Current Status and Reflections on Graduate Admissions for Professional Doctoral Degrees in General Practice Medicine: A Postprint

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Abstract

Background: General Practice Professional Doctoral Students (hereinafter referred to as GP professional doctorates) constitute an important component of general practice doctoral education, yet research on GP professional doctorate admissions remains insufficient.

Objective: To investigate the scale and distribution of GP professional doctorate admissions, providing a reference for advancing GP professional doctoral education and discipline development.

Methods: From February 2022 to September 2023, admission information for GP professional doctoral programs was collected from the graduate admissions sections of official websites of 51 universities with first-level doctoral programs in clinical medicine, as well as from the China Graduate Admissions Information Network. The list of institutions admitting GP professional doctorates at each first-level doctoral program in clinical medicine from 2021 to 2023 was identified. Data on GP professional doctorate enrollment plans, actual admissions, and clinical professional doctorate admissions were gathered, and the admission scale, geographic distribution of admitting institutions, and admission structure were analyzed.

Results: The number of institutions admitting GP professional doctorates was 15, 17, and 17 in 2021, 2022, and 2023 respectively, with a total of 100 students admitted over the three-year period. Admitting institutions were distributed across 18 provincial-level administrative regions, primarily concentrated in the eastern region. The number of medical and pharmaceutical universities and comprehensive universities was roughly equivalent. Admitting institutions were mainly concentrated at universities with discipline evaluation level B, and the proportion of Double First-Class universities was relatively low.

Conclusion: Currently, the number of institutions admitting GP professional doctorates is limited, the admission scale is small, the geographic distribution is unbalanced, and faculty resources are weak. It is recommended to strengthen top-level design at national and institutional levels, enhance admission promotion efforts, formulate scientific admission standards and student support policies, optimize the supervisor selection system, broaden admission channels for general practice professional doctoral programs, and provide robust support for cultivating more high-level medical professionals with comprehensive healthcare service capabilities.

Full Text

Current Situation and Reflection on Enrollment of Professional Doctoral Students in General Practice

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Abstract

Background: Professional doctoral students in General Practice represent an important component of doctoral education in General Practice, yet research on their enrollment remains insufficient. **Objective:** To understand the enrollment scale and distribution of professional doctoral students in General Practice and provide references for advancing General Practice education and disciplinary development.

Methods: From February 2022 to September 2023, we collected enrollment information for professional doctoral students in General Practice through the graduate admissions sections of official websites of 51 universities with clinical medicine doctoral programs at the first-level discipline and the China Graduate Enrollment Information Network. We identified the list of institutions with clinical medicine doctoral programs that admitted professional doctoral students

in General Practice from 2021 to 2023, collected data on planned enrollment, actual admissions, and clinical professional doctoral admissions, and analyzed the enrollment scale, institutional distribution, and enrollment structure.

Results: From 2021 to 2023, 15, 17, and 17 institutions respectively admitted professional doctoral students in General Practice, with a total of 100 students enrolled over the three-year period. These institutions were distributed across 18 provincial-level administrative regions, primarily concentrated in the eastern region. The number of medical universities was roughly equal to that of comprehensive universities, with most enrolling institutions having B-level disciplinary rankings and a relatively low proportion of Double First-Class universities.

Conclusion: Currently, the number of institutions enrolling professional doctoral students in General Practice is small, the enrollment scale is limited, institutional distribution is uneven, and faculty teams are weak. We recommend strengthening top-level design at the national and university levels, enhancing enrollment promotion efforts, establishing scientific admission standards, developing student support policies, and optimizing the supervisor selection system to expand enrollment channels for professional doctoral students in General Practice and provide effective support for cultivating high-end medical professionals with comprehensive healthcare service capabilities.

