

---

AI translation · View original & related papers at  
[chinaxiv.org/items/chinaxiv-202212.00003](https://chinaxiv.org/items/chinaxiv-202212.00003)

---

## A Qualitative Study on the Current Status of Teaching Faculty' s Perception and Formulation of Teaching Objectives in Standardized General Practice Residency Training (Postprint)

**Authors:** Yin Zhaoxia, Liu Caiyun, Zhang Baoshuang, Chen Yanli, Gong Weijie, Yin Zhaoxia

**Date:** 2022-12-01T00:00:00+00:00

### Abstract

**Background** Teaching objectives are the soul and pillar of teaching, closely related to classroom teaching effectiveness. Currently, there are few studies on teachers' cognition and formulation of teaching objectives in standardized residency training for general practice (general practice residency training). **Objective** Outstanding general practice medical teachers across China were selected for in-depth interviews using teaching ward rounds as the scenario to understand teachers' cognition of teaching objectives and aspects such as the basis for formulation, construction, and writing, and to explore how general practice residency training—which differs from university education, is highly professional, and focuses on competency-based training—can better promote teaching through teaching objectives. **Methods** The research subjects were outstanding general practice medical teachers from regions with well-developed general practice medicine, working in general practice departments of affiliated hospitals of renowned medical colleges in China, in departments that are national general practice residency training bases, with 5 or more years of experience in general practice residency teaching, holding associate chief physician rank or above, having received hospital-level or higher teaching honors, and currently participating in teaching ward rounds and formulating teaching objectives in teaching activities. From February to June 2022, one-on-one semi-structured in-depth interviews were conducted via online video conferences. NVivo 12 software was used to organize and analyze the data using thematic framework analysis, and interview themes were extracted. **Results** A total of 8 general practice medical teachers were selected. Analysis of the interview data extracted 3 themes and 4 sub-themes: 1) General practice teachers can relatively well grasp the principles of teaching objective formulation; 2) Teaching objec-

tive formulation lacks institutional guarantee, including two sub-themes: lack of theoretical foundation and lack of a standardized formulation environment; 3) General practice teachers have insufficient cognition of the role of teaching objectives in competency-based training, including two sub-themes: cognitive deficits regarding teaching objectives and formulated teaching objectives having little guiding significance for teaching activities. Conclusion Even outstanding general practice medical teachers still have problems in the cognition and formulation of teaching objectives, which affects teaching effectiveness to a certain extent. Attention should be paid to guaranteeing effective formulation of teaching objectives, strengthening relevant theoretical training, and using teaching objectives as a lever to promote homogeneous development and construction of the general practice medical teacher team, in order to cultivate more qualified general practitioners.

## Full Text

### A Qualitative Study on the Current Status of Teachers' Cognition and Formulation of Teaching Objectives in Standardized Residency Training for General Practitioners

\*\*Yin Zhaoxia<sup>1\*</sup>, Liu Caiyun<sup>2</sup>, Zhang Baoshuang<sup>1</sup>, Chen Yanli<sup>1</sup>, Gong Weijie<sup>1\*\*</sup>

<sup>1</sup>Department of General Medicine, Shenzhen University Health Science Center, Shenzhen 518060, China

<sup>2</sup>Graduate School, Youjiang Medical University for Nationalities, Baise 533000, China

*Corresponding author: Yin Zhaoxia, Professor; E-mail: yinzhaoxia@163.com*

## Abstract

**Background:** Teaching objectives constitute the soul and pillar of teaching activities and are closely related to instructional effectiveness. Currently, few studies have examined teachers' cognition and formulation of teaching objectives in the standardized training of general practice residents (GP residency training). **Objectives:** This study selected outstanding general practice teachers nationwide for in-depth interviews in the context of teaching ward rounds to understand their cognition of teaching objectives and their basis for formulation, construction, and writing. It explores how GP residency training—which differs from university education, is highly specialized, and focuses on competency development—can better promote teaching through improved teaching objectives. **Methods:** Participants were outstanding general practice teachers selected based on the following criteria: (1) working in regions with well-developed general practice; (2) employed in general medicine departments of affiliated hospitals of well-known medical schools in China; (3) working in departments designated as national GP residency training bases; (4) holding the rank of associate chief physician or above; (5) having at least five years of ex-

