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The roles and responsibilities of general practice nurses in China: a qualitative study

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Abstract

Background General hospitals in China have been establishing General Practice Departments (GPD). Although General Practice Nurses (GPNs) are an important part of this medical system, their training has not been synchronised. This study explored the working status of nurses in GPDs in general hospitals in Beijing to provide a theoretical basis for the training and development of GPNs in China.

Methods We conducted in-depth, individual interviews with outpatient nurses at 19 hospitals in Beijing between March and April 2021. We employed a qualitative analysis to interpret participant narratives and used a codebook thematic analysis to analyse the interview data and extract themes.

Results The analysis revealed four themes: (i) a lack of full-time GPNs in GPDs of most tertiary hospitals, (ii) the inability of GPNs to fully express their potential and skills owing to their limited roles, (iii) insufficient standardised patient education provided by nurses in GPDs, and (iv) a lack of systematic and relevant training for nurses working in general practice settings.

Conclusions To promote the development of GPNs, GPDs in general hospitals in China should hire full-time GPNs, define their job duties in alignment with their values, and provide standardised training to strengthen their core competencies.

Keywords Tertiary general hospital, General practice nurse, Qualitative study, Role, Responsibility

Background

Primary care is the cornerstone of an effective healthcare service system, with general practitioners as its mainstay. Governments worldwide focus on its development [1]. In recent decades, China has strategically formulated decisions to promote and strengthen the development of primary care, consistently translating the concept and practice into tangible actions [2]. This exemplifies China's unwavering commitment to supporting and implementing primary care across various stages of socio-economic development [2].

In developed Western countries such as the UK, the Netherlands, and the US, primary care activities involving general practitioners are primarily conducted in

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clinical settings [3]. Conversely, in China, general practice training is mainly conducted in tertiary general hospitals. Due to developments over the past ten years, general practitioners have received increasing attention in China, and their training has entered a standardised and homogenised phase. Nurses play critical roles in the healthcare system and are equally important to general practitioners. However, the development of GPNs has not progressed at the same pace as general practitioners in China [4, 5].

Nurses are an essential part of healthcare teams, making the training and delivery of GPNs crucial for the efficient, high-quality operation of general practice teams and the holistic management of hierarchical diagnosis and treatment, as well as upward and downward care coordination [6]. With the emphasis on primary healthcare and general practitioners, GPNs play a key role in providing a continuum of care for patients and improving public health [7]. In China, GPN training began later than in developed countries, leading to a lack of systematic, standardised training and a unified professional competence framework [8]. This significantly affects GPNs' professional development. However, even developed countries such as Australia, the US, the UK, and New Zealand lack formal, nationally unified GPN entry qualifications and related training programmes [9–11]. Nevertheless, various countries are actively working to improve the roles, responsibilities, and training of GPNs (see Table 1 for details) [12–14].

However, China has attached great importance to the development of general practitioners due to their significance and popularity. China gradually established GPDs in tertiary general hospitals and promulgated national policies to support general practice training. Beijing is a leading city in developing general practitioners in China and has abundant medical and educational resources. By the end of 2020, 19 tertiary general hospitals in Beijing had established standardised general practice training bases responsible for the national standardised general practitioners resident training programme. These hospitals have also significantly contributed to training new generations of high-quality general practitioners [15]. However, the training of GPNs has not been uniformly promoted, creating a clear gap between the development of general practitioners and GPNs [4, 5]. Moreover, there are few studies on the practice status of GPNs in China.

The first step in addressing this gap is to understand the current practice of GPNs in general practice settings, which will provide a practical reference for the future cultivation of GPNs. As China lacks a specific concept or population of GPNs, and GPDs in general hospitals are responsible for cultivating general practice talent, this study refers to nurses working in these settings as GPNs.

Study aims

This study explored the current practice of GPNs in the GPDs of 19 tertiary hospitals in Beijing, focusing on their work content, roles and responsibilities, and perspectives on their roles in the healthcare system. The aim is to identify challenges in their work and provide practical recommendations for future education and core competency training.

