

Characteristics and outcomes of pharmacy practice experience programs in community pharmacy settings: a scoping review protocol

Características e resultados dos programas de experiência de prática de farmácia em ambientes de farmácia comunitária: um protocolo de revisão de escopo

Características y resultados de los programas de experiencia en la práctica farmacéutica en entornos de farmacia comunitaria: un protocolo de revisión de alcance

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Abstract

Objective: The objective of this scoping review is to map, identify, characterize, and summarize the evidence on characteristics and outcomes of pharmacy practice experience programs in community pharmacy settings. **Introduction:** Practice experiences are important components of health professional education programs, including pharmacy. Community pharmacies are accessible to the public, where most pharmacists are concentrated. Despite the relevance of practice experiences in community pharmacies for pharmacy education, the literature still lacks a description of existing programs and their outcomes. **Inclusion criteria:** This scoping review will consider studies that describe characteristics of pharmacy practice experience programs in community pharmacy settings or evaluate their outcomes. Practice experience programs in outpatient clinics and hospitals will be excluded. **Methods:** The proposed scoping review will be conducted in accordance with the JBI methodology for scoping reviews. The databases searched will include PubMed, Web of Science and Scopus. The results will be limited to English, Portuguese and Spanish languages and to publications from 1990 to the present. The search for gray literature will include Google Scholar. The extracted data will include characteristics of pharmacy practice experience programs (e.g. teaching activities) or outcomes of the programs evaluated in the studies (e.g. development of knowledge, skills and attitudes by the students). The extracted data will be presented in a tabular format. A narrative summary will accompany the tabulated results and will describe how the results relate to the review's objective and question, and how the results might inform future pharmacy practice experience programs in community pharmacy settings. The protocol was registered in the Open Science Framework.

Keywords: Community pharmacy services; Education, pharmacy; Problem-based learning; Teaching.

Resumo

Objetivo: O objetivo desta visão de escopo é mapear, identificar, caracterizar e resumir as evidências sobre as características e resultados dos programas de experiência na prática de farmácia em ambientes de farmácia comunitária. **Introdução:** As experiências de prática são componentes importantes dos programas de educação dos profissionais de saúde, incluindo a farmácia. As farmácias comunitárias são acessíveis ao público, onde se encontra a maioria dos farmacêuticos. Apesar da relevância das experiências de prática em farmácias comunitárias para a educação em farmácia, a literatura ainda carece de uma descrição dos programas existentes e seus resultados. **Critério de inclusão:** Esta revisão de escopo considerará estudos que descrevem características de programas de experiência de prática em ambulatorios e hospitais. **Métodos:** A revisão de escopo proposta será conduzida de acordo com a metodologia JBI para revisões de escopo. As bases de dados pesquisadas incluirão PubMed, Web of Science e Scopus. Os resultados serão limitados aos idiomas inglês, português e espanhol e às publicações de 1990 até o presente. A busca por literatura cinzenta incluirá o google scholar. Os dados extraídos incluirão características de programas de experiência prática de farmácia (por exemplo, atividades de ensino) ou resultados dos programas avaliados nos estudos (por exemplo, desenvolvimento de conhecimentos, habilidades e atitudes pelos alunos). Os dados extraídos serão apresentados em formato tabular. Um resumo narrativo acompanhará os resultados tabulados e descreverá como os resultados se relacionam com o objetivo e a pergunta da revisão e como os resultados podem informar futuros programas de

experiência de prática de farmácia em ambientes de farmácia comunitária. O protocolo foi registrado no Open Science Framework.

Palavras-chave: Serviços de farmácia comunitários; Educação em farmácia; Aprendizagem baseada em problemas; Ensino.