perience in GP residency teaching; (6) currently participating in teaching ward rounds and formulating teaching objectives; and (7) having received teaching honors at the hospital level or above. From February to June 2022, one-on-one semi-structured in-depth interviews were conducted via online video conferences. NVivo 12 software was used to organize and analyze the data using thematic framework analysis, and interview themes were identified. **Results:** Eight general practice teachers were enrolled. Analysis of the interview data yielded three main themes and four subthemes: (1) general practice teachers generally grasp the principles of teaching objective formulation; (2) teaching objective formulation lacks institutional guarantee, including two subthemes: lack of theoretical foundation and lack of a standardized formulation environment; and (3) insufficient cognition among general practice teachers regarding the role of teaching objectives in competency cultivation, including two subthemes: cognitive deficiencies in teaching objectives and limited guiding significance of formulated teaching objectives for teaching activities. **Conclusions:** Even outstanding general practice teachers exhibit problems in cognition and formulation of teaching objectives, which affect teaching quality to some extent. Greater emphasis should be placed on ensuring effective formulation of teaching objectives and strengthening relevant theoretical training. Using teaching objectives as a lever to promote homogeneous development of the general practice teaching workforce will help cultivate more qualified general practitioners.

**Keywords:** General practice; standardized training for residency practitioners; teaching objectives; teaching ward rounds; qualitative study

---

## Introduction

Teaching objectives represent the starting point and endpoint of all teaching activities, serving as the soul and pillar of instruction. They provide direction for both teaching and learning, constitute the core of instructional design, and are closely related to classroom effectiveness. Therefore, creating effective, high-quality teaching should begin with attention to teaching objectives [?]. Currently, China has increasingly emphasized and standardized the standardized residency training for general practitioners (GP residency training), an important pathway for cultivating excellent, high-quality GPs. In 2021, the Chinese Medical Doctor Association issued the “Guidelines for Teaching Activities in Standardized Residency Training (2021 Edition)” (hereinafter referred to as the Guidelines), which includes teaching objective formulation as one of the criteria for standardizing teaching behaviors and evaluation [?]. However, previous studies in education, focusing on full-time teachers, have revealed numerous problems in teaching objective formulation, such as arbitrary, formalistic, and mechanistic formulation; emphasis on theory and skills while neglecting emotional attitudes and cultural awareness; and disregard for student learning outcomes and significance [?]. Similarly, Zhao Zuoqing et al. identified many issues in teaching objective and content design in clinical medical classroom

teaching [?]. Current research on GP residency training primarily focuses on training systems, teaching models, and teaching reforms [?], with few studies addressing teaching objectives specifically.

Using Bloom's three-dimensional teaching objective framework—widely adopted in Chinese education and comprising knowledge and skills, process and methods, and emotional attitudes and values [?, ?]—this study conducted in-depth interviews with outstanding general practice teachers nationwide. We explored their cognition of teaching objectives and the basis, construction, and writing of these objectives. By analyzing the current situation and existing problems, this study aims to discuss how GP residency training—which differs from university education, is highly specialized, covers a broad scope, and focuses on cultivating clinical thinking and practical abilities—can improve teaching objective formulation to better train outstanding general practice teachers and practitioners.

## Methods

### 1.1 Study Participants

The study targeted outstanding general practice teachers nationwide based on the following inclusion criteria: (1) working in regions with well-developed general practice; (2) employed in general medicine departments of affiliated hospitals of well-known medical schools in China; (3) working in departments designated as national GP residency training bases; (4) holding the rank of associate chief physician or above; (5) having at least five years of experience in GP residency teaching; (6) currently participating in teaching ward rounds and formulating teaching objectives; and (7) having received teaching honors at the hospital level or above.

### 1.2 Interview Procedures

**1.2.1 Interview Protocol** Using teaching ward rounds as the context, researchers developed an interview protocol through literature review and professional experience. Two participants were selected for pilot interviews, after which the content and wording were appropriately adjusted based on the results. The final protocol included: (1) What is your basis for formulating teaching objectives? (2) How do you construct and write teaching objectives, and how do you cognitively process and think during this process? (3) How do you verify whether your teaching objectives have been achieved? (4) How do you reflect on your teaching objectives?

