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Postprint: Analysis of the Influencing Mechanisms of Family Doctor Contracted Service Effectiveness Based on Grounded Theory

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Abstract

Objective: To analyze the influence mechanism of family doctor contract services effectiveness. **Methods:** Using the grounded theory research method, based on in-depth individual interviews, and through three-stage coding to conduct a systematic study on the effectiveness and influence mechanism of family doctor contract services. **Results:** A theoretical model of the influence mechanism of family doctor contract services effectiveness was constructed, mainly comprising three dimensions: policy implementation deviation of family doctor contract services, primary healthcare service capacity, and resident characteristics. **Conclusion:** Under the influence of policy implementation deviation of family doctor contract services, family doctors exhibit poor work enthusiasm; primary healthcare service capacity remains low, and residents remain distrustful of primary healthcare service capacity, resulting in limited effectiveness of family doctor contract services policy implementation. Therefore, it is necessary to optimize the implementation pathway of family doctor contract services policies, enhance family doctors' medical and health service capacity, and improve residents' health literacy level.

Full Text

Analysis of the Influence Mechanism on the Effectiveness of Family Doctor Contracted Services Based on Grounded Theory

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Abstract

Objective: To analyze the influence mechanism affecting the effectiveness of family doctor contracted services. **Methods:** Using grounded theory methodology and based on in-depth personal interviews, this study systematically examined the effectiveness of family doctor contracted services and their influencing mechanisms through three levels of coding. **Results:** A theoretical model of the influence mechanism on family doctor contracted service effectiveness was constructed, comprising three main threads: policy implementation deviation in family doctor contracted services, primary healthcare service capacity, and resident characteristics. **Conclusion:** Under the influence of policy implementation deviations, family doctors demonstrate poor work enthusiasm; primary healthcare service capacity remains low, and residents' trust in these services is insufficient, resulting in limited effectiveness of the family doctor contracted service policy. Therefore, it is necessary to optimize policy implementation pathways, enhance family doctors' medical service capacity, and improve residents' health literacy.

Keywords: Family doctor contracted service; Grounded theory; Influence mechanism

Family doctor contracted services represent a crucial initiative for meeting residents' basic medical needs and establishing an orderly healthcare-seeking pattern, as well as a key task in China's deepening medical and health system reform [1]. However, prominent issues such as "signed but unaware" and "signed but not engaged" have emerged during implementation, making it difficult to guarantee service effectiveness [2]. Poor service outcomes not only directly affect residents' sense of gain but also hinder the advancement of tiered diagnosis and treatment measures, which is detrimental to forming an orderly healthcare-seeking pattern. Previous studies on factors influencing family doctor contracted service effectiveness have predominantly used quantitative methods from the demand-side perspective, lacking comprehensive exploration of relevant stakeholders. Therefore, this study, taking Shandong Province as an example, conducted interviews with family doctors, residents, and institutional managers, and employed grounded theory methodology to construct a model of the influence mechanism on service effectiveness, providing a basis for service optimization.

1.1 Data Sources

In September 2021, study participants were identified through purposive sampling, with sample size determined based on the principle of information saturation. Considering geographical distribution, economic development levels, and contracted service implementation status, we selected 24 family doctors, 25 contracted residents, and 8 institutional managers from three cities in Shandong Province: Weifang, Heze, and Jinan. Family doctors were required to have

medical practice qualifications and at least three years of work experience. Institutional managers were required to hold positions such as head nurse, department chief of general practice, director/deputy director of nursing, or hospital president/vice president, with at least three years in their current position and work related to family doctor services. Residents were required to have been contracted for over six months, be over 18 years old, and be able to converse freely. Before interviews, participants were informed of the purpose and main content, and recordings were made with their consent.

Participant demographics were as follows: Family doctors had a mean age of 38.6 ± 5.9 years; 11 (45.8%) had bachelor's degrees or higher, 12 (50%) had associate degrees, and 1 (4.2%) had technical secondary school education; 12 were male and 12 were female (50% each). The eight managers had a mean age of 49.5 ± 9.4 years; 6 (75%) had bachelor's degrees or higher, 1 (12.5%) had an associate degree, and 1 (12.5%) had technical secondary school education; 6 were male (75%) and 2 were female (25%). The 25 residents had a mean age of 55.8 ± 13.4 years; 11 were male (42.3%) and 14 were female (53.8%).

Interviews were conducted using a research team-developed interview guide covering topics such as the impact of family doctor contracted service policy implementation on primary healthcare institutions, family doctors' work status, team 工作内容及绩效分配, and residents' evaluations of family doctors.

1.2 Research Methods

Interview data were analyzed using grounded theory methodology, following the processes of open coding, axial coding, and selective coding. Rich data were collected through in-depth personal interviews and compiled into interview transcripts and memos. The constant comparative method was employed to code and categorize qualitative data, with sampling based on theoretical saturation principles to continuously seek new data and construct a valid and complete theoretical model. This study adhered to the principle of fidelity to participants' original statements without incorporating researchers' subjective interpretations [3].

