



Developing a rigorous case study in research of primary healthcare service management



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ABSTRACT

The aim of the article is to help general practitioners and primary care researchers understand the fundamentals of designing case studies by explaining and analysing the standard developing procedures. The analysis of the rigorous designing and implementing steps will help academic general practitioners having comprehension of the specific research design process, which is to ensuring the quality of case studies. In the first part of the article, findings of literature review were described for exploring evolution of case studies, the concept and contexts of the study, as well research questions that suitable be answered by the study. In the next part of the article, the standard operational procedures for conducting a case study were introduced, with examples from general practice and primary healthcare. These procedures include: (1) initiating the planning phase to determine the appropriateness of a case study; (2) designing the study, including case selection and identifying the type of case study; (3) preparing for fieldwork through researcher training and pilot testing; (4) collecting data from multiple sources; (5) analyzing the data to generate evidence-based conclusions; (6) reporting results and communicating with readers. Case study is suitable for addressing the "what" "how" and "why" questions in general practice and primary healthcare, with a broad application prospect.

This study provides novice researchers in general practice and primary care with a clear and accessible framework of standard operating procedures for conducting case study research, emphasizing that methodological rigor in case study work depends on adherence to standardized implementation procedures. The paper begins with a review of the development of the case study method, outlining its conceptual foundations, historical evolution, domains of applicability, and objectives of the research. It then describes each procedural step in detail, using an example of an innovative primary care service to illustrate how the method can be applied in practice, to demonstrate how a rigorous case study in primary care management can be designed and executed. Finally, the paper summarizes characteristics of case study method when applied in community health services, general practice, and primary care, the competencies necessary for effective implementation and recommends relevant literature and specialized training programs for further study.

Concept and development of case study

Case study is a research approach that generates deep insights through the intensive examination of a single case or a small number of cases. It follows a defined design logic, employs systematic procedures for data collection and analysis, and is grounded in a distinct research paradigm and theoretical framework.¹⁻² Depending on the research objective, case study can be categorized as exploratory, descriptive, or explanatory; however, the method is often misconstrued as serving solely an exploratory purpose.² In fact, case study method is equally well suited for descriptive and explanatory research, and even with irreplaceable advantages in these contexts.³ Exploratory case studies primarily address the question of "What", whereas descriptive and explanatory case studies focus on answering "How" and "Why" questions.²⁻⁴

According to Gerring¹, the term "case study" is most appropriately applied when the number of cases is small, when the number exceeds

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Table 1
The differences among case study, case record, and case teaching.

Type	Case Requirements	Primary Purpose	Operational Standards
Case Study	Cases may be inspirational, typical, extreme, common, unusual, or influential, among others. The case must be a real event, and its content cannot be altered. Evidence (e.g., audio or video recordings) is required.	To build or verify theory	Highest
Case Record	Same as for case studies	To document the case and address practical problems	Moderate
Case Teaching	The case must be inspirational, but it does not have to be a real event. Content may be modified, and no supporting evidence is required.	To stimulate student interest and enhance their problem-analysis skills	Lowest

roughly 20, the research is generally considered cross-case analysis, which falls outside the scope of this paper and is therefore not addressed here.