Methods

Research design

This was a qualitative study focused on exploring the experiences and perceptions of GPNs regarding their roles and responsibilities within GPDs.

Sample procedure

This qualitative study employed a purposeful sampling method to recruit GPNs from 19 tertiary hospitals in Beijing between March and April 2021. The hospitals were selected because they were tertiary general hospitals with

Table 1 Responsibilities of GPNs in other countries

Country	Job Description	Level of Education/Training	Role and responsibilities
The Netherlands, Australia	Advanced practice nurses (APNs) are responsible for the registration process to qualify for routine medical care, general practice management and leadership, clinical research, and educational qualifications.	Registration process to qualify for practice, requiring a master's degree or above; prescribing competencies are integrated directly into the nursing curriculum.	Providing essential preventive and curative services; participating in medical decision-making.
North America (the US, Canada)	APNs undertake patient care, education, research, guideline development, administration, etc. In Canada, APNs have expanded responsibilities and practice privileges that allow them to perform additional medical activities, such as diagnosis and prescription.	Master's degree or above required.	Providing primary healthcare; prescribing medicine; conducting invasive procedures.
The UK, Ireland, Finland	Comprehensive and systematic management of patients, including medical history, physical examination, health assessment, and early disease risk screening; personalised care plans designed according to patients' conditions.	Bachelor's degree or higher, with a separate education pathway and additional courses for nurse prescribing; typically 30–45 credits in the UK, 20–40 credits in Ireland, and 45 credits in Finland.	Chronic disease management; providing the highest standard of evidence-based patient care; assisting and supporting general practitioners; providing medical consultations.

independent GPDs and served as standardised training bases for general practice resident physicians in Beijing. As GPDs in general tertiary hospitals in China are uncommon, we used targeted invitations for GPNs rather than general dissemination approaches like posters. We identified the 19 hospitals from a government-published list of general practice training bases in Beijing [15], then contacted the GPD leaders in each hospital to invite participation in the study. All 19 hospitals agreed to participate and provided contact details, such as WeChat name cards or phone numbers, for their nurses in the department. We then contacted the nurses to gauge their interest. Those who agreed signed informed consent forms and were subsequently interviewed.

Inclusion criteria for nurses were: (i) holding a nurse practitioner certification, and (ii) being engaged in general practice -related work. Exclusion criteria included: (i) not being certified as a nurse practitioner, (ii) not being involved in General Practice, (iii) being unable to provide informed consent, and (iv) the researchers deeming participation inappropriate, such as being unable to participate in the interviews. The sample size followed the principle of dynamic data saturation, meaning data were collected until no new information emerged.

Methodology

Semi-structured individual interviews were conducted with GPNs to facilitate an in-depth exploration of their experiences. These interviews were guided by a predeveloped question framework designed to elicit detailed responses on various aspects of their work in GPDs. Data analysis was performed using thematic analysis, with the aid of a codebook to systematically identify patterns and themes emerging from the data.

Data collection

Face-to-face interviews were conducted whenever possible, with online interviews serving as an alternative when in-person interviews were not feasible. The topic guide was developed through consensus among all researchers according to the study's purpose. To ensure the quality of the interviews, pre-interviews were conducted with four nurses working in GPDs who did not participate in this study. Based on the results and their feedback, the formal topic guides were adjusted to ensure the clarity and comprehensiveness of key questions. The following questions were included: (i) 'What is the setup for outpatient nurses in the GPD at your hospital?' (ii) 'What are the roles and responsibilities of outpatient nurses in the GPD at your hospital?' (iii) 'What do you think about GPNs?'

The contents and aims of the study were introduced to the interviewees prior to the interviews. All participants were informed of the confidentiality of the interviews, and verbal informed consent was obtained. A warm relationship was established between researchers and participants through appropriate greetings. Participants were encouraged to fully express their thoughts and feelings.

