Functional Characteristics of Basic Medical Services in China and Their Pathways of Influence on Health Service Outcomes: A 15-Year Mixed-Methods Systematic Review Preprint

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Abstract

Background Basic medical services constitute the main manifestation of primary care within China' s health system. Since the new round of health-care reform in 2009, the theory of primary care functional attributes has been introduced into China. To date, Chinese researchers, drawing on this theory, have introduced multiple international measurement instruments and developed several indigenous tools to assess the process quality of basic medical services received by different regions and populations in China. Objective This mixed-methods systematic review aims to systematically synthesize qualitative and quantitative evidence on the conceptual connotations, intensity levels of different functional attributes in China' s basic medical services, as well as their relationships with and impacts on various health service outcomes. Methods Guided by the JBI mixed-methods systematic review framework, we searched PubMed, Embase, Web of Science, Google Scholar, China National Knowledge Infrastructure, and the Wanfang Data Knowledge Service Platform for qualitative, quantitative, and mixed-methods studies published between January 2009 and March 2025. Two researchers used Rayyan to screen the literature in two stages and assessed the methodological quality of included studies using JBI critical appraisal tools. After separately extracting qualitative and quantitative data, we adopted a convergent segregated approach: qualitative and quantitative data were first synthesized independently; we then compared the consistency and discrepancies between the two strands of evidence to conduct a further integration, and sought to use qualitative findings to elucidate the potential pathways and mechanisms underlying the associations between functional attributes and health service outcomes revealed by quantitative data. Results A total of 59 original studies were included, comprising 52 quantitative studies, 4 qualitative stud-

ies, and 3 mixed-methods studies. The functional attributes of basic medical services in China can be broadly categorized into six core dimensions: comprehensiveness, first-contact care, patient empowerment, accessibility, continuity, and coordination; however, their local connotations all deviate to some extent from the theoretical connotations of analogous attributes in the original functional attribute framework. Overall, the intensity levels of these attributes fall within a moderate-to-high range. Higher measured levels of these attributes are significantly and positively associated with multiple key health service outcomes, including better patient health status, better patient experience, lower medical expenditures, a greater propensity to choose primary care facilities for first-contact care, and reduced use of general hospitals. For the first five attributes, clear pathways and mechanisms influencing key health service outcomes were identified. Conclusions This review demonstrates the value of government- and society-led reforms of basic medical and health services in China and of sustained investment in this field, and supports further enhancement of the functional attributes of basic medical services to strengthen their capacity and effectiveness in improving key health service outcomes. In addition, it highlights the need for more extensive, differentiated, and precise research on the functional attributes of basic medical services in China.

Full Text

Preamble

Special Report on 15 Years of Deepening Healthcare Reform in China: Functional Features of China's Basic Medical Services and Their Pathways of Influence on Health Service Outcomes—A 15-Year Mixed-Methods Systematic Review

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Abstract

Background: Basic medical services represent the primary manifestation of primary care within China' s healthcare system. Since the 2009 healthcare reform, primary care functional features theory has been introduced to China. To date, Chinese researchers have employed various international measurement instruments and developed several localized tools to evaluate the process quality of basic medical services received by different populations across diverse regions. **Objective:** This mixed-methods systematic review aims to systematically synthesize qualitative and quantitative evidence regarding the conceptual connotations, intensity levels, and relationships with various health service outcomes of different functional features in China' s basic medical services. **Methods:** Using the JBI mixed-methods systematic review framework, we searched PubMed, Embase, Web of Science, Google Scholar, CNKI, and Wanfang Data from January 2009 to March 2025 for qualitative, quantitative, and mixed-methods studies. Two researchers conducted two-stage literature screening using Rayyan and assessed methodological quality with JBI appraisal tools. After extracting qualitative and quantitative data separately, we employed a convergent segregated approach to synthesize each data type independently, then integrated the two sets of findings by examining consistencies and contradictions, attempting to use qualitative data to explain the pathways and mechanisms underlying the associations between functional features and health service outcomes shown in quantitative data. **Results:** We included 59 original studies (52 quantitative, 4 qualitative, and 3 mixed-methods). China' s basic medical service functional features can be broadly categorized into six core dimensions: comprehensiveness, first contact, patient empowerment, accessibility, continuity, and coordination, though their local connotations vary from theoretical definitions of similar features in the original functional features theory. Overall intensity levels ranged from medium to high. Stronger measurement levels showed significant positive associations with multiple important health service outcomes, including better patient health status, improved patient experience, lower medical expenditures, preference for primary care as first contact, and reduced comprehensive hospital utilization. The first five features demonstrated clear pathways and mechanisms influencing key health service outcomes. **Conclusion:** This review demonstrates the value of China' s government and society initiating basic medical and health service reforms and sustaining investment in this field. It supports future efforts to further enhance China' s basic medical service functional features to strengthen their capacity and effectiveness in improving key health service outcomes. Additionally, it suggests the need for more extensive, nuanced, and precise research on functional features of China' s basic medical services.

Keywords: Health services; Functional features; Primary care; General practice; Systematic review

Reconfiguring the Functional Features of Primary Care in a Non-gatekeeping Context: A 15-Year Mixed-Methods Systematic Review from China

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Abstract

Background: Since the 1970s, the World Health Organization has recognized primary health care as essential for universal health coverage. Following China' s 2009 healthcare reform, the functional features theory (4Cs) for primary care was introduced. Researchers have conducted extensive studies, employing both international and localized instruments to evaluate the process quality of primary care service across diverse regions and populations in China. **Objective:** This review synthesizes qualitative and quantitative evidence on the concepts, intensity, and health service outcome impacts of functional features in China' s primary care services, offering evidence for quality assessment and improvement in China and comparable low- and middle-income countries. **Methods:** Using the JBI mixed-methods systematic review framework, the researchers searched PubMed, Embase, Web of Science, Google Scholar, CNKI, and Wanfang for studies from January 2009 to March 2025. Two researchers screened literature using Rayyan, evaluated methodological quality with JBI tools, and synthesized qualitative and quantitative data via the convergent segregated approach to explore outcome mechanisms. **Results:** This review included 60 studies (52 quantitative studies, 4 qualitative studies, 3 mixed-method studies). The functional features of China' s primary care services can be broadly categorized into six dimensions: first contact, accessibility, comprehensiveness, continuity, coordination, and patient empowerment. Accessibility and patient empowerment are strong, while comprehensiveness is weaker. Overall, stronger functional features correlate with improved health outcomes, patient experiences, lower healthcare costs, utilization preference for primary care, and reduced hospital utilization, supported by qualitative data. **Conclusion:** Future efforts should develop a

China-specific functional features framework for primary care services, create tailored measurement tools, and generate rigorous evidence to advance practice and research.