Some scholars trace the origins of case study to early historical records and mythological epics.⁵⁻⁶ By the late 19th and early 20th centuries, it had become the dominant approach in several branches of the social sciences, exemplified by the “Chicago School.” Seminal works such as *Middletown* and *Street Corner Society* laid the groundwork for its subsequent development. From the 1970s to the 1990s, the method gained recognition as an independent research approach⁷, accompanied by growing methodological literature.⁸⁻¹¹ Yin² identified research planning, study design, preparation for data collection, data collection, evidence analysis, and reporting as six general steps for conducting case studies, while Eisenhardt⁹ proposed an eight-step procedure, including initiation, case selection, instrument selection and preliminary framework development, data collection, data analysis, hypothesis generation, literature engagement, and conclusion. Building on these frameworks, Fàbregues et al.¹² refined the process into ten steps: conducting literature review, formulating research questions, assessing methodological appropriateness, selecting the research design, defining case boundaries and selecting the case, preparing for data collection, collecting and organizing data, analyzing data, reporting, and evaluating study quality. The rise and widespread adoption of case study provide an essential tool for advancing knowledge across diverse fields, including politics, economics, education, and medicine.³ In recent years, its application has attracted increasing attention in China, particularly in health-related disciplines such as clinical medicine, nursing, community health, primary care services, and primary care. Given China’s unique sociocultural context, case study is well positioned to play an increasingly important role in addressing healthcare challenges. Although case study has gained well-deserved recognition, its methodological rigor is undermined by researchers’ insufficient adherence to standard operating procedures, common pitfalls include treating case studies merely as rhetorical frameworks for qualitative data analysis and conflating them with case documentation or case-based teaching (see Table 1 for a comparison among case study, case documentation and case-based teaching).³⁻⁴ Such misuse eroded the credibility of the approach, and preserving its rigor remains a major challenge for researchers in general practice and primary care. To facilitate accessibility, specialized terminology is kept to a minimum, and the operational procedures of the method are explained in clear, straightforward language.

By the end of the paper, readers should be able to: develop a comprehensive understanding of the procedural steps in case study and the key considerations at each stage; (2) use the guidance provided to efficiently identify and engage with reference materials for more in-depth study; (3) recognize that “case study” denotes a rigorous research method and should not be used indiscriminately; (4) appreciate that the method’s rigor derives from the research process itself—specifically, from strict adherence to its procedural framework.

Implementation steps of case study

As outlined by Yin², case study is both a linear and iterative process, typically encompassing six core steps (Fig. 1 and Table 2). However, this

framework does not imply that the steps must be followed in a sequential order. In practice, research design, data collection, and data analysis are closely interconnected and cyclical, with the sequence adapted to the specific context and requirements of the study.¹²

Step 1: initiating the case study plan

The first task in initiating a case study is to determine whether the method is appropriate for the research. Case studies are most suitable in three conditions: (1) the research questions are “How” or “Why”; (2) the researcher has little control over subjects; and (3) the study focuses on real-world contexts or phenomena. These criteria also distinguish the case study method from other research methods, such as experimental or historical designs.¹³

Of these, identifying research question is the most critical. The case study method is particularly well suited for exploring “How” and “Why” questions. For example, if a researcher seeks to understand how a community health service initiative was implemented and why it succeeded or failed, a case study would be an appropriate choice. In practice, such inquiries often begin by addressing “How,” which then leads to uncovering the underlying mechanisms of a phenomenon and, ultimately, answering “Why.” This distinctive reasoning process further differentiates case studies from methods like questionnaire surveys or archival research.³ Equally important is the recognition that case studies are conducted in contexts where the researcher has little control over subjects, essentially differ from experimental researches. Finally, their focus on present social realities and phenomena sets case studies apart from historical analyses.

Step 2: designing case study protocol

Establishing a clear research design is the most critical step in the systematic implementation of a case study. A well-structured design generally involves defining and selecting the case, determining the type of case study, and incorporating relevant theoretical frameworks.¹⁴ These components do not need to be executed in a fixed sequence. To strengthen the rigor and comprehensiveness of the design, researchers should conduct a literature review prior to this stage.

Procedure 1: defining the case

In case study research, the “case” serves as the primary unit of analysis and typically denotes a phenomenon occurring within a clearly bounded context¹⁵—such as a specific time period, location, group of individuals, setting, event, or other social phenomenon.