Keywords: General Practice; Professional Doctoral Students; Graduate Education; Graduate Enrollment

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1 Methods

1.1 Data Sources and Collection

According to the list of professional degree training units on the China Academic Degrees and Graduate Education Information Network, there are 51 clinical medicine doctoral programs at the first-level discipline nationwide. From February 2022 to September 2023, we collected enrollment information through the graduate admissions sections of official websites of sample institutions and the China Graduate Enrollment Information Network (https://yz.chsi.com.cn) to identify the list of institutions with clinical medicine doctoral programs that admitted professional doctoral students in General Practice from 2021 to 2023. We analyzed institutional information and enrollment data, including planned enrollment, actual admissions, and clinical professional doctoral admissions, as well as enrollment plans, actual admissions, student information, supervisor information, affiliated colleges, and clinical professional doctoral enrollment plans.

1.2 Quality Control

In accordance with the Ministry of Education's requirements for information disclosure in university admissions, graduate enrollment information must be

publicly available. We cross-verified information from institutional official websites and the China Graduate Enrollment Information Network to ensure accuracy. The number of admitted students was determined by comparing publicly released admission lists or enrollment lists published by institutions. The quality control process involved independent data retrieval and organization by two evaluators, with cross-comparison; any disagreements were resolved by a third author.

1.3 Statistical Methods

We used Microsoft Excel (2020 version) for data entry, organization, analysis, and chart generation. Categorical data were expressed as relative numbers, and normally distributed measurement data were expressed as ($\bar{x}\pm s$). For enrollment statistics, we calculated the mean number of students enrolled per institution, while using maximum and minimum values to reflect the range of enrollment numbers and range ratio to reflect dispersion.

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2 Results

2.1 Number and Composition of Enrollment Institutions

Among the 51 clinical medicine professional doctoral programs, the enrollment of professional doctoral students in General Practice from 2021 to 2023 showed clear dynamic changes across four dimensions: (1) Quantitative changes: the total number of enrolling institutions increased annually, reaching 23 institutions cumulatively, though the number of first-time enrolling institutions decreased each year; (2) Geographic distribution: institutions were categorized as eastern, central, or western based on location according to China's geographic regional divisions; (3) Institutional type: institutions were classified as medical universities or comprehensive universities based on their educational mission and disciplinary structure; and (4) Disciplinary level: institutions were categorized as Double First-Class or non-Double First-Class universities based on Double First-Class construction outcomes, and further classified according to the fourth-round disciplinary evaluation results ranging from A+ to C-, with some institutions unranked .

2.1.1 Number of Enrolling Institutions Among the 51 clinical medicine professional doctoral programs, 15 institutions (29.4%) enrolled professional doctoral students in General Practice in 2021, increasing to 17 institutions (33.3%) in 2022, representing an increase of 2 institutions (13.3% growth), including 5 first-time enrolling institutions. In 2023, 17 institutions (33.3%) continued enrollment, maintaining the same number as the previous year, with 3 first-time enrolling institutions. A total of 12 institutions (23.5%) enrolled students in all three years. While an increasing number of institutions have obtained

enrollment qualifications, this represents only one-third of clinical medicine professional doctoral programs, reflecting both the high difficulty of training professional doctoral students in General Practice and the still-limited total number of enrolling institutions.

2.1.3 Institutional Types Among the 51 institutions, the number of medical universities enrolling professional doctoral students in General Practice was 8 in both 2021 and 2022, increasing to 10 in 2023 (25.0% growth). The number of comprehensive universities increased from 7 in 2021 to 9 in 2022, surpassing medical universities for the first time, but decreased back to 7 in 2023. From 2021 to 2023, the average annual number of medical universities was $(8.67\$\pm1.15), while that of comprehensive universities was (7.67\pm\$1.15)$.