Keywords: Health services; Functional features; Primary care; General practice; Systematic review

Introduction

China's 2019 *Law of the People's Republic of China on Basic Medical and Health Promotion* defines basic medical services as "the medical components of disease prevention, diagnosis, treatment, nursing, and rehabilitation services that are essential for maintaining human health, compatible with socioeconomic development levels, and equitably accessible to citizens, provided using appropriate drugs, technologies, and equipment." In practice, these services are typically delivered by outpatient physicians and family doctors at primary-level medical and health institutions to community residents. However, what truly distinguishes the process of basic medical services from specialist care in general hospitals? What impacts and value do basic medical services have for patients, residents, and society? And how are these impacts realized in the real world? Answering these questions forms the foundation of the disciplinary theory for basic medical and general practice in China.

The most internationally accepted explanation for these questions is the "functional features" theory proposed by Starfield and colleagues in the early 21st century. This theory posits that primary care services similar to China's basic medical services contain multiple unique attributes that generate distinctiveness from specialist care and correlate with superior performance on various health service outcomes. Among these "functional features," the most representative are four core features known as the "4Cs." Although nominally four features, all except coordination (integration and seamless collaboration between primary care and other healthcare system components) comprise at least two sub-features: first contact includes gatekeeping (requiring patients to consult general practitioners first) and accessibility (patients' ability to conveniently obtain primary care); comprehensiveness includes service scope (provision and access range of preventive, medical, rehabilitation services) and service capacity (healthcare workers' ability to provide medical services within primary care); continuity includes interpersonal continuity (familiarity, trust, and respect built through long-term repeated contact) and medical continuity (continuous service provision by one GP or their team over time). Beyond these four core features, other theoretically proposed and empirically validated features include "person-centeredness," "patient empowerment," "family orientation," and "community orientation."

Most international measurement tools for primary care functional features, such as the Primary Care Assessment Tool (PCAT), Person-Centered Primary Care

Measure (PCPCM), and General Practice Assessment Questionnaire (GPAQ), adopt a patient-reported experience measure (PREM) approach from the patient perspective to assess perceived intensity levels of functional features across different countries and regions, considering these results sufficient to reflect primary care quality. Since the 2009 healthcare reform, Chinese researchers have translated and locally adapted many such tools to evaluate China' s basic medical service quality. Additionally, Chinese researchers like Kuang Li et al. have developed indigenous scales such as the Assessment Survey of Primary Care (ASPC) to conduct similar evaluations. Researchers have also employed qualitative methods, conducting multiple semi-structured interviews and focus groups across different regions to explore how functional features manifest in China' s social and medical environment and to understand residents' and patients' experiences and preferences.

According to Donabedian' s quality theory, structural factors influence process quality. Given significant differences between China' s basic medical services and Western countries in social context, healthcare system, service scope, content, and main patient population characteristics, and although studies have explored relationships between functional features and important health service outcomes, systematic evidence on the concepts, intensity, and impact pathways of functional features in China' s basic medical services since the healthcare reform remains lacking. Therefore, this mixed-methods systematic review collected, summarized, and analyzed quantitative, qualitative, and mixed-methods evidence on functional features of China' s basic medical services (which often overlap in practice with primary care services and family doctor contract services) to provide systematic, comprehensive, and practice-grounded evidence for future health policy formulation, service design, disciplinary theory construction, and quality assessment and improvement in China and comparable low- and middle-income countries.

Methods

This review followed the Joanna Briggs Institute (JBI) mixed-methods systematic review guidelines and was registered with PROSPERO (registration number: CRD420251028411). The process comprised five stages: literature retrieval, screening, quality assessment, data extraction, and evidence synthesis. Compared with the preprint protocol published on medRxiv, the final version added intensity inference for functional features during qualitative data extraction and synthesis to support cross-validation between qualitative and quantitative results; other content remained identical to the original protocol.

1.1 Retrieval Strategy

The complete retrieval strategy was reported in the appendix of the previously published protocol. We searched six databases: PubMed, Embase, Web of

Science, Google Scholar, CNKI, and Wanfang Data, covering January 1, 2009, to March 31, 2025, limited to Chinese and English literature. Additionally, the research team examined reference lists of all included studies.

1.2 Literature Screening

Two researchers with domain experience and relevant publications conducted duplicate removal and screening via Rayyan (Rayyan Systems Inc., Doha, Qatar). One researcher performed initial screening based on titles and abstracts, followed by full-text rescreening of questionable literature with a second researcher. Disagreements were resolved through consultation with a third researcher. The detailed screening process is shown in the PRISMA flow diagram [Figure 1: see original paper].

Inclusion criteria: (1) Study subjects were frontline basic medical service providers (e.g., GPs, family doctor teams) or patients/residents who had experienced or might utilize basic medical services; (2) Publication period: January 1, 2009–March 31, 2025; (3) Studies conducted within the People' s Republic of China; (4) Original research (journal articles, conference papers) or grey literature (theses); (5) Quantitative (cohort, cross-sectional), qualitative (interviews, focus groups), or mixed-methods studies with clearly distinguishable quantitative and qualitative components; (6) For qualitative studies (or qualitative components), results should involve stakeholders' experiential information about functional features' forms and conceptual connotations, including potential pathways or mechanisms affecting health outcomes; (7) For quantitative studies (or quantitative components), results should explicitly report functional feature intensity (overall or single features) and their relationships with health service outcomes.

Exclusion criteria: (1) Hong Kong, Macao, and Taiwan regions with substantially different basic medical systems from mainland China; (2) Insufficient methodological/data details for quality assessment (e.g., conference abstracts only); (3) Multiple publications from one study—only the most comprehensive report was retained.

1.3 Methodological Quality Assessment

The research team used JBI critical appraisal tools for different study types. Qualitative studies were assessed using the JBI Qualitative Research Checklist; cross-sectional surveys used the JBI Analytical Cross-Sectional Study Checklist. Both tools yield three judgments per item: met (1), not met (0), or unclear (0.5). For cross-sectional surveys, since many studies used functional feature intensity only as an outcome rather than exposure variable, items 3–6 (related to exposure measurement quality) were not assessed. Average scores (0–1) were calculated with equal weighting for applicable items. Only studies scoring >0.8 ($ $80% items meeting quality standards) were included for data extraction; lower-scoring studies served as background references only. Two researchers

conducted quality assessment, with disagreements resolved by a third.