Clear case definition is essential for the coherence and internal consistency of the study, as well as its feasibility in time and resource.¹² Researchers should apply rigorous criteria in defining the case to devote limited resources to critical, consequential, and intellectually engaging cases. Selecting cases that are typical, unique, extreme, unusual, revelatory, or socially impactful—such as the development and validation of a novel medical intervention for community use—can substantially enhance attractiveness of the study. When the case involves a common phenomenon lacking these characteristics, a clearly theoretical framework should be employed to guide case selection, as such a framework

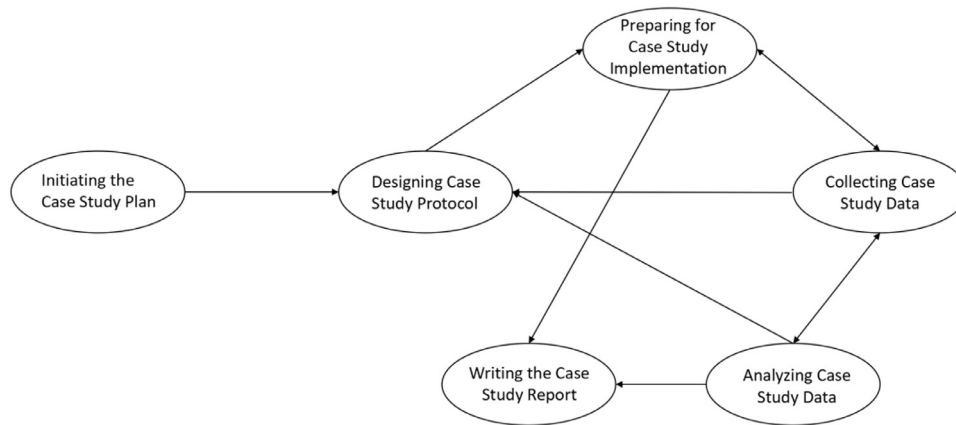


Fig. 1. Common procedure for case study implementation.

Table 2
General steps of the case study.

Step	Content	Activities	Purpose
1	Plan Initiation	Identify the applicability of the case study method	Define the research direction Reduce the risk of research failure due to inappropriate methodology
2	Research Design	Determine whether to proceed with the case study Conduct a literature review Define and select cases (theoretical sampling) Determine the type of study Apply relevant theory	Focus the research topic and questions; Maintain theoretical and methodological flexibility; Improve internal validity, external validity, and reliability
3	Preparation	Develop a research protocol Conduct training Implement a pilot case study	Enhance reliability; Improve research skills; standardize research practices; optimize design and strengthen team coordination
4	Data Collection	Collect data from multiple sources Establish a data database Build a chain of evidence Use online information with caution	Incorporate diverse perspectives; integrate evidence to strengthen the research foundation; enhance reliability and construct validity
5	Data Analysis	Summarize data Categorize data Identify relevant themes Test hypotheses Build or verify theory	Familiarize with data; summarize and refine information; identify emerging themes; enhance reliability and validity; confirm, extend, and refine hypotheses and theories
6	Report Writing	Identify target audience Structure the report Review and revise Conduct quality assessment	Meet reader needs; improve readability; ensure quality

can confer a degree of distinctiveness to the study.¹³ Crucially, case selection should be driven by the theoretical requirements of the study (theoretical sampling), rather than by random selection.

Procedure 2: determining the type of case study design

Yin¹¹ categorizes case study designs along two primary dimensions: the level of analysis and the number of cases. The level of analysis refers to the unit at which the investigation is conducted—ranging from individuals to organizations or even entire nations—depending on the study’s aims and scope. In primary health care, general practice, and community-based health services, the selection of the appropriate level should be closely aligned with the research objectives. The number of cases denotes how many cases will be investigated.

Combining these two dimensions yields four common design types⁴: (1)Single-case, single-unit design, in which only one case is studied at a single level of analysis (see the concrete example in Section 3 of this paper); (2)Single-case, multiple-unit design, where one case is examined across two or more levels of analysis; (3)Multiple-case, single-unit design, in which multiple cases are investigated at a single level of analysis, essentially replicating the logic of the first type; (4)Multiple-case, multiple-unit design, where multiple cases are studied across two or more levels of analysis, representing a replication of the second type.

Researchers should select the most appropriate design type based on the characteristics of the case of interest.

