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Analysis of the current status, challenges, and strategies of continuing professional development for graduates of rural bonded general practitioner education program in Guizhou province☆

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ABSTRACT

Background: The competency of graduates of rural bonded general practice education program has attracted widespread attention. Strengthening continuing professional development is an important measure to enhance the competency of general practitioners (GPs) who graduated from the bonded medical program.
Objective: To understand the current status, challenges, and needs of continuing professional development for doctors who graduated from the bonded medical program in Guizhou Province, and to inform the improvement of the continuing professional development.
Methods: Between November and December 2021, a combination of purposive sampling and snowball sampling was used to select 42 GPs who graduated from the bonded medical program from 39 township health centers across nine cities (prefectures) in Guizhou Province as research subjects. Semi-structured interviews were conducted, and the results were analyzed using a procedural grounded theory method.
Results: Through three-level coding, a total of 145 concepts, 23 categories, and 5 main categories were ultimately organized, leading to one storyline: the continuing professional development of the GPs is influenced by multiple factors. The actual conditions pose the main obstacles, while capability and quality act as external drivers, policies and systems provide crucial safeguards, and inherent needs serve as internal motivators. Improving training process management is identified as the key element.
Conclusion: The willingness of the rural GPs in Guizhou Province to undergo training needs to be strengthened. The quality of continuing professional development, the relevance of training content to their needs, and the level of attention from primary care facilities require improvement. There should be enhanced support for continuing professional development and the development of an information platform. Developing suitable education content and training formats for GPs who graduated from bonded medical program is essential to enhance the quality and effectiveness of continuing professional development.

Introduction

Continuing professional development is an essential part of the medical education system, serving as a crucial approach for health professionals to acquire new theories, knowledge, techniques, and methods. This significantly enhances the capabilities of health personnel and supports their career development[1]. Recently, "patient-centered" general practice services have increasingly become a trend in primary care, drawing extensive attention from national and local governments in China. In 2018, the Chinese General Office of the State Council issued the "Opinions on Reforming and Improving the Training and Utilization Incentives for General Practitioners" (State Council Office [2018] No. 3), which mandated the consolidation and enhancement of continuing professional development for general practitioners (GPs). This directive called for the development of guidelines for continuing professional development, the expansion of distance learning, and the universal application of appro-

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priate general practice techniques to achieve comprehensive coverage of continuing professional development for GPs[2]. Further, the "Guidance on Accelerating the Innovative Development of Medical Education" released by the General Office of the State Council in 2020 (State Council Office [2020] No. 34) outlines that by 2025, the discipline structure of medical education should be more optimized, and the management system more scientific and efficient. It anticipates the establishment of a high-level medical personnel training system that deeply integrates medical science with other disciplines, enhancing training quality and solidifying incentives for the utilization of medical talent[3]. As graduates of rural bonded general practice education program (referred to “rural GPs" in the current study) who have completed standardized residency training begin fulfilling their roles in primary care facilities, the capacity of primary care has significantly improved. However, the current state of their continuing professional development remains unclear. This study aims to investigate the status, challenges, and needs of continuing professional development for rural GPs in Guizhou Province, offering policy recommendations to refine the training system for continuing professional development of GPs.

Methods

Study subjects

In November and December of 2021, a combination of purposive sampling and snowball sampling methods was employed to conduct semi-structured interviews with 42 rural GPs located in 39 township health centers across nine cities (prefectures) in Guizhou Province. This study ensured confidentiality of the interview contents and obtained informed consent from all participants. The inclusion criteria were as follows: (1)rural GPs who had successfully completed their residency training and were serving in township health centers. (2) participants who were in a calm mood, receptive to interviews, and volunteered to participate. Individuals who were unable to complete the interview due to being engaged in clinical duties, meetings, or other professional activities, and who were unwilling to participate in the interview for personal reasons were excluded. During the selection of interview subjects, individual factors of the rural GPs and the differences in their respective township health centers were carefully considered. The selection criteria were continuously adjusted to ensure that the data collection met the principle of information saturation. To ensure theoretical validity, saturation was tested. The point of saturation was reached during the interview of the 37th GP when no new concepts or categories emerged. The interviews were extended to 42 participants and still no new concepts or categories appeared, confirming that theoretical saturation was achieved[4].