**1.2.2 Interview Process** From February to June 2022, eligible participants were invited and informed of the study's purpose, significance, methods, interview duration, and audio recording requirements. Upon obtaining consent, online video interview times were scheduled and informed consent forms were signed. Two days before the formal interview, the protocol was sent to participants via WeChat. Interviews were conducted via Tencent Meeting at the sched-

uled times, with full audio recording and documentation of participants' tone, attitude, and expressions. Participants were treated with full respect without judgment, inducement, or intervention. Each interview lasted approximately 60-90 minutes. Sample size determination followed the principle of data saturation, where no new important information emerged from participant responses and themes were fully represented. To protect participant privacy, names were replaced with numbers. This study was approved by the Ethics Committee of the Health Science Center of Shenzhen University (Approval No. PN-202200012).

**1.2.3 Data Organization and Analysis** The analysis proceeded in four stages: (1) **Data familiarization:** Within 48 hours of each interview, audio recordings were transcribed into text using Tencent Meeting' s speech-to-text function. The recordings were listened to repeatedly for verbatim verification to produce final transcripts. (2) **Thematic framework establishment:** Using thematic framework analysis, a refined thematic framework comprising several main themes and corresponding sub-themes was developed based on significant statements in the text, the study' s purpose, and the interview protocol [?]. (3) **Data coding:** NVivo 12 software was used to mark, summarize, and extract connotations from significant statements in the interview content. These were continuously compared and categorized with the existing thematic framework to gradually develop concepts and themes. (4) **Summary analysis:** Coded thematic entries were organized, with conceptually identical or similar content merged, and sub-theme codes integrated into main themes to establish a thematic framework table. Coding began after the first transcript was collected, and by the sixth transcript, the thematic framework had reached saturation. The remaining two transcripts were used to validate the framework.

## Results

### 2.1 Participant Characteristics

Eight general practice teachers were enrolled, including five associate chief physicians and three chief physicians, with an average age of  $43.6 \pm 6.6$  years (range: 35-50) and an average teaching experience of  $17.5 \pm 9.0$  years (range: 7-27). Participant details are shown in Table 1 .

**Table 1** Participant Characteristics

Participant	Region	Age (years)	Teaching Experience (years)	Professional Title
1				Associate Chief Physician
2				Associate Chief Physician
3				Associate Chief Physician

Participant	Region	Age (years)	Teaching Experience (years)	Professional Title
4				Associate Chief Physician
5				Associate Chief Physician
6				Chief Physician
7				Chief Physician
8				Chief Physician

## 2.2 Analysis Results

Three main themes and four subthemes were identified. Except for Theme 1, Themes 2 and 3 each contained two subthemes, with each subtheme further comprising 2-3 branch themes, as shown in Table 2 .

**Table 2** Three Main Themes and Four Subthemes

Theme 1: General practice teachers can grasp the principles of teaching objective formulation |

Theme 2: Teaching objective formulation lacks institutional guarantee |

| Subtheme: Lack of theoretical foundation | | - Insufficient theoretical training resources | | - Lack of standards for teaching objective formulation | | - Non-standardized teaching objective writing |

| Subtheme: Lack of standardized formulation environment | | - Lack of motivation to formulate teaching objectives normatively | | - Lack of atmosphere for normative teaching objective formulation | | Theme 3:

Insufficient cognition of the role of teaching objectives in competency cultivation | | Subtheme: Cognitive deficiencies in teaching objectives | | -

Insufficient cognition of the role of teaching objectives | | - Cognitive deficiencies in evaluation systems | | Subtheme: Limited guiding significance

of formulated teaching objectives | | - Formalistic teaching objectives | | - Lack of operability in teaching objectives | | - Lack of feedback mechanisms for teaching objectives |

