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Quality of Family Doctor Contracted Services in Beijing from the Perspective of General Practitioners: A Semi-Structured Interview Study

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ABSTRACT

Background: Home medicine contract service Family doctor contracted service (home medicine service) is an important measure for deepening medical reform in China, aimed at improving people's health level and the efficiency of the health service system. home medicine service Family doctor contracted service has achieved rapid development in terms of quantity, but there is currently a lack of research evidence related to the quality of home medicine service.

Objectives: To understand the current status and existing problems of home medicine service family doctor contracted service quality in Beijing from the perspective of general practitioners (GPs), and provide reference for improving the quality of home medicine service family doctor contracted service.

Methods: A total of 18 general practitioner GPs from 18 community health service institutions centers in 9 districts of Beijing were selected through purposive sampling from August 2023 to June 2024, and semi-structured interviews were conducted with general practitioner GPs based on the structure process outcome framework interview outline. Analyze tThe data were analyzed through thematic analysis and to extract interview themes.

Results: The study extracted 3 themes and 11 sub-themes. Topic 1: The structural quality of home medicine service family doctor contracted service (policy guidance and implementation, institutional conditions and facilities, assessment and incentive mechanisms for home medicine services, home healthcare team building). Topic 2: Process quality of home medicine service family doctor contracted service (contract service content, referral and treatment service process, outpatient service standards). Theme 3: The effectiveness of home medicine service family doctor contracted service (improvement in residents' health levels, increased willingness to seek medical treatment, need to strengthen residents' recognition of home medicine service family doctor contracted service, increased occupational pressure on general practitioner GPs).

Conclusions: Since the implementation of home medical service family doctor contracted service, the quality of services has gradually improved, but there are still some limiting factors. We should strengthen policy support, optimize service content and processes, integrate quality evaluation systems with incentive mechanisms, enhance the comprehensive service capabilities of general practitioner GPs and establish efficient home medical familu doctor teams.

Introduction

Primary care serves as the cornerstone of the healthcare system, playing a pivotal role in advancing China's tierd medical system.[1] Family doctor contracted services are characterized by long-term, stable doctor-patient relationships established through contractual agreements, where general practitioners (GPs) provide comprehensive medical services to every member of a family.[2] This model optimizes resource allocation, enabling access to higher-quality primary care, improving health outcomes, and enhancing health literacy.[3-4] In China, family doctor contracted services encompass basic medical care, public health services, and health management.[5] The concept was introduced in 2009 during healthcare reform and piloted in Shanghai in 2011.[6] Following nationwide promotion, the 2016 release of the Guidelines on Advancing Family Doctor Contracting Services marked a turning point, defining service content and evaluation mechanisms.[7] Despite substantial coverage, family doctor contracted services face challenges in professional competency, team collaboration, and providing comprehensive care.[8-10] In 2022, the Guidelines on Promoting High-Quality Development of Family Doctor Contracting Services signaled a shift from expanding service coverage to improving service quality.[11]

The World Health Organization (WHO) emphasizes that high-quality primary care must be safe, effective, patient-centered, accessible, timely, comprehensive, efficient, and continuous, with a focus on continu-

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ous improvement.[12] Similarly, the Royal College of General Practitioners (RCGP) identifies quality in general practice as improving experiences for patients and caregivers, demonstrating clinical competence, maintaining accountability for professional standards, and addressing broader responsibilities, such as community health and professional development.[13]

In the context of China's focus on high-quality development, family doctor contracted services quality has become a priority. As one of the earliest adopters of family doctor contracted services, Beijing has achieved notable service coverage. By 2024, the contracting rate among permanent residents reached 42%, with over 90% coverage for key populations.[14] However, studies reveal significant challenges, including limited resources, low service utilization, and suboptimal patient satisfaction.[15-17] In 2023, the Beijing Municipal Health Commission introduced the Measures to Improve Family Doctor Contracting Services in Beijing, which outlined requirements for service processes, content, and delivery to enhance quality and appeal.

Most research on family doctor contracted services in China has focused on policies, service models, and influencing factors.[18-19] Quantitative studies have examined service comprehensiveness and accessibility.[20-21] However, in-depth qualitative analysis of family doctor contracted services quality and its challenges remains limited.

This study addresses this gap by examining the perspectives of frontline GPs in Beijing. The objectives are to: (1) understand the current state of family doctor contracted services quality; (2) identify existing challenges in improving service quality; (3)summarize the enablers and barriers to quality improvement. The findings aim to provide evidence-based insights for informing relevant policies and practices to enhance the quality of family doctor contracted services.