Each interview lasted an average of 20–30 min and was recorded. Each recording was transcribed immediately after the interview, followed by an interval of three to five days to allow for timely adjustments to the topic guides.

Data analysis

This study conducted a codebook thematic analysis [16]. Qualitative information in the text was divided into nodes and coded using NVivo 12 software to summarise and refine themes. The analysis followed a step-by-step process. First, two researchers (XJ, ZP) independently and repeatedly listened to the audio recordings and checked the transcripts to ensure the accuracy of the text data. Next, two textual materials were randomly selected and independently coded by the two researchers (XJ, ZP). The coding results were then compared, and a third researcher (HP) was brought in to mediate any disagreements on the coding and to help establish a coding system. The coding system was subsequently applied to the remaining interview data. Finally, the links between the codes were collated and analysed to identify correlations and differences, and the final themes and sub-themes were established. The findings were reported according to internationally recognised Consolidated Criteria for Reporting Qualitative Research (COREQ) standards [17].

Elements of research trustworthiness

This study was conducted through close cooperation between researchers and participants. The researchers remained engaged throughout the long interviews. They also spent a considerable amount of time familiarising themselves with the relevant background and environment, screening for possible misinformation, and establishing a trusting relationship with participants. This approach ensured the collection of comprehensive, rich, and valuable data, allowing key issues to be thoroughly examined and analysed, thereby ensuring the credibility of the research. As the capital of China, Beijing is a leading city in General Practice development and is representative in terms of geographical selection.

Additionally, we have provided detailed descriptions of the research process and interview outline, further enhancing the transferability and replicability of our study. The research team comprised members with diverse professional backgrounds, including XJ (a female nurse with rich clinical nursing experience), and two general practitioners, HP (female) and ZP (female), who are all dedicated to exploring China's primary healthcare system and chronic disease management. The team is proficient in qualitative research methods and has

conducted multiple qualitative studies. Through the joint participation of multiple researchers, possible biases and errors brought by a single researcher can be reduced. The researchers continuously engaged in self-reflection and interactive feedback to ensure the dependability of the research process. XJ was responsible for reviewing the reflective records, ensuring the objectivity and reflectivity of this study. After a strict reflective review, no significant biases were found. During data analysis, two researchers performed back-to-back coding. In cases of inconsistent coding opinions, a third researcher was invited to analyse them, ensuring the authenticity and reliability of the research results.

Ethical considerations

This study was approved by the Ethics Committee of Peking University First Hospital (PUFH) (2021 Research-097). All procedures were performed in accordance with PUFH guidelines and the Declaration of Helsinki regulations. Participants were assigned numbers to anonymise the data and protect their privacy. All materials were securely stored at PUFH. Participation in this study was voluntary. All participants provided informed consent.

Results

We initially planned to recruit 19 GPNs. However, data saturation was achieved after the 14th interview as no new information emerged. Thus, the study included 14 participants, all female, aged 33–56 years, with a mean age of 44.1 (±6.7) years. Their experience in General Practice ranged from one to eight years, with a median of three years. In China, nurses have three qualification levels: nurse-masters (junior), supervisor nurses (intermediate), and associate chief nurses (advanced). Of the 14 participants, three (21.4%) were senior nurses, 10 (71.4%) were supervisor nurses, and one (7.1%) was an associate chief nurse (Table 2).

Table 2 Participant characteristics

Participant	Age	Years of experience in General Practice Departments	Certification
N1	51	4	Supervisor nurse
N2	51	8	Senior nurse
N3	50	8	Supervisor nurse
N4	51	2	Supervisor nurse
N5	35	2	Supervisor nurse
N6	41	3	Senior nurse
N7	39	1	Supervisor nurse
N8	43	2	Supervisor nurse
N9	33	2	Supervisor nurse
N10	40	3	Supervisor nurse
N11	47	4	Supervisor nurse
N12	42	4	Supervisor nurse
N13	38	2	Senior nurse
N14	56	1	Associate chief nurse