### 2.2.1 Theme 1: General Practice Teachers Can Grasp the Principles of Teaching Objective Formulation

All participants possessed solid teaching foundations and formulated teaching objectives and content based on teaching syllabi, student conditions, and resources, reflecting student-centered and general practice thinking concepts. Participant 2 stated: “Before teaching activities, I usually conduct a small survey to understand students’ knowledge levels and needs. Based on the national general practice teaching syllabus and survey results, I set teaching objectives and content. If students express a preference to discuss a different problem that is reasonable and feasible, we make changes.” Participant 6 noted: “I used to think students were very difficult to

teach, but actually their autonomy has increased. There was a gap between our teaching content and student expectations. Now we give students some autonomy, and the higher the alignment with students, the easier they are to teach. I believe this is a trend. Teaching must continuously cultivate students' general practice thinking. For example, with a 25-year-old anxious patient with pneumothorax, we need to teach students to notice and address the patient' s anxiety.”

**2.2.2 Theme 2: Teaching Objective Formulation Lacks Institutional Guarantee** Since teaching objective formulation is not a key focus of teaching activity evaluation and lacks assessment standards, it receives insufficient attention. Participants encountered numerous problems regarding theoretical foundation, motivation, and standardization when formulating teaching objectives.

**2.2.2.1 Lack of Theoretical Foundation Insufficient theoretical training resources:** Participants received numerous teaching trainings annually, but these rarely covered standardized teaching objective formulation, resulting in knowledge deficits. Participant 3 explained: “I attend various teaching trainings every year, including a series of teaching capacity trainings conducted by foreign education alliances at our hospital, but there is no specific training on teaching objectives. They are only briefly mentioned in training for teaching ward rounds, stating that different clinical teaching forms and target students require different teaching objectives, but how to formulate them is not elaborated.” Participant 8 added: “Teaching funds are mostly spent on residency base management, inspections, teaching methods, and other items related to base evaluation. Since there are no specific assessment indicators for teaching objectives, there is no training in this area.”

**Lack of standards for teaching objective formulation:** Currently, there are no unified standards for teaching objective formulation. Participants admitted that formats were mostly self-created, varying across hospitals. Participant 6 stated: “Our teaching objectives are uniformly formulated as theoretical objectives and skill objectives. For example, a theoretical objective might be ‘master imaging diagnosis of pneumothorax,’ while a skill objective might be ‘be familiar with communication skills with patients’ families.’” Participant 8 gave another example: “Master the diagnosis and management approach for diabetes, master comprehensive management of type 2 diabetes, and understand bidirectional referral indications for diabetes.”

**Non-standardized teaching objective writing:** Teaching objectives comprise multiple dimensions, including knowledge and skills, process and methods, and emotional attitudes and values [?]. When writing teaching objectives, participants only considered the knowledge and skills dimension while neglecting others. Participant 4 described: “For a patient with dizziness and vomiting considered to have orthostatic hypotension, the teaching objectives were: first, mas-

ter the key points of dizziness history-taking and differential diagnosis; second, understand the mechanism and diagnostic criteria of orthostatic hypotension; third, provide comprehensive diagnosis and treatment plans for patients with multiple coexisting conditions, such as medication selection and target values for blood pressure and glucose control.”

**2.2.2.2 Lack of Standardized Formulation Environment Lack of motivation to formulate teaching objectives normatively:** Since teaching objectives are not a key focus of GP residency training supervision, participants acknowledged they would not spend excessive time contemplating their formulation and writing. Participant 5 stated: “Current GP residency supervision focuses more on the teaching process, basically ignoring teaching objective formulation. The hospital does not emphasize it. If teaching materials did not need to be retained, I usually would not think about, organize, or write teaching objectives.” Participant 3 added: “Teaching involves unique general practice work patterns, such as disease screening, which is very meaningful for patients and represents the value of GPs, but we don’t include this in teaching objectives. There is no need to write teaching objectives in great detail or seriously, as they are not assessment priorities.”

**Lack of atmosphere for normative teaching objective formulation:** Due to the absence of a normative atmosphere, even participants who knew the proper procedures for teaching objective formulation indicated they would not apply them in practice, preferring to conform with others. Participant 1 explained: “I received training on how to formulate teaching objectives, including the three dimensions, but only used them for teaching competitions, not in daily practice.” Participant 7 noted: “When I first started teaching, I was trained on how to formulate teaching objectives, but I don’t follow this in daily practice because nobody else does.”

