a	126.43	130.83	166.85	128.69	
$\chi^2=4.394$, $p=0.222$					
Mean rank ^b	138.27		138.77		
$\chi^2=0.003$, $p=0.955$					
Importance of family doctors' role N (%)					
Least important	5 (9.1)	4 (4.3)	1 (1.4)	0 (0)	10 (3.5)
Less important	4 (7.3)	6 (6.5)	2 (2.9)	6 (10.2)	18 (6.5)
Important	12 (21.8)	31 (33.3)	24 (34.8)	28 (47.5)	95 (34.4)
More important	25 (45.5)	42 (45.2)	28 (40.6)	22 (37.3)	117 (42.4)
Most important	9 (16.4)	10 (10.8)	14 (20.3)	3 (5.1)	36 (13.0)
Mean rank ^a	152.79	148.35	142.96	76.44	
$\chi^2=45.938$, $p^*<0.001$					
Mean rank ^b	150.00			108.83	
$\chi^2=21.220$, $p^*<0.001$					
The extent to which FDCS meets the medical needs of disabled older adults N (%)					
Least satisfactory	12 (21.8)	7 (7.5)	5 (7.2)	6 (10.2)	30 (10.9)
Less satisfactory	12 (21.8)	32 (34.4)	11 (15.9)	19 (32.2)	74 (26.8)
Satisfactory	23 (41.8)	46 (49.5)	34 (49.3)	29 (49.2)	132 (47.8)
More satisfactory	8 (14.6)	7 (7.5)	16 (3.2)	5 (8.5)	36 (13.0)
Most satisfactory	0 (0)	1 (1.1)	3 (4.3)	0 (0)	4 (1.4)
Mean rank ^a	126.43		166.85	128.69	
$\chi^2=13.495$, $p^*=0.004$					
Mean rank ^b	129.20			149.26	
$\chi^2=4.996$, $p^*=0.025$					

^aDifference analysis among four districts (Kruskal-Wallis test (K-W test)), *significant value <0.05.
^bDifference analysis between urban and rural areas (K-W test), *significant value <0.05.
 FDCS, family doctor contract services.

Consistent with our results, Family doctors play a more pivotal role in the health security of contracted residents.³⁴ In addition to offering basic medical services, family doctors often provide a various services to meet the health needs of disabled older adults in Beijing, such as health promotion, telephone follow-up, home visits and family care, etc. From the view of family doctors, medication guidance, physical examination and home visits were the top three services that disabled older adults desired most. However, relevant research evidence shows that the unmet needs among disabled older adults are also increasing with the increasing demand of medical care and the tightening of government public expenditure.^{35 36}

This study has found FDCS 'satisfaction with the medical needs of disabled older adults is not high. Only 40 (14.4%) family doctors think that service satisfaction of disabled older adults has achieved the degree of 'more satisfactory' or 'most satisfactory'.

Roles of FDCS for disabled older adults in Beijing

The disabled older adults have higher health demands and family doctors should invest more time and energy to look after them. Besides fulfilling the six functions of gatekeeper in the primary care system, our study has identified five unique roles of family doctors in the process of looking after disabled older adults. (1) 'Psychological

**Table 5** Demographic characteristics of family doctors

Items	Number of interviewees (%)
Gender	
Male	8 (26.3)
Female	22 (73.7)
Age	
20~	1 (3.3)
30~	17 (56.7)
40~	11 (36.7)
50~	1 (3.3)
Regions	
Xicheng District	9 (30.0)
Fengtai District	8 (26.7)
Daxing District	8 (26.7)
Huairou District	5 (16.6)
Education	
Junior college	2 (6.7)
University	22 (73.3)
Postgraduate degree or above	6 (20.0)
Total	30 (100.0)

consultant', which refers to contacting with disabled older adults and their families to better understand their physical and psychological conditions and to provide more empathetic treatment. (2) 'Rehabilitation physiotherapist', which means providing rehabilitation treatment to meet the rehabilitative needs of disabled older adults. (3) 'Health educator', which entails educating disabled older adults and their families about health issues as well as offering medical advice and health counselling to disabled older adults. (4) 'Health manager', which means developing personalised treatment plans, participating in the health management and preventing the deterioration condition of disabled older adults. (5) 'Family health guardian', which means offering home visits and family care bed services, supporting the family care of disabled older adults, and protecting the health of disabled older adults in all aspects.