1.4 Data Extraction

Two researchers extracted qualitative and quantitative data using a preset Excel sheet, with cross-checking. Extracted information aligned with the published preprint protocol. Qualitative data included authors, publication year, region, setting, participants, data collection methods, analysis methods, themes, and relevant quotations. Quantitative data included authors, year, region, setting, participants, design, sample size, exposure variables, measurement tools, values, outcome variables, statistical methods, and association strength. Disagreements were resolved through consultation with a third researcher.

1.5 Data Synthesis and Presentation

This review employed the convergent segregated approach recommended by JBI mixed-methods systematic review guidelines. Qualitative and quantitative evidence were synthesized separately, then integrated.

Qualitative synthesis focused on: (1) stakeholders' experiences and perceptions of functional features, (2) their judgments of intensity levels, and (3) their perceptions of pathways influencing health outcomes. Using JBI-recommended meta-aggregation, we extracted and categorized qualitative data on stakeholders' experiences with functional features' connotations and intensity levels, and their potential impacts on outcomes, based on the functional features theoretical framework. We used MAXQDA2020 (VERBI Software GmbH, Berlin, Germany) for coding and management. Intensity levels were judged using a five-tier scale (e.g., weak 0–20, strong 81–100) based on textual expressions to support comparison with quantitative results.

Quantitative synthesis focused on: (1) constructs and sub-constructs of measurement tools, (2) measured intensity levels of functional features, and (3) relationships between functional feature intensity and health outcomes. Meta-analysis using Stata 17.0SE was conducted only when measurement tools or dimension constructs were highly consistent (e.g., different PCAT versions' "first contact" dimension pointing to the same original construct) with $ $5 studies. Heterogeneity was assessed via χ^2 test, I^2 and Tau^2 statistics; funnel plots evaluated publication bias. For results not meeting these criteria, all scores were converted to a uniform 0–100 scale for narrative synthesis, with intensity levels judged based on overall distribution ranges.

After separate synthesis, we performed final integration using a joint juxtaposition table to compare qualitative and quantitative results regarding: (1) conceptual connotations and intensity levels (examining consistency, contradictions, and complementary points), and (2) health outcomes associated with functional features and the direction/strength/mechanisms of these associations, assessing whether qualitative data supported and explained quantitative findings.

Results

2.1 Literature Screening and Characteristics of Included Studies

We retrieved 3,337 records, removed duplicates, and screened 2,335 titles/abstracts, excluding 2,249. After full-text review of 84 records, we excluded 24, ultimately including 60 studies: 52 quantitative, 4 qualitative (with one qualitative study published as two papers), and 3 mixed-methods studies [Figure 1: see original paper]. All passed methodological quality assessment.

Characteristics of included qualitative studies: Seven qualitative studies (including qualitative components of 3 mixed-methods studies) interviewed 425 stakeholders: 148 residents, 241 patients, and 15 healthcare workers. Five were published after 2020; five were conducted in the Yangtze River Delta region (Shanghai, Jiangsu, Zhejiang), two in northern and central-western provinces. Six were in urban community health centers, one in rural primary care facilities. All used thematic analysis.

Characteristics of included quantitative studies: Fifty-three cross-sectional studies (including the quantitative component of one mixed-methods study) surveyed 97,638 primary care patients/community residents and 3,179 primary care workers. Four were published before 2015, 16 during 2015–2019, and 33 in 2020 or later. Geographically, 12 were in the Yangtze River Delta, 11 in the Pearl River Delta (Guangdong), 6 in Beijing, and 4 in Sichuan. Twenty-six were in urban areas, 17 covered both urban and rural areas, and 10 were rural-only.

2.2 Qualitative Synthesis Results

Meta-aggregation of qualitative data yielded six themes: first contact (connotation: "providing professional judgment and guidance on timely medical care and institution selection") [15]; accessibility [15-17,32-36] (connotation: "making medical care convenient," involving remote services, proximity, easy appointment, extended hours, and cost advantages over hospitals); comprehensiveness [15-17,32-36] (connotation: "meeting patients' medical needs," covering simple disease treatment, complex disease treatment, medication access, and test quality); continuity [15-17,32,34-36] (connotation: "long-term patient-doctor collaboration," involving familiarity/trust and longitudinal health management); coordination [15-17,32,34,36] (connotation: "cross-institutional collaboration," involving referral to higher-level hospitals and cross-institutional electronic medical record sharing); and patient empowerment [15-17,32,34,36] (connotation: "good communication enhancing patients' self-health management capacity," involving friendly/respectful interaction and empowerment through consultation).

Intensity judgments were: accessibility and patient empowerment medium-high;

continuity medium; comprehensiveness low-medium; first contact and coordination uncertain. Regarding relationships with outcomes, qualitative data indicated: first contact intensity may affect health status [15]; accessibility may affect primary care choice and mental health [15-17,32-36]; comprehensiveness may affect primary care choice, short/long-term health status, and medical expenditures [15-17,32-36]; continuity may affect primary care choice, short/long-term health status, and elderly mental health [15-17,32,34-36]; patient empowerment may affect primary care choice, short-term health status, mental health, and satisfaction [15-17]; coordination lacked supporting qualitative data.

2.3 Quantitative Synthesis Results

Quantitative synthesis revealed measurement tools covering constructs beyond the six dimensions: first contact [11-12,22,37,39-41,43-46,48,50,55,57-58,60,64,70,73,75,82]; accessibility (overall accessibility [11-13,15,22,25,37,39-41,43-46,48,50,52-53,55,57-58,60,62,64,67,70,72-73,75,77-80,82], proximity [38,51,61], waiting time [38,49,51], out-of-pocket costs [38,51,52,62,80]); comprehensiveness (service scope [11,13,15,22,37,39-41,43-46,48,50,52,55,57-58,60,62,64,70,72-73,75-78,82], medical capacity [38,51-52,59,62,65-66,72-73,76,81], medication supply [38,52], tests [38]); continuity (overall continuity [11,12,22,37,39-41,43-46,48,50,55,57-58,60,64,70,73,75,82], doctor-patient familiarity/trust [13,15,42,47,52,56,61,63,74,77], longitudinal management [11-13,15,22,25,37-41,43-48,50-52,55-59,60-66,68-70,72-77,81,82]); coordination (referral [11,13,15,22,37,39-41,43-46,48,50,53,55,57-58,60,64,70,72-73,75,77,78,82], electronic record coordination [11,37,39-41,43-46,48,50,55,57-58,60,64,70,73,75]); patient empowerment (attitude [38,49,52], communication empowerment [12,22,38,49,51,53,62-63,71-72]); plus nine other dimensions: family orientation, community orientation, cultural adaptability, integration, professional ethics, equity, efficiency, service improvement, and teamwork.

