Pharmacy Education (2026) 26(1) 247 - 254
https://doi.org/10.46542/pe.2026.261.247254

RESEARCH ARTICLE

Perceptions of hospital pharmacy preceptors on teaching processes in residency programmes

Danilo Belchior Ponciano[1,2], Luciana Butini Oliveira[3], Jessica Fernandes Ramos[2], Denise Greff Machado[2], Adroaldo Lunardelli[2]

[1] Faculdade Sírio-Libanês, São Paulo, Brazil
[2] Hospital Sírio-Libanês, São Paulo, Brazil
[3] Faculdade São Leopoldo Mandic, Campinas, Brazil

Keywords
Active learning
Education
Health profession
Pharmacy residency
Pharmacy preceptor
Preceptorship

Correspondence
Danilo Belchior Ponciano
Faculdade Sírio-Libanês
São Paulo
Brazil
danilo.bponciano@faculdadesiriolibanes.org.br

Abstract

Background: The pedagogical training of pharmacist preceptors in hospital pharmacies is crucial for quality residency education and developing competent healthcare professionals. However, many preceptors start teaching without formal preparation, potentially impacting the effectiveness of preceptorship and resident learning experiences. This study investigated the perceptions of hospital pharmacy preceptors regarding their teaching preparation and identified key challenges and training needs related to preceptorship. **Methods:** A total of 32 pharmacist preceptors from residency programmes completed an electronic questionnaire between February and November 2024. The analysis explored five educational dimensions: didactic methodologies, assessment strategies, career development and emotional health, implementation of educational technologies, and academic documentation and institutional support. **Results:** The results showed that 50% of participants had not received formal pedagogical training for preceptorship. Preceptors initially felt insecure but gained confidence with experience. They rated the importance of pedagogical training at a mean score of 4.8 ± 0.4. Didactic methodologies (4.4/5.0) and assessment strategies (4.3/5.0) were deemed the most crucial for professional development. **Conclusion:** The findings emphasise the importance of structured initiatives to enhance the pedagogical skills of pharmacy preceptors. Training in active learning, assessment, technology, and well-being could improve residency education and hospital pharmacy practice.

Introduction

Teaching in health sciences higher education plays a critical role in preparing competent professionals committed to high-quality patient care. In this context, healthcare professionals must develop the ability to work collaboratively and interact effectively within interprofessional teams.

Preceptors play a central role in this process by bridging academic knowledge and real-world clinical practice. They guide and supervise learners in practice environments such as hospitals and healthcare units, facilitating the application of theoretical knowledge to authentic patient care situations.

To perform this role effectively, preceptors must combine clinical expertise with pedagogical competencies that enable them to structure learning experiences and support reflective practice. However, studies indicate that many preceptors begin their teaching activities without formal pedagogical training, which may compromise the effectiveness of teaching and the professional development of future healthcare practitioners (Junqueira & Oliver, 2020). The absence of formal pedagogical training among preceptors may create difficulties in the application of effective teaching methodologies and in the evaluation of learners. As a result, feedback provided to residents may become inconsistent and less effective in guiding the development of clinical competencies.

In addition to pedagogical limitations, preceptors frequently face work overload and limited institutional support, which restrict the time and resources available for teaching activities. These conditions may lead to fragmented educational experiences that are not fully aligned with professional practice needs (Evangelista *et al.,* 2020).

Evidence from previous studies suggests that structured training programmes for educators can improve preceptors' confidence, teaching performance, and engagement in educational activities. These findings reinforce the importance of investing in the pedagogical qualification of preceptors, ensuring better alignment between teaching practices, curricular guidelines, and the needs of the Brazilian Unified Health System (SUS) (Paravattil *et al.,* 2018; Lopes & Silva, 2020; Knott *et al.,* 2024).

Active learning methodologies and educational technologies have increasingly been incorporated into health professions education to promote student-centred learning and the development of critical competencies for clinical practice. Technological resources such as simulation software, digital learning objects, and learning management systems can enhance these methodologies by creating interactive and realistic learning environments. In hospital pharmacy settings, these strategies may include simulated clinical scenarios, virtual case discussions, and digital platforms that support collaborative learning and reflective practice.

However, the effective integration of these approaches depends on adequate pedagogical preparation of preceptors. Without appropriate training, the use of active methodologies and educational technologies may become superficial, limiting their potential to improve teaching quality and learning outcomes (Jin & Bridges, 2014).

Teaching in hospital pharmacy also presents important challenges related to the emotional well-being of preceptors. Work overload resulting from the accumulation of clinical, administrative, and educational responsibilities frequently generates stress and professional exhaustion. Limited institutional support may further aggravate these difficulties by restricting access to resources and time dedicated to teaching activities. In addition, the integration between service provision and educational responsibilities may lead to role conflicts and increased professional pressure (Yamaguchi *et al.,* 2020).