Resumen

Objetivo: El objetivo de esta revisión de alcance es mapear, identificar, caracterizar y resumir la evidencia sobre las características y los resultados de los programas de experiencia en la práctica farmacéutica en entornos de farmacia comunitaria. **Introducción:** Las experiencias prácticas son componentes importantes de los programas de educación de profesionales de la salud, incluida la farmacia. Las farmacias comunitarias son accesibles al público, donde se concentra la mayoría de los farmacéuticos. Apesar de la relevancia de las experiencias prácticas en farmacias comunitarias para la educación farmacéutica, la literatura aún carece de una descripción de los programas existentes y sus resultados. **Criterios de inclusión:** esta revisión de alcance considerará los estudios que describen las características de los programas de experiencia en la práctica farmacéutica en entornos de farmacia comunitaria o evalúan sus resultados. Se excluirán los programas de experiencia práctica en clínicas ambulatorias y hospitales. **Métodos:** La revisión de alcance propuesta se llevará a cabo de acuerdo con la metodología JBI para revisiones de alcance. Las bases de datos buscadas incluirán PubMed, Web of Science y Scopus. Los resultados se limitarán a los idiomas inglés, portugués y español ya las publicaciones desde 1990 hasta el presente. La búsqueda de literatura gris incluirá Google Scholar. Los datos extraídos incluirán características de los programas de experiencia en la práctica farmacéutica (p. ej., actividades docentes) o resultados de los programas evaluados en los estudios (p. ej., desarrollo de conocimientos, habilidades y actitudes por parte de los estudiantes). Los datos extraídos se presentarán en un formato tabular. Un resumen narrativo acompañará a los resultados tabulados y describirá cómo se relacionan los resultados con el objetivo y la pregunta de la revisión, y cómo los resultados podrían informar futuros programas de experiencia de práctica farmacéutica en entornos de farmacia comunitaria. El protocolo fue registrado en el Open Science Framework.

Palabras clave: Servicios de farmacia comunitarios; Educación en farmacia; Aprendizaje basado en problemas; Enseñanza.

1. Introduction

Experiential learning is essential in the education of health professionals (Dubón et al., 2021). According to Kolb (Kolb, 2015; Kolb, 1984), when exposed, the student experiences, reflects, theorizes, associating the real professional dilemmas with the theory, building, with this, his professional identity (Kolb, 2015; Kolb, 1984). These practice experiences are common in the education of health professionals, including pharmacists. In the United States, higher education institutions must offer practical experiences from the beginning of the pharmacy undergraduate programs, such as Introductory Pharmacy Practice Experience (IPPE) and Advanced Pharmacy Practice Experience (APPE) (Knoer et al., 2016). In the United Kingdom and Australia, an internship or training carried out mostly in clinical settings is required to application for a pharmacist license (Marriott et al., 2008; Sosabowski & Gard, 2008). Of these practice experiences in pharmaceutical education, at least one takes place in community pharmacy setting.

The definition of community pharmacy differs between countries, although most define it as a type of health facility that provides specific services around medicines (WHO, 2019). The pharmacist in the community pharmacy can act in dispensing medicines, pharmaceutical consulting, pharmacovigilance, health promotion, compounding, medication management, emergency care, minor ailment management, among other services (WHO, 2019). The community pharmacy is the main place of work for pharmacists in the world and it is widely accessed by the population. According to International Pharmaceutical Federation, more than 75% of the pharmacists work in community pharmacy (FIP, 2017).

The activities performed by pharmacists can be measured through Entrustable Professional Activities (EPAs). EPAs are a unit of measure of the unique professional duties of a specific profession (Cate, 2016). EPAs are used in the education, training and professional practice of students of health professions in many countries such as Australia, Canada and United States of America (Shorey et al., 2019). In United States of America, the American Association of Colleges of Pharmacy (AACCP) published 15 Core EPAs essential for all pharmacists to perform without supervision (Haines et al., 2016). The EPAs recommended by AACCP are relevant to pharmacist practice in community pharmacies, including clinical activities (eg, analyze

information to determine the effects of medication therapy, identify medication-related problems, and prioritize health-related needs), educational activities (eg, educate patients and professional colleagues regarding the appropriate use of medications) and administrative activities (eg, Oversee the pharmacy operations for an assigned work shift).

Professional practices in health professional programs should develop students` knowledge, skills and attitudes needed to perform professional activities (Romani et al., 2022). Health professionals called preceptors supervise students in practice experiences. Faculty members and preceptors should carry out teaching activities that help the students to apply theory to practice, assisting them in the learning process (ACPE, 2016; Bergon, 2021).

The design of pharmacy practice experience programs in community pharmacy should be evidence-based to attain the desired learning outcomes. There are few studies with description of practice experiences in community pharmacies in countries such as Finland (Pitkä et al., 2014) and Sweden (Wallman et al., 2011). Some papers evaluated the results of practice experiences, such as development of competencies (Kim et al., 2019), the perception of developed learning (Wallman et al., 2011), satisfaction (Almetwazi et al., 2020) and improvements in community pharmacies (Rodis et al., 2015). However, these data were not synthesized in a review.