Procedure 3: applying theory in case study design

The role of theory in case study has long been the subject of debate. Critics caution that introducing an established theoretical framework too early may restrict the emergence of novel insights.¹⁶ Others contend that, particularly for novice researchers, beginning with a theoretical framework can facilitate the research process. They further argue that the use of theory is an indicator of methodological rigor, increases the persuasiveness and value of the findings.¹⁷⁻¹⁹ A balanced approach is to begin a case study with a tentative hypotheses, while deliberately preserving space for unanticipated insights to emerge.²⁰ In practice, factors such as prior literature reviews and the researcher’s own learning experiences make it difficult to remain entirely uninfluenced by existing theories. To safeguard opportunities for fresh perspectives, researchers are advised to systematically document moments of inspiration that arise during the literature review and research design stages.

Step 3: preparing for case study implementation

A common misconception is to equate conducting a case study solely with the collection of case data. In reality, effective and comprehensive

data collection depends on thorough preparatory work. Preparation for a case study typically involves three core activities: developing a detailed research protocol, conducting necessary training, and carrying out a pilot case study.²

Activity 1: developing a detailed research protocol

A well-constructed research protocol is essential for ensuring both the reliability and the consistency of a case study. Its primary function is to provide a systematic framework for the collection of evidence within each individual case. In the context of complex multiple-case studies, the overall investigation can be divided into a series of single-case studies, each following the same protocol.

In general, a case study protocol should include four key components.

- (1) Study overview: research background, project description, and other contextual details
- (2) Field procedures: introductory letter, procedures for protecting participants, data collection plan, and other pertinent reminders
- (3) Case study questions: specific questions that directly reflect the study's objectives, along with the types of evidence required to address each question.
- (4) Guide for the case study report: report guide, preferred formats for data presentation and findings promotion, and researcher profile.

These elements constitute the core structure of a case study protocol. A more detailed protocol should be tailored to the specific topic, characteristics, and content of the case under investigation, with adjustments made as appropriate. For examples of case study protocols, refer to Chapter 3 of Yin's *Case Study Research: Design and Methods* (5th ed.).

Activity 2: conducting targeted training

The case study method requires researchers to possess essential skills, uphold appropriate professional values, and participate in targeted training tailored to the specific demands of the study. Key competencies include the ability to formulate well-defined questions supported by reasonable explanation; skill in identifying and prioritizing relevant information; maintaining an open, flexible mindset that is free from the constraints of preconceived assumptions, with a readiness to refine the study design when necessary; optimistic mindset of inquiry, demonstrating resilience in the face of challenges or setbacks; adherence to research ethics and the protection of study participants. Beyond skill development, training serves as a valuable opportunity to identify potential issues in the case study design, assess the capabilities of the research team, and implement timely corrective measures for any deficiencies that arise. The scheduling of training activities is not necessarily linear and should be determined according to the specific circumstances of the study.

Activity 3: conducting a pilot case study

A pilot case study helps researchers refine the research protocol, improve the specificity of required data, and enhance collaboration among members of the research team. For novice researchers, pilot case study offers a critical opportunity to identify and address potential challenges before full-scale investigation. Novice researchers are advised to conduct a pilot case study prior to the main investigation. Selection of an appropriate pilot case should consider factors such as the availability of participants and relevant data, geographical accessibility, and the degree of similarity between the pilot case and the intended main case.² While conducting a pilot case study is highly recommended—particularly for beginners—it is not strictly mandatory; the decision should be made based on research conditions and the researcher's proficiency in case study.

Step 4: collecting case study data

Yin² identifies two central components of data collection in case study: four principles guiding collection process, and the six primary sources of case study data. Zheng et al.⁴ consolidate these six sources into documents, interviews, and observation. This section focuses on Yin's² original classification of six sources of data.