### **2.2.3 Theme 3: Insufficient Cognition of the Role of Teaching Objectives in Competency Cultivation**

**2.2.3.1 Cognitive Deficiencies in Teaching Objectives Insufficient cognition of the role of teaching objectives:** Some participants believed that GP residency training focuses on competency cultivation, with limited role for teaching theory. Participant 4 stated: “Unlike university education, the teaching objective of residency training is to encourage residents to identify and discuss problems around their patients through reasoning, rather than studying teaching theories.” Participant 5 explained: “During teaching ward rounds, we encountered a hypertensive patient from a rural area working in a big city with severe financial difficulties. The financial constraints affected his psychology and management, which I treated as a key discussion point. However, this content would not appear in teaching objectives, which are merely a form of documentation.”

**Cognitive deficiencies in evaluation systems:** Participants believed that competency cultivation is a long-term process that does not require evaluation in every teaching activity. Participant 2 noted: “Clinical competence improvement does not rely on a single teaching activity but results from the coordination and interaction of multiple teaching activities, so there is no need to require outcomes from each activity.” Participant 8 added: “Our teaching objective is to cultivate residents’ clinical thinking ability, which requires repeated training rather than a single teaching activity to achieve.” Participant 3 stated: “We mainly judge whether teaching objectives are achieved by observing student engagement and responses, or we only know if they have mastered the content when they encounter similar patients next time or during end-of-rotation assessments.”

**2.2.3.2 Limited Guiding Significance of Formulated Teaching Objectives**  
**Formalistic teaching objectives:** Participants believed that competency cultivation is achieved through repeated practice rather than teaching objectives, which become formalistic and templated, providing insufficient guidance for specific teaching activities. Participant 1 described: “We use a unified template: first-year residents master history-taking and physical examination, second-year residents master diagnosis and differential diagnosis, and third-year residents provide treatment plans.”

**Lack of operability in teaching objectives:** Teaching objectives often use vague and general verbs such as “master,” “be familiar with,” and “understand” rather than specific, detailed, and actionable behavioral verbs such as “describe,” “exemplify,” “interpret,” “compare,” and “summarize,” resulting in poor guidance for evaluating teaching effectiveness. Participant 7 gave an example: “For a patient with newly diagnosed hypertension, the first objective is to master hypertension diagnosis and differential diagnosis, and the second is to master long-term management after returning to the community.”

**Lack of feedback mechanisms for teaching objectives:** Participants rarely reflected after teaching activities on whether teaching objective formulation achieved expected outcomes. When expectations were not met, they considered it normal and adopted remedial measures rather than reflecting on problems in teaching objective formulation. Participant 5 stated: “When we find residents cannot meet our expectations during teaching activities, we adapt by lowering standards on the spot. This is common and normal.” Participant 2 added: “When teaching objectives are not achieved, we initiate one-on-one mentor extra tutoring.”

## Discussion

The participants in this study not only possessed solid teaching foundations and good general practice thinking but also demonstrated student-centered teaching objectives focused on competency cultivation. They were all outstanding general

practice teachers. However, even these excellent teachers exhibited problems in cognition and formulation of teaching objectives.

### 3.1 Ensuring Effective Formulation of Teaching Objectives

Although the Guidelines have included teaching objectives as one of the evaluation indicators for teaching ward rounds, current GP residency supervision focuses more on the teaching process, with teaching objectives not being an evaluation priority. Moreover, teaching objectives occupy a hidden position in teaching implementation, making it difficult to directly demonstrate teaching effectiveness. This has resulted in insufficient attention from both management and training departments. Additionally, as clinical teachers are not full-time teachers from normal universities, they rely on various trainings to improve teaching capacity and competence [?]. This study found that even outstanding general practice teachers lack training resources related to teaching objective theory and lack motivation and atmosphere to contemplate and improve standardized teaching objective formulation. This leads to a weak theoretical foundation, non-standardized teaching objective writing, and diverse, idiosyncratic systems across hospitals, consistent with previous education research [?, ?].