Differences of FDCS for disabled older adults between urban and rural Beijing

There are many factors that exert a negative influence on the usage of FDCS for disabled older adults. Due to lack of manpower, family doctors have heavy work tasks and high work intensity in the process of caring for disabled older adults, which is one of the biggest difficulties impeding the usage of FDCS. In this study, there is a significant difference ($p=0.025$) in satisfaction of FDCS between urban and rural areas, the rural medical staff are more satisfied with the provision of FDCS for the disabled older adults than urban. Although there is more demand for medical services in urban areas, family doctors in these areas often have more medical resources. One possible explanation

to describe this phenomenon is that disabled older adults living in rural areas may have relatively simple health needs compared with urban areas.³⁷ So, the contracted services provided by family doctors may be more likely to meet the needs of rural disabled older adults. However, the role of FDCS for disabled older adults from urban is more important than those from rural areas. A higher frequency of home visits was more likely accomplished in urban Beijing, which is opposite to Maik Pochert's findings of Germany.³⁸ Above different results may be caused by the different patient population and level of medical resources between two countries.

Barriers of FDCS for disabled older adults in Beijing

However, barriers have occurred on family doctors when they provide contract services for disabled older adults. In the interviews, the majority of family doctors described how difficult it was to deal with issues such a lack of personnel, the dangers associated with house visits, the discontinuity of the FDCS and inadequate promotion of the FDCS, among others. Our study has classified these barriers into two categories, the exterior barriers and interior ones. The outer barriers mainly focus on three aspects: (1) high risks involved in home visits. Home visits entail family doctors leaving their usual practice space and going to the homes of disabled older adults. Many family doctors expressed concern that accidents might happen while going to their home or while giving them with medical care. In China, there is currently no insurance covering medical mishaps involving house visits; should this occur, family doctors would suffer significant financial losses and legal issues. (2) Absence of supervisory and incentive mechanisms. In some developed countries, such as the USA, Canada, French, family doctors' personal income is directly related to their own performance due to fair market competition and free family doctors signing model. However, most FDCS in Beijing follows the Pay-for-Service model, which means the government sets the content and fees of FDCS, and family doctors only can provide fixed services for disabled older adults. It is inevitable that disabled older adults will generate additional service needs, and family doctors will complain about the incentive mechanism. Family doctors in the interviews expressed that their efforts were not directly proportional to their income, and most of the services were driven by their responsibilities. (3) Lack of government policy support and medical resources input. Shortage of personnel is a major problem faced by family doctors. It reflects that the current supply of medical human resources is disconnected from the actual medical needs of disabled older adults. Moreover, there are obvious differences between urban and rural areas in terms of medical resource input. Family doctors in rural areas said that their CHCs lack basic inspection facilities, which brings a lot of inconveniences to conducting FDCS.

The interior barriers are mainly about three aspects: (1) lack of time and effort. Family doctors must expend more effort and time serving disabled older adults towing