Research method

The research team prepared the interview outline through literature review and discussions with experts, followed by a pre-survey to refine it. The interview guide included several key questions: (1)Could you briefly describe the basic situation of your facility and the status and conditions of your job? (2)How competent do you feel in your current position? Does it meet the work requirements? What are the shortcomings and deficiencies? (3)What has been your experience with continuing professional development so far? What problems have you faced during this process? (4)How do you think continuing professional development has impacted you personally and professionally? What are the current issues and challenges with continuing professional development? (5)How do you assess the quality of continuing professional development? What deficiencies exist in terms of training content, form, and timing? (6)Based on the actual conditions of your position, what are your needs for continuing professional development? What support and improvements do you expect? The field interviews were conducted by two graduates trained in conducting interviews. Interviews were carried out using the guide in a one-on-one setting at the interviewees’ facilities. Interviewers introduced themselves and the purpose of the study before starting, presented identification and a letter of introduction to alleviate any concerns, and obtained consent for audio recording the entire session. During the interview, a relaxed and pleasant conversation atmosphere was created to build trust and interaction. Additional in-depth questions were asked as necessary, and the interview duration was extended appropriately to ensure the reliability and completeness of the data collected. After the interviews, audio recordings were transcribed into text documents, which were cross-verified by both interviewers to avoid inaccuracies and distortions caused by human factors. The entire interview process adhered to ethical standards and the principle of voluntariness. After the interview, participants were asked to fill out a basic information form. Each interview lasted between 20 to 30 minutes.

Data analysis method

For data analysis, basic statistical analysis of collected personal information was performed using Excel software. The audio materials from interviews were transcribed into textual data and analyzed using NVivo 12.0(QRS International, Cambridge, MA). This study followed the procedural grounded theory method established by Strauss and Corbin, involving three stages of coding: open coding, axial coding, and selective coding to process the transcribed data from the 42 interviews. Open Coding involves conceptualizing and categorizing data based on shared properties. This phase serves as the foundation for identifying distinct concepts and categories emerging directly from the data[5]. Axial Coding is used to establish connections between categories developed during open coding. This stage involves a deeper examination of the relationships and internal logics among categories, allowing for a more structured integration of the data[6]. Selective Coding involves identifying a core category among those discovered and focusing the analysis around this central theme. The relationships between the core category and other main and sub-categories are examined to form a "storyline" that culminates in the construction of a substantive theoretical framework[7]. To ensure the reliability of the study, the coding process was conducted simultaneously by two individuals. Discrepancies in coding were discussed and resolved through discussions within the research team. Throughout the coding process, continuous comparison and reflection were practiced, and adjustments were made to the coding results and logical framework as necessary[4]. This rigorous approach ensures that the data analysis comprehensively represents the views and experiences of the participants while grounding the findings in a robust theoretical framework.

Results

Demographic characteristics

The study involved 42 rural GPs with an average age of 29.6 years (SD = 2.4). Of these, 26 were male (61.9%), and 16 were female (38.1%). In terms of professional titles, 31 held intermediate titles (73.8%), 10 held junior titles (23.8%), and 1 had no professional title (2.4%). Within the township health centers, 20 of the doctors (47.6%) took on some managerial responsibilities, and 5 (11.9%) were employed in the capacities of director or deputy director.

Open coding

The two researchers independently identified initial concepts related to the continuing professional development of rural GPs, extracting 536 and 498 concepts respectively, with 471 concepts in common. Using the reliability formula R = M/N, where R is the reliability coefficient, M is the number of consistent codes, and N is the average number of codes, a coding reliability of approximately 0.91 was achieved, indicating a good level of reliability ($R \geq 0.90$)[8]. After a comparative analysis, a total of 526 initial concepts were confirmed. Due to the large number and overlap of initial concepts, further refinement and classification were performed, resulting in 145 concepts grouped into 23 categories, denoted as a+ (Tables 1-2).

Table 1
Examples of the development of concepts using open coding.