Research methods

Study framework and design

This study adopts Donabedian's Structure-Process-Outcome (SPO) framework[22] as the theoretical foundation for conducting and analyzing semi-structured interviews with GPs from community health centers in Beijing. Following the principle of purposive sampling, a stratified convenience sampling approach was employed. Between August 2023 and June 2024, 18 GPs from 18 institutions across 9 districts in Beijing (5 urban and 4 suburban) were selected. Steps for sampling stratification: (1) GPs were grouped by district type (urban or suburban); (2) From each group, GPs were selected based on accessibility and alignment with the study objectives. Inclusion criteria: (1) At least 3 years of experience in family doctor contracted services; (2) Comprehensive knowledge of family doctor contracted services processes and content; (3) Strong communication skills; (4) Willingness to participate in the interviews. Exclusion criteria: GPs unable to complete the interviews for personal reasons. The sample size was determined by theoretical saturation, reached when no new codes or themes emerged during data analysis. Ethical approval was obtained from the Medical Ethics Committee of Capital Medical University (Approval No. Z2023SY070). All participants provided informed consent, and confidentiality was strictly maintained throughout the study.

Interview Guide

Based on a thorough review of the literature and the core components of family doctor contracted services, this study developed an interview guide structured around Donabedian's SPO quality framework.[22] The guide addresses three key dimensions: the organizational management and infrastructure of family contracted doctor services, the quality of service delivery processes, and service outcomes. It comprises four primary questions. The interview guide was refined through team discussions and improved further following a pilot interview to ensure clarity and relevance. The final version of the interview guide is presented in Table 1.

Table 1
Interview guide

Number	Interview questions
1	What do you think about the current status of the organization and management of family doctor contracted services?
2	What do you think of the quality of the current process of providing family doctor contracted services in community health centers?
3	What impact do you think family doctor contracted services have on patients, family doctor teams, and institutions?
4	Any additional comments

Data Collection

The study conducted semi-structured, in-depth individual interviews with 18 GPs. Each session lasted approximately 30–50 minutes. The research team consisted of two members: a primary care researcher who facilitated the interviews and a postgraduate student specializing in primary care who was responsible for taking notes and organizing the data.

The interviews were conducted in a group setting, comprising the researcher and the participant. Both online and in-person formats were utilized based on participant preferences. Specifically, 12 GPs were interviewed online using Tencent Meeting, while 6 GPs participated in in-person interviews held in a classroom setting on campus. No participants withdrew from the study during the interviews.

At the beginning of each session, the interviewer explained the purpose and significance of the study. Following this, informed consent was obtained from the participants, and the sessions were audio-recorded with simultaneous note-taking. At the conclusion of each interview, the interviewer provided a summary of the key points raised by the participant and confirmed whether they had additional comments or corrections to make.

Data Analysis

The study employed thematic analysis[23] to summarize interview data, following the six-step qualitative analysis strategy proposed by Merriam et al.[24] for data organization and interpretation. Before formal analysis, participants were anonymized by assigning identification codes to conceal their real names. The analysis process included the following steps: (1) Standardizing transcripts: All transcribed text was organized into structured interview records; (2) Coding with Nvivo 20: Participant data were coded using the software to ensure systematic analysis; (3) Extracting key elements: The coded material was analyzed to identify core elements; (4) Refining and categorizing codes: Codes were refined, classified, and synthesized into meaningful categories; (5) Identifying overarching themes: The categorized data were consolidated to derive overarching interview themes. To ensure comprehensive reporting, the study adhered to the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines, which helped prevent the omission of critical information.[25]

Quality Control

The researchers provided participants with a research overview and the interview guide beforehand, ensuring clarity about the purpose and main topics of the interviews. Each interview was attended by consistent members of the research team. Data collection was conducted using audio recordings supplemented by written notes, with participants' consent, to ensure accuracy and completeness. After each session, the recordings were repeatedly reviewed and transcribed within 24 hours, followed by meticulous cross-checking to identify and correct errors. This process ensured the reliability of the information collected. Interviews with 16 GPs revealed no new information, indicating that data saturation had likely been reached. To validate this finding, two additional interviews were conducted. These confirmed that no new themes emerged, affirming the saturation of the data.

Table 2
Basic profile of GPs interviewed

Respondent number	Gender	Age	Education	Title	Years of general practice	Years of general practice	District
Respondent 1	Female	38	Bachelor's	Attending physician	16	Yes	Urban
Respondent 2	Female	44	Master's	Associate chief physician	16	No	Urban
Respondent 3	Female	45	Master's	Associate chief physician	17	Yes	Urban
Respondent 4	Male	36	Bachelor's	Associate chief physician	14	No	Urban
Respondent 5	Female	40	Bachelor's	Associate chief physician	16	No	Urban
Respondent 6	Female	45	Bachelor's	Chief physician	19	Yes	Urban
Respondent 7	Female	49	Master's	Associate chief physician	26	Yes	Urban
Respondent 8	Female	41	Master's	Chief physician	16	Yes	Suburban
Respondent 9	Female	33	Master's	Attending physician	5	No	Urban
Respondent 10	Female	39	Doctorate	Associate chief physician	12	No	Urban
Respondent 11	Female	48	Master's	Chief physician	17	No	Urban
Respondent 12	Female	42	Bachelor's	Associate chief physician	17	No	Urban
Respondent 13	Female	37	Bachelor's	Associate chief physician	15	No	Suburban
Respondent 14	Male	35	Bachelor's	Attending physician	14	No	Suburban
Respondent 15	Male	34	Bachelor's	Attending physician	8	No	Suburban
Respondent 16	Female	45	Bachelor's	Associate chief physician	7	Yes	Suburban
Respondent 17	Female	33	Master's	Attending physician	6	No	Urban
Respondent 18	Female	40	Master's	Associate chief physician	11	No	Urban