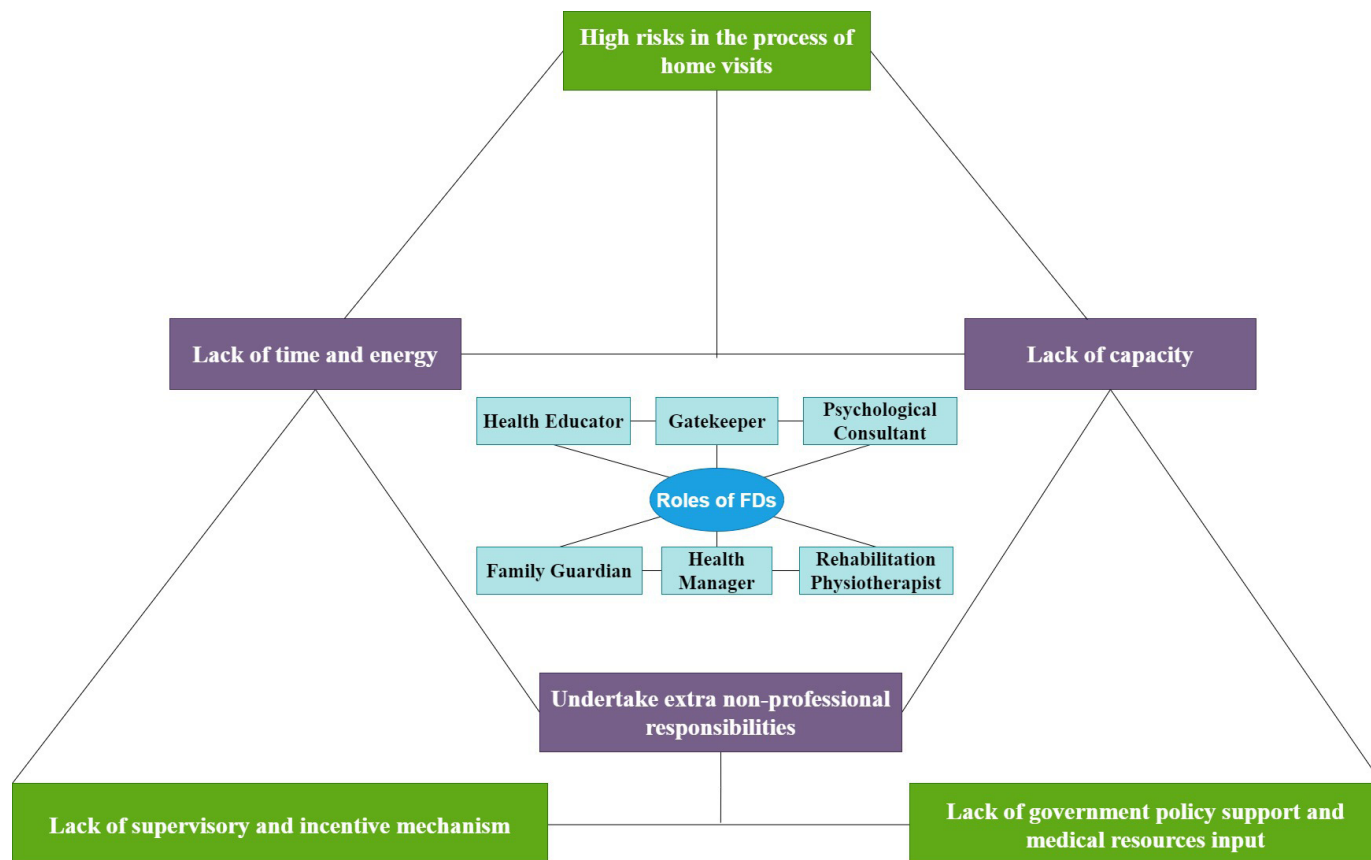


Figure 2 Schematic diagram of the relationships between the roles of family doctors and the barriers. It shows the relationship of six unique roles of family doctors in the contracted services for disabled older adults, three interior barriers and three outer barriers. Interior barriers mainly arise from the family doctors themselves, which directly affects the roles of family doctors. Outer barriers mainly emerge from the environment around the family doctors, including policy environment of family doctor contract services, working environment, which indirectly affects the roles of family doctors.

to their complex conditions and varied medical service needs. Many family doctors mentioned that they needed to sacrifice their personal time to help disabled older adults, which brought a serious pressure on their bodies and minds. (2) Lack of capacity. According to our findings, only 40 (14.4%) family doctors think that disabled older adults have been very satisfied with their services. Additionally, eight family doctors stated in the interviews that they were unable to handle the issue when disabled older adults and their families demanded extra services that were outside the purview of FDCS, which resulted in low compliance from the old adults with disabilities and their families. (3) Undertaking extra non-professional responsibilities. Most family members of disabled older adults think that since signing up with family doctors, family doctors should take more responsibility for disabled older adults. Sometimes family doctors feel like they are being filial to disabled older adults. The phenomenon of shifting care responsibilities will exacerbate the bad relationship between doctors and patients.

At present, there are few studies figuring out the relationship between the barriers and the roles of functional medical services in the FDCS disabled older adults. Based on our findings, the researchers drew a schematic

diagram to describe the relationships between barriers and the roles of family doctors, as shown in [figure 2](#).