Number	Concept	Original statement
1	Low motivation for training without credits	We have to participate in the online learning programs that have credits, but we don't participate in those that don't have credits.
2	Training conducted by county hospitals is applicable in primary care	I think it's enough to go to the county hospitals to participate in the training because the types of diseases, diagnosis and treatment modes, and medication methods are similar to those in primary care.
3	Learning relevant auxiliary department skills	In terms of continuing education, I feel that the technical skills of some auxiliary departments need to be developed, such as the use of ultrasound and electrocardiogram, as well as the diagnostic skills of imaging and biochemical results, which I think should be strengthened.
4	Wish to organize regular training	In terms of continuing education, we still hope that the government can come up with some policies that allow us to go out for training and learning on a regular basis, so as to improve our service capability.
5	Training is just a formality	Most of the training here is arranged by the higher administrative units, which is a task-oriented arrangement, and then the main task is accomplished without serious and standardized implementation.
6	Unreasonable arrangement of training personnel	The hospital leadership thinks that we will not continue to work in the hospital after the expiration of our service period, and is not very willing to arrange for our orientation students to go out for further training and study.
7	New techniques learned are not applied	Not long ago, we went to a higher level hospital to learn lung function test technology, but after returning, we did not carry out the test well, firstly, because the equipment was not sound, and secondly, the patients did not trust the township hospitals.
8	Training is not applicable in primary care	After coming to work in primary care, I feel that there is a difference between the content of the training and the diagnosis and treatment needs in primary care, and a lot of technology in the townships can not be used at all.
9	Lack of consolidation of learning opportunities	Our hospital medical staff is relatively small, the education is not high, there is a what difficult to communicate with others to learn a little more difficult, resulting in the learning of knowledge is difficult to be consolidated.

Note: Only some of the corresponding concepts and original statements are listed in the table.

Table 2
Categories and concepts formed by open coding.

Number	Category	Concept	Frequency [n (%)]
a1	Insufficient diagnosis and treatment capacity	Insufficient clinical thinking in general practice, insufficient communication and reception skills, lack of ability to conduct visits, difficulty in realizing standardized operations, insufficient ability to diagnose and treat pediatrics and gynecology, difficulty in dealing with emergencies and first aid, and insufficient ability to diagnose and transfer patients.	48 (9.1)
a2	Disconnect between work and learning	Lack of staff leads to difficulties in going out for training, lack of time to participate in training, busy work, little free time, heavy medical tasks, and low participation in training.	36 (6.8)
a3	Increasing job requirements	Increased demand for high-quality medical services in primary care, increased content of public health services, management capacity needs, general practice involves a wide range of knowledge, the position requires a high level of specialization, rapid updating of medical technology, high risk in the primary care, the use of equipment and instruments, return visits, outpatient treatment.	34 (6.5)
a4	Continuing education to be strengthened	Insufficient training experience, training in form, training effect is not obvious, strengthen the understanding of continuing education, increase financial support, online credit learning is easy to formalize, the quality of continuing professional development is not high.	30 (5.7)
a5	Enrichment of training content	Strengthen the knowledge of chronic disease training, strengthen the emergency and first aid treatment training, consolidate the knowledge of diagnosis and treatment of common diseases and multiple diseases, critical illness identification and referral training, learn the skills of related auxiliary departments, carry out management ability training, increase the training related to traditional Chinese medicine, and strengthen the on-site emergency response, such as trauma, poisoning, etc.	29 (5.5)
a6	Disconnect between training and demand	Operational skills training is difficult to practice, the training is not applicable in primary care, there is a lack hardware and equipment for training applications, coordination of the corresponding professional and technical personnel is required, there are differences in the medicines used, the new technologies learned are not applied, there are regional differences in the training programs, and the teaching is not practical.	27 (5.1)
a7	Individual willingness to participate in continuing education is not strong Difficulty in the growth of technical level	Reluctance to participate in short-term training, low motivation for training without credits, low motivation for online training, in order to complete the task-oriented training, thinking that the training can not be used after the training, no desire to continue learning.	27 (5.1)

(*continued on next page*)

Table 2 (*continued*)

