Exploration of Collaborative Innovation Pathways in the Development of Clinical Pharmacy Faculty Teams

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Abstract: Objective: To explore the collaborative innovation pathways for the development of clinical pharmacy faculty teams. Methods: Taking clinical pharmacy faculty in Shaanxi Province as the research subjects, the study investigates their current status and identifies existing issues. Based on these findings, collaborative innovation pathways for building clinical pharmacy faculty teams are proposed. The pathways are then implemented and evaluated to determine the final approach. Results: The proposed pathways include the establishment of collaborative bases for clinical pharmacy talent training, the creation of an internal mechanism for the collaborative development of clinical pharmacy faculty across multiple units, the development of a faculty training mechanism for instructors at clinical pharmacy internship bases, and the establishment of a collaborative incentive and competition mechanism combining universities and hospitals. Conclusion: This collaborative pathway meets the urgent needs of resource sharing, complementary strengths, cooperative problem-solving, and collaborative innovation. It aims to improve teaching quality and cultivate clinical pharmacy talents for society.
***Keywords*:** clinical pharmacy; faculty development; collaborative innovation pathways

1. Introduction

Clinical pharmacy is an interdisciplinary applied science focused on improving the quality of medication use, centering on the interactions between drugs and the human body, and emphasizing the study of methods for the rational use of drugs in clinical settings. In the context of the rapid advancement of the pharmaceutical sector in China, there is widespread attention on enhancing the quality of pharmaceutical services through clinical pharmacy education to ensure the safe use of medications by the public[1]. The comprehensive development of clinical pharmacy practices and the cultivation of clinical pharmacy talent to advance the overall development of clinical pharmacy in China have become focal points of interest for government decision-makers, healthcare institutions, academic organizations, and associations[2].

The establishment of clinical pharmacy programs is aligned with the evolving landscape of clinical pharmacy domestically and internationally. These programs aim to train specialized clinical pharmacists who possess both pharmaceutical and medical knowledge and practical skills[3]. These pharmacists are expected to be involved in the rational use of drugs in clinical settings, monitoring adverse drug reactions, evaluating drugs (including the evaluation of new drugs and re-evaluation of existing drugs), and providing pharmaceutical information and consultation services. This would enable them to fulfill the responsibilities and tasks assigned to pharmacists in the ongoing healthcare reform[4]. Given the current urgent need for pharmaceutical professionals in clinical practice in China, coupled with the less-than-ideal professional background and knowledge structure of clinical pharmacy faculty and the limited number of personnel with experience in clinical pharmacy services, collaborative innovation[5] offers a new perspective for building a clinical pharmacy faculty team.

2. Methodological exploration

Taking the clinical pharmacy faculty in Shaanxi Province as the research subjects, the study employed data collection and literature review, as well as designed questionnaires and conducted interviews to collect information on existing issues. By analyzing the survey, questionnaire, and interview data, the study aimed to understand the current status and problems. Based on these findings, a collaborative innovation pathway for the development of clinical pharmacy faculty teams was proposed, with a refined implementation plan. The collaborative innovation pathway was then implemented and evaluated to determine the final approach.

3. Implementation pathways

3.1 Establishing collaborative clinical pharmacy talent training bases to strengthen faculty development

Collaborative innovation is an effective method for the rational allocation of resources, a strong driving force for disciplinary development, and an important measure for enhancing innovation capabilities. It has become an effective choice for improving the quality of higher education[6]. By applying collaborative innovation in medical schools, we can fully leverage the advantages of internship bases at top-tier hospitals to establish collaborative clinical pharmacy talent training bases. This approach allows for the sharing of faculty resources and the establishment of clinical pharmacy discipline groups to integrate faculty teams. High-quality clinical pharmacists can be selected to supplement the faculty team in the form of part-time teachers. The collaborative innovation alliance between universities and hospitals not only allows them to exchange advantages and compensate for shortcomings but also addresses the shortage of clinical pharmacists and enhances the practical abilities of teachers.

3.2 Establishing an intrinsic mechanism for multi-unit collaborative development of clinical pharmacy faculty

An intrinsic mechanism for multi-unit collaborative development of clinical pharmacy faculty should be established to integrate outstanding clinical pharmacists into the faculty development process, thereby fully mobilizing their enthusiasm. The collaborative innovation alliance between universities and hospitals can facilitate the sharing of faculty resources and foster a collaborative mechanism in teacher training and research[7]. Hospitals should encourage clinical pharmacists to actively participate in teaching and management activities at universities. Regular clinical pharmacy teaching meetings should be held each semester to exchange teaching experiences, collaboratively develop clinical pharmacy training programs, and continually revise these programs based on practical needs. Collaborative efforts should also focus on developing clinical pharmacy curricula, teaching methods, and the compilation of textbooks. Additionally, they should jointly formulate internship plans and practical schemes for clinical pharmacy while actively promoting the discipline's development and educational achievements.

3.3 Establishing a training mechanism for faculty in clinical pharmacy internship bases

A training mechanism for faculty at clinical pharmacy internship bases should be developed by enhancing educational awareness, clarifying job responsibilities, and improving the work system of teaching courses. Faculty members' understanding of their roles should be strengthened, and their professional knowledge structure should be updated. Their level and ability in teaching theory should be improved, and their professional ethics should be reinforced. Updates to the content should include enhancing knowledge in pharmacy and medical sciences, providing guidance on teaching methods such as Problem-Based Learning (PBL) and Case-Based Learning (CBL), and strengthening training in doctor-patient communication. To continuously update the professional knowledge structure of clinical teaching faculty, they should participate in professional training periodically, engage in online academic exchanges, and have face-to-face academic discussions with university faculty.

3.4 Establishing a collaborative and competitive incentive mechanism combining universities and hospitals

Hospitals should establish an evaluation and incentive mechanism for clinical pharmacy teaching faculty. First, a strict admission system for clinical pharmacy faculty should be implemented, ensuring that faculty are selected in accordance with national standards for undergraduate clinical pharmacy education. Pre-service training should be strengthened, and teaching competency evaluations should be conducted. Second, the workload of clinical pharmacy faculty should be linked to income and professional title assessments. Even though workload is tied to income, the income should be increased if it is relatively low. For professional title assessments, a certain amount of teaching work should be required. Finally, an exit mechanism for faculty should be established; clinical pharmacists who fail to complete their teaching tasks or do not perform well should be subject to a review process and may be dismissed.

4. Conclusion

The faculty team is the primary resource of universities, and the level of faculty development is the core factor in collaborative innovation. Universities, as the main bodies of talent cultivation, should take the lead in actively exploring mechanisms for the collaborative innovation of talent teams and continually improving their innovative capabilities. Using

collaborative innovation as an opportunity, this project has established multi-unit collaborative clinical pharmacy talent training bases and explored the formation of a multi-party, mutually beneficial development mechanism that links universities and hospitals. Through model innovation, we aim to deepen the collaboration between medical education and healthcare. Clear communication channels should be established to promote the application of collaborative experiences in medical education. The development of these centers should focus on consolidating collective efforts for education. Furthermore, the project aims to distill theoretical achievements and model paradigms with distinct characteristics pertinent to Shaanxi, using problem-oriented approaches to overcome developmental bottlenecks. The ultimate goal is to cultivate a high-level team of clinical pharmacy educators and provide strong intellectual support for the high-quality development of medical education and healthcare in the province. This approach aligns with the urgent need for resource sharing, complementary strengths, cooperative problem-solving, and collaborative innovation, ultimately enhancing teaching quality and preparing clinical pharmacy talent for society.

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