A review about characteristics and outcomes of pharmacy practice experiences in community pharmacies should inform better design and performance of programs by faculty members and preceptors. Evidence-based practice experiences should improve development of competencies by pharmacy undergraduates and qualify future pharmacists` practice to address better the needs of the population.

A preliminary search of PROSPERO, MEDLINE, the Cochrane Database of Systematic Reviews and the JBI Evidence Synthesis was performed and no current or ongoing scoping reviews or systematic reviews on the topic were identified.

The objective of this scoping review is to map, identify, characterize, and summarize the evidence on characteristics and outcomes of pharmacy practice experience programs in community pharmacy settings.

1.1 Review question

1. What are characteristics of pharmacy practice experience programs in community pharmacy settings and what are the outcomes of the programs evaluated in the studies?

1.2 Inclusion criteria

1.2.1 Participants

This review will consider studies that include pharmacy students that took part in pharmacy practice experience programs in community pharmacies. Pharmacy undergraduates or graduates enrolled in a practice experience program as a requirement for qualifying as a pharmacist will be considered pharmacy students. The perspectives of faculty members and preceptors about practice experience programs will also be considered. The concept of preceptor considered in the current review will be the health professional that supervises the pharmacy students in their practice experience. Papers on practice experience by resident pharmacists will be excluded.

1.2.2 Concept

This review will consider studies that describe characteristics of pharmacy practice experience programs in community pharmacies (including duration, workload, preceptor training, teaching activities adopted by preceptors and faculty members and professional activities performed by the students) or outcomes of the programs evaluated in the studies (including students and preceptors satisfaction, development of knowledge, skills and attitudes by the students, improvements in pharmacy). Activities

carried out by preceptors or faculty members aimed at improving the learning of the students during the practice experience will be considered teaching activities. All kinds of pharmacy practice experiences will be considered, including APPE, IPPE, internship and clerkship. Studies that describe or evaluate only one specific activity of practice experiences will be excluded. Papers that present guidelines to carry out practice experiences programs without a description of one real experience will be excluded.

1.2.3 Context

This review will consider studies that describe or evaluate pharmacy practice experience programs in community pharmacy settings. Community pharmacies that deliver directly medicines to the population will be considered. Practice experiences in outpatient clinics and hospitals will be excluded.

1.2.4 Types of sources

This scoping review will consider experience reports, programs descriptions, program evaluations, observational studies, experimental or quasi-experimental studies, qualitative studies and mixed methods study designs for inclusion.

2. Methodology

The proposed scoping review will be conducted in accordance with the JBI methodology for scoping reviews (Peters et al., 2020) and in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) (Tricco et al., 2018). The review will include five phases: (i) identifying the research question; (ii) searching for studies; (iii) selecting studies; (iv) extracting and charting data; (v) and synthesizing and reporting the findings.

2.1 Search strategy

The search strategy will aim to locate published studies from peer-reviewed journals and was created in collaboration with a librarian. An initial limited search of MEDLINE (PubMed) was undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy for MEDLINE (PubMed) (Table 1). The search strategy, including all identified keywords and index terms, will be adapted for each included information source. The reference lists of articles included in the review will be screened for additional papers. Articles published in English, Portuguese, and Spanish languages will be included due to language limitations of the authors. Papers published from 1990 to the present will be included. The time limit was selected because in 1990 a paper that presented philosophical foundations of the pharmaceutical care was published (Hepler & Strand, 1990) and since then transformations have occurred in the pharmacy practice and education. Databases searched will include PubMed, Web of Science and Scopus. The search for gray literature will include Google Scholar.