2.1.4 Disciplinary Level of Enrolling Institutions Double First-Class construction results showed that the number of Double First-Class universities increased from 8 in 2021 to 10 in 2023 (25.0% growth). Non-Double First-Class universities increased from 7 in 2021 to 10 in 2022 (42.9% growth), then decreased to 7 in 2023. The average annual number of Double First-Class universities was $(8.33\$\pm1.53)$, while that of non-Double First-Class universities was $(8.00\pm\$1.73)$. Among institutions not enrolling professional doctoral students in General Practice, the number of Double First-Class universities exceeded non-Double First-Class universities each year.

For comparability, the fourth-round disciplinary evaluation results were further categorized as Level A (A+ to A-), Level B (B+ to B-), Level C (C+), and unranked. Overall, Level B institutions accounted for the largest proportion at 53.3%, 52.9%, and 52.9% from 2021 to 2023. The average annual number of Level A institutions was $(5.67\$\pm\$0.58)$, with annual proportions below 40.0%, indicating no clear disciplinary leadership advantage.

Further analysis combining institutional type and disciplinary level revealed that compared with comprehensive universities, medical universities had both fewer and a smaller proportion of Double First-Class institutions—only 1 in 2021 and 2022 (12.5% each), reaching a maximum of 3 in 2023 (30.0%). Only 1 medical university that enrolled students in all three years was a Double First-Class institution. Additionally, among medical universities, the proportion of Level A institutions was small, with 1, 2, and 2 institutions from 2021 to 2023, representing 12.5%, 25.0%, and 20.0% respectively.

2.2 Enrollment and Admission Completion

2.2.1 Admission Completion Status Based on data from institutions that published enrollment and admission numbers, 15, 17, and 17 institutions announced enrollment numbers from 2021 to 2023. Comparing planned versus actual enrollment, admission status was categorized as fully completed, partially completed (institutions with admissions but fewer than planned), or not completed (institutions with enrollment plans but zero admissions). Among

these institutions, some failed to complete admissions each year from 2021 to 2023, with non-completion rates of 26.7%, 17.7%, and 23.5% respectively .

Among institutions that published enrollment scales, total annual enrollment numbers were 25, 33, and 42 from 2021 to 2023, showing a gradual expansion with 100 students enrolled over the three-year period. The mean number of students per institution was $1.67\$\pm0.82, 1.94\pm1.34, and 2.47\pm\$1.42$, with year-over-year growth rates of 16.2% and 27.3% for 2022 and 2023 respectively. Meanwhile, differences in enrollment numbers among institutions gradually increased: in 2021, Wuhan University, Sichuan University, and Tongji University enrolled the most students (3 each), with a range ratio of 3.0% among 15 institutions; in 2022, Sichuan University and Guangxi Medical University enrolled the most (5 each), with a range ratio of 5.0% among 17 institutions; in 2023, Capital Medical University enrolled the most (6 students), with the range ratio reaching 6.0% among 17 institutions .

2.2.2 Comparison with Clinical Professional Doctoral Programs Among institutions that published enrollment scales, the gap between professional doctoral enrollment in General Practice and clinical professional doctoral enrollment was significant. Analyzing the total clinical professional doctoral enrollment at institutions with General Practice enrollment plans showed that from 2021 to 2023, 15, 17, and 17 institutions were included in the statistics, with General Practice enrollment accounting for 1.2% (25/2,110), 1.3% (33/2,599), and 1.4% (42/2,946) respectively—consistently small proportions .

2.3 Applicant Categories and Selection Methods

2.3.1 Applicant Categories Currently, the applicant pool for professional doctoral students in General Practice consists of: (1) professional master's degree graduates in General Practice, (2) professional master's degree graduates from other clinical medicine specialties (e.g., internal medicine, surgery), (3) academic master's degree graduates who have obtained the standardized residency training certificate, and (4) equivalent academic ability candidates.

2.3.2 Selection Methods Selection methods include application-assessment system, recommendation exemption, master-doctorate continuous program, and public examination. The application-assessment system is primary, supplemented by recommendation exemption and other methods. "Recommendation exemption" refers to current undergraduate graduates with exemption qualifications applying for direct doctoral admission, while "master-doctorate continuous program" refers to current master's students applying within their own institution.