The four principles of case study data collection can be summarized as follows. First, collect multiple sources of evidence. High-quality case studies incorporate as many distinct types of data as feasible, enabling triangulation across sources. When evidence from diverse sources converges on the same conclusion, the findings gain stability and reliability. Without such diversity of evidence, it is difficult to leverage the methodological strengths of case study. Indeed, the use of multiple sources is widely regarded as a prerequisite for ensuring methodological rigor. Second, maintain a well-structured case study database. All evidence collected should ultimately support the corresponding findings of the study. Every result and conclusion in the final report must be supported by verifiable data. Therefore, it is essential for researchers to establish a database to facilitate verification and traceability of the evidence. Third, establish a complete chain of evidence. A robust case study requires a clear, logically coherent correspondence between the collected evidence, the research findings, and the final conclusions—forming what is commonly referred to as a “chain of evidence.” Importantly, the integrity of this chain depends on the foundation of a well-maintained case study database. Finally, exercise caution when using online information. While the rapid expansion of internet technologies has increased accessible information, it has also facilitated the unchecked proliferation of inaccurate or unverifiable content. When relying on online sources, researchers should maintain a critical stance to avoid materials with unclear authorship.

The most common sources for collecting case study data (sources of evidence) can be classified into six categories: documents, archival records, interviews, direct observation, participant observation, and physical evidence. Documents include journal articles, research reports, newspapers, and other existing textual records. Their strengths lie in capacity for repeated review, the precision of information, and their broad scope of coverage. However, a notable limitation is that documentary sources may carry the subjective biases of their authors, which can compromise their objectivity. Archival records may be regarded as a specific subset of documentary sources and therefore share many of the same strengths and limitations. However, archival records are typically more objective, precise, and quantitative in nature, such as national census data from the National Bureau of Statistics or patient medical records. These sources often contain sensitive or confidential information, and their heightened privacy requirements may restrict access to certain datasets. Interviews represent the most widely used method of data collection in case study research and are generally classified into in-depth interviews, focused interviews, and survey interviews. Direct observation involves the researcher acting as an impartial third party to observe the case or event in real time. While participatory observation entails the researcher's involvement in the case. For instance, in a case study on community health services, the researcher might play the role of a patient or volunteer at a community health center to gather relevant information. Physical evidence, such as technological devices, tools, or instruments, may also be collected and examined as part of field visits.

Step 5: analyzing case study data

Data analysis is often the most time-intensive stage of a case study² and is also the most challenging to clarify clearly.⁴ As outlined by Carney²⁰ and Zheng et al.⁴, the process includes five steps. The first step is data transcription and note-taking, in which materials obtained from interviews, observations, archival records, and other sources are transcribed, summarized, and systematically organized in accordance with the study's objectives, such as arranging data chronologically. Next is

data categorization, which entails reading each segment of text closely and repeatedly, breaking it into one or two discrete meaning units, and assigning appropriate codes. These coded units are then grouped into categories based on shared content and characteristics, a process that can be facilitated by qualitative analysis software such as NVivo. Where relevant, a theoretical framework may be used to construct a category matrix, with the distilled units allocated to the appropriate categories within that structure. The third step is identifying relevant themes by examining internal relationships within each category, seeking logical connections across the dataset, and organizing the findings into labeled themes. At this stage, it is crucial to ensure alignment between these themes and the overall focus of the study, revising any misaligned elements as needed. The fourth step is testing hypotheses, in which the derived themes are brought into a critical “dialogue” with the study’s initial theoretical propositions. This comparison assesses the degree of correspondence between the evidence and the proposed hypotheses, providing a clear basis for their acceptance or rejection. Finally, theory building or verification involves integrating all informational threads, evidence, and theoretical propositions to construct new theoretical insights or to validate existing ones, thereby establishing a foundation for future research. As illustrated in [Figure 1](#), data analysis is deeply interconnected with other stages of the research process, requiring the researcher to engage in repeated “dialogues” with the data to achieve a comprehensive understanding.

Step 6: writing the case study report

In preparing a case study report, researchers should consider four aspects: identifying the target audience, structuring the report, reviewing and revising, and performing quality assessment.² It is generally advisable to begin the writing process as early as possible, rather than postponing it until data analysis is fully complete.