Data saturation was achieved through rigorous data analysis and continuous iteration of coding, which ensured rich and credible data. The diversity of the sample further enriched the data and refined the themes. The qualitative information was initially categorised into 18 codes and seven categories. These results were eventually refined into four themes: (i) a lack of full-time GPNs in GPDs of most tertiary hospitals, (ii) the inability of GPNs to fully express their potential and skills owing to their limited roles, (iii) insufficient standardised patient education provided by nurses in GPDs, and (iv) a lack of systematic and relevant training for nurses working in general practice settings.

A lack of full-time GPNs in general practice departments of most tertiary hospitals

The interviewed GPNs described that they were from other specialties, such as endocrinology and cardiology departments, and tended to be of advanced age. They were primarily affiliated with the outpatient or nursing departments of their hospitals, but did not work as full-time GPNs. They expressed that they were assigned to comprehensive outpatient areas based on their job responsibilities, where they mainly handled basic tasks like patient registration and maintaining order, which lacked distinct characteristics of general practice medical services. GPNs also hoped that the outpatient department could arrange dedicated full-time GPNs to continuously enhance their professional capabilities and deliver high-quality nursing services that emphasise general practice attributes, including health education and chronic disease management. They also recommended organising patient care by district according to specific chronic disease categories. Currently, GPNs described that they perform outpatient duties through job rotation rather than working full-time, resulting in significant variability in their tasks. For instance, Participant N2 (51 years old, eight years in GPD) commented,

> *There should be a special GPN who is dedicated to general practice outpatient care and patient education and has the real characteristics of General Practice rather than just a nominal GPN. The patients should be managed according to disease categories. Each nurse should have a dedicated area of responsibility, but at the moment, there is no division (between GPN and other nurses). We are only responsible for triage, and we can't answer patients' questions specifically about the specialty, not as a dedicated GPN. We are in charge of the outpatient department, not the GPDs of the hospital.*

Participant N3 (50 years old, eight years in GPD) stated,

> *Having a full-time GPN is definitely better in terms of work content and process as well, and the patient experience and results are different. You should have dedicated people at the doorway to guide you and form this kind of system so that you can maintain order and do this kind of health management.*

Participant N9 (33 years old, two years in GPD) reported,

> *Currently, we are comprehensive outpatients, with a single nurse managing an outpatient area. This region includes specialties such as GPD, cardiovascular internal medicine, neurology, and gastroenterology. According to the principle of workload distribution, the work arrangements of all nurses are unified by the nursing department.*

Participant N6 (50 years old, three years in GPD) expressed,

> *Our current outpatient is managed uniformly by the outpatient department of the hospital, and all outpatient nurses take turns in outpatient work. The personnel relationship of nurses belongs to the outpatient department, so the job is also changeable, not full-time.*

The inability of GPNs to fully express their potential and skills owing to their limited roles

They, as GPNs, handled various tasks such as triage, rounds, item preparation, and resolving doctor-patient conflicts in the GPDs. However, they felt that these roles did not fully demonstrate the characteristics of general practice medical services. They found that there was a shortage of full-time nursing staff, a lack of standardisation in work processes, unclear roles for GPNs, and insufficient standardised training. Consequently, they thought that the current state of the General Practice Outpatient Department failed to fully demonstrate the professionalism of GPNs. It exposed numerous problems and difficulties in their current working conditions and posed significant challenges for future development.

Participant N4 (51 years old, two years in GPD) expressed,

> *Apart from the basic work like triage, for example, if you want to treat chronic diseases, you must have a set of procedures that you have to do. There is nothing special about General Practice Outpatient Department now, only triage.*

Participant N1 (51 years old, four years in GPD) reported,

> *Nowadays, full-time staff are not equipped, the workflow is not standardised, and our roles are not clear. There's no a standardised training schedule, staffing is not complete, and roles are not clear. This does not reflect the distinctiveness of General Practice at present, and I don't think there's much of a distinctiveness in the future, anyway.*

Participant N5 (35 years old, two years in GPD) expressed,

> *As nurses, our primary responsibilities encompass triage and the maintenance of order in outpatient work, without any additional obligations.*

Furthermore, Participant N14 (56 years old, one year in GPD) said that GPNs only do '*triage, rounds, sanitation, preparation of items, and resolve conflicts between patients or doctors and patients*'.