For this reason, the organisation and standardisation of teaching activities within residency programmes become essential to ensure the quality of preceptorship. Institutional guidelines and structured educational processes can help align teaching practices with the objectives of professional training. Furthermore, effective academic information management is an important component of residency education because it supports the organisation of academic documentation and ensures reliable records for monitoring the training process (Moreira & Nunes, 2009; Mendes, Rivas, & Leal, 2018).

In this context, several factors related to teaching and learning processes are critical to educational success. These factors include the quality of facilitation, pedagogical preparation, and continuous professional development. Although technical expertise is fundamental for clinical practice, it is not sufficient for effective teaching. Preceptors must also develop pedagogical competencies that allow them to facilitate learning, evaluate performance, and guide reflective practice. Teacher professionalisation involves the construction of a professional identity that integrates disciplinary knowledge with educational skills (Reeves *et al.,* 2016; Howard *et al.,* 2020; Williams *et al.,* 2021; Richter *et al.,* 2023).

Despite the growing recognition of the importance of pedagogical development for healthcare educators, there is still limited understanding of how pharmacist preceptors perceive their own teaching preparation and professional development needs within hospital pharmacy settings. Therefore, the present study aimed to evaluate the perceptions of pharmacist preceptors regarding their teaching preparation and to identify the challenges and training needs related to preceptorship in hospital pharmacy.

Methods

This exploratory cross-sectional study was conducted to investigate the perceptions of pharmacist preceptors regarding their teaching preparation in hospital pharmacy settings. The study design followed the recommendations of the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines for observational studies (von Elm *et al.,* 2007).

Context and participants

The study was conducted at a tertiary hospital institution in Brazil between February and November 2024. The participants were pharmacist preceptors involved in multiprofessional residency programmes in different areas of healthcare, including oncology care, critical care, and pediatric patient care.

A total of 32 pharmacist preceptors participated in the study. These professionals were distributed across

several hospital pharmacy practice environments, including central pharmacy, clinical pharmacy services, oncology pharmacy, intensive care unit pharmacy, radiopharmacy, and pharmaceutical education and technical support sectors.

Eligibility criteria included pharmacists who were actively working as residency preceptors and who had at least one year of professional experience at the institution. Professionals who were not directly involved in preceptorship activities or who were on leave during the data collection period were excluded. Participants were recruited through intentional sampling in order to represent different professional experiences within hospital pharmacy preceptorship.

Data collection instruments

Data were collected using a structured questionnaire composed of both closed-ended and open-ended questions. The instrument was developed based on themes identified in the literature on health professions education and preceptor development.

The questionnaire explored two main domains. The first domain focused on the participants' professional qualifications and academic backgrounds. The second domain investigated the perceptions of preceptors regarding their pedagogical preparation and the challenges associated with teaching activities in hospital pharmacy.

In addition, the instrument examined five educational dimensions related to preceptorship: didactic methodologies, forms of educational assessment, career development and emotional health, implementation of educational technologies, and academic documentation and institutional support. Participants were asked to rate the importance of each dimension using a five-point Likert-type scale ranging from 0 (no importance) to 5 (very high importance).

Before data collection, the questionnaire was reviewed by researchers involved in the study to ensure clarity and relevance of the items. Minor adjustments were made to improve comprehension and consistency of the instrument. The instrument was pilot tested with a small group of pharmacist educators to assess its clarity and overall applicability before final administration.

Data collection and analysis procedures

Data collection was conducted through an electronic questionnaire distributed via the institutional online platform. Participants received detailed information about the study's objectives before completing the survey and provided informed consent electronically.

The collected data were organised and analysed using descriptive statistical methods. Measures such as means, standard deviations, and percentages were used to summarise responses and describe pharmacist preceptors' perceptions of their teaching preparation and professional development needs.

Ethical clearance

The study followed the ethical principles established by the Brazilian National Health Council for research involving human participants. Ethical approval was obtained from the institution's Research Ethics Committee under protocol number 6,751,991. Participation in the study was voluntary, and participants' confidentiality and anonymity were ensured throughout the research process. The participants' privacy was protected. The study lasted for six months.

Results

A total of 32 pharmacist preceptors participated in the study. The sociodemographic and professional characteristics of the participants are summarised in Table I.