Compared with specialist residency training, GP residents face multiple rotating departments and a broad disease spectrum, with frequent rotation plan and teaching objective changes [?]. Overly complex training systems often leave residents feeling that training effectiveness is poor and may even cause burnout [?]. Furthermore, some knowledge points overlap between departments. For example, pneumothorax mentioned in this study may appear in general medicine, respiratory medicine, emergency medicine, and thoracic surgery departments. Standardized, specific teaching objectives can clearly present teaching content, forms, effectiveness, and competency improvement and behavioral changes in residents, serving as a main thread for teaching activities [?]. This not only helps general practice teachers plan teaching clearly but also promotes coordination between departments, allowing complex teaching content to be systematically and appropriately allocated to specific teaching activities with proper pacing to ensure teaching quality. Therefore, the important role of teaching objectives in GP residency training should be emphasized. We recommend establishing standards for writing and evaluating teaching objectives and incorporating them into assessment indicators to institutionally ensure effective teaching objective formulation and create an environment for standardized formulation, thereby better promoting teaching quality in GP residency training.

### 3.2 Emphasizing the Position and Role of Teaching Objectives in Competency Cultivation

Admittedly, unlike university education, GP residency training focuses on competency cultivation in clinical thinking and disease diagnosis and treatment. However, clinical thinking is a complex process. For the same disease like diabetes, clinical thinking varies across individuals depending on obesity, com-

plications, economic status, and disease cognition. Good teaching objectives, through careful and specific pre-teaching thinking and planning and refined writing, help concentrate teaching resources and reduce randomness, thereby better facilitating training in clinical thinking and other competencies. This study found that participants had insufficient cognition of the position and role of teaching objectives in competency training, considering writing teaching objectives a burden. Formalistic and general teaching objectives provide no substantive help for teaching, and the lack of specific, detailed, and individualized teaching objectives may be one reason for the current lack of targeted teaching in GP residency training [?, ?].

Undeniably, competency cultivation results from long-term effort rather than a single teaching activity. According to Bloom's taxonomy, objectives range from general to specific: overall goals, educational goals, and teaching objectives form a continuum from general to specific. Teaching objectives are specific teaching activities with observable, quantifiable, and measurable characteristics. They require different behavioral verbs such as "state," "describe," "exemplify," "interpret," "analyze," and "compare" corresponding to different knowledge types including factual, conceptual, procedural, and metacognitive knowledge to complete objective teaching evaluation [?]. This is highly suitable for the currently advocated hierarchical progressive teaching that sets different teaching objectives, methods, and content according to residents' different competency levels [?]. In this study, participants lacked actionable behavioral verbs when formulating teaching objectives. For example, the teaching objective "master imaging diagnosis of pneumothorax" does not clarify whether it means memorizing or reading imaging diagnoses, or the degree of mastery required for residents at different levels for patients with obvious versus subtle pneumothorax lines, or whether metacognitive knowledge is included and how to achieve it. It is evident that vague terms like "master," "be familiar with," and "understand" not only fail to provide specific operational guidance in teaching activities but also contribute to participants' belief that single teaching activity effects cannot be objectively evaluated. Specific, detailed, and actionable teaching objectives facilitate objective evaluation and ensure good results from hierarchical progressive teaching. Therefore, training on teaching objective theory should be enhanced to help general practice teachers recognize the importance of teaching objectives for competency cultivation, internalize theoretical knowledge, and formulate discipline-specific teaching objectives based on classical teaching theories while considering the practical characteristics of clinical medicine, so that teaching objectives can truly guide clinical teaching work.