Number	Category	Concept	Frequency [n (%)]
a8	Difficulty in the growth of technical level	Lack of instructors to guide the work, personal skills can not be supervised, standardized, doctors in primary care in the slow growth of professional and technical growth, learning energy is not enough, the work environment is not competitive, lack of initiative to learn.	25 (4.8)
a9	Insufficient attention to continuing education	Leaders do not attach importance to it, employers do not attach importance to it, the management of general practice education is not perfect, and there is not enough awareness of continuing education.	25 (4.8)
a10	Enhancing the quality of healthcare services	Beneficial to one's own career development, standardize one's own diagnosis and treatment techniques, reduce the referral rate of patients, improve work efficiency, improve the technical level of the health center, and urge one's own learning through continuing education.	24 (4.6)
a11	Low access to primary care training	Unreasonable arrangement of training personnel, less frequent training in primary care in the higher-level hospitals, less training in the hospitals, fewer opportunities for further study, and the fear that rural general practitioners will not be able to stay in the hospitals after training.	23 (4.4)
a12	Strengthening organizational support	Hope to organize regular training, expect to organize and strengthen continuing education, expect to manage the continuing education of general practitioners, strengthen the standardization of training, strengthen supervision, rigorous continuing education programs and management, collaborate with various departments to carry out training in new technologies, increase the number of teachers training in general practice, and need the appropriate equipment and drugs to support the application of new technologies.	23 (4.4)
a13	Insufficient professional awareness	Want to develop in the direction of specialties, lack of belief in engaging in general practice services, lack of career confidence, low satisfaction with primary care, feeling that it is not worthwhile to become a general practitioner, expecting to choose a new career or to go to graduate school for further study, and expecting to improve their specialty capabilities and develop into general hospitals.	23 (4.4)
a14	Inadequate public health service capacity	Insufficient ability to report and handle public health emergencies, manage epidemics and infectious disease prevention and control, handle and treat major natural disasters, manage the health of special patients, and lack of preventive health care ability.	22 (4.2)
a15	Provide continuous guidance	Establishing a long-term learning and guidance platform, strengthening learning communication, continuous guidance from experts and teachers, continuous support from the government, and continuous guidance from higher-level hospitals.	21 (4.0)
a16	Combining training with needs	Participate in training with problems to improve the effect, suitable for primary care facilities to carry out the technology, training content in the township hospitals, combined with personal preference and learning ability differences, taking into account the regional differences in disease categories.	18 (3.4)
a17	Multiple forms of training	Use of information technology to establish a distance learning platform, regular short-term training in districts and counties, go to higher-level hospitals for further study, invite experts to conduct training online or offline, exchange and study between health centers, seminars on difficult cases, and self-study online courses.	17 (3.2)
a18	Current status of relay training	Credit-based online education, remote video training, lectures on health poverty alleviation, basically able to complete the acquisition of credits, peer-to-peer training, expert visits to the countryside, experts from the supporting hospitals come down to give guidance, teaching and checking rooms, and short-term centralized training.	15 (2.9)
a19	Incomplete policies and systems	Strengthen supporting policy construction, general practice continuing education system is not perfect, increase policy publicity and guidance, improve incentive assessment mechanism, increase funding, strengthen the constraints on the mechanism, improve the training, refresher study system.	14 (2.7)
A20	Enhancing the training capacity of county hospitals	County hospitals are more comprehensive in terms of disease types and cases, and county-level training is applicable to the primary care facilities, strengthening the exchange and learning within the medical community, strengthening the construction of general practice departments in county hospitals, strengthening the level of general practice teaching in county hospitals, and using equipment and medicines for training in county hospitals to be closer to the primary care facilities.	13 (2.5)
a21	Knowledge base is not solid	The knowledge of various disciplines is not fully understood during the learning stage, the training time of some departments during the standardized training of residents is insufficient, the opportunities for practical operation during the standardized training of residents are few, and the community practice experience is insufficient.	12 (2.3)
a22	Insufficient construction of faculty	Unclear admission standards for faculty, insufficient teaching ability, faculty management system needs to be improved, faculty evaluation mechanism is not perfect, and the source of faculty is complicated.	11 (2.1)
a23	Multiple sources of training	Continuing education platform for general practice, opportunities for further training provided by supporting hospitals, training conducted by higher-level hospitals, organized by health departments, training and exchanges within medical communities, and training conducted by medical colleges and universities.	9 (1.7)