2.3.3 Eligibility Requirements Eligibility requirements for professional doctoral students in General Practice are consistent with other clinical medicine specialties, generally requiring applicants to have appropriate undergraduate

and master's majors, obtain the standardized residency training certificate before enrollment, achieve certain English proficiency levels (e.g., CET-6 score), demonstrate strong research capabilities and achievements (e.g., academic publications or research awards), and pass additional examinations for equivalent academic ability candidates. Some institutions also examine whether candidates hold medical practitioner licenses and the disciplinary evaluation results of their master's programs.

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3 Discussion

3.1 Current Problems in Professional Doctoral Enrollment in General Practice

3.1.1 Limited Number of Enrolling Institutions In recent years, some institutions in China have launched enrollment and training programs for professional doctoral students in General Practice, but the overall enrollment scale remains small and annual enrollment unstable. Some qualified institutions do not offer enrollment plans every year, and some top institutions show insufficient participation. Factors affecting enrollment primarily involve institutional capacity and faculty team construction. First, institutions lack the material foundation for training. Professional doctoral training in General Practice requires students to master General Practice theory, skills, and management capabilities to assume leadership, teaching, research, and clinical roles in primary healthcare institutions. This necessitates not only scientifically sound training objectives and corresponding programs but also well-equipped training bases. Unlike clinical medical student training, community bases are indispensable in General Practice doctoral training, which is not easily achievable for some institutions, creating problems in pre-enrollment preparation. Second, faculty team construction in General Practice is complex. On one hand, graduates from corresponding programs become teachers, but since the first cohort of professional doctoral students has not yet graduated, there is an insufficient supply of faculty. On the other hand, teachers transferred from other specialties, affiliated hospitals, and community health centers have limitations in professionalism and stability, posing challenges for enrollment.

3.1.2 Small Enrollment Scale Annual enrollment of professional doctoral students in General Practice is small and far below that of other clinical medicine specialties, primarily due to insufficient institutional attention and unclear prospects. First, some institutions lack adequate understanding of General Practice's advantages and characteristics and do not prioritize professional doctoral education in General Practice, resulting in insufficient resource allocation and failure to leverage its important role in healthcare services, leading to inadequate support in enrollment plans and quotas. Second, as General Practice is relatively new compared to other clinical medicine specialties, its attractiveness and competitiveness are limited. Students have unclear

perceptions of career prospects and make more cautious choices. The primary applicant pool comes from professional master's degree graduates in General Practice, but China trains relatively few such master's students annually, with an even lower proportion choosing to pursue doctoral studies. According to one survey, only 2 out of 92 professional master's students in General Practice continued to doctoral studies. Meanwhile, very few graduate students transfer from other specialties, and the transferring institutions are generally not top-tier, resulting in heavy reliance on transfers to fulfill enrollment quotas, with some institutions failing to fill positions or experiencing post-admission withdrawals.

3.1.3 Uneven Distribution of Enrolling Institutions Professional doctoral programs in General Practice were established to cultivate high-level General Practice talent, requiring balanced institutional distribution to optimize talent allocation. However, current enrolling institutions show obvious imbalances in geographic location, institutional type, and institutional level, adversely affecting enrollment and training. Currently, enrollment institutions are primarily concentrated in the eastern region, while geographic distribution influences high-quality applicants' school selection decisions, limiting conditions for western region applicants to pursue General Practice doctoral studies. The proportion of medical universities is not large, and their level is lower than that of comprehensive universities, affecting the role of medical universities in General Practice education. Additionally, the low participation and contribution of top-tier universities in General Practice education hinder improvement of overall education quality and standards. This uneven distribution affects high-level medical talents' willingness to apply for General Practice doctoral programs and constrains the development of General Practice education and cultivation of high-level talent in China.