Insufficient standardised patient education provided by nurses in general practice departments

In this study, implementation of patient health education in General Practice is inconsistent. Eight interviewees reported not receiving systematic training in patient health education. Additionally, 11 interviewees said that they seldom took the initiative to provide patients with various forms of health education, such as one-on-one or group lectures, aside from distributing paper materials. However, they sometimes provided health advice and consultation based on their work experience. As general practice nurses (GPNs), they suggested that GPDs should improve patient health education based on the discipline's needs and implement systematic and standardised disease management protocols for GPNs.

According to Participant N13 (38 years old, two years in GPD),

> *Patient health education is done every day, but we deliver it only when there are many patients. The contents are based on what people want to know, or, otherwise, what they need to know. If patients come to us for a consultation, we will do patient education according to the content of the physicians' consultations.*

Participant N4 (51 years old, two years in GPD) revealed that,

> *Patient health education is available. But we won't say something to them until they ask us. Even though we have worked for a long time, like more than 30*

years, we know many things and are able to answer their questions, but, to a certain point, we are a little passive. But if you say there is a specific system for patients' problems, it is impossible to achieve.

As Participant N12 (42 years old, four years in GPD) described,

Patients typically independently refer to patient education materials, and even when we conduct health education, it proves challenging to engage patients' interest. Many patients enter and merely peruse the materials before departing.

Participant N14 (56 years old, one year in GPD) stated that,

Before the clinic opens, health education is occasionally conducted in the waiting area, with the content tailored to meet patients' specific needs rather than adhering to fixed requirements.

A lack of systematic and relevant training for nurses working in general practice settings

As interviewed nurses working in General Practice Outpatient Department settings, they said that they lacked systematic specialised training. This led to unclear roles and responsibilities for them, which ultimately impacted the efficiency of their daily work. They also mentioned that many nurses transferred to these departments because they preferred the relatively less demanding nature of outpatient care over clinical nursing. As a result, they had lower motivation for learning. Although some training opportunities were available, they said that enthusiasm for learning was limited. So, it was challenging to ensure the quality of education. Additionally, they pointed out that there was minimal collaboration and knowledge exchange with other healthcare facilities. This indicated a deficiency in theoretical and practical training for GPNs.

Participant N1 (51 years old, four years in GPD) stated, *'We weren't trained systematically, and we are not clear about our roles and responsibilities. I've never been to other hospitals, so I don't know if* general practitioners *or GPNs there have developed better.'*

Participant N1 (51 years old, 4 years in GPD) also commented,

Those who come to the outpatient department are those who are not willing to work in inpatient departments. They just want to find a place to do some relaxing work before they retire and are less willing to learn new things. You can go for training, but the quality is inconsistent. However, the fact is that there is less training for GPNs; what we do is daily routine work. The average age of the nurses here is 48. To be honest, we just want to find a place to retire and are not willing to learn more.

Participant N8 (43 years old, two years in GPD) expressed that,

As a comprehensive outpatient clinic, we do not offer specialised professional training in specific fields, let alone general practice-related professional training.

Discussion

This study outlined the current situation of GPNs in China. Although the sample size was small and limited to one city, it provides valuable information. With the emphasis on primary healthcare and general practitioners, GPNs play a key role in providing a continuum of care for patients and improving their health [18]. GPNs are registered nurses who work autonomously within multidisciplinary general practice teams in primary healthcare and are usually employed by general practitioners. Unlike other countries, several tertiary general hospitals in China have established General Practice Outpatients Departments that mainly provide whole-person, continuous, and holistic management for patients with chronic and multi-morbidities [19]. However, the current roles of GPNs are diverse, their tasks are limited, and the scope of their functions is not clear [8].