Intensity levels were mostly medium-high, except comprehensiveness (medical capacity), continuity (doctor-patient familiarity/trust, longitudinal management), family orientation, and community orientation, which could be low or medium-low. Meta-analysis of 17 PCAT studies showed significant heterogeneity and publication bias. Regarding outcome relationships, six studies showed stronger overall functional features associated with better patient health status [15,26], satisfaction [45], adherence [23], diabetes control [24], lower hospital utilization [22], and significant mediating effects between family doctor contracts and preventable hospitalizations [73] .

Specifically, first contact associated with better diabetes control [24], adherence [23], and lower hospital utilization [22]; accessibility with better health outcomes [25], diabetes control [24], satisfaction [45], adherence [23], lower emergency department use [22], and higher contract signing/renewal [52,61]; comprehensiveness with better diabetes control [24], satisfaction [45], lower outpatient/total hospital use [22], and higher contract signing/renewal [52,61]; continuity with better diabetes control [24], satisfaction [45], adherence [23], higher emergency

use but lower costs [22,68], and contract signing/renewal [52,61]; coordination with better diabetes control [24], satisfaction [45], adherence [24], and lower hospital utilization rates [22]; patient empowerment with better diabetes control [24], adherence [23], lower outpatient/total hospital use [22], and contract signing [52].

2.4 Final Synthesis Results

Table 2 presents the integrated results on functional feature concepts and intensity levels. Conceptual consistency between qualitative themes and quantitative constructs was relatively good for accessibility, comprehensiveness, and continuity, but differed notably for first contact, coordination, and patient empowerment. First contact showed qualitative data lacking clear stakeholder demand for gatekeeping; coordination showed qualitative focus narrowly on "upward referral" without "downward transfer" or "comprehensive management" ; patient empowerment showed qualitative emphasis on "attitude,""communication," and "information access" rather than "shared decision-making" or "opportunistic preventive advice."

Intensity level judgments were consistent between qualitative and quantitative data for accessibility, patient empowerment (both medium-high), and continuity (medium), but qualitative judgment for comprehensiveness (low-medium) was lower than quantitative (medium-low to high). Qualitative data were insufficient for first contact and coordination comparisons.

Table 3 shows the final synthesis of functional features' relationships with outcomes. Qualitative results generally supported and explained quantitative findings, particularly for accessibility' s relationship with primary care choice and satisfaction, comprehensiveness' s relationship with primary care choice and long-term health, continuity' s relationship with primary care choice and long-term health, and patient empowerment' s relationship with primary care choice. However, many qualitative and quantitative results lacked cross-validation, especially for coordination. Conceptual inconsistency in first contact limited qualitative validation of quantitative results.

This review reveals three key findings: First, six prominent functional features in China' s basic medical services show conceptual similarity yet divergence from international theoretical constructs. Second, accessibility and patient empowerment show relatively high intensity, comprehensiveness relatively low, with significant quantitative heterogeneity and publication bias. Third, stronger functional features positively associate with improved patient health, experience, reduced costs, and primary care preference, with at least five clear pathways providing reference benchmarks for future research.

The divergence between China' s functional features and international theory requires dialectical interpretation. Five of the six identified features resemble the "4Cs" ; patient empowerment, though not part of "4Cs," is a core dimension of GPAQ developed for UK primary care and aligns with the Patient Enablement

Instrument. This suggests China' s features haven' t completely departed from Starfield's framework. However, the "variation"reflects structural characteristics shaped by China's unique social background and healthcare system, particularly evident in first contact, coordination, and patient empowerment, likely due to: (1) absence of universal gatekeeping reducing patient demand for primary first contact; (2) weak person-centered health management functions limiting doctors' awareness and practice of managing overall patient care-seeking behavior; (3) patients' care-seeking focus on illness treatment rather than preventive or continuous health management.

Two critical issues limit the real-world value and robustness of these findings. First, conceptual divergence reduces content validity of international tools. For example, PCAT items like "seeing a GP first for check-ups" or "needing GP referral" cannot effectively capture China' s actual connotation of GPs as "guides" providing medical advice without universal gatekeeping. Since PCAT uses dimension averages/totals as overall quality scores, limited content validity in one dimension negatively affects overall score accuracy. Second, quantitative data show significant heterogeneity, publication bias, and differences from qualitative data, likely due to: (1) China' s vast territory and population causing regional structural/process differences in basic medical services; (2) functional features' complex, multi-faceted nature involving multiple sub-features and measurement tool variability; (3) PREMs capturing subjective reflections of actual service processes, influenced by individual backgrounds. For comprehensiveness, surveys dominated by regular primary care patients may exclude those who "abandoned primary care" due to dissatisfaction, leading to overestimation.

Given imprecise intensity measurement, investigating real-world effects on outcomes becomes key to validating these "varied" features' value. This approach aligns with Starfield and Shi' s classic work demonstrating primary care' s health and equity impacts, which established functional features theory as WHO' s adopted quality assessment framework. Using similar but more rigorous mixed-methods synthesis, we summarized 15 years of Chinese research, showing basic medical services' significant positive potential for improving five major outcomes: population health, patient experience, chronic disease management, cost reduction, and attracting primary care use. Though primarily cross-sectional, these observational studies from different regions and time points show high consistency in direction (positive) and strength, supported by qualitative validation, providing sufficient evidence for the real-world value of China' s long-term investment in basic medical and general practice systems.

However, pathways to key outcomes differ from Starfield's classic work, reflecting how structural variations alter impact mechanisms in China (Figure 2 [Figure 2: see original paper]):

Pathway 1: Variated First Contact–Professional Advice as "Guide." The core is frontline GPs (especially family doctors) providing professional advice on receiving medical services and selecting institutions when needed. This comprises two parallel components: (1) medical service advice, expand-

ing accessibility boundaries through continuous contact; (2) institution selection guidance, compensating for absent gatekeeping by facilitating optimal patient flow between institutions, reducing health and economic losses from overmedicalization.

Pathway 2: Accessibility in Different Contexts—Context-Dependent "Convenience." Unlike gatekeeping countries where primary care accessibility equals overall healthcare accessibility, China' s context creates two scenarios: in resource-scarce areas (e.g., remote villages), accessibility approximates its original concept, reducing indirect costs and delays; in resource-abundant areas with free choice, accessibility narrows to "relative convenience advantages over other institutions," becoming just one factor attracting patients.