Results

Demographic Characteristics of Respondents

Among the 18 interviewed GPs, 16.7% were male (3 participants), while 83.3% were female (15 participants). Their average age was 40.2 ± 5.0 years, and they had an average of 14.0 ± 5.2 years of experience in general practice. Regarding educational background, 50% held a bachelor's degree (9 participants), 44.4% a master's degree (8 participants), and 5.6% a doctorate (1 participant). In terms of professional titles, 16.7% were chief physicians (3 participants), 55.5% were associate chief physicians (10 participants), and 27.8% were attending physicians (5 participants). Geographically, 72% worked in urban areas (13 participants), and 28% in suburban areas (5 participants). All participants primarily worked as outpatient GPs at community health centers, with 5 participants additionally holding part-time management roles. Further details are provided in Table 2.

Interview findings

The analysis of interview data revealed three primary themes: the structural quality of family contracted doctor services, the process quality of family doctor services, and the outcome quality of family contracted doctor services. These themes encompassed a total of 11 subthemes.

Theme 1: Structural quality of family doctor contracted services

(1) Policy Guidance and Implementation
Institutions actively implemented family doctor contracted services under relevant policy directives. Many participants observed that "the contracting policies are relatively comprehensive, and institutional leaders place significant emphasis on these services." However, most institutional approaches were focused on fulfilling policy-mandated targets. This often led to inconsistencies in implementation methods, which presented challenges. For example, Respondent 2 highlighted, "Leadership interpretations of family doctor contracted services vary, and so do their requirements. At times, they prioritize contracting by geographical area, while at other times, they impose quotas for the number of contracts. This increases the workload for doctors, exceeding their capacity and forcing residents to switch doctors involuntarily—causing dissatisfaction."Such frequent changes in approach significantly reduced the enthusiasm of family doctor teams and negatively affected residents' experiences with the contracting process.

(2) Institutional conditions and facilities
A few institutions strive for progress in information systems and intelligent management. For example, Respondent 11 shared, "The 'Doctor Nearby' app we use is a helpful tool for managing residents' health, but it still has many bugs and is not frequently used." Respondent 10 mentioned, "The health cabin can quickly collect residents' basic health information, but the collected data cannot synchronize with the current information system." However, most respondents noted that the information system development in their institutions is outdated. Contract management data, diagnostic and treatment data, and data from healthcare alliances are not interconnected, which reduces the efficiency of family doctor teams and limits its service coordination and continuity. As Respondent 7 stated, "We often have to manually input and cross-check data, which not only consumes doctors' time but also increases the likelihood of errors," leading to poor coordination between various service stages and departments. The hardware facilities in institutions lag far behind secondary and tertiary hospitals, with significant disparities between institutions. Respondent 8 remarked, "Some institutions' hardware levels are even worse than private community stations (privately established community health centers), making them uncompetitive compared to higher-level hospitals." Respondent 9 also noted, "Most institutions face restrictions on drug supply, and some lack basic testing services, failing to meet residents' diagnostic and treatment needs."

(3) Assessment and incentive mechanisms for family doctor contracted services
With the establishment of the assessment system for family doctor contracted services in Beijing, institutions now regularly conduct internal and municipal-level evaluations, which have somewhat contributed to quality improvement. However, significant issues persist in the current assessment system, such as incomplete coverage and unscientific evaluation content and methods. Respondent 13 highlighted, "The current assessment indicators are mostly designed for chronic disease patients and fail to cover all populations, such as the general population, children, and mental health patients." Similarly, Respondent 1 remarked, "When assessing the control of chronic diseases, the large base of contracted patients but limited sample size makes the results unrepresentative of the overall contracted population's management," undermining the authenticity of the evaluation results. In terms of incentives, respondents widely recognized the national performance subsidies for amily doctor contracted services. However, the current performance distribution mechanism inadequately reflects doctors' professional expertise and contract management capabilities and fails to integrate with non-monetary rewards,

such as promotions and training opportunities. Respondent 15 observed, “Currently, family doctor team performance is distributed based on the number of contracted patients. This has led to competition among institutions for residents, which not only disrupts continuity in managing contracted residents but also fosters dissatisfaction with family doctor contracted services.” Incentive mechanisms also face regional disparities and internal institutional equalization. Respondent 2 noted, “Although the government allocates contract-based incentives, institutions adopt an equal distribution approach, which fails to reflect the workload and value of GPs’ work, thereby reducing their enthusiasm to a certain extent.” Consequently, performance-based incentives have limited effectiveness, and the enthusiasm of family doctor teams for service provision remains constrained.