Through the investigation of 14 GPNs in Beijing, this study found that there is currently a lack of full-time GPNs in China. Their roles are restricted to routine nursing and outpatient tasks, such as triage, calling, guiding, and maintaining order, which do not utilise the expertise of general practice nursing. This further illustrates the current situation that there are no dedicated full-time general practice nurse positions in China. However, European countries and the US have full-time GPNs who play an important role in primary care and General Practice. Globally, GPNs have the potential to earn a substantial income through their practice [9]. The UK has three types of GPNs based on their duties.

Medical institutions often prefer to hire experienced GPNs over training new general practitioners, as this saves time and resources for pre-employment training [20, 21]. After standardised training, GPNs can provide comprehensive and continuous health management services for patients with chronic diseases in remission, as well as personalised care for various populations, thereby significantly relieving the clinical practice pressure on general practitioners [22–24]. In the US, GPNs provide tailored services to various patients, extending to school,

home occupational, and mental healthcare. Additionally, Japan has home-visit nurses who provide home medical care services [8].

Meanwhile, this study found that the work content of GPNs was limited, with inadequate functions and a lack of professionalism. Interviewees reported a lack of standardised workflows for GPNs in their hospitals. This further illustrates that the extensive job content and unclear division of responsibilities for GPNs have significantly impacted the quality of general medical services, which has become an urgent problem in China [25]. GPNs play a crucial role in health management and education for patients and community residents. In medical teams, GPNs collaborate closely with other professionals such as doctors, pharmacists, and rehabilitation therapists to provide high-quality medical services, improve medical efficiency and quality, and ensure that patients receive comprehensive and integrated treatment. Additionally, long-term health management and follow-up for patients with chronic diseases are also required to ensure treatment effectiveness and condition stability. Clarifying the role of GPNs can promote collaboration between doctors and nurses and ensure that GPNs contribute fully to medical practice. This is essential for optimising the role of GPNs in medical teams and strengthening their professional identity [26–29].

With the continuous development and improvement of the medical system, clarifying the competencies of GPNs is crucial for ensuring the quality of medical services and advancing medical care. Systematic, standardised training can enhance nursing services by providing nurses with knowledge of basic theory, clinical nursing skills, and the ability to independently deliver high-quality care in a standardised manner. However, the GPN participants in this study did not receive standardised GPN training. Previous studies have shown that GPNs' lack of knowledge about General Practice can directly affect the quality of general practice nursing [6, 25]. Training and education for GPNs are vital for the efficient and high-quality operation of general practice medical teams. Hou et al. [30] suggested that GPNs should collaborate with general practitioners to treat and manage common and chronic diseases and achieve health management for high-risk groups. The competence of GPNs is crucial for the positive representation of their roles and responsibilities, and is a key aspect of nursing development [31]. Despite the multifaceted competency requirements for GPNs, there are currently no uniform training standards, which does not meet the growing health needs of the population [32]. Through our investigation, we found a lack of systematic training for GPNs in General Practice, leading to inadequate comprehension of General Practice and unclear perceptions of their roles, job responsibilities, and required nursing skills.

Compared to European and North American countries, the competence level of GPNs in China is unclear [33]. GPNs have extensive clinical experience that could significantly improve primary care. To advance their practice, educational opportunities must be provided to upskill existing GPNs. The public also requires a better understanding of this role and its potential contribution to General Practice [31, 34, 35]. Additionally, a substantial gap exists in education levels. In the UK, all new nurses entering General Practice receive pre-occupational training and mentoring, and are provided with opportunities for further education, promotion, and academic support for personal career development [9].