Pathway 3: Comprehensiveness—Clinical Capacity as the Cornerstone. In China, clinical capacity sufficient for actual therapeutic effect is more important than the Western definition of "service scope expansion." While Starfield didn' t include "clinical capacity" in comprehensiveness, she recognized "primary care clinical effectiveness not inferior to specialists" as a core health improvement mechanism, essentially assuming qualified clinical capacity as the foundation for service scope—a condition not yet met in China' s developing GP training, quality control, guidelines, and pharmaceutical systems. In direct competition with hospitals without gatekeeping, clinical capacity is the primary determinant of patient institution choice, directly affecting the population scale that can benefit.

Pathway 4: Patient Empowerment—Opportunity for Development from "Communication Empowerment" to "Advanced Empowerment." The basic component involves friendly, respectful communication improving experience, reducing psychological stress, and enhancing health literacy. Its effectiveness partly stems from "comparative advantage" due to specialists' time constraints and "doctor-centered" habits. However, truly reflecting general practice advantages requires the advanced component: genuine patient empowerment through evidence-based interventions like "opportunistic preventive advice" and "shared decision-making," which remain severely absent in China' s pilot testing, education, guidelines, and payment incentives.

Pathway 5: Continuity—Longitudinal Cumulative Effects of Four Features. Continuity through family doctor contract health management and persistent care-seeking habits allows the effects of the other four features to accumulate over time. This manifests not only as individual health improvement but also as savings in personal/public medical expenditures, improved mental status, enhanced trust, cultivated primary care preference, and improved clinical quality from familiarity. Continuity' s effects appear last and depend on the intensity and duration of the first four features.

Future research should prioritize five directions: (1) Develop localized measurement tools and validate mechanisms through longitudinal, intervention, and qualitative studies; (2) Emphasize "medical guidance" as a lever for promot-

ing primary care use, enhancing contract experience and coverage; (3) Prioritize improving clinical capacity-centered comprehensiveness, integrating it with quality control and adjusting education, resource supply, payment, and guidelines accordingly; (4) Pilot and test real-world effectiveness of patient empowerment interventions (e.g., preventive multi-component interventions) with short-, medium-, and long-term evaluation; (5) Contextually identify accessibility' s value boundaries, recognizing its role and limitations based on local resource conditions.

This review has four limitations: (1) Qualitative literature shows publication bias, with two-thirds from better-developed Yangtze River Delta urban areas, limiting generalizability to central/western provinces and rural areas; (2) Quantitative results' significant heterogeneity and publication bias require cautious interpretation of intensity assessments; (3) Insufficient qualitative data on certain features (especially coordination) limited comparison and integration scope; (4) Causal inference faces multiple limitations: predominance of cross-sectional designs, inconsistent measurement methods causing heterogeneity, and limited qualitative studies. The five proposed pathways are plausible explanations based on current evidence, not confirmed causal mechanisms.

Conclusion

China' s basic medical service functional features comprise six key dimensions (comprehensiveness, first contact, patient empowerment, accessibility, continuity, coordination) with varied connotations from original theory and medium-high overall intensity. Stronger features positively associate with improved health status, experience, reduced costs, and primary care preference, with at least five clear impact pathways. These findings prove the value of China' s sustained investment in basic medical services, support future enhancement of these features, and indicate the need for more extensive, nuanced, and precise research grounded in China' s reality.

Author Contributions

Yang Wang conceptualized the study, led design and implementation, conducted formal analysis and validation, and drafted the manuscript. Yang Wang and Hua Jin collected and curated data, performed statistical analysis, and created visualizations. Yang Wang, Hua Jin, and Dehua Yu acquired funding. Yang Wang and Dehua Yu managed the project. Dehua Yu provided resources. Yang Wang, Hua Jin, Sen Yang, Hui Yang, and Dehua Yu reviewed and edited the manuscript. Dehua Yu is responsible for overall manuscript integrity.

No conflicts of interest declared.

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References

[1] National People' s Congress of China. *Law of the People' s Republic of China on Basic Medical and Health Promotion* (Adopted December 28, 2019). (2019-12-28) [2025-10-20]. http://www.nhc.gov.cn/fzs/s7852/202007/5b7b9c1b7e8b4a7a8b7b9c1b7e8b4a7a.shtml.

[2] Starfield B, Shi LY, Macinko J. Contribution of primary care to health systems and health. *Milbank Q*. 2005;83(3):457-502. DOI:10.1111/j.1468-0009.2005.00409.x.

[3] Jimenez G, Matchar D, Koh GCH, et al. Revisiting the four core functions (4Cs) of primary care: operational definitions and complexities. *Prim Health Care Res Dev*. 2021;22:e68. DOI:10.1017/S1463423621000669.

[4] Stange KC, Etz RS, Gullett H, et al. Metrics for assessing improvements in primary health care. *Annu Rev Public Health*. 2014;35:423-442. DOI:10.1146/annurev-publhealth-032013-182438.

[5] Starfield Summit III Conference. Framework of PC Measure Domains and Key Elements [EB/OL]. 2017-10-04 [2024-04-07]. https://static1.squarespace.com/static/5d7ff8184cf0e01e4566
+Framework+of+PC+Measure.pdf.

[6] Valderas JM, Porter I, Martin-Delgado J, et al. Development of the Patient-Reported Indicator Surveys (PaRIS) conceptual framework to monitor and improve the performance of primary care for people living with chronic conditions. *BMJ Qual Saf*. 2025;34(8):529-536. DOI:10.1136/bmjqs-2024-017301.

[7] Shi LY, Starfield BH, Xu JH. Validating the adult primary care assessment tool. *J Fam Pract*. 2001;50:161.

[8] Etz RS, Zyzanski SJ, Gonzalez MM, et al. A new comprehensive measure of high-value aspects of primary care. *Ann Fam Med*. 2019;17(3):221-230. DOI:10.1370/afm.2393.

[9] Mead N, Bower P, Roland M. The general practice assessment questionnaire (GPAQ)—development and psychometric characteristics. *BMC Fam Pract*. 2008;9(1):13. DOI:10.1186/1471-2296-9-13.

[10] Ahmed F, Burt J, Roland M. Measuring patient experience: concepts and methods. *Patient*. 2014;7(3):235-241. DOI:10.1007/s40271-014-0060-5.

[11] Yang H, Shi L, Lebrun LA, et al. Development of the Chinese primary care assessment tool: data quality and measurement properties. *Int J Qual Health Care*. 2013;25(1):92-105. DOI:10.1093/intqhc/mzs072.