(4) Development of family doctor teams

The qualifications and capabilities of GPs in institutions have steadily improved, but the overall number of GPs remains insufficient, and significant disparities exist in their diagnostic and treatment skills. This inadequacy prevents family doctor teams from fully meeting the healthcare needs of contracted residents, particularly in specialized areas such as surgery, gynecology, pediatrics, and nutrition. Respondent 13 remarked, “Some GPs lack sufficient knowledge reserves, possibly due to deficiencies in institutional training assessments and weak self-directed learning.” Additionally, most GPs reported that family docotr teams face challenges such as simplistic structures (composed only of doctors and nurses), ambiguous division of responsibilities, weak team collaboration, and lack of team management. Respondents 6 and 18 both stated, “Currently, family docotr team members have low professional expertise, and GPs bear most of the workload for contract services,” limiting the implementation of follow-ups and health education. This also hampers the seamless integration of various components of physician services. The implementation of the Integrated Healthcare Network (IHN) model varies across institutions. Respondent 3 noted, “The IHN model has clear advantages, but the relationships between members within the network are not yet strong. There should be more opportunities for family docotr team members to interact and learn from IHN experts to improve the skills of grassroots medical staff.”

Theme 2: Process quality of family doctor contracted services delivery

(1) Content of contracted services

The scope of family doctor contracted services has gradually expanded, offering service packages tailored for chronic disease management. GPs consciously provide behavioral and psychological health interventions for residents in need. Respondent 9 noted, “In addition to medical services, lifestyle guidance and psychological counseling for chronic disease patients are also strengths of contracted services.” Consultation services have gained recognition from residents, especially during the pandemic, when doctors and residents maintained contact through phone calls and WeChat. However, this form of communication has partially encroached on family dcotor team members’ personal time outside of work hours. Overall, the current service offerings lack appeal. Residents show limited sensitivity to the content of the services, with only a small number of chronic disease patients opting to purchase service packages. Furthermore, the existing contracted services struggle to provide personalized and precise care that meets residents’ varying health needs, particularly in disease prevention. Respondent 1 remarked, “Free health checkups, TCM assessments, and basic public health services—there is little difference between what contracted and non-contracted residents receive.” Respondent 14 added, “It is difficult to attract middle-aged residents to sign contracts. This group has its own set of needs, different from key or special populations. They require solutions for common illnesses and disease screening, which are not currently reflected in the content of contracted services.”

(2) Referral and consultation service processes

While referral slots are relatively abundant, some institutions report a limited number of upper-tier hospitals available for referrals. Respondent 5 mentioned, “Residents feel there aren’t suitable hospitals, so they opt to book appointments themselves and gradually stop using referral services.” Nearly all doctors reported smooth upward referral processes but noted a lack of downward referral mechanisms. Patients referred to upper-tier hospitals rarely return to their original institutions, leaving family dcotor teams unaware of their subsequent diagnostic and treatment outcomes. This results in a discontinuity in care, with the referral process unable to form a closed loop, and hinders the establishment of long-term care relationships between family dcotor teams and contracted residents. The principle of prioritized consultation for contracted residents showed limited effectiveness. Respondent 16 explained, “Uncontracted residents may feel dissatisfied with the priority given to contracted residents. Additionally, if a preceding consultation takes longer during the contracted residents’ designated time slot, they might feel they haven’t received their ‘priority rights’.” Respondent 11 added, “The waiting area in my institution is small, so prioritizing contracted residents can lead to overcrowding and complaints from other residents.” Moreover, formalistic practices were frequently noted in the implementation of family dcotor services. For instance, in health management for contracted residents, the high number of contracts signed by family dcotor teams and the large outpatient volumes at most institutions mean that doctors often lack the time to provide high-quality health management services for contracted residents. This makes it challenging to deliver comprehensive care.

(3) Standards for home visit services

Policies currently stipulate only basic requirements for home visit services, lacking clear standards for eligibility criteria or the specific services to be provided during such visits. Respondent 15 remarked, “Health management has clear service standards, such as quarterly follow-ups and monitoring of health indicators. However, home visit services lack explicit guidelines on what constitutes quality service, making evaluation difficult.” Respondent 4 added, “Home visits are often unfocused. Most visits fail to address substantial issues. Doctors end up exhausted, but residents remain dissatisfied.” These shortcomings highlight that home visit services, while increasing the workload of medical staff, fail to enhance service accessibility for contracted residents.

Theme 3: Outcomes of family doctor contracted services

(1) Improvement in residents’ health status

Respondent 7 observed, “Due to the contractual relationship, I consciously pay more attention to my patients, and they gradually value my advice. This helps improve the self-management awareness and outcomes of patients with chronic diseases.” Most doctors agreed that family doctor contracted services have enhanced contracted residents’ health status and literacy through health checkups and educational initiatives. Regular follow-ups conducted via clinics, WeChat, and phone calls have significantly improved adherence among contracted residents. This improvement is particularly evident in residents with chronic conditions. Respondent 13 noted, “After years of management by our team, the health of contracted residents with diabetes has significantly improved. The glycated hemoglobin compliance rate increased from about 20% before signing the contract to 70%.”