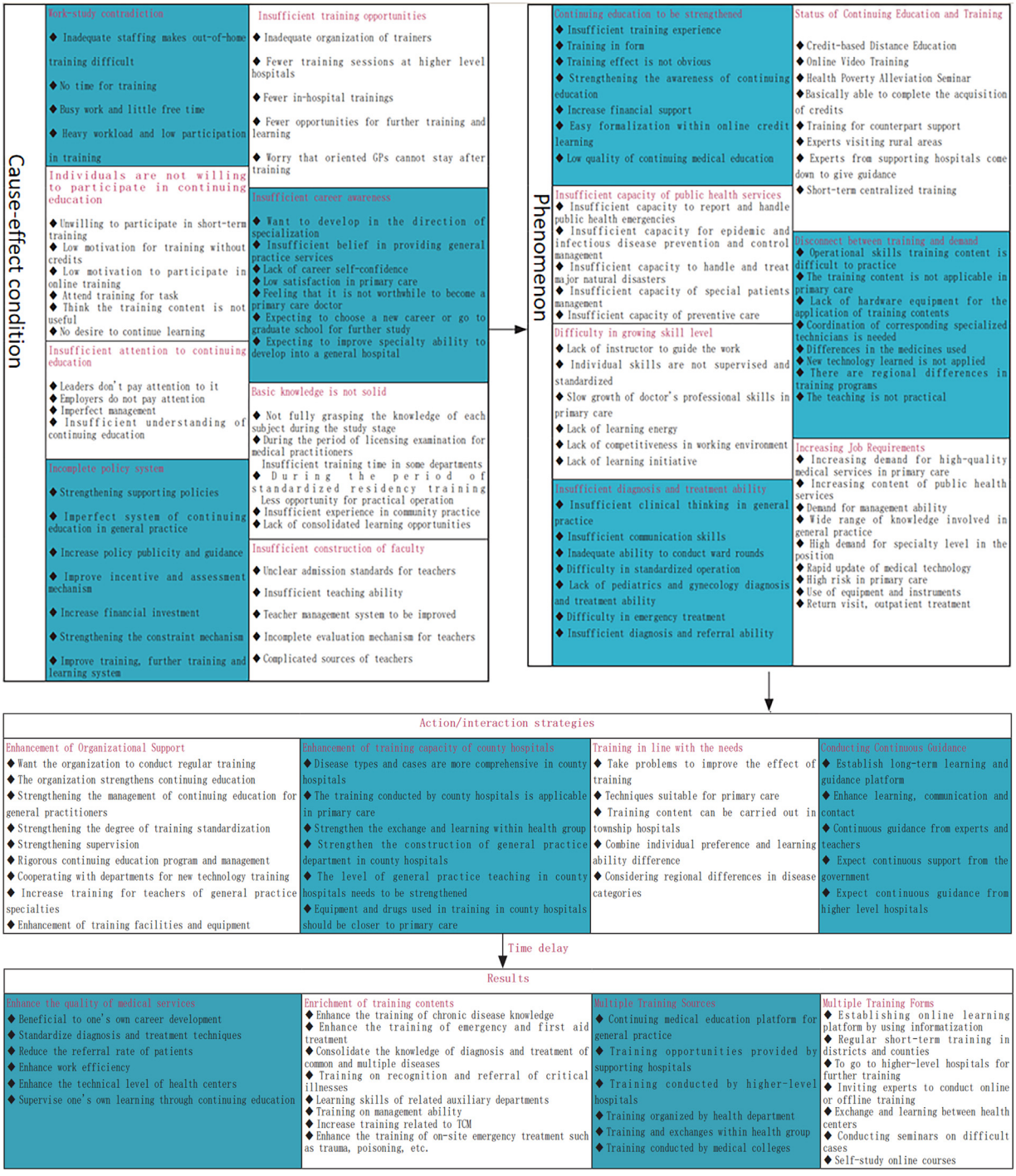

Fig. 1. Relationship model of the current situation of continuing professional development for oriented general practitioners.

Axial coding

Employing the procedural grounded theory paradigm model (Context—Phenomenon—Action/Interaction Strategies—Consequences), the 23 categories derived from open coding were classified and integrated. The logical relationships and internal connections between these categories were analyzed to construct a model representing the current status of continuing professional development for targeted GPs (Fig. 1). This model further distilled five major categories, denoted as A+, which include reality of the situation, policy and systems, training process management, personal needs, and competency qualities (Table 3).

Selective coding

In this phase, a thorough review and analysis of all concepts, categories, and their interconnections were conducted to identify the core category, which emerged as the "Development Needs for continuing professional development of rural GPs." This led to the formulation of a narrative thread: The continuing professional development of rural GPs is influenced by multiple factors. The current reality serves as the main barrier, competency qualities act as external motivators, policy and system provides essential support, personal needs drive internally, and refining training process management is a critical component. Based on this narrative thread, a theoretical model for the development needs of

Table 3
Refinement of main categories.

Number	Main category	Category	Frequency [n (%)]
A1	Situation	a2 Work-learning conflicts, a6 Disconnect between training and demand, a7 Individuals' weak willingness to participate in continuing education, a8 Difficulties in growing technical level, a11 Few training opportunities for primary care facilities, a18 Status of continuing education training	37 (25.5)
A2	Policies and systems	a4 Continuing education to be strengthened, a9 Insufficient attention to secondary education, a12 Strengthening organizational support, a19 Inadequate policy and system, a22 Insufficient construction of teachers and personnel	32 (22.1)
A3	Training process management	a5 Enrichment of training content, a17 Multiple forms of training, a23 Multiple sources of training, a20 Enhancement of training capacity of county hospitals	27 (18.6)
A4	Self-needs	a3 Increasing job requirements, a10 Improving the quality of medical services, a15 Carrying out continuous guidance, a16 Combining training with demand	25 (17.2)
A5	Competence	a1 Insufficient diagnosis and treatment ability, a13 Insufficient professional knowledge, a14 Insufficient public health service ability, a21 Insufficient basic knowledge	24 (16.6)