First, when drafting the research report, it is essential to clearly the intended audience and tailor the writing to their specific needs.² In the fields of primary care, general practice, and community health services, the target readership may include academic scholars, health policymakers, community health practitioners, and project funders. For academic audiences, emphasis should be placed on theoretical innovations, novel findings, comprehensive literature reviews, and the logical relationships among cases. For health policymakers, the primary interest lies in the policy implications of the study. Community health service practitioners, are more concerned with detailed descriptions of case events and the practice experience. Project funders typically focus on the scale of investment, academic value, and practical significance. When the main audience consists of non-academic readers, researchers should minimize the use of specialized terminology to ensure clarity and accessibility.

Second, structuring the report is essential. The structure of the report should align with the purpose of the study—whether explanatory, descriptive, or exploratory. Yin² outlines six potential structural formats, three of which are applicable across all research purposes. Given that the target audience of this paper consists primarily of novice researchers, the discussion here will focus on these three applicable formats. The first format follows a linear structure organized around the research questions or project, corresponding to the conventional framework of an academic paper: Introduction, Literature Review, Research Design, Case Description, and Findings and Conclusions. This approach is currently the predominant format for case study articles published in academic journals.²¹⁻²² The second format adopts a comparative structure, in which the same case is narrated from multiple perspectives to reveal different realities for direct comparison. The third format presents the case in chronological order. Ultimately, the structure of a case study report is adaptable, to present the content to the intended audience with clarity and logical coherence.

Third, once the initial draft of the report is complete, it should be reviewed by experts, intended readers, and participants involved in the case study. The researcher should then revise the manuscript based on

the feedback provided. Although this practice is common and aligns with the requirements for other types of research papers, it remains a critically important step.

Finally, the quality of a case study can be assessed by examining its reliability and validity.¹⁴

Reliability refers to the extent to which other researchers can replicate the operational procedures described in the report and obtain consistent results. Validity encompasses three dimensions: construct validity, which addresses the accuracy of the operational measures for the concepts under investigation; internal validity, which concerns the strength of causal relationships between independent and dependent variables; and external validity, which relates to the generalizability of the findings to other contexts. For a detailed discussion of these concepts, see Chapter 9 of *Empirical Methods in Organization and Management Research* (3rd ed.) by Chen and Shen. In practice, when researchers follow the operational steps outlined in this paper and attend to the key considerations within each stage, the rigor and quality of the case study are ensured throughout the research process.

An example of a rigorous case study

Huang et al.²¹ conducted a single-case, single-unit design study focusing on the staff of the S Street Community Health Service Centre in City D. Drawing on theories such as policy entrepreneur, street-level bureaucracy, and policy agenda-setting, and integrating them with multi-source fieldwork data, the researchers developed an analytical framework of “multiple motivations–instrument choice–hierarchical windows” to describe the case.

The study logically traced the progression from family doctor service policy innovation → primary health care policy innovation → primary administrative policy innovation. In doing so, it addressed the key question of how street-level bureaucrats can drive policy innovation, while also advancing the localized development of street-level bureaucracy theory. Importantly, the research exemplified the integration of rigor into each operational step of the case study method. This paper uses the study as a concrete example to demonstrate how methodological rigor can be embedded throughout the implementation of case study research ([Table 3](#)).

Discussion

This paper is aimed at practitioners and researchers in primary care, general practice, and community health services. To enhance relevance and accessibility, the examples and case illustrations used to explain the operational steps of the case study method are drawn directly from these fields. A concrete example from the field of primary care management demonstrates how the “family doctor service policy” can serve as an analytical entry point, elevating an observed phenomenon—the policy innovation initiative in S Street, City D—to a theoretical level within the framework of street-level bureaucracy theory. This process not only addressed the research question but also contributed to the localized development of the theory. One of the case study method’s most significant strengths lies in its ability to uncover the theoretical mechanisms underlying observable phenomena. The intended readership is encouraged to recognize this advantage and to develop the ability to apply it in their own research. Through the presented example, this paper illustrates the concrete procedures and practical applications of the case study method in primary care, general practice, and community health services. Importantly, this should not be taken to suggest that case study research in China’s primary care context is suitable only for management-related topics; any issue within these fields that meets the methodological applicability criteria can be effectively investigated using this approach.