(2) Increased willingness to seek care

Family doctor contracted services have encouraged residents to shift their healthcare-seeking behavior towards community institutions, with a noticeable rise in first-visit patients at these facilities. By addressing patients’ health concerns through more accessible, convenient, and efficient services, the satisfaction of contracted residents has improved to some extent. Respondent 8 stated, “There has been a significant increase in outpatient visits. Through contract manage-

ment, residents with health needs have become more aware of their conditions, making them more willing to seek initial consultations and follow-ups at the institution." Similarly, Respondent 5 noted, "Our institution has established a hemodialysis center, equipped hospital beds, and offers inpatient and palliative care services. Providing services comparable to those of hospitals makes residents highly satisfied."

(3) Challenges in strengthening resident recognition of family doctor contracted services
Some respondents observed that many residents do not fully recognize or appreciate family doctor contracted services. Respondent 2 remarked, "Residents still misunderstand the concept of a family doctor, believing it to be synonymous with a 'private doctor providing home visits' or simply a 'doctor who prescribes medicine.' These misconceptions are hard to change."Respondent 18 noted, "Some residents lack health awareness and only sign the contract 'to save face.' They often don't know the members of their family doctor team, and when health issues arise, they cannot identify the appropriate team member for assistance."This situation stems partly from insufficient or inaccurate promotion and explanation of family doctor contracted services across various channels. Additionally, the formalistic nature of contracted services, which often prioritizes procedure over practical benefits, has been identified as a major reason residents are reluctant to sign up for these services.

(4) Increased professional pressure on GPs

(5) Despite most GPs expressing a willingness to proactively manage their patients' health through family doctor contracts, the increase in workload has led to a state where doctors often feel overwhelmed. With limited time for learning and professional development, many are unable to complete the expected tasks. For instance, Respondent 2 mentioned: "In addition to outpatient duties, I am also responsible for the chronic disease management and follow-up of contracted residents, attending meetings, and fulfilling public health and teaching responsibilities." Respondent 17 shared: "I fully support the goals of family doctor contracted services, but the workload is disproportionate to the outcomes. The efficiency of the contract services is very low, and we often feel frustrated and exhausted. We no longer actively think about how to improve the quality of these services." The implementation of family doctor contracted services has significantly increased the pressure on GPs and heightened the risk of professional burnout.

Based on an analysis of the current status of family doctor contracte services and within the framework of the SPO model (Structure, Process, Outcome), we summarized the facilitating and limiting factors for improving the quality of family doctor contracted services from the perspective of GPs. Details are shown in Table 3.

Discussion

This study conducted semi-structured interviews with GPs in community health centers in Beijing to gain an in-depth understanding of the current state, facilitating factors, and constraints of family doctor contracted service quality. The findings revealed that while policies related to family doctor contracted services have been continuously improved and community health centers are placing greater emphasis on these services, structural quality issues remain. These include suboptimal policy implementation, inadequacies in assessment and incentive mechanisms, and lagging development of family doctor teams. GPs reported that family doctor contracted services have contributed to improving the health of signed residents, increasing their willingness to seek care, and strengthening the doctor-patient relationship. However, challenges persist in the service process, including insufficient appeal of service content to residents, formalized service procedures, and the lack of clear and reasonable standards for home visit services. These issues have increased doctors' workloads and stress, potentially impacting service quality and leading to professional burnout.

This study analyzed the quality of family doctor contracted services based on the SPO framework. At the structural level, the influence of policy orientation is significant. However, the current assessment goals, such as mandated signing rates, are not entirely reasonable. The focus on achieving assessment targets has caused challenges for both family doctor teams and signed residents. Issues related to the allocation of institutional resources, such as infrastructure and human resources within family doctor teams, were also highlighted. Previous research has shown that factors such as institutional hardware facilities,[26] medication accessibility,[27] and availability of inpatient beds[28] are critical in influencing residents' willingness to sign up for family doctor contractedd services. Establishing a well-trained primary care team is key to enhancing service capacity, reducing GPs' workloads, and improving efficiency.[29] Moreover, performance-based financial subsidies tied to the number of signed residents often require high-quality assessment systems to support them effectively.[30] However, the interview findings revealed that the current assessment indicators lack a strong quality focus and are poorly aligned with incentive mechanisms. To ensure the smooth implementation of family doctor contracted services and strengthen structural quality, an integrated approach is necessary. This includes harmonizing policies, management, financial subsidies, and medical consortiums,[31] laying a solid foundation for advancing the tiered medical service system.

During the service process, although the content of family doctor contracted services has expanded, the lack of comprehensiveness and specificity has limited its appeal to residents. Additionally, shortcomings in the implementation mechanisms have hindered family doctor contracted services from establishing unique advantages, restricting their comprehensiveness and continuity. Health management services are widely recognized as an effective strategy to help patients with chronic diseases control disease progression and improve quality of life.[32] However, findings from this study indicate that the formalization of health management services is primarily influenced by doctors' workloads. Therefore, leveraging digital tools to enhance the capacity and effectiveness of family doctor teams in health management is crucial,[33] as it can significantly improve the quality of health management services. Appointment-based services are considered a key factor affecting the compliance of signed residents.[34] However, this study found no definitive evidence that the principle of priority access for signed patients improves service quality. Whether institutions should adjust this principle based on their specific circumstances requires further observation and research.