[12] Zhang S, Zhang Y, Du L, et al. Application and evaluation of the General Practice Assessment Questionnaire in patient satisfaction surveys

at community health services. *Chin J Gen Pract.* 2011;10(7):463-467. DOI:10.3760/cma.j.issn.1671-7368.2011.07.004.

[13] Yan WX, Liu J. Reliability and validity validation of the Chinese version of the Person-Centered Primary Care Measure. *Chin Gen Pract.* 2022;25(25):3135-3142. DOI:10.12114/j.issn.1007-9572.2022.0284.

[14] Kuang L, Li LN, Luo ZJ, et al. Development and validation of the Chinese version of the Assessment Survey of Primary Care. *Chin Gen Pract.* 2021;24(13):1621-1628, 1643. DOI:10.12114/j.issn.1007-9572.2020.00.496.

[15] Wang Y, Jin H, Yang H, et al. Primary care functional features and their health impact on patients enrolled in the Shanghai family doctor service: a mixed-methods study. *J Glob Health.* 2025;15:04007. DOI:10.7189/jogh.15.04007.

[16] Wang WH, Zhao RX, Zhang JN, et al. Public expectations of good primary health care in China: a national qualitative study. *Fam Pract.* 2024;41(4):564-570. DOI:10.1093/fampra/cmac149.

[17] Zhang WW, Ung COL, Lin GH, et al. Factors contributing to patients' preferences for primary health care institutions in China: a qualitative study. *Front Public Health.* 2020;8:414. DOI:10.3389/fpubh.2020.00414.

[18] Donabedian A. Evaluating the quality of medical care. *Milbank Memo Fund Q.* 1966;44(3):166-206. DOI:10.1016/j.healthpol.2010.11.005.

[19] Bhattacharyya O, Yin DL, Wong ST, et al. Evolution of primary care in China 1997–2009. *Health Policy.* 2011;100(2/3):174-180.

[20] 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.

[21] Wang Y, Yu DH, Jin H. Translation, adaptation, and validation of Person-Centered Primary Care Measures for patients in family doctor contract services within mainland China. *BMC Prim Care.* 2025;26(1):91. DOI:10.1186/s12875-025-02796-z.

[22] Wang WH, Shi LY, Yin AT, et al. Contribution of primary care to health: an individual level analysis from Tibet, China. *Int J Equity Health.* 2015;14(1):107. DOI:10.1186/s12939-015-0255-y.

[23] Zhong CW, Huang JJ, Li LN, et al. Relationship between patient-perceived quality of primary care and self-reported hospital utilisation in China: a cross-sectional study. *Eur J Gen Pract.* 2024;30(1):2308740. DOI:10.1080/13814788.2024.2308740.

[24] Yang SM, Zhang X, Zhou MP, et al. Impact of general practice core features on treatment adherence in diabetic patients. *Chin Gen Pract.* 2022;25(1):62-69. DOI:10.12114/j.issn.1007-9572.2021.00.331.

[25] Yang H, Hu RW, Liu RQ, et al. Relationship between community health service experience and blood glucose control in diabetic patients. *Chin Gen Pract*. 2023;26(34):4290-4295. DOI:10.12114/j.issn.1007-9572.2023.0087.

[26] Wang Y, Wu YB, Chu HL, et al. Association between health-related quality of life and access to chronic disease management by primary care facilities in mainland China: a cross-sectional study. *Int J Environ Res Public Health*. 2023;20(5):4288. DOI:10.3390/ijerph20054288.

[27] Stern C, Lizarondo L, Carrier J, et al. Methodological guidance for the conduct of mixed methods systematic reviews. *JBI Evid Synth*. 2020;18(10):2108-2118. DOI:10.11124/JBISRIR-D-19-00169.

[28] Wang Y, Jin H, Yu D. Primary care functional features in China and their relationship with health service outcomes: a 15-year mixed-methods systematic review protocol [EB/OL]. medRxiv, 2025-04-11. https://doi.org/10.1101/2025.04.11.25325626.

[29] Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*. 2021;372:n71. DOI:10.1136/bmj.n71.

[30] Lockwood C, Munn Z, Porritt K. Qualitative research synthesis: methodological guidance for systematic reviewers utilizing meta-aggregation. *Int J Evid Based Healthc*. 2015;13(3):179-187. DOI:10.1097/XEB.0000000000000062.

[31] Moola S, Munn Z, Tufanaru C, et al. Chapter 7: Systematic reviews of etiology and risk. *JBI Manual for Evidence Synthesis*. JBI, 2020. Available from https://synthesismanual.jbi.global.

[32] Wu D, Lam TP, Lam KF, et al. Health reforms in China: the public' s choices for first-contact care in urban areas. *Fam Pract*. 2017;34(2):194-200. DOI:10.1093/fampra/cmw133.

[33] Xu J, Mills A. Challenges for gatekeeping: a qualitative systems analysis of a pilot in rural China. *Int J Equity Health*. 2017;16(1):193. DOI:10.1186/s12939-017-0593-z.

[34] Wang WH, Zhang JN, Lu J, et al. Patient views of the good doctor in primary care: a qualitative study in six provinces in China. *Glob Health Res Policy*. 2023;8(1):24. DOI:10.1186/s41256-023-00309-y.

[35] Wu JJ, Xue EX, Fu YJ, et al. The phenomenon and determinants of healthcare service utilization for older adults with multimorbidity in China: an explanatory, mixed-method study. *J Gerontol B Psychol Sci Soc Sci*. 2024;79(2):gbad174. DOI:10.1093/geronb/gbad174.

[36] Geng JW, Li R, Wang XY, et al. Exploring the lack of continuity of care in older cancer patients under China' s 'integrated health system' reform. *Age Ageing*. 2024;53(10):afae213. DOI:10.1093/ageing/afae213.

[37] Wang HHX, Wong SYS, Wong MCS, et al. Patients' experiences in different models of community health centers in Southern China. *Ann Fam Med*. 2013;11(6):517-526. DOI:10.1370/afm.1545.

[38] Li HT, Chung RY, Wei XL, et al. Comparison of perceived coverage and drug list may influence patients' acceptance of general practitioner contract service: a cross-sectional study in Guangdong, China. *BMC Health Serv Res*. 2019;19(1):251. DOI:10.1186/s12913-019-4053-x.

[39] Wang WH, Shi LY, Yin AT, et al. Primary care quality among different health care structures in Tibet, China. *BioMed Res Int*. 2015;2015:206709. DOI:10.1155/2015/206709.

[40] Zeng JZ, Shi LY, Zou X, et al. Rural-to-urban migrants' experiences with primary care under different types of medical institutions in Guangzhou, China. *PLoS One*. 2015;10(10):e0140922. DOI:10.1371/journal.pone.0140922.