Case study research is more demanding, requiring the integration of multiple data sources and comprehensive skill of researchers.

Table 3
An example of step-by-step implementation of rigorous case study.

Step	Content	Activities	Description	Evaluation
1	Plan Initiation	<p>Research question: How do street-level bureaucrats promote policy innovation?</p> <p>Research subject: Community health service center staff</p> <p>Focus: Innovation in family doctor service policy</p>	<p>Framing a “How” question</p> <p>Not under the researcher’s control</p> <p>A current, socially relevant issue</p>	Well-suited for the case study method
2	Research Design	<p>Conduct a literature review centered on the core concepts of the study—“policy innovation” and “street-level bureaucracy”</p> <p>Based on the main theoretical foundation—street-level bureaucracy theory—select an innovative case in community health services</p> <p>Single-case, single-unit design: Study one case—the S Street Community Health Service Center in District B, City D (single case), focusing only on how staff members promote family doctor service policy (single unit)</p> <p>Link theories of “policy entrepreneur,” “street-level bureaucracy,” and “policy agenda-setting”</p>	<p>Perform targeted literature review</p> <p>Theoretical sampling; case definition and selection</p> <p>Selection of case study type</p> <p>Application of theory</p>	<p>High focus on the research problem maintains theoretical and methodological flexibility</p> <p>strengthens internal validity, external validity, and reliability</p>
3	Preparation	<p>Adopt a fieldwork approach and develop a detailed data collection plan, including: timeframe (Dec 2018–Jun 2019), location (S Street Community Health Service Center), research participants (relevant health commission leaders, center directors, and frontline staff), and data collection methods (review of archives, participant observation, in-depth interviews). Include anonymization, project introduction, and acknowledgments.</p> <p>Researcher reviewed and practiced fieldwork methods and relevant academic norms</p> <p>No pilot case study was conducted</p>	<p>Develop a research protocol</p> <p>Necessary training</p>	Strengthen research foundation; further enhance reliability and construct validity
4	Data Collection	<p>Accompanied the District B Health Commission’s public health supervision team on multiple visits to S Street CHSC (investigation); stayed at S Street CHSC as an intern for participant observation; collected residents’ health records, family doctor statistical reports (archival records), multi-level family doctor policy documents (policy documents); conducted in-depth interviews with leaders and staff at the District B Health Commission and S Street CHSC</p> <p>Classified collected data by type (policy documents, archival records, interview transcripts, observation notes, public reports, promotional materials)</p> <p>Every question, viewpoint, result, and conclusion was supported by corresponding references, statistical data, observation notes, or interview transcripts</p> <p>Single-case, single-unit design: Study one case—the S Street Community Health Service Center in District B, City D (single case), focusing only on how staff members promote family doctor service policy (single unit)</p>	<p>Comprehensive, multi-source data collection</p> <p>Establish a data database</p> <p>Verified questions, viewpoints, results, and conclusions through empirical data from archives, interviews, and observations, forming a chain of evidence</p> <p>Exercised caution with online or potentially biased sources</p>	Strengthen research foundation; further enhance reliability and construct validity
5	Data Analysis	<p>Based on a panoramic review and repeated reading of collected materials, extracted key information and constructed a detailed case narrative (original text linked these key points to present a full case picture)</p> <p>Construct a “multiple motivations–instrument choice–hierarchical windows” analytical framework</p> <p>Explored in depth the motivations behind staff efforts to promote policy innovation, the resource shortage–increased demand dilemma, the “tournament system” in S Street, and doctor–patient relations</p> <p>Advanced localization of street-level bureaucracy theory and addressed the “street-level blind spot” in policy entrepreneur research</p>	<p>Data transcription and note-taking</p> <p>Facilitated data categorization</p> <p>Identification of relevant themes</p> <p>Hypothesis testing and theory verification</p> <p>Identify target audience</p>	Enhance interaction between researcher and data; clear analytical logic; appropriate methods; clear themes; extended theoretical implications
6	Report Writing	<p>Consider scholars and policymakers as target audience; use specialized terms where appropriate and provided necessary explanations for technical terms such as “policy entrepreneur collectives” and “street-level blind spot”</p> <p>Structure the paper following the mainstream format: “Problem Statement – Literature Review – Analytical Framework – Case Description and Narrative – Conclusion and Discussion”</p> <p>In the Discussion section, enhance reliability and validity by highlighting the case’s typicality, the dialogue between theory and practice, and logical reasoning</p>	<p>Organize report structure</p> <p>Quality assessment</p>	Address audience needs; improve readability; ensure quality