Table I: Sociodemographic and professional characteristics of pharmacist preceptors participating in the study (n = 32)

Characteristic	Value
Age, mean ± SD (years)	33.9 ± 4.9
Years since graduation, mean ± SD	10.1 ± 5.0
Years of experience as preceptor, mean ± SD	4.1 ± 3.1
Academic qualification	
Specialist degree	84%
Master's degree	13%
Doctoral degree	3%

SD- Standard Deviation

To evaluate the participants' reflective profile, preceptors were asked about their perceptions of the participants' pedagogical aptitude at the beginning of their preceptorship and at the present moment. A considerable change was observed over time. While 37.5% of participants reported feeling "*insecure*" or "*very insecure*" on their first day as preceptors, only 6.2% reported the same perception at the time of the survey (Figure 1).

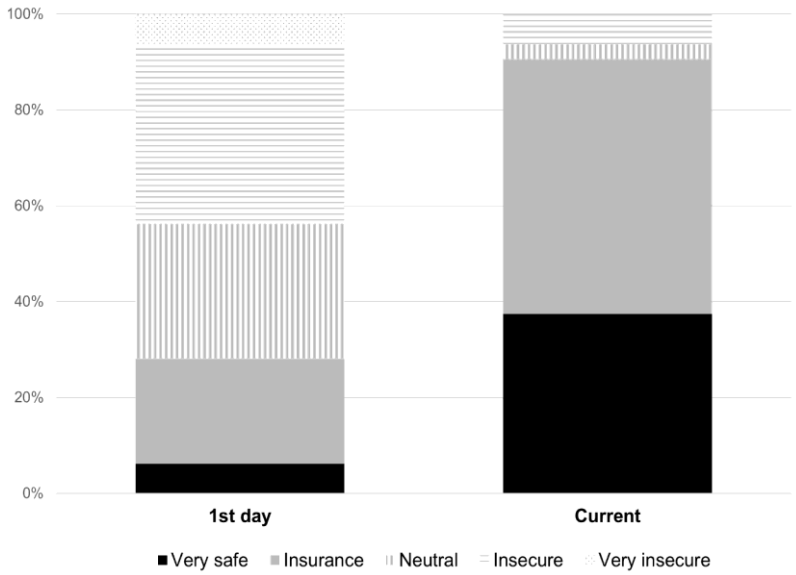

Figure 1: Degree of pedagogical aptitude on the first day of preceptorship compared to the current perception. Data are presented as percentages

Participants were also asked to compare the teaching methodologies they currently use with those they experienced during their own academic training. Only 3% reported maintaining the same pedagogical approaches used by their undergraduate professors. No participants considered their current teaching methods to be "*almost identical*" to those experienced during their academic training. On a scale from 0 to 5, the similarity between the methods currently used and those experienced during undergraduate education was rated at 1.8 ± 0.9 (Figure 2).

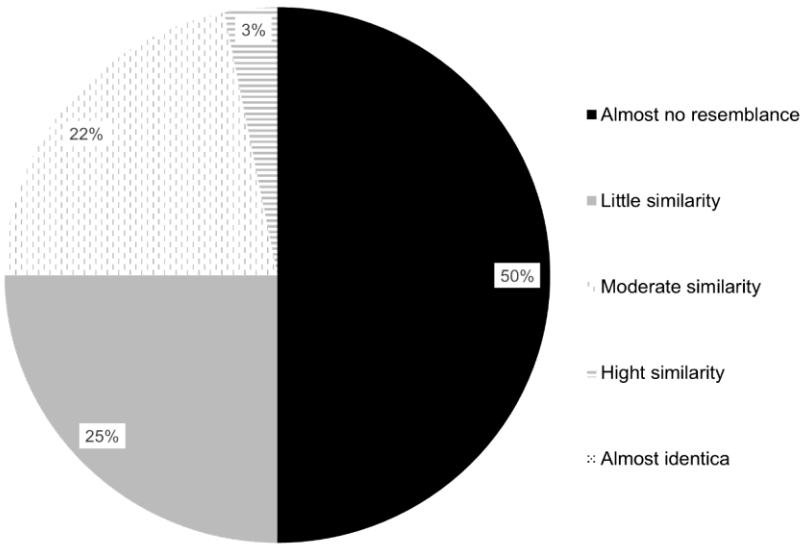

Figure 2: Similarity between teaching methodologies experienced during academic training and those currently used by preceptors. Data are presented as percentages

Regarding participation in pedagogical training activities, 50% of respondents reported that they had never taken part in formal educational training specifically focused on preceptorship. In addition, 56% of participants considered that offering pedagogical training for preceptors should be primarily the responsibility of academic institutions.