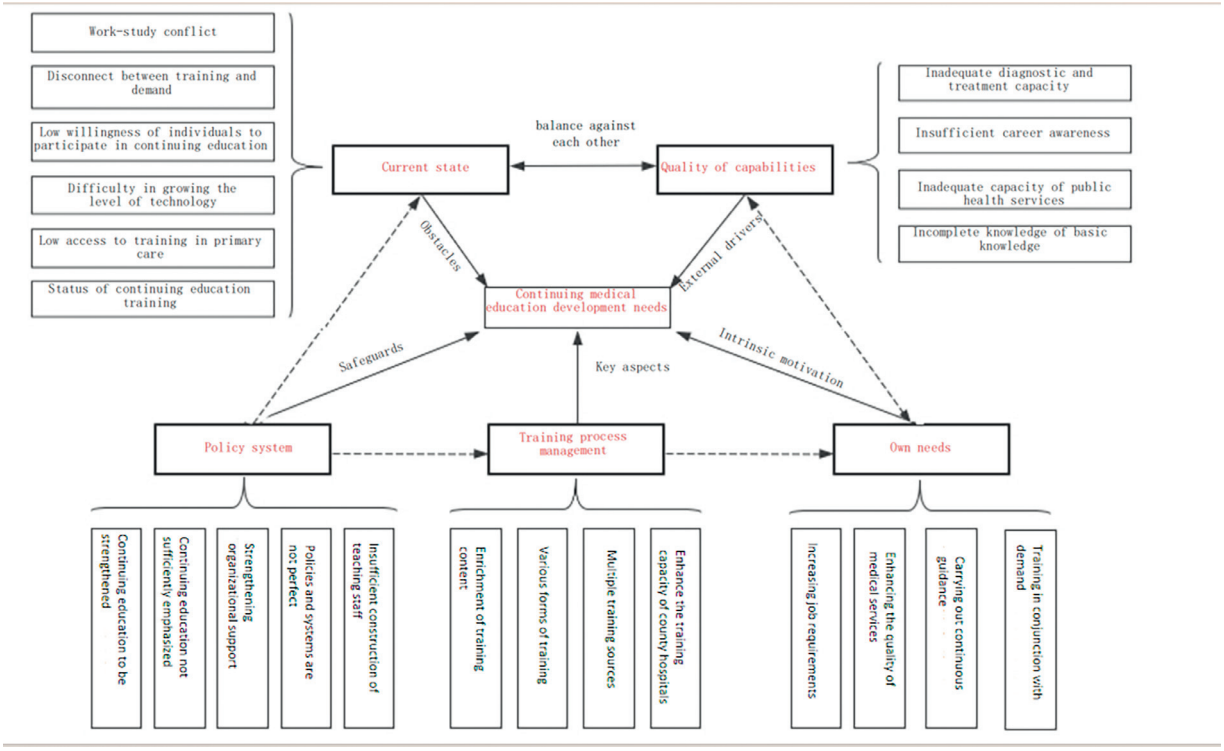

Fig. 2. Theoretical model of development need of continuing professional development for oriented general practitioners.

continuing professional development for rural GPs was created (Fig. 2). This model abstracts all concepts and categories into four main storylines: the current state of continuing professional development, competency qualities and personal needs, training process management in continuing professional development, and the policy and system framework.

Discussion

Continuing professional development is an essential part of the medical education system and serves as a vital approach for healthcare personnel to acquire new theories, knowledge, technologies, and methods after beginning medical practice. It is also crucial for clinicians to continually update their knowledge and enhance their diagnostic and therapeutic abilities. This study conducted in-depth interviews with rural GPs in Guizhou province who had completed standardized residency training. Using strict and standardized procedural grounded theory method, the study extracted and summarized relevant concepts and domains from the interview data concerning the continuing professional development of these practitioners. Through the procedural grounded theory method, the concepts and categories related to the continuing professional development of these GPs were identified.