Finally, in terms of service outcomes, this study found that family doctor contracted services play a positive role in improving residents' health levels and increasing their utilization of GPs.[35] Additionally, these services have contributed to building trust between GPs and signed residents, which is a crucial factor in residents' willingness to continue using family doctor contracted services.[36] This trust lays a solid foundation for advancing the tiered medical care system and establishing long-term care relationships. However, there is a notable lack of large-scale, high-quality clinical research evidence regarding the impact of family doctor contracted services on residents' health and service utilization, which should become a key focus for future research. For example, ZHAO et al.[37] reported in 2024 that the overall willingness to sign up for family doctor contracted services in Beijing was only 13.68%, with 100% of the sampled population being chronic disease patients. The low overall willingness may be attributed to the abundance of medical resources in Beijing, offering residents a wide range of options for medical care, while the fixed composition of signed populations may be linked to the limited scope of signing service content. This study also revealed that elderly and chronic disease patients exhibited a higher demand for family doctor contracted services, whereas middle-aged and young adults showed less interest, reflecting differences in health needs across age groups. This suggests that the design of service models should

Table 3
Facilitators and barriers to the quality of family doctor contracted services

Dimension	Facilitators	Number of mentions (n=18)	Barriers	Number of mentions (n=18)
Dimension 1: Structural quality				
1. Policy guidance and implementation	Policy support	13	Assigned contract tasks and target rates not suitable for all institutions	9
	High institutional focus, actively advancing contract services	11	Frequent changes in implementation plans	4
2. Institutional resources	Application of contract management apps	2	Low intelligence level of information systems	15
	Use of smart detection devices	1	Simple and inadequate clinic environments	3
			Lack of inspection and testing equipment	6
			Insufficient drug supply	5
3. Evaluation and incentive mechanism	Regular quality evaluations	16	Evaluation criteria do not reflect doctor capabilities	12
	Special government subsidies for family doctor contracted services	10	Equalized performance distribution reducing motivation	9
			Lack of non-performance-based incentives	5
			Significant differences in subsidies between institutions	3
4. Family doctors team building	Regular professional training for doctors	13	Insufficient number of GPs	12
	Improved GPs capabilities	10	GPs lack comprehensive diagnostic skills	13
	Introduction of medical consortiums models	6	Weak team cohesion and unclear division of labor	10
			Weak connection between medical consortiums and institutions	4
Dimension 2: Service process				
5. Promotion	Expanded service offerings	7	Lack of personalized services	13
	Chronic disease service packages	9	Insufficient coverage for all age groups	2
	Focus on chronic disease management	10	Lack of preventive interventions	2
	Emphasis on health education and psychological support	5		
6. Evaluation and incentive mechanism	Sufficient upward referral resources	3	Limited referral hospital resources	10
	Smooth upward referral process	7	Lack of downward referral processes	7
			Limitations in priority appointment principles	6
			Formalized health management	4
7. Service standards	Clear standards for health management	5	Lack of clear standards for home visits	5
Dimension 3: Service outcomes				
8. General practitioners	Increased participation in health education and regular checkups	8	Poor health literacy among some residents	3
	Closer connection between residents and institutions	3		
	Increased chronic disease indicators	11		
Dimension 2: Service process	Improved appointment practices and proactive sign-ups	6	Misunderstandings and mistrust in family doctor contracted services	5
9. Service content				
10. Service process	Increased resident satisfaction with contracts	13	Insufficient promotion of family doctor contracted services	4
	Providing services based on resident needs	10		
11. Chronic disease management	Greater outpatient volume improves diagnostic capabilities	9	High workload	8
12. Two-way referral system				
Dimension 3: Service Outcomes			Increased work pressure	5
			Risk of professional burnout	3

be resident-centric, taking into account the conditions of community health centers, team capacity, and resident demands, rather than solely relying on a “provider-driven” approach. GPs face significant pressure in the development of family doctor services. Studies have shown that low job satisfaction among GPs[38] and excessive work-related stress can lead to health problems,[39] which negatively impacts the quality of family doctor contracted services. Simplifying the signing process, fostering effective team-based family doctor contracted services, and implementing flexible performance evaluation indicators may help alleviate some of the burden on doctors and improve service quality.

Conclusion

With the continuous improvement of relevant policies, family doctor contracted services have made progress in standardization and service effectiveness. However, they remain constrained by factors such as policy implementation, evaluation and incentive mechanisms, and family doctor contracted team development. Challenges include insufficiently attractive service content, formalized processes, a lack of clear work standards, and increased pressure on doctors. Improving the quality of family doctor contracted services requires addressing multiple factors, including clarifying the core principles, establishing scientific service models, and designing effective incentive mechanisms to enhance the overall impact of family doctor contracted services.