Finally, participants were asked to evaluate the importance of different educational dimensions for the development of preceptors. Among the dimensions assessed, all educational domains were rated as highly important by the participants. Didactic methodologies received the highest mean score (4.4/5.0), followed by forms of assessment (4.3/5.0) and emotional health (4.1/5.0). Technology implementation (4.0/5.0) and academic documentation (3.9/5.0) were also rated as important dimensions for preceptor development (Figure 3).

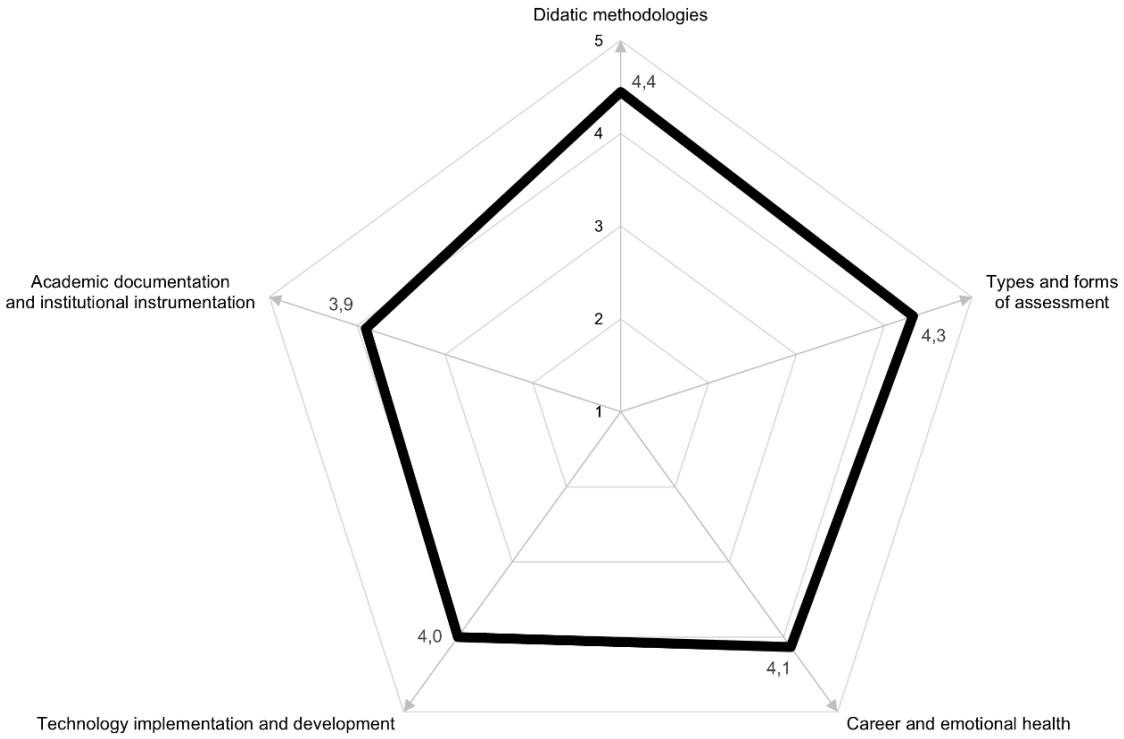

Figure 3: Importance attributed to educational dimensions for preceptor development. Data are presented as mean scores on a scale from 0 to 5

Discussion

The present study contributes to the understanding of the pedagogical preparation of pharmacist preceptors working in hospital pharmacy residency programmes. Strengthening preceptor training is essential for the continuous qualification of pharmaceutical education and, consequently, for improving the quality and safety of patient care (Verçosa & Lima, 2019; Gorzoni & Davis, 2017). The findings highlight the importance of educational strategies that promote transformative learning and greater integration between academic training and professional practice. In this context, reforms in health professional education have been recommended in the literature, including the strengthening of institutional leadership, increased investment in health education, alignment of accreditation processes, and the promotion of competencies adapted to specific practice contexts (Frenk *et al.,* 2010; Franco, Murgo, & Costa Filho, 2022).

The emphasis placed by preceptors on didactic methodologies and forms of assessment suggests a growing recognition of the need for structured educational strategies in residency training. These findings are consistent with the literature, indicating that active learning approaches and educational technologies can contribute to more effective professional development and improve the quality of clinical education (Lopes & Silva, 2020). However, the absence of formal pedagogical preparation may limit the adoption of innovative teaching practices and compromise the effectiveness of educational activities (Araújo *et al.,* 2005). In this sense, teacher qualification becomes essential to ensure that assessment processes are applied consistently and contribute to meaningful learning (Pereira, Aguiar, & Costa, 2015).