Facilitators of FDCS for disabled older adults in Beijing

By comparing with existing literature, our research finds that the successful implementation of FDCS in other countries has the following commonalities: (1) the development of FDCS is based on community health institutions or platforms, such as Patient-centred Medical Home (PCMH) in USA,^{39 40} the family doctor-and-nurse offices in Cuba⁴¹ and family doctors' community private clinic in UK, Germany, Netherlands, French and Canada.^{42–46} Although the service model and service content of FDCS is different from the above countries, their health institutions are all over the country, forming the backbone of primary healthcare. (2) Education and training of family doctors is an important prerequisite to ensure the implementation of FDCS. The education and evaluation of family doctors in US emphasis on lifelong learning and evaluation, which included three consecutive stages: premedical school, medical school and continuing education.⁴⁷ (3) A reasonable and effective incentive mechanism of family doctors is a necessary guarantee for family doctors to insist on FDCS, which is closely related



to the government's policy support and the allocation of medical resources.⁴⁸ Therefore, in order to solve the problems in FDCS for disabled older adults and improve the quality of FDCS, first of all, the government should improve policy formulation, support of FDCS, and establish an effective supervision and incentive mechanism to ensure that the efforts of family doctors is directly proportional to their income. Meanwhile, the government should strengthen the training and education of family doctors to solve the lack of hands, and improve the laws and regulations on the risk of family doctors to ensure their security during home visits. Besides, the government should promote the policy publicity of FDCS to raise the social status of family doctors, and to reduce misunderstandings about family doctors. Second, as far as family doctors are concerned, some standards must be observed in the process of FDCS. Family doctors should consciously fulfill the spirit of the contract, improve the frequency of communication between doctors and patients, pay more attention to their physical and psychological conditions, and establish a mutual trust relationship with disabled older adults and their families. Meanwhile, family doctors should refuse the exorbitant demands of disabled older adults and resist financial or other temptations to agree to their requests which go beyond the scope of contracted services. Third, disabled older adults and their families should understand and cooperate with family doctors.¹⁸ Families of disabled older adults should assume responsibility for them, devote more time and effort to caring for them, and take the initiative to inform family doctors of disabled older adults' most recent physical and mental conditions. By doing this, family doctors will be better able to identify disabled older adults' health risks and lessen the chance of secondary injury.

Strengths and limitations

Our study has investigated the current status of FDCS of disabled older adults, identified five distinct roles of family doctors who have contracted with disabled older adults, and explored the relationships between the barriers and roles of family doctors in the process of FDCS. First, from the new perspective of family doctors, this study has examined many aspects of the current FDCS of disabled older adults in Beijing, such as service content, the workload of family doctors, and service satisfaction, and enriched the international discussion of similar topics. Second, this study has discovered the interests and demands of family doctors as well as potential obstacles and enablers in the implementation of FDCS for disabled older adults. Finally, it is the first time to identify the roles of family doctors in family doctor contract service of disabled older adults in Beijing, and manifest the relationships between the roles of family doctors and the barriers.

However, our research inevitably has some shortcomings, which can be roughly divided into two aspects. First, this study collected data from one sector of healthcare provider does not cover the perspective of all stakeholders in FDCS. Second, the representativeness of our study was

limited since only a sample of family doctors in 4 districts chosen from 16 in Beijing were interviewed and studied. But we believe it is worthwhile to consider conducting similar studies in smaller cities across China in the future and putting more related subjects into our research.

Conclusion

There is no doubt that family doctors play an important role in the FDCS for disabled older adults. Compared with contracted healthy senior citizens, disabled older adults need more accessible, comprehensive and humanistic care. Therefore, family doctors should devote more time and effort to caring for them. This study has demonstrated the relationships between barriers, roles played by family doctors, and the process of FDCS and put forward corresponding suggestions to improve the quality of FDCS. Future research must concentrate on removing the current FDCS restrictions to improve the health of disabled older adults and their well-being.

Author affiliations

¹School of Medical Humanities, Capital Medical University, Beijing, China

²Ethics Committee Office, Beijing Ditan Hospital, Capital Medical University, Beijing, China

³Cardiac Surgery Department, People's Hospital of Beijing Daxing District, Beijing, China

⁴Medical Department, Fengtai District Xiluoyuan Community Health Service Center, Beijing, China

⁵School of Basic Medical Science, Capital Medical University, Beijing, China

⁶Administrative Office, Huairou District Liulimiao Community Health Service Center, Beijing, China