2.1 Open Coding

Open coding refers to the initial stage of data analysis where researchers approach the raw data without preconceived codes, maintaining a completely open attitude to organize and analyze collected records. This process involves using concepts and categories to accurately reflect the content, breaking down, recombining, and re-synthesizing data records and abstracted concepts [4]. After labeling and tagging the raw data, we further conceptualized it to obtain 160 statements related to family doctors' work and corresponding original concepts (see Tables 1-3 -3). Through continued refinement and categorization of these 160 concepts in an iterative process, we ultimately abstracted 90 concepts and 24 categories (see Tables 4-6 -6).

Table 1 shows initial concepts from open coding of residents, including weak health awareness, inaccurate test results, limited examination items, insufficient home visits, non-fixed service providers, poor diagnostic ability, low sense of gain, and profit-driven medical practices.

Table 2 presents initial concepts from institutional managers, including lack of targeted personalized packages, few personalized package sign-ups, unclear referral criteria, unimplemented green referral channels, insufficient financial subsidies, heavy process supervision burden, delayed contract fee distribution, inflexible personalized package design, and absence of detailed service division rules.

Table 3 displays initial concepts from family doctors, including weak perceived returns, strong relative deprivation, excessive repetitive paperwork, lack of teamwork awareness, lack of referral resources, heavy workload, low professional identity, low salaries, and outdated equipment.

Table 4 shows categories formed from resident open coding: contract awareness status, healthcare-seeking habits, trust in contracted institutions, trust in family doctors, contract initiative, service quality, and doctor-patient communication.

Table 5 presents categories from institutional manager open coding: health personnel situation, information system construction, team coordination, personalized package design, service provision enthusiasm, supervision and evaluation system, policy implementation details, related support policies, and contract service fulfillment rate.

Table 6 shows categories from family doctor open coding: job satisfaction, work pressure, incentive policies, residents' health literacy, residents' psychological characteristics, material resources, service coordination, and service comprehensiveness.

2.2 Axial Coding

Axial coding, also known as relational coding, involves 梳理并建立概念与范畴间的逻辑关系 based on open coding [5], revealing the organic connections among components. By comparing and inducting the 24 categories from open coding, we identified their internal relationships and, using the paradigm model (conditions \rightarrow phenomenon \rightarrow action/interaction strategies \rightarrow results), extracted eight main categories: family doctor contracted service policy (A1), primary healthcare service capacity (A2), resident characteristics (A3), family doctor work status (A4), resident attitudes (A5), contracted service provision (A6), residents' healthcare-seeking status (A7), and contracted service effectiveness (A8). Detailed results are shown in Table 7.

Table 7 Main Categories Formed by Axial Coding shows the frequency (%) for each main category and its constituent subcategories.

2.3 Selective Coding

Selective coding places established concepts and categories within a broader theoretical framework, examining connections with core categories, verifying relationships, and completing underdeveloped categories [6]. Through in-depth analysis of the eight main categories and 24 subcategories, combined with comparisons of original interview data, we identified family doctor contracted service policy, primary healthcare service capacity, and resident characteristics as having significant influence on service effectiveness, capable of systematically and thoroughly explaining the logical relationships and internal connections. Therefore, these three were determined as core concepts of this study. Based on the grounded theory paradigm model (conditions \rightarrow phenomenon \rightarrow action/interaction strategies \rightarrow results) [7], we constructed an influence mechanism model of family doctor contracted service effectiveness, shown in Figure 1 [Figure 1: see original paper].

The model comprises three threads: First, the policy implementation deviation thread, where policies on incentives, supervision, and personalized packages show implementation deviations, and related support policies are lacking or poorly implemented, resulting in high work pressure and insufficient enthusiasm among family doctors, affecting their contract fulfillment motivation. Second, the primary healthcare service capacity thread, where insufficient quantity and quality of personnel and outdated facilities lead to poor service quality that cannot meet residents' diverse health needs. Third, the resident characteristics thread, where low health awareness and literacy lead to preset distrust of primary institutions and weak contract initiative, causing residents to maintain unreasonable healthcare-seeking behaviors that affect service utilization. Therefore, targeted measures are needed to optimize policy implementation pathways, enhance primary healthcare service capacity, strengthen health education and policy promotion, and improve service implementation effectiveness.

3 Discussion

Through grounded theory analysis, we identified the following issues affecting service effectiveness across the three threads of policy implementation deviation, primary healthcare service capacity, and resident characteristics.

3.1 Policy Implementation Deviation in Family Doctor Contracted Services The “signed but unaware” phenomenon was prominent during investigation—residents were unaware they had signed contracts and unclear about service content, deviating from policy intentions. This stems from the policy implementation process relying primarily on administrative mandatory requirements from health authorities, lacking other policy support mechanisms, resulting in insufficient initiative from both institutions and residents and causing policy deformation during execution. Regarding incentive policies, issues such as limited promotion opportunities and delayed contract fee distribution not only affect family doctors' professional identity and work enthusiasm but also

reduce institutional managers' initiative to design paid personalized packages. The single service package format leaves residents with insufficient choice space, affecting their healthcare-seeking decisions. In supervision and evaluation, the lack of service quality assessment indicators [8] means that, as one institutional manager noted, evaluations still focus on contract rates with excessively high targets beyond institutional capacity, leading some institutions to blindly pursue contract rates. In Region A, each follow-up visit required photographic documentation, creating excessive process supervision burden that consumed time otherwise spent delivering health services.