Another relevant finding concerns the progressive development of teaching competencies throughout the preceptor's professional trajectory. At the beginning of their careers, many preceptors report feelings of insecurity regarding their pedagogical role. Over time, however, the accumulation of practical experience tends to increase confidence in teaching activities. This process of professional maturation suggests that experience combined with institutional support and pedagogical training may strengthen preceptors' educational performance and contribute to the consolidation of teaching competencies within residency programmes.

The relevance attributed by participants to emotional health also highlights the complexity of the preceptor role within hospital environments. Teaching responsibilities are often performed simultaneously with clinical and managerial activities, which can generate work overload and psychological stress. These challenges may negatively affect both professional performance and the quality of educational activities. Therefore, institutions should consider strategies aimed at promoting professional well-being and supporting preceptors in their dual roles as clinicians and educators (Moreira & Nunes, 2009). In this sense, continuing education programmes and supportive work environments are fundamental for strengthening teaching practices and ensuring sustainable professional development (Franco, Murgo, & Costa Filho, 2022).

The challenges reported by preceptors reinforce the need for structured institutional approaches to support teaching activities within hospital pharmacy. The accumulation of care responsibilities, limited time available for teaching preparation, and lack of continuous pedagogical training make it difficult to balance service and educational responsibilities (Williams *et al.,* 2021). Furthermore, the absence of standardised educational strategies may directly affect the quality of residency training and the development of residents' clinical competencies. In parallel, the increasing incorporation of technological systems in hospital pharmacy may contribute to improving operational efficiency and allowing preceptors to dedicate more time to educational activities. The integration of technological resources into professional practice may therefore support more efficient workflows and create opportunities for strengthening educational activities in residency programmes.

An important aspect highlighted by the participants was the need for protected time dedicated to teaching activities. The absence of structured time for educational responsibilities may generate demotivation and insecurity in the teaching process. These findings reinforce the central premise of this study, demonstrating that the perception of preceptors regarding their pedagogical preparation is closely associated with the availability of institutional support mechanisms, including training opportunities and organisational policies that recognise and value teaching activities in hospital pharmacy settings. Investigating these factors is therefore essential for the advancement of continuing pharmaceutical education and for the development of more structured and practice-oriented residency training programmes.

Some limitations of this study should be acknowledged. The research was conducted in a single institution, and the number of participants was relatively small. As a result, comparative statistical analyses were not performed. Although these characteristics limit the generalisation of the findings, the results provide relevant insights into the challenges and training needs of pharmacist preceptors working in hospital settings.

Although the participants recognised the importance of pedagogical training for professional practice, half of the respondents reported never having participated in formal educational training specifically focused on preceptorship. In addition, most participants attributed the responsibility for offering such training to academic institutions. In response to this need, the institution involved in the present study implemented a postgraduate specialisation programme in higher education teaching. The programme includes modules on faculty professional development, teaching methodologies, learning assessment, educational technologies, digital culture, socioemotional health, and research in health education. The 360-hour curriculum aims to support healthcare professionals in developing competencies necessary for effective educational practice.

In addition to formal educational training, the institution also implemented a structured action plan aimed at improving both resident learning and preceptor development. The initiatives include the establishment of a career development framework for preceptors, the implementation of a digital residency management system to monitor attendance and assessments, the development of support modules for residency capstone projects, and the introduction of digital assessment tools to facilitate monitoring of residents' academic progress. These strategies may contribute to reducing administrative workload and creating more favourable conditions for preceptors to dedicate time to educational activities.

Conclusion

Given the findings of this research, it is evident that the teaching exercised by pharmaceutical preceptors in hospital pharmacies faces challenges that need to be minimised in view of the quality of teaching and the training of residents. It showed a prioritisation of didactic methodologies, evaluation, and emotional health, which demands institutional support and continuing education.

Valuing preceptorship requires strategies that integrate continuing education and professional well-being. Structured environments favour teaching and improve hospital care. Implementing active methodologies and technologies can optimise learning and teaching practice. Therefore, an educationally structured programme that can provide instrumental support to preceptors is very important for resolving tensions. The space for continuing education becomes a collaborative environment for developing the skills needed by the preceptor. These findings contribute to reflections on the training of preceptors and the improvement of continuing pharmaceutical education.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Conflict of interest

The authors declare that they have no conflict of interest related to this study.

Ethics Approval and Informed Consent

The study was approved by the Research Ethics Committee of the Hospital Sírio-Libanês (Approval number: 6751991). All participants were informed about the objectives of the study and agreed to participate voluntarily through the acceptance of the Informed consent form included in the online questionnaire.

Acknowledgement

The authors thank the hospital pharmacy preceptors who voluntarily contributed to this research and the coordination of the multiprofessional residency programme for their institutional support.

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