Limitations of the Study

This study focused on GPs, which may not fully represent the perspectives of all healthcare professionals involved in family doctor contracted services. The abundant medical resources in Beijing might have influenced the implementation of the family doctor contracted system at the primary care level, potentially limiting the generalizability of the findings to other regions. Future studies are recommended to include perspectives from diverse regions and other stakeholders such as nurses, administrators, and service recipients. This would provide more comprehensive data to further explore and enhance the quality of family doctor contracted services.

Competing interests

The authors declare that they have no competing interests.

Declarations

Not applicable.

Authors' contributions

Conceptualization, C.Y. and J.G.; Methodology, C.Y. and J.G.; Data curation, C.Y. and J.G.; Formal analysis, C.Y.; Funding acquisition, not applicable; Project administration, not applicable; Resources, not applicable; Supervision, J.G.; Validation, J.G.; Writing—original draft, C.Y.; Writing—review and editing, J.G. All authors have read and agreed to the published version of the manuscript.

Ethics approval and consent to participate

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References

1. Li X, Lu JP, Hu S, et al. The primary health-care system in China. *Lancet*. 2017;390(10112):2584–2594. doi:10.1016/S0140-6736(17)33109-4.
2. Pan GY, Yang Y. Research status of family doctor team service models in China. *Chin Gen Pract*. 2017;20(28):3457–3462. doi:10.3969/j.issn.1007-9572.2017.28.002.
3. Li LN, Zhong CW, Mei J, et al. Effect of family practice contract services on the quality of primary care in Guangzhou, China: a cross-sectional study using PCAT-AE. *BMJ Open*. 2018;8(11). doi:10.1136/bmjopen-2017-021317.
4. Liu H, Liu DP. A propensity score matching study on the impact of family doctor contract services on residents' health literacy. *Chin J Health Educ*. 2023;39(11):1051–1055. doi:10.16168/j.cnki.issn.1002-9982.2023.11.016.
5. Lv B, Cui CS, Feng XM, et al. What factors affect Beijing residents' contracts with family doctors? A comparative study of Beijing's urban and suburban areas. *Front Public Health*. 2023;11:1159592. doi:10.3389/fpubh.2023.1159592.
6. Shen SY, Wu Z, Zhang JM, et al. Study on the implementation effect of the family doctor system in Shanghai. *Chin Gen Pract*. 2015;18(10):1132–1137. doi:10.3969/j.issn.1007-9572.2015.10.008.
7. National Health and Family Planning Commission. *Notice on issuing the guidelines for promoting family doctor services*; 2016 Jun 6 [Internet][cited 2024 Apr 15]. Available from: *https://www.gov.cn/xinwen/2016-06/06/content_5079984.htm* .
8. Li X, Krumholz HM, Yip W, et al. Quality of primary health care in China: challenges and recommendations. *Lancet*. 2020;395(10239):1802–1812. doi:10.1016/S0140-6736(20)30122-7.
9. Wong WCW, Jiang SF, Ong JJ, et al. Bridging the gaps between patients and primary care in China: a nationwide representative survey. *Ann Fam Med*. 2017;15(3):237–245. doi:10.1370/afm.2034.
10. Li MY, Zhang XT, Tang HQ, et al. Quality of primary health care for chronic diseases in low-resource settings: evidence from a comprehensive study in rural China. *PLoS One*. 2024;19(7). doi:10.1371/journal.pone.0304294.
11. Guiding Opinions on Promoting the High-Quality Development of Family Doctor Services [Internet]. 2022 Mar 3 [cited 2024 Apr 15]. Available from: https://www.gov.cn/zhengce/zhengceku/2022-03/15/content_5679177.html.
12. World Health Organization. Quality in primary health care [Internet]. 2018 [cited 2024 Jul 2]. Available from: https://www.who.int/docs/default-source/primary-health-care-conference/quality.pdf.
13. Royal College of General Practitioners. Quality in general practice [Internet]. 2017 [cited 2024 Jul 2]. Available from: https://www.rcgp.org.uk/representing-you/policy-areas/quality-in-general-practice.
14. Family doctor contract rate among Beijing's permanent population has reached 42% [Internet]. 2024 Jan 12 [cited 2024 Apr 15]. Available from: https://wjw.beijing.gov.cn/xwzx_20031/mtjj/202401/t20240111_3532751.html.
15. Shi DZ, Ma WH, Zhao YL. Analysis of the current status of family doctor contract services in Beijing from the perspective of team members. *Chin Community Doctors*. 2024;40(16):167–169. doi:10.3969/j.issn.1007-614x.2024.16.056.
16. Xiao P, Yang J, Liang ZH, et al. The impact of family doctor contract duration in Chaoyang District, Beijing, on service utilization and management. *J Chronic Dis*. 2020;21(8):1187–1189 1192. doi:10.16440/j.cnki.1674-8166.2020.08.021.