3.2 Gap Between Primary Healthcare Service Capacity and Resident Expectations

Effective implementation of family doctor contracted services urgently requires support from primary healthcare service capacity [9]. Interviews revealed weak capacity in primary healthcare, manifested in shortages of human resources, backward information system construction, and low facility and equipment standards. Team structures were unreasonable, consistent with findings from related quantitative studies [10-11]. Additionally, interviews found no information sharing between primary and higher-level hospitals, lacking a unified health information platform, with fragmented examination results and treatment plans. Outdated medical equipment and insufficient drug variety failed to fully guarantee residents' medication needs. Weak primary healthcare service capacity cannot provide comprehensive health management services, making contracted services unattractive to residents and reducing their initiative to sign contracts.

3.3 Resident Characteristics Affect Service Utilization

On one hand, due to inadequate facilities and equipment, family doctors' medical competence, and excessively high contract rate requirements, service quality cannot be guaranteed. Residents, being particularly sensitive to risks in healthcare-seeking behavior, develop distrust toward family doctors, with one resident stating, "The level at primary institutions is average; it's safer to go to a major hospital first." On the other hand, as primary institutions remain differentially subsidized units with profit pressures, residents hold the perception that "medical care is profit-driven," generating preset distrust. Combined with poor health knowledge literacy and incorrect health concepts such as "no disease means health," residents neglect prevention's role in health, developing an indifferent attitude toward contracting. Due to weak health awareness, even when free physical examinations and chronic disease follow-ups are provided, residents' utilization enthusiasm remains low. Thus, residents' distrust of family doctors and institutions, along with their poor health literacy, hinder effective utilization of contracted services.

4.1 Optimize Policy Implementation Pathways

First, improve the family doctor performance evaluation system. Integrate evaluation results with income distribution, set reasonable contract rate targets,

and incorporate service quality, efficiency, and fulfillment status as evaluation indicators. Encourage contracted residents to participate in performance evaluations to enhance service provision enthusiasm [12]. Second, ensure timely allocation of medical insurance funds and government subsidies. Address career challenges such as insufficient staffing and promotion difficulties by establishing dynamic staffing mechanisms and granting primary institutions autonomy in personnel allocation. Third, design personalized contract packages oriented to residents' needs, strengthen promotion of paid personalized packages, and encourage residents to purchase them.

4.2 Enhance Contracted Institution Service Capacity

We recommend improving service capacity from three aspects. First, increase the quantity and quality of family doctors. Fully utilize the human resource integration advantages of county medical communities and urban medical alliances to promote professional training for family doctors. Expand the scope of general practitioner transfer training, and fundamentally accelerate the construction of general practice disciplines [13] to improve comprehensive quality. Second, increase investment and rational allocation of material resources. Consider patients' actual medication needs, comprehensively evaluate drug economy, safety, and effectiveness, reasonably expand the essential drug list, and ensure drug quality [14]. Strengthen equipment maintenance, updating, and procurement; train and assess primary healthcare workers on medical equipment operation to improve utilization capacity and efficiency. Third, strengthen information system construction to empower family doctor contracted service policies through the internet [15]. Family doctors should actively communicate with residents through online and offline channels to increase trust. Break down information barriers between medical institutions at different levels to improve health management efficiency and quality.

4.3 Improve Residents' Health Literacy

First, emphasize the government's role in health promotion. Research shows residents have high trust in government, which should strengthen health knowledge dissemination through various channels such as health lectures, public service advertisements, and short health videos. Second, conduct targeted health education [16]. For chronic disease patients, strengthen medication adherence education; for elderly residents, train them in basic emergency medical knowledge; for the general population, establish correct health concepts, expand preventive knowledge, and enhance enthusiasm for utilizing family doctor services.

5 Innovations and Limitations

This study employed grounded theory methodology to better compensate for quantitative research limitations. Interview subjects covered managers, primary healthcare workers, and service recipients, enabling comprehensive multi-angle analysis of the service effectiveness influence mechanism. We discovered that

medical quality and the public welfare nature of primary institutions affect patient trust, which along with residents' health literacy levels influences service utilization. Limitations include interviewing only three cities in Shandong Province, limiting sample representativeness, and the subjective nature of interview results. Incorporating data on patient trust, first-visit rates, and health literacy could further enhance research objectivity.

Author Contributions: Meng Wenqi and Yu Qianqian conceptualized the study and designed the overall framework. Meng Wenqi, Liu Songyi, Peng Haibo, Jiang Xiaoli, and Li Zixin collected, organized, and entered data. Meng Wenqi and Liu Songyi analyzed and interpreted results. Yu Qianqian, Yin Wenqiang, Chen Zhongming, Sun Kui, and Guo Hongwei revised the manuscript. Yu Qianqian was responsible for quality control and final review, assuming overall responsibility and supervision.

Conflict of Interest: The authors declare no conflict of interest.

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