[41] Li HT, Wei XL, Wong MC, et al. A cross-sectional comparison of perceived quality of primary care by hypertensive patients in Shanghai and Shenzhen, China. *Medicine*. 2015;94(34):e1388. DOI:10.1097/MD.0000000000001388.

[42] Liu WW, Li Y, Wang YY, et al. Evaluation of the outpatient doctor-patient relationship depth scale and influencing factors. *Chin Gen Pract*. 2015;18(22):2705-2708. DOI:10.3969/j.issn.1007-9572.2015.22.020.

[43] Du ZC, Liao Y, Chen CC, et al. Usual source of care and the quality of primary care: a survey of patients in Guangdong Province, China. *Int J Equity Health*. 2015;14:60. DOI:10.1186/s12939-015-0255-y.

[44] Zou YM, Zhang X, Hao YT, et al. General practitioners versus other physicians in the quality of primary care: a cross-sectional study in Guangdong Province, China. *BMC Fam Pract*. 2015;16:134. DOI:10.1186/s12875-015-0349-z.

[45] Liang Y, Kuang L, Mei J, et al. Evaluation, influencing factors, and policy implications of general practice characteristic functions. *Chin Health Policy Res*. 2016;9(1):11-18.

[46] Hu RW, Liao Y, Du ZC, et al. Types of health care facilities and experiences with primary care among community health service centre patients in Changchun, China: a cross-sectional survey. *Health Soc Care Community*. 2020;28(6):1979-1988. DOI:10.1111/hsc.13009.

[47] Li HT, Sun Y, Qian DF. Can integrated health services delivery have an impact on hypertension management? A cross-sectional study in two cities of China. *Int J Equity Health*. 2016;15(1):193. DOI:10.1186/s12939-016-0485-7.

[48] Wei XL, Yin J, Wong SYS, et al. Private ownership of primary care providers associated with patient perceived quality of care: a comparative cross-sectional survey in three big Chinese cities. *Medicine*. 2017;96(1):e5755. DOI:10.1097/MD.0000000000005755.

[49] Wang WH, Maitland E, Nicholas S, et al. Comparison of patient perceived primary care quality in public clinics, public hospitals and private clinics in rural China. *Int J Equity Health*. 2017;16(1):176. DOI:10.1186/s12939-017-0672-1.

[50] Li HT, Wei XL, Wong MCS. Changes of the perceived quality of care for older patients with hypertension by community health centers in Shanghai. *BMC Fam Pract*. 2017;18(1):114. DOI:10.1186/s12875-017-0683-4.

[51] He X, Li LG, Bian Y. Satisfaction survey among primary health care outpatients in the backward region: an empirical study from rural Western China. *Patient Prefer Adherence*. 2018;12:1989-1996. DOI:10.2147/ppa.s172021.

[52] Chen AY, Feng SS, Tang WX, et al. Satisfaction with service quality amongst migrant and local patients using primary health care delivered by community health centres in Shenzhen, China. *BMC Fam Pract*. 2014;15:76. DOI:10.1186/1471-2296-15-76.

[53] He JJ, Chen D, Tang ZQ, et al. How the health institution combinative contracting mechanism influences community residents' patient experiences in Shanghai: a comparative study of data from two cross-sectional surveys. *Int J Health Plann Manage*. 2019;34(3):1036-1054. DOI:10.1002/hpm.2873.

[54] Liu J, Yin H, Zheng T, et al. Primary health institutions preference by hypertensive patients: effect of distance, trust and quality of management in the rural Heilongjiang Province of China. *BMC Health Serv Res*. 2019;19(1):852. DOI:10.1186/s12913-019-4465-4.

[55] Zhang L, Li JH, Ma TJ, et al. Usual source of care and experiences with primary care among community health service centre patients in Changchun, China: a cross-sectional survey. *Health Soc Care Community*. 2020;28(6):1979-1988. DOI:10.1111/hsc.13009.

[56] Zhang T, Ren JP, Zhang XY, et al. Medical and socio-demographic characteristics associated with patient-perceived continuity of primary care: a cross-sectional survey in Hangzhou, China. *Int J Health Plan Manag*. 2020;35(2):569-580. DOI:10.1002/hpm.2967.

[57] Chen A, Feng S, Zhang L, et al. Comparison of patients' perceived quality of primary care between urban and rural community health centers in Guangdong, China. *Int J Environ Res Public Health*. 2020;17(13):4898. DOI:10.3390/ijerph17134898.

[58] Shi JW, Jin H, Shi LY, et al. The quality of primary care in community health centers: comparison among urban, suburban and rural users in Shanghai, China. *BMC Fam Pract*. 2020;21(1):178. DOI:10.1186/s12875-020-01250-6.

[59] Guo W, Sylvia S, Umble K, et al. The competence of village clinicians in the diagnosis and treatment of heart disease in rural China: a nationally representative assessment. *Lancet Reg Health West Pac*. 2020;2:100026. DOI:10.1016/j.lanwpc.2020.100026.

[60] Liu SY, Meng WQ, Peng HB, et al. Study on contracted residents' care-seeking experience with family doctor services in a city. *Chin J Hosp Admin*. 2021;37(9):766-771. DOI:10.3760/cma.j.cn111325-20210325-00265.

[61] 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.

[62] Jin SX, Wang ZH, Tian LL, et al. Evaluation of the quality of contracted family doctor services based on patient perceptions and expectations: a follow-up analysis from the elderly with chronic diseases in rural Jiangsu, China. *BMJ Open*. 2021;11(12):e053452. DOI:10.1136/bmjopen-2021-053452.

[63] Zhang XY, Ren JP, Sun LQ, et al. Perceived quality of traditional Chinese medicine care in community health services: a cross-sectional survey in Hangzhou of China. *Evid Based Complement Alternat Med*. 2022;2022:7512581. DOI:10.1155/2022/7512581.

[64] Wu JL, Liu RQ, Shi LY, et al. Association between resident status and patients' experiences of primary care: a cross-sectional study in the Greater Bay Area, China. *BMJ Open*. 2022;12(3):e055166. DOI:10.1136/bmjopen-2021-055166.

[65] Wu YJ, Ye RX, Sun C, et al. Using standardized patients to assess the quality of type 2 diabetes care among primary care providers and the health system: Evidence from rural areas of western China. *Front Public Health*. 2022;10:1081239. DOI:10.3389/fpubh.2022.1081239.

[66] Wang QZ, Adhikari SP, Wu YJ, et al. Consultation length, process quality and diagnosis quality of primary care in rural China: a cross-sectional standardized patient study. *Patient Educ Couns*. 2022;105(4):902-908. DOI:10.1016/j.pec.2021.08.006.