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ORCID iD

Yingchun Peng <http://orcid.org/0000-0001-7157-9492>

REFERENCES

- World Health Organization. *Draft WHO global disability action plan 2014-2021: better health for all people with disabilities*. Geneva: World Health Organization, 2014.
- Jiang H, Xiao S, Hu H, *et al.* Study on the measurement and influencing factors of care service demand of disabled elderly in urban and rural China. *IJERPH* 2022;19:11112.
- Fang EF, Xie C, Schenkel JA, *et al.* A research agenda for ageing in China in the 21st century. *Ageing Res Rev* 2020;64:101174.
- China. China releases 5-year plan for elderly care Services[OB]. [2022-02]/[2023.03]. n.d. Available: <http://www.chinadaily.com.cn/a/202202/21/WS62139382a310cdd39bc87feb.html>
- Nieboer AP, Koolman X, Stolk EA. Preferences for long-term care services: willingness to pay estimates derived from a discrete choice experiment. *Soc Sci Med* 2010;70:1317–25.
- Hu H, Si Y, Li B. Decomposing inequality in long-term care need among older adults with chronic diseases in China: A life course perspective. *Int J Environ Res Public Health* 2020;17:2559.
- Si M, Kong F, Wu J, *et al.* Review on the demand of long-term care of the elderly and its influencing factors. *Chin Health Serv Manag* 2018;2:157–60.
- Liu Y, Feng Y, Wang Y. Long-term care needs and influencing factors of the disabled elderly. *Chin J Gerontol* 2016;6:1482–4.
- Notice of the general office of the NHC on signing up family doctors for services in 2019. n.d. Available: http://www.gov.cn/xinwen/2019-04/26/content_5386470.htm
- Wang K, Ke Y, Sankaran S, *et al.* Problems in the home and community-based long-term care for the elderly in China: A content analysis of news coverage. *Int J Health Plann Manage* 2021;36:1727–41.
- Yuan S, Wang F, Li X, *et al.* Facilitators and barriers to implement the family doctor contracting services in China: findings from a qualitative study. *BMJ Open* 2019;9:e032444.
- Liu S, Liu Y, Zhang T, *et al.* The developing family doctor system: evidence from the progress of the family doctor signing service from a longitudinal survey (2013–2016) in Pudong new area, Shanghai. *BMC Fam Pract* 2021;22:11.
- Streit S, Verschoor M, Rodondi N, *et al.* Variation in GP decisions on antihypertensive treatment in oldest-old and frail individuals across 29 countries. *BMC Geriatr* 2017;17:93.
- Yellamaty V, Ball L, Crossland L, *et al.* General practitioners with special interests: an integrative review of their role, impact and potential for the future. *Aust J Gen Pract* 2019;48:639–43.
- Lee JQ, Loke W, Ng QX. n.d. The role of family physicians in a pandemic: A blueprint. *Healthcare*;8:198.
- China Economic Weekly. The number of contracting residents in Beijing reached 8.016 million, what healthy services can family doctors bring to the community residents? 2021. Available: <https://baijiahao.baidu.com/s?id=1700966914524606668&wfr=spider&for=pc>
- Yin D, Zhang J, Wang Z, *et al.* Delivery status of contractual services from family doctors in China and advances in the related studies. *Chin J Gen Pract* 2018;21:753–60.
- Zhang R, Zhang Z, Peng Y, *et al.* The multi-subject cooperation mechanism of home care for the disabled elderly in Beijing: a qualitative research. *BMC Prim Care* 2022;23:186.
- Aung WH, Kitreerawutiwong N, Keeratsiroj O, *et al.* Health service readiness, availability, and utilization of primary health care facilities for non-Communicable diseases in Shan state, Myanmar. *Iran J Public Health* 2022;51:1303–12.
- Wu D, Wang Y, Lam KF, *et al.* Health system reforms, violence against doctors and job satisfaction in the medical profession: a cross-sectional survey in Zhejiang province, Eastern China. *BMJ Open* 2014;4:e006431.
- Zhang T, Wang X. Association of continuity of general practitioner care with utilisation of general practitioner and specialist services in china: A mixed-method study. *Healthcare* 2021;9:1206.
- Lilford RJ, Chilton PJ, Hemming K, *et al.* Evaluating policy and service interventions: framework to guide selection and interpretation of study end points. *BMJ* 2010;341:bmj.c4413.