The current context of continuing professional development

The continuing professional development for rural GPs in Guizhou Province primarily follows the methods used for continuing professional development of clinical specialists. This includes credit-based online learning and participation in video learning or practical training sessions organized by health administrative departments, medical colleges, and supporting hospitals. Most rural GPs are able to complete the required annual online credits, and those in better-developed township health centers often have more opportunities for related training. However, there are several widespread challenges faced in continuing professional development: (1)Due to insufficient medical staff in township health centers, rural GPs frequently hold multiple roles. This conflict between work and study makes it difficult for them to find time and energy to participate in training or long-term continuing education. (2)The train-

ing content often does not align with the actual work needs of rural GPs, and the practical applicability of the training in a primary care facility is limited. (3)The main diseases seen in primary care facilities are common and chronic diseases. Many GPs feel competent in handling their daily responsibilities and thus show little interest in further education. (4)The competitive spirit is low in township health centers, and the lack of mentoring leads to difficulties in professional development and standardization of skills for rural GPs. (5)There is often a lack of emphasis on skill enhancement within primary care facilities, and doubts about whether rural GPs will remain in rural areas after fulfilling their service obligations reduce their opportunities for further training. (6)Some rural GPs have inadequate professional recognition and a vague understanding of the prospects of primary care and general practice, which weakens their desire to improve their professional skills.

Although most rural GPs recognize the importance of continuing professional development for enhancing their job capabilities and show willingness and demand to participate in training, various factors have led to their low satisfaction with the current state of continuing professional development, resulting in weak initiative for training participation. Therefore, health administrative departments and primary care facilities should focus on strengthening awareness and further intensify continuing professional development efforts for rural GPs. There should be an increase in both soft and hardware support for continuing professional development, and innovative and flexible approaches suitable for rural GPs should be used. By leveraging information technology to accelerate the construction of general practice education platforms, the accessibility and convenience of continuing professional development can be improved, thus resolving conflicts between work and study. Additionally, establishing mentor groups in higher-level hospitals can aid rural GPs in enhancing their clinical diagnostic and treatment capabilities, promoting their career development. Simultaneously, it is also crucial to reinforce the concept of lifelong learning among rural GPs, thereby igniting their intrinsic motivation to engage in continuing professional development.

Competencies and needs

As rural GPs have started working in township health centers, the number and quality of rural primary care physicians have effectively improved. However, interviews revealed that there is still a gap between the competency of these physicians and the medical service needs of residents, as well as the requirements of primary care. Challenges such as insufficient diagnostic and treatment capabilities, lack of public health service abilities, and deficiency in basic knowledge were noted. Some studies have found that due to employment agreements signed during their undergraduate period, some rural GPs lack motivation during their academic years. Additionally, due to the lack of emphasis on public health service capability training and community-based internships by educational institutions, these physicians often exhibit deficiencies in public health services and clinical practice abilities, and their professional knowledge is not solidly established[9]. While standardized residency training can effectively enhance the diagnostic and treatment standards of rural GPs, there are challenges such as insufficient training time in departments dealing with common diseases in primary care and poor training outcomes during community-based training. These challenges lead to poor adaptation of these physicians in primary care and inadequate capabilities in handling common and frequently occurring diseases[10]. Some rural GPs have expressed that the level of medical services at township health centers still fails to meet local residents' needs. When faced with difficult diagnoses or critical patients, they often choose to transfer patients to higher-level hospitals to avoid medical risks, which undoubtedly affects the local residents' trust in their diagnostic and treatment capabilities. Additionally, the COVID-19 pandemic has made rural GPs realize their deficiencies in public health services related to epidemic prevention, management, and reporting.

Currently, China's healthcare sector faces numerous challenges such as population aging, urbanization, and a high prevalence of chronic diseases. Implementing a tiered medical system and advancing family doctor contract services are crucial for ensuring and maintaining public health and for facilitating access to medical care. This raises the competency requirements for rural GPs. Therefore, as an important supplement to college education, continuing professional development for rural GPs should offer targeted training based on the local disease spectrum, particularly in the diagnosis and treatment of common diseases. Additionally, the training should include knowledge in chronic disease management, mental health education, and doctor-patient communication, as well as practical skills in rational drug use, emergency care, home health care, and laboratory diagnostics. By timely supplementing and continuously enhancing the comprehensive capabilities of medical graduates, we aim to align the competencies of rural GPs with their job requirements. This alignment will increase residents' trust in township health centers, thereby better safeguarding and enhancing public health and fostering a positive cycle of retaining patients through capability enhancement and promoting primary care development.