[67] Wang FY, Wei Y, Wang MR, et al. Process quality of type 2 diabetes mellitus care and association with patient perceived attributes of family doctor service in urban general practices, Beijing, China. *BMC Prim Care*. 2022;23(1):228. DOI:10.1186/s12875-022-01844-8.

[68] Liang D, Zhu WJ, Qian YL, et al. Continuity of care and healthcare costs among patients with chronic disease: evidence from primary care settings in China. *Int J Integr Care*. 2022;22(4):4. DOI:10.5334/ijic.5994.

[69] Liu XY, Zhang LY, Chen W. Impact of the family doctor system on the continuity of care for diabetics in urban China: a difference-in-difference analysis. *BMJ Open*. 2023;13(2):e065612. DOI:10.1136/bmjopen-2022-065612.

[70] Xie WW, Liu JY, Huang YK, et al. Capturing what matters with patients' bypass behavior? evidence from a cross-sectional study in China. *Patient Prefer Adherence*. 2023;17:591-604. DOI:10.2147/PPA.S395928.

[71] Liang HY, Reiss MJ, Isaacs T. Factors affecting physicians' attitudes towards patient-centred care: a cross-sectional survey in Beijing. *BMJ Open*. 2023;13(4):e073224. DOI:10.1136/bmjopen-2023-073224.

[72] 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):e0304294. DOI:10.1371/journal.pone.0304294.

[73] Li WY, Hou YQ, An JY, et al. Impact of family doctor contract services on preventable hospitalizations amongst patients with hypertension in rural China: mediating role of primary healthcare quality. *Risk Manag Healthc Policy*. 2024;17:2151-2160. DOI:10.2147/rmhp.s474933.

[74] Ye J, Feng J, Li X, et al. Public trust in general practitioners and its association with primary care contracts: a cross-sectional study of community residents in China. *Public Health*. 2024;231:55-63. DOI:10.1016/j.puhe.2024.03.014.

[75] Yang HM, Cui YY, Wang X, et al. Effect of family physician contract service on patients' perceived quality of primary child healthcare in urban China: Analysis using propensity score matching. *Public Health*. 2025;242:124-130. DOI:10.1016/j.puhe.2025.02.015.

[76] Wang WH, Xu TG, Nicholas S, et al. Managing the quality of primary health care in urban China: the impact of organizational and physician features. *Fam Pract*. 2024;41(5):825-831. DOI:10.1093/fampra/cmae025.

[77] Peng YC, Zhai SQ, Zhang ZY, et al. People-centered primary care measures in health equity: a perspective of urban-rural comparison in Beijing, China. *Int J Qual Health Care*. 2024;36(3):mzae067. DOI:10.1093/intqhc/mzae067.

[78] Li PY, Zeng WQ, Tao WJ, et al. Comprehensive evaluation of primary care services in Sichuan Province' s different economic development regions based on QUALICOPC. *Chin Health Serv Manage*. 2019;36(12):881-884.

[79] Lin JP, Zhu ZC. Survey on residents' sense of gain and first-contact status of primary care services in China. *Med Soc*. 2022;35(9):10-14, 25. DOI:10.13723/j.yxysh.2022.09.003.

[80] Hu WS, Zhang N, Feng GS. Study on chronic disease patients' evaluation of community medical services under the medical consortium platform and its impact on institution selection. *Chin Gen Pract*. 2020;23(16):1982-1988. DOI:10.12114/j.issn.1007-9572.2020.00.029.

[81] Jin H, Yi CT, Ni HR, et al. Analysis of clinical quality status and existing problems of general practice in community health centers. *Chin Gen Pract*. 2022;25(1):35-42. DOI:10.12114/j.issn.1007-9572.2021.00.335.

[82] Lin CM, Li SS, Zhang YC, et al. Measurement and evaluation of primary health care services in China based on patient service experience. *Chin Gen Pract*. 2025;28(13):1553-1559, 1566. DOI:10.12114/j.issn.1007-9572.2024.0275.

[83] Howie JG, Heaney DJ, Maxwell M, et al. A comparison of patient enablement and satisfaction: an observational study. *BMJ*. 1998;317(7153):231-235.

[84] D' Avila OP, da Silva Pinto LF, Hauser L, et al. The use of the Primary Care Assessment Tool (PCAT): an integrative review and proposed update. *Cien Saude Colet*. 2017;22(3):855-865. DOI:10.1590/1413-81232017223.03312016.

[85] Zyzanski SJ, Gonzalez MM, O' Neal JP, et al. Measuring primary care across 35 OECD countries. *Ann Fam Med*. 2021;19(6):547-552. DOI:10.1370/afm.2697.

[86] Li Y, Zhang Y, Shi Z, et al. Regional disparities in health care quality and health outcomes: evidence from routine data in China. *Health Policy Plan*. 2020;35(7):827-836.

[87] Schäfer WLA, Boerma WGW, van den Berg MJ, et al. Are people' s health care needs better met when primary care is strong? A synthesis of the results of the QUALICOPC study in 34 countries. *Prim Health Care Res Dev*. 2019;20:e104. DOI:10.1017/s1463423619000434.

[88] Shi L. The impact of primary care: a focused review. *Scientifica* (Cairo). 2012;2012:432892. DOI:10.6064/2012/432892.

[89] Mechanic D, Meyer S. Concepts of trust among patients with serious illness. *Soc Sci Med*. 2000;51(5):657-668. DOI:10.1016/s0277-9536(00)00014-9.

[90] O' Brien E, Duffy S, Harkins V, et al. A scoping review of evidence-based guidance and guidelines published by general practice professional organizations. *Fam Pract*. 2024;41(4):404-418. DOI:10.1093/fampra/cmad015.

[91] Lilford RJ, Daniels B, McPake B, et al. Improving primary healthcare services in LMIC cities. *Lancet Glob Health*. 2025;13(5):e795-e796. DOI:10.1016/S2214-109X(24)00537-0.

[92] Heath L, Stevens R, Nicholson BD, et al. Strategies to improve the implementation of preventive care in primary care: a systematic review and meta-analysis. *BMC Med*. 2024;22(1):412. DOI:10.1186/s12816-024-03588-5.

[93] Coronado-Vázquez V, Canet-Fajas C, Delgado-Marroquín MT, et al. Interventions to facilitate shared decision-making using decision aids with patients in Primary Health Care: a systematic review. *Medicine* (Baltimore). 2020;99(32):e21389. DOI:10.1097/MD.0000000000021389.

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