In contrast, nursing school education in China lacks a systematic curriculum for GPNs. Many institutions offer GPN training as an elective course, which does not meet the current requirements of GPN training in China. With the increasing burden of chronic diseases, many countries have reformed their prescribing authority to improve the quality of general practice services. With the gradual improvement of nursing staff qualifications, 13 European countries have enacted laws on nurse prescribing (Table 1) [36–40].

The competence of GPNs is rich and diversified, encompassing knowledge, skills, attitudes, and behaviours. In the future, China should continuously improve GPN competencies through various channels to meet increasingly growing health needs and foster a harmonious medical environment.

Training GPNs requires time. Nevertheless, GPNs are an important force in China's healthcare system, and strengthening their training is imperative [8]. Government support and the gradual improvement of relevant policies are necessary. Additionally, a systematic nursing school curriculum for GPNs should be established, along with an objective assessment system and evaluation criteria [41]. Furthermore, as primary care institutions are the main practice sites for general practitioners, some scholars have proposed creating a standardised teaching model for GPNs after graduation and cultivating efficient, qualified professionals to provide effective health services to community residents [7]. Therefore, in response to the unbalanced allocation of human resources and increasing health needs in China, GPN training should be strengthened to enhance their competence.

This study demonstrated that the surveyed GPDs lacked full-time GPNs, and active nurses had not received systematic training as GPNs. Additionally, participants reported that most General Practice Outpatient Departments did not have separate treatment areas, and the division of responsibilities among outpatient nurses was unclear. Consequently, nurses could not provide patients with general practice care. Furthermore, nurses' responsibilities were not clearly defined, preventing them

from fully assuming the responsibilities of GPNs. Moreover, most GPNs were older and came from various specialties. These results suggest that the current situation of general nursing practice in China is unfavourable, reflecting the developmental stage of General Practice.

Limitations of the study

This study had several limitations. First, it focused only on Beijing, the capital of China, which has limited representativeness. Although we attempted to expand the sample to GPNs in other regions, we encountered challenges. Second, it did not examine patients, therefore it was unclear if professional GPNs can improve patients' medical experience and enhance medical services. This is insufficient in demonstrating the importance and necessity of professional GPNs.

Based on these shortcomings, future studies should conduct research in other regions to gain a more comprehensive understanding of the practice of GPNs in different areas of China. In addition, patients should be surveyed to understand their cognition of the current situation of general practice nursing services, and to further emphasise the importance of the role of GPNs.

Conclusions

Competent GPNs play essential roles in delivering high-quality care in GPDs. This study demonstrated the dearth of full-time GPNs in many GPDs, as well as the gaps in knowledge and unclear job descriptions among GPNs in China. Additionally, systemic training for GPNs is currently insufficient. Prioritising the development of GPNs' career paths and capacity is crucial, which depends on improving their access to institutional and ongoing medical education. Finally, GPDs in tertiary general hospitals play a significant role in the education of GPNs.

Abbreviations

APN Advanced Practice Nurse
GPN General Practice Nurse
GPD General Practice Department

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Author contributions

XJ.ZP and CC conceived and designed the study. ZP conducted the feasibility analysis and quality control. XJ conducted the interviews and drafted the manuscript. XJ，HP and ZP analysed the data. SH. AD. LH. SB. GP and CC contributed to the article revision. LH. SB and GP provided professional guidance in the overall theoretical framework. All authors contributed to editing the manuscript. All authors read and approved the final manuscript.

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Data availability

All data generated or analysed during this study are included in this published article and its supplementary information files. The data of this study can be obtained from the corresponding author under the condition of reasonably making a request.

Declarations

Ethics approval and consent to participate

This study was approved by the Ethics Committee of Peking University First Hospital (PUFH) (2021 Research-097). All procedures were performed in accordance with PUFH and Declaration of Helsinki relevant guidelines and regulations. Participants were numbered, with no identifying information presented, to anonymise the data and protect their privacy. All materials were kept at the PUFH. Participation in this study was voluntary. All participants provided informed consent.

Consent for publication

Not applicable.

Competing interests

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