3.1.4 Non-Distinctive Enrollment Standards Enrollment conditions for General Practice are consistent with other secondary clinical medicine disciplines, requiring applicants to meet corresponding standards in clinical training, language proficiency, and research capabilities. However, due to General Practice's uniqueness, candidates should possess more comprehensive clinical thinking, humanistic qualities, and innovative practical abilities beyond clinical knowledge and skills. Although General Practice has gradually gained policy support for disciplinary construction, its resources for rapid development remain limited due to historical reasons, with significant gaps from other clinical specialties in faculty teams, professional competitiveness, applicant attractiveness, and professional development prospects. Therefore, enrollment standards for professional doctoral students in General Practice should not rigidly follow traditional specialty medicine criteria but should be adjusted according to disciplinary characteristics and actual enrollment conditions, focusing on assessment of key competencies.

3.1.5 Weak Faculty Teams First, there is a lack of updated guiding ideology and policy support. The 2012 "Implementation Opinions on General Practice Faculty Training (Trial)" was China's first document on General Practice faculty training, proposing basic requirements including professional knowledge, teaching ability, clinical skills, and research capacity. However, this nearly decade-old document has not adapted to the development and changes in China's General Practice education and lacks specific standards for General Practice supervisors' unique needs. Additionally, the higher selection standards and assessment methods for General Practice supervisors compared to other faculty types create further challenges. Generally, General Practice faculty is divided into three categories: professors (mentors), educators, and clinical supervisors, each with different entry requirements, resulting in uneven overall faculty quality.

Second, there is a lack of supervisors with unified professional backgrounds and philosophies. Currently, General Practice supervisors in China mainly come from four groups: public health school experts, general hospital specialists, general hospital General Practice experts, and community General Practitioners. These groups have differences and deficiencies in professional background, philosophy, and experience. Public health experts have strong theoretical knowledge and research capacity but lack clinical practice and community service experience; general hospital specialists have rich clinical skills and teaching experience but lack General Practice's comprehensiveness and coordination; general hospital General Practice experts have good General Practice philosophy and clinical capabilities but lack community service awareness and participation; community General Practitioners have deep understanding of community service needs but lack theoretical knowledge and research capacity. These differences make it difficult to form homogeneous training approaches and unified General Practice philosophy, affecting training quality and talent attractiveness.

Third, there is insufficient quantity and quality of excellent supervisors. Although the total number of General Practice supervisors has increased nationally, it still cannot meet the demand for high-level General Practice talent for primary healthcare development. The number of excellent supervisors with clear General Practice philosophy, rich teaching experience, and outstanding research capacity is relatively insufficient, affecting the quality and level of professional doctoral training in General Practice.

3.2 Recommendations

3.2.1 Top-Level Design with Policy Guidance Serving National Strategy through Internal-External Linkage At the national level, greater attention should be paid to enrollment and training of professional doctoral students in General Practice, with increased policy support to lay a solid foundation for General Practice development and growth. At the university level, top-level design for General Practice should be strengthened with policy guidance to broaden enrollment scope and training approaches, improve medical education comprehensiveness and practicality, and better serve regional economic and so-

cial development. Double First-Class universities should leverage their unique advantages, actively participate in enrollment and training, provide clear demonstration and guidance, clarify the positioning of professional doctoral programs in General Practice, establish detailed training programs oriented toward practical application and career needs, enhance research and teaching levels in General Practice, form mature mechanisms and models, and radiate these achievements to benefit more institutions.