17. Zhao J, Liu FY, Li Z, et al. A study on satisfaction with family doctor contract services in Beijing: Based on the patients' perspective. *Health Econ Res*. 2022;39(1):54–58. doi:10.14055/j.cnki.33-1056/f.2022.01.016.
18. Wang QR. Research progress and prospects of family doctor contract services in China based on CiteSpace. *J Manag Sci*. 2024(1):158–166. doi:10.16517/j.cnki.cn12-1034/f.20230512.002.
19. Hu X. Current status and suggestions for family doctor contract services based on bibliometrics. *Chin Prim Health Care*. 2022;36(9):39–43. doi:10.3969/j.issn.1001-568X.2022.09.0011.
20. Han XR, Qin CX, Wu Y, et al. Study on accessibility and comprehensiveness of rural family doctor services based on perceived quality evaluation. *Chin Gen Pract*. 2021;24(19):2428–2434. doi:10.12114/j.issn.1007-9572.2021.00.181.
21. Huang XN. *Study on accessibility issues of promoting family doctor contract services in Dongguan City*. Guilin: Guangxi Normal University; 2022.
22. Donabedian A. Evaluating the quality of medical care. 1966. *Milbank Q*. 2005;83(4):691–729. doi:10.1111/j.1468-0009.2005.00397.x.
23. Kiger ME, Varpio L. Thematic analysis of qualitative data: AMEE guide No. 131. *Med Teach*. 2020;42(8):846–854. doi:10.1080/0142159X.2020.1755030.
24. Merriam S. *Qualitative research: a guide to design and implementation*. Fourth edition; 2016.
25. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007;19(6):349–357. doi:10.1093/intqhc/mzm042.
26. Zhang XY, Wang YX, Yang SY, et al. Exploration of the model for health insurance payment of family doctor contract services under the perspective of contract theory. *J Jinzhou Med Univ Soc Sci Ed*. 2021;19(1):25–28. doi:10.13847/j.cnki.lnmu(sse).2021.01.007.
27. Jia M, Guan XF, Meng YC, et al. Investigation of the current status of family doctor service fee financing and payment in China. *Chin Health Econ*. 2023;42(9):66–69.
28. Hao AH, Zeng WL, Li GH, et al. Investigation on the current status of family doctor team contracts from the perspective of general practitioners. *Chin Gen Pract*. 2023;26(34):4261–4268. doi:10.12114/j.issn.1007-9572.2023.0035.
29. Bodenheimer T, Ghorob A, Willard-Grace R, et al. The 10 building blocks of high-performing primary care. *Ann Fam Med*. 2014;12(2):166–171. doi:10.1370/afm.1616.
30. Xu H, Ma XJ, Wang YD, et al. International experience on the framework and indicator system of per capita payment performance evaluation. *Chin Hosp Manag*. 2023;39(10):756–762. doi:10.3760/cma.j.cn111325-20230428-00341.
31. Rao X, Luo L, Wang XY. A spatial feature analysis of primary health care utilization in a large city in China and its implications for family doctor contract service policy. *BMC Health Serv Res*. 2024;24(1):194. doi:10.1186/s12913-023-10389-8.
32. Guan B, Guan Z, Feng SX, et al. Evaluation of the application effect of family doctor contract services in the health management of elderly patients with chronic diseases. *Hosp Manag Forum*. 2023;40(2):94–96 55. doi:10.3969/j.issn.1671-9069.2023.02.023.
33. Zhang B, Xiang J, Zou YL. Visual analysis of research hotspots and frontiers in domestic community health management based on CiteSpace. *Chin Gen Pract*. 2023;26(S1):1–6.
34. Zhou QR, Li JS, Hao C, et al. The impact of appointment-based medical services on the quality of family doctor contract service outcomes. *Chin Gen Pract*. 2023;26(10):1198–1204. doi:10.12114/j.issn.1007-9572.2022.0438.
35. Yu Y, Ye AZ, Chen C, et al. The impact of the family doctor system on patients' utilization of general practitioners in primary care facilities—Evidence from Hangzhou, China. *Int J Health Plann Manage*. 2022;37(6):3089–3102. doi:10.1002/hpm.3540.
36. Wang C, Yan SJ, Jiang H, et al. Residents' willingness to maintain contracts with family doctors: a cross-sectional study in China. *J Gen Intern Med*. 2021;36(3):622–631. doi:10.1007/s11606-020-06306-y.
37. Zhao N, Gu M, Li J, et al. Factors influencing contracting of residents with family doctors in China: a national cross-sectional survey. *BMC Health Serv Res*. 2024;24(1):213. doi:10.1186/s12913-024-10606-y.
38. Chen JH, Wang YJ, Du W, et al. Analysis on the relationship between effort-reward imbalance and job satisfaction among family doctors in China: a cross-sectional study. *BMC Health Serv Res*. 2022;22(1):992. doi:10.1186/s12913-022-08377-5.
39. He GS, Ren JJ, Chen XY, et al. GP's GP, general practitioner's health and willingness to contract family doctors in China: a national cross-sectional study. *BMC Prim Care*. 2024;25(1):253. doi:10.1186/s12875-024-02492-4.