Continuing professional development training process management

Strengthening the process management of continuing professional development for rural GPs is key to enhancing the effectiveness of training. Continuing professional development currently faces challenges such as a lack of diversity in organizational forms, simplistic implementation methods, and low satisfaction rates, with ongoing debates about the most effective formats and methods for implementation[9]. Interviews revealed a gap between the continuing professional development training received by rural GPs and the actual needs in primary care. For instance, online training programs are often too theoretical and complex, making the content less practical for primary care application. Although offline training can solidify basic knowledge and improve diagnostic and treatment skills in a short period of time, it sometimes fails to closely align with the service demands and disease variations of different regions and often lacks practical operation opportunities. In terms of training content, some rural GPs who hold management positions in township health centers expressed not only a desire to improve their diagnostic and treatment capabilities but also a need for training in public health services, hospital management, medical insurance, and health law and regulations. As for training formats, targeted GPs prefer remote education, in-hospital training, and further studies. Some noted that county hospitals have a comprehensive range of cases and diseases, which closely match the practical diagnostic and treatment scenarios in primary care facilities. Short-term attachments at county hospitals can significantly enhance their service capabilities.

Targeted GPs are highly motivated to participate in continuing professional development with the specific aim of filling gaps in their knowledge and skills to better provide affordable, high-quality medical services to the population. Therefore, providers of continuing professional development should assess the educational needs of rural GPs and offer more diverse, practical, and targeted training programs tailored to primary care needs. This could involve establishing a platform for continuing professional development, developing scientific and reasonable training plans, organizing training content, and perfecting course learning and assessment management. Such a platform should regularly update with academic conferences held by various medical societies, online teaching videos, and theoretical lectures, providing free access for GPs. Additionally, strengthening the construction of general practice departments in county hospitals and fully utilizing hospital group to integrate experts in the region can be effective strategies. Rational arrangements for rural GPs to receive training in county hospitals could enhance their theoretical knowledge and practical skills. For those with potential for management roles, targeted management training could enrich their career development paths, enhancing their ability to serve effectively in their communities.

Policy system

As the development of general practice progresses, there is a strong emphasis from the national level down to local governments and health care management facilities on enhancing the quality and service capabilities of GPs in China. This emphasis is essential for adapting to the overall development trends of the new medical reforms[11]. However, a review of policies related to general practice has yet to uncover specific regulations that guide the continuing professional development for GPs. The lack of comprehensive laws, regulations, and policy frameworks directly impacts the attention continuing professional development receives from health administrative departments and primary care facilities, leading to less standardized management of continuing professional development for rural GPs. This deficiency manifests in low collaboration in terms of financial input, process supervision, incentive assessments, and credit management. Some rural GPs also report insufficient organizational efforts, inadequate development of teaching staff, and disconnected evaluation methods in continuing professional development. Looking forward, there is a hope for the establishment of comprehensive policy frameworks that ensure the implementation of continuing professional development.

Currently, the continuing professional development for GPs in Guizhou Province primarily follows the provisional methods used for clinical specialists. However, GPs differ from clinical specialists in several ways. GPs are widely distributed across China, often in areas with a weaker economic foundation, and they exhibit a greater variance in educational backgrounds and capabilities. Consequently, the provisional methods for clinical specialists are not entirely suitable for the continuing professional development needs of GPs. As the workforce of GPs continues to grow, their continuing education requires widespread attention and active collaboration from the broader community of GPs. It is crucial to establish a set of "Continuing Professional Development Methods for General Practitioners" that not only fits the development of general practice in China but also aligns with international standards. This new approach should clearly specify the targets and objectives of continuing professional development for GPs, as well as the content, requirements, formats, timing, and cost-sharing aspects of training. By making these specifications clear, it ensures that the development of continuing professional development for GPs is supported in terms of institutional framework, financial allocation, and operational mechanisms. This approach will enable more effective and relevant training, ultimately enhancing the capabilities of GPs to meet the needs of their communities[12].

Limitations and prospects

This study primarily explores the current state and issues of continuing professional development from the perspective of rural GPs, which involves some subjectivity in the extraction of related concepts and categories. Additionally, it does not delve into the specific content of the continuing professional development needs of GPs, thus limiting the scope of the research. Future studies will focus on the curriculum development and training formats for the continuing professional development of rural GPs, aiming to further refine the continuing professional development system for this group.

Declarations

Not applicable.

Authors' contributions

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

Ethics approval and consent to participate

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Consent for publication

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Availability of data and materials

Not applicable.

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Authors' other information

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Declaration of competing interest

The authors declare that they have no competing interests.

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Not applicable.

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