3.2.2 Strengthen Enrollment Promotion to Encourage Applications and Transfers Enrollment promotion is crucial for attracting excellent applicants and showcasing institutions and disciplines. Institutions should use multiple forms and channels to convey specific, vivid, and authoritative enrollment information to enhance applicants' understanding of and interest in General Practice. For example, institutional websites, official WeChat accounts, and Weibo platforms can showcase General Practice development status and prospects, introduce educational philosophy and training objectives, share research achievements and progress, and invite General Practice leaders and outstanding graduates for experience sharing. Additionally, since General Practice has prominent transfer advantages, promotion of transfer policies can compensate for applicants' limited prior knowledge, provide alternative pathways, help them understand General Practice prospects, and strengthen their confidence and determination to apply. Therefore, enrollment promotion should emphasize General Practice transfer policies and conditions to encourage active participation in transfers.

3.2.3 Establish Scientific Enrollment Standards and Expand Talent Selection Scope The uniqueness of General Practice determines the distinctiveness of its professional doctoral enrollment selection. Enrollment standards should highlight General Practice characteristics and needs, emphasizing comprehensiveness, coordination, humanism, accessibility, innovation, and developmental potential rather than rigidly adhering to traditional specialty medicine criteria. Candidate assessment should evaluate overall capabilities and development potential rather than relying solely on test scores or single aspects. Given the small number of applicants and prominent transfer situation, some traditional medical examination requirements could be relaxed for General Practice candidates.

3.2.4 Develop Student Support Policies to Attract and Retain Excellent Applicants Customized support policies for professional doctoral students in General Practice can address applicants' concerns. Regarding training opportunities, more excellent General Practice supervisors can be recruited to provide high-level guidance; for practical opportunities, partnerships with primary healthcare institutions can provide rich clinical practice and community service; for employment opportunities, coordination with relevant departments can provide priority employment policy support; for work compensation, rea-

sonable salaries and benefits can be provided according to standards for other medical professionals. Competitive support systems can achieve the goal of attracting and retaining talent.

3.2.5 Optimize Supervisor Selection System and Strengthen Faculty Team Construction Supervisors are important guides for graduate students. Institutions can strengthen faculty team construction through "recruitment" and "development" approaches, actively attracting General Practice leaders with rich practical experience or outstanding research achievements who have sufficient capacity and willingness to cultivate General Practice talent. For all faculty members, corresponding learning and development opportunities should be provided, such as timely training and broad academic exchange opportunities, to continuously achieve self-improvement and better guide professional doctoral students.

As a newly established field, professional doctoral programs in General Practice have unique characteristics and development needs. Enrollment standards, faculty team construction, training objectives, and programs should not completely copy traditional specialty medicine models but should be appropriately adjusted according to disciplinary characteristics and actual enrollment conditions. First, regarding enrollment standards: emphasis should be placed on the comprehensiveness and coordination of professional doctoral education in General Practice, requiring candidates to integrate multiple theories and methods to solve complex clinical and public health problems and collaborate with other specialists to achieve tiered diagnosis and treatment. Enrollment criteria should assess comprehensive knowledge, skills, and communication abilities rather than emphasizing depth in a single specialty. Second, emphasis should be placed on humanism and accessibility, focusing on patient-centered care, physical and mental health, social environment, and continuous, accessible, responsible service. Enrollment criteria should assess humanistic qualities, service awareness, and dedication to primary healthcare rather than emphasizing mastery of specific techniques. Third, emphasis should be placed on innovation and developmental potential, as General Practice faces multiple impacts and challenges from socioeconomic development, changing population needs, healthcare reform policies, and scientific-technological progress. Enrollment criteria should assess innovative thinking and capacity, as well as understanding of development trends and frontier issues, rather than emphasizing adherence to specific theories.

Regarding faculty team construction, guiding ideology and policy support for professional doctoral supervisors should be updated, establishing faculty teams through "recruitment" and "development" with differentiated entry requirements for different faculty types to enhance overall strength and provide opportunities for mutual exchange and learning. Regarding training objectives and programs, institutions should establish scientifically sound training objectives and programs based on current social development, disciplinary character-

istics, and talent features, comprehensively cultivating clinical knowledge and skills while strengthening clinical thinking, humanistic qualities, and innovative practical abilities.

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