### **3.3 Emphasizing the Promotional Role of Teaching Objectives in Advancing Overall Goals**

Due to various reasons, GP residency training currently relies mainly on specialist physicians for teaching, resulting in uneven teaching quality. A survey by Wang Yuanyuan et al. showed that GP residents' satisfaction with specialist

rotations was significantly lower than with general medicine departments, and specialist physician teaching quality represents a current difficulty and confusion in GP residency training [?]. Moreover, general practice adopts a bio-psycho-social medical model to address health problems. Beyond knowledge and skills, it includes general practice thinking cultivation such as whole-person model respect for patients, attention to family and environment, resource utilization, teamwork, and social responsibility [?]. For specialist physicians not dedicated to general practice, transforming from knowledge transmitters to value guides is even more challenging. This study showed that although participants demonstrated good general practice thinking in clinical teaching, they still did not include this content in teaching objectives for various reasons. Consequently, their general practice thinking concepts could not play a leading, demonstrative, or promotional role. This may explain why Huang Lei et al. found in a survey of 10 GP residency bases nationwide that with longer training duration, residents increasingly failed to truly experience the role positioning and responsibilities of GPs and lacked professional identity [?]. Yang Sen et al. also reported that post-training GPs had insufficient abilities in utilizing community resources, respecting patient values, culture, and family structure, with actual training effects falling short of overall GP residency goals [?]. Given the particularity of current GP residency training, standardized teaching objective formulation should be emphasized even more. First, it should serve as a lever, beginning with outstanding general practice teachers to establish standardized templates for general practice clinical teaching, eliminating specialist-oriented teaching and emphasizing general practice thinking training to guide specialist physicians to become qualified general practice teachers. Second, we recommend using the WONCA six core competencies for general practitioners [?] and the “Content and Standards for Standardized General Practice Residency Training” [?] as overall goals, decomposing them into specific teaching objectives. By utilizing the directional function of teaching objectives and emphasizing the formulation and evaluation of each teaching activity, we can accumulate small steps to achieve great distances. Furthermore, feedback mechanisms should be established. Each teaching activity should center on teaching objectives, and teachers should be adept at capturing students’ thoughts, actions, confusions, errors, and creativity during teaching, transforming these internally generated contents into new resources and generating new teaching objectives beyond pre-set ones. Through cyclically improved teaching objectives, a unique GP residency teaching system can be built to assist in the orderly cultivation of GP residents, ultimately achieving overall goals by completing specific teaching objectives one by one.

## Limitations

First, this study only enrolled teachers working in tertiary Grade A hospital general medicine departments, excluding specialist and community practice base teachers, which may introduce bias. However, as the enrolled teachers were outstanding general practice teachers nationwide with good understanding of gen-

eral practice and rich teaching experience, their capacity to teach GP residents surpasses that of specialist and community practice base teachers, enabling them to represent the current status of GP residency teaching. Future studies can interview specialist and community practice base teachers for more comprehensive understanding. Second, this study only used qualitative interviews and simple presentation of teaching objective content to understand participants' thinking, views, and cognition in teaching objective formulation, without conducting field observations or practical research. Future studies can obtain more complete data through field observations to better guide clinical teaching. Third, this study did not address deeper social and educational environment issues, which can be further improved in future work.

**Conflicts of Interest:** The authors declare no conflicts of interest.

## References

- [1] Anderson LW. *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives* (Revised Edition) [M]. Beijing: Foreign Language Teaching and Research Press, 2009.
- [2] Chinese Medical Doctor Association. *Guidelines for Teaching Activities in Standardized Residency Training (2021 Edition)*. Medical Association Letter [2021] No. 883.
- [3] Li X. Investigation on the Current Status of Teaching Objective Design and Implementation for High School English Teachers—A Case Study of a Senior High School in Wanzhou District, Chongqing [D]. Chongqing: Chongqing Normal University, 2019.
- [4] Li C, You Y. Practical Problems and Future Prospects of Teaching Objective Design [J]. *Teaching and Administration*, 2020, (15): 11-13.
- [5] Teng X. Research on University Novice Teachers' Understanding of Classroom Teaching Objectives [D]. Shanghai: Shanghai Normal University, 2019.
- [6] Zhao Z, Zhao K, Yue Z. Crisis and Solutions in Clinical Medical Classroom Teaching [J]. *Journal of Medical Theory and Practice*, 2020, 33(1): 165-167. DOI: 10.19381/j.issn.1001-7585.2020.01.094.
- [7] Zhan J, Lou J, Wang S, et al. Research on Teaching Models and Application Effects of Standardized General Practice Residency Training in China [J]. *Chinese General Practice*, 2021, 24(19): 2401-2407. DOI: 10.12114/j.issn.1007-9572.2021.00.201.
- [8] Jiang J, Chen S. Analysis of Competency-Oriented Evaluation System for Standardized General Practice Residency Training [J]. *Chinese General Practice*, 2019, 22(28): 3482-3485. DOI: 10.12114/j.issn.1007-9572.2019.00.325.
- [9] Jiang R, Wang Y, Jiang L, et al. Application and Evaluation of Assessment System for Standardized General Practice Residency Training [J]. *Chinese*