- (1) Literature review: Selecting appropriate databases and search strategies not only enables researchers to grasp the latest developments on relevant topics but also to develop insightful new research questions.
- (2) Case selection: Applying theoretical frameworks that align with the research question and conducting sampling based on the frameworks.
- (3) Observation: Designing a well-structured observation guide and recording observational data objectively.
- (4) Questionnaire surveys: Developing scientific questionnaires and survey plan.
- (5) In-depth Interviews: Preparing a practical interview guide and mastering essential interviewing skills, such as building trust with participants and using timely pauses and responses.
- (6) Quantitative Analysis – Being proficient in commonly used statistical methods and statistical software such as SPSS and Stata.
- (7) Qualitative Analysis – Possessing the necessary skills for coding.

Learning resources for case study research can be approached in three progressive stages.

Stage 1 focuses on building a comprehensive understanding of the operational steps, processes, and core professional terminology of case study research. Foundational readings include *The Basic Methods of Case Study Research—A Review of Classic Literature* by Chen and Liu; Chapter 9, *Case Study Research in Field Studies* (by Zheng and Huang) in the 3rd edition of *Empirical Methods in Organization and Management Research*, edited by Chen and Shen; *Fundamentals of Case Study Research in Family Medicine and Community Health* by Fàbregues and Fetters (translated by Zhao and Wang); and *Yin's Case Study Research: Design and Methods* (5th ed., translated by Zhou and Shi).

Stage 2 advances to mastering specialized skills through targeted readings.

Gerring's *Case Study Research: Principles and Practices* (translated by Huang et al.) offers in-depth guidance on these skills, while *Yin's Applications of the Case Study Method* (3rd ed., translated by Zhou and Xia) illustrates practical implementation through detailed, real-world examples, bridging theory and applied research practice.

Stage 3 emphasizes comprehensive review and advanced application, aiming to deepen methodological understanding and explore emerging trends. Essential readings include *Revisiting the Case Study Method: Theory and Examples*, edited by Li et al.

Exemplary studies—such as Huang and Chen's *How Do Street-Level Bureaucrats Promote Policy Innovation?—An Innovative Case Study in the Field of Primary Care* and Ouyang et al.'s *Building a Governance System for Major Public Health Emergencies: A Case Study Based on the Chinese Context*—are particularly valuable for examining effective report structures and analytical strategies. Beyond print resources, the online course *Case Study Method and Academic Writing Skills*, taught by Professor Li Shuoyan from Shanghai University, provides an accessible and high-quality platform for researchers seeking to refine their expertise in case study methodology.

Given the complexity of the case study and the staged nature of mastering, the following recommendations are offered for researchers: (1) Make thorough preparations before commencing the study; (2) Adhere rigorously to the established procedures of case study research; (3) Refine case study skills and deepen methodological understanding. It is also worth noting that few case study articles published in journals in the fields of general practice and primary care present complete research process. A major contributing factor is the restrictive word limits imposed by many journals, which make it difficult for authors to provide a standard, rigorous, and comprehensive account. To address this limitation, it is recommended that journals allow greater space for the presentation of case study research.

In summary, the rigor of a case study depends on the researcher's strict adherence to standardized implementation procedures. Delivering responsible, rigorous, and high-quality case study in primary care, general practice, and community health services requires the concerted efforts of both researchers and academic journals.

Authors' contributions

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

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