- Vedel I, Kaur N, Hong QN, *et al.* Why and how to use mixed methods in primary health care research. *Fam Pract* 2019;36:365–8.
- Prasitanarapun R, Kitreerawutiwong N. The development of an instrument to measure Interprofessional collaboration competency for primary care teams in the District health system of health region 2, Thailand. *BMC Prim Care* 2023;24:55.
- Gagliardi AR, Marshall C, Huckson S, *et al.* Developing a checklist for guideline implementation planning: review and synthesis of guideline development and implementation advice. *Implement Sci* 2015;10:19.
- Jin Y, Li Z, Han F, *et al.* Barriers and Enablers for the implementation of clinical practice guidelines in China: a mixed-method study. *BMJ Open* 2019;9:e026328.
- Denny E, Weckesser A. Qualitative research: what it is and what it is not: study design: qualitative research. *BJOG* 2019;126:369.
- Guest G, Namey E, Chen M, *et al.* A simple method to assess and report thematic saturation in qualitative research. *PLoS ONE* 2020;15:e0232076.
- Boeije H. *Analysis in qualitative research*. London: Sage publications, 2009.
- de la Espriella R, Gómez Restrepo C. Grounded theory. *Rev Colomb Psiquiatr (Engl Ed)* 2020;49:127–33.
- Chapman AL, Hadfield M, Chapman CJ. Qualitative research in Healthcare: an introduction to grounded theory using thematic analysis. *J R Coll Physicians Edinb* 2015;45:201–5.
- Rat C, Meunier-Bellard N, Moulard S, *et al.* n.d. Caregiver representations of therapeutic patient education programmes for people with schizophrenia: A qualitative study. *Healthcare*;10:1644.
- Foley G, Timonen V. Using grounded theory method to capture and analyze health care experiences. *Health Serv Res* 2015;50:1195–210.
- Cardoso CS, Prazeres F, Xavier B, *et al.* Family physicians' perspectives on their role in palliative care: A double focus group in Portugal. *Int J Environ Res Public Health* 2021;18:7282.
- Iparraquirre JL. Reductions in local government spending on community-based social care and unmet social care needs of older people in England. *J Econ Ageing* 2020;17:100126.
- Means R. A brave new world of personalized care? historical perspectives on social care and older people in England. *Soc Policy Adm* 2012;46:302–20.
- Chen L, Guo W, Perez C. The effect of aging attitudes on the quality of life of older adults in China. *Res Aging* 2021;43:96–106.
- Pochert M, Voigt K, Bortz M, *et al.* The workload for home visits by German family practitioners: an analysis of regional variation in a cross-sectional study. *BMC Fam Pract* 2019;20:3.
- Shi L, Lee DC, Chung M, *et al.* Patient-centered medical home recognition and clinical performance in U.S. *Health Serv Res* 2017;52:984–1004.
- Ortiz MR. Patient-centered medical (health) home: nursing theory-guided policy perspectives. *Nurs Sci Q* 2020;33:91–6.
- Gorry C. Cuba's family doctor-and-nurse teams: A day in the life. *MEDICC Rev* 2017;19:6–9.
- Vallejo-Torres L, Morris S. Primary care supply and quality of care in England. *Eur J Health Econ* 2018;19:499–519.
- Buhtz C, Paulicke D, Schwarz K, *et al.* Receptiveness of Gps in the South of Saxony-Anhalt, Germany to obtaining training on technical assistance systems for Caregiving: A cross-sectional study. *Clin Interv Aging* 2019;14:1649–56.
- van der Heiden W, Lacroix J, Moll van Charante EP, *et al.* Gps' views on the implementation of combined Lifestyle interventions in primary care in the Netherlands: a qualitative study. *BMJ Open* 2022;12:e056451.
- Kroneman M, Meeus P, Kringos DS, *et al.* International developments in revenues and incomes of General practitioners from 2000 to 2010. *BMC Health Serv Res* 2013;13:436.
- Suter E, Mallinson S, Misfeldt R, *et al.* Advancing team-based primary health care: a comparative analysis of policies in Western Canada. *BMC Health Serv Res* 2017;17:493.
- Xiao Y, Song Y, Du N, *et al.* Challenges in establishing a strong family medicine system in China. *Fam Pract* 2021;38:850–1.
- Bayati M, Rashidian A, Sarikhani Y, *et al.* Income inequality among general practitioners in Iran: a decomposition approach. *BMC Health Serv Res* 2019;19:620.