*General Practice*, 2020, 23(25): 3212-3215, 3219. DOI: 10.12114/j.issn.1007-9572.2019.00.590.

[10] Yang S, Shi J, Ge X, et al. Study on the Effectiveness of Standardized General Practice Residency Training Curriculum from the Perspective of Competency [J]. *Chinese General Practice*, 2020, 23(31): 3994-3999. DOI: 10.12114/j.issn.1007-9572.2020.00.123.

[11] Ministry of Education. *Notice on Issuing the "Outline for Basic Education Curriculum Reform (Trial)"*. Education Foundation [2001] No. 17.

[12] Wang T, Chen J, Hu D, et al. Using Thematic Framework Analysis for Qualitative Data Analysis [J]. *Chinese Health Resources*, 2006, 9(2): 86-88.

[13] You C, Yao M, Qi J. Qualitative Study on General Practice Teachers' Views on the Current Status of Continuing General Practice Education [J]. *Chinese General Practice*, 2021, 24(34): 4364-4371. DOI: 10.12114/j.issn.1007-9572.2021.00.302.

[14] Chinese Medical Doctor Association. *Content and Standards for Standardized Residency Training (2022 Edition)*. Medical Association Letter [2022] No. 557.

[15] Liu F, Tang D, Liu W, et al. Study on Burnout and Its Influencing Factors Among General Practice Residents [J]. *Chinese General Practice*, 2020, 23(9): 1151-1157. DOI: 10.12114/j.issn.1007-9572.2019.00.713.

[16] Ji J, Han Y, Yang L, et al. Study on Satisfaction and Influencing Factors Among General Practice Residents [J]. *Chinese General Practice*, 2019, 22(10): 1213-1217. DOI: 10.12114/j.issn.1007-9572.2019.10.016.

[17] Chao G, Fang L. SWOT Analysis of the Shaoyi Model Based on Progress in U.S. General Practice Residency Training [J]. *Chinese Postgraduate Medical Education*, 2020, 4(3): 275-278. DOI: 10.3969/j.issn.2096-4293.2020.03.020.

[18] Liu Y, Chen H, Ji Z, et al. Exploration and Practice of Hierarchical Training Model in Rheumatology Residency Training [J]. *Fudan University Journal (Medical Sciences)*, 2021, 48(3): 388-392. DOI: 10.3969/j.issn.1672-8467.2021.03.017.

[19] Wang Y, Wang R, Zhang J, et al. Study on Satisfaction of General Practice Residents with Training in General Medicine Departments of General Hospitals [J]. *Chinese General Practice*, 2018, 21(13): 1598-1602. DOI: 10.3969/j.issn.1007-9572.2018.13.018.

[20] Yu X, Lu X (Eds.). *Introduction to General Practice* (5th Edition) [M]. Beijing: People's Medical Publishing House, 2018.

[21] Huang L, Hu S, Wang H, et al. Correlation Study Between Burnout and Turnover Intention Among General Practice Residents [J]. *Shanghai Medical & Pharmaceutical Journal*, 2017, 38(24): 7-11.

[22] Le Reste JY, Nabbe P, Manceau B, et al. The European General Practice Research Network Presents a Comprehensive Definition of Multimorbidity in Family Medicine and Long Term Care, Following a Systematic Review of Relevant Literature [J]. *Journal of the American Medical Directors Association*, 2013, 14(5): 319-325. DOI: 10.1016/j.jamda.2013.01.001.

*Note: Figure translations are in progress. See original paper for figures.*

*Source: ChinaXiv –Machine translation. Verify with original.*