Table 1. Search strategy conducted in PubMed on August 17, 2022

Search	Query	Records retrieved
#1	“Students, Pharmacy”[Mesh] OR pharmacy student*[tiab] OR student pharmacist*[tiab] OR “Education, Pharmacy”[Mesh] OR pharmaceutical education[tiab] OR pharmacy undergraduate*[tiab] OR pharmacy intern*[tiab]	11,611
#2	Practice experience*[tiab] OR professional practice*[tiab] OR practice-based education[tiab] OR practice-based experience[tiab] OR clerkship*[tiab] OR internship*[tiab] OR “Pharmacy Residencies”[Mesh] OR pharmacy internship*[tiab] OR pharmacy practice experience*[tiab] OR advanced pharmacy practice experience*[tiab] OR APPE[tiab] OR introductory pharmacy practice experience[tiab] OR IPPE[tiab] OR “Clinical Clerkship”[Mesh] OR pharmacy clerkship*[tiab] OR “Problem-Based Learning”[Mesh] OR Experiential Learning[tiab] OR traineeship[tiab]	33,611
#3	“Community Pharmacy Services”[Mesh] OR community pharmac*[tiab]	10,544
#4	#1 AND #2 AND #3	205
Limited to date (January 01, 1990 to August 17, 2022)		201
Limited to English, Spanish and Portuguese		193

Source: Authors.

2.2 Study/Source of evidence selection

Following the search, all identified records will be collated and uploaded into EndNote v.X9 (Clarivate Analytics, PA, USA) and duplicates removed. Collated titles and abstracts will be compiled in an inclusion/exclusion MS Excel spreadsheet (Redmond, WA, USA). Following a pilot test, titles and abstracts will then be screened by two independent reviewers for assessment against the inclusion criteria for the review. Studies that may meet the inclusion criteria will be retrieved in full and their citation details imported into the JBI System for the Unified Management, Assessment, and Review of Information (JBI SUMARI; JBI, Adelaide, Australia) (Munn et al., 2019). The full text of selected studies will be assessed in detail against the inclusion criteria by two independent reviewers. Reasons for exclusion of full-text papers that do not meet the inclusion criteria will be recorded and reported in the scoping review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion or with a third reviewer. The results of the search will be reported in full in the final scoping review and presented in a PRISMA flow diagram (Page et al., 2021).

2.3 Data extraction

Data will be extracted from papers included in the scoping review by two independent reviewers using a data extraction tool developed by the reviewers. The extracted data will include characteristics of pharmacy practice experience programs (including duration, workload, preceptor training, teaching activities adopted by preceptors and faculty members and professional activities performed by the students) and outcomes of the programs evaluated in the studies (including students and preceptors satisfaction, development of knowledge, skills and attitudes by the students, improvements in pharmacy). A draft extraction tool is provided (see Table 2). The draft data extraction tool will be modified and revised as necessary during the process of extracting data from each included paper. Modifications will be detailed in the full scoping review. Any disagreements that arise between the reviewers will be resolved through discussion or with a third reviewer. Search in educational institutions

websites and contact with authors of papers will be performed to gather further information on characteristics of practice experience programs, where required.

Table 2. Data extraction instrument.

General study information	
1.Title	
2.Authors	
3.Journal	
4.Year	
5.DOI	
6.Country	
7.Continent	
8.Study design	
9.Study aims/objectives	
10.Sample/participants	
11.Data collection methods	
12.Select the type of practice experience described or evaluated	
Advanced Pharmacy Practice Experience (APPE)	
Introductory Pharmacy Practice Experience (IPPE)	
Internship	
Clerkship	
Other practice experience	
If you selected other practice experience, describe it	
13.Duration and the workload of the practice experience program	
Duration (in days or weeks or months)	
Workload (in hours)	
14.Did the article describe preceptor training?	
Yes	
No	
If you selected yes, describe the training	
15.Select one or more teaching activities adopted by preceptors and faculty members during the practice experience program. For each activity, describe details reported in the article	
Review patient care or other processes carried out by the students	
If you selected the activity above, how was it carried out?	
Feedback on student`s performance	
If you selected the activity above, how was it carried out?	
Meeting with the student to discuss pharmacy practice issues	
If you selected the activity above, how was it carried out?	
Other teaching activities. Describe them	
Quizzes to evaluate knowledge	
If you selected the activity above, how was it carried out?	

Review of learning portfolios or reflective journals sent by the students	
If you selected the activity above, how was it carried out?	
Structure documentation to guide student's self-training	
If you selected the activity above, how was it carried out?	
Group discussion	
If you selected the activity above, how was it carried out?	
Simulation	
If you selected the activity above, how was it carried out?	
Lectures	
If you selected the activity above, how was it carried out?	
Other teaching methods. Describe them	
16. Select one or more Entrustable Professional Activities (EPA) performed by the students during the practice experience program in the community pharmacy. For each EPA, describe the activities reported in the article	
EPA 1- Collect information to identify a patient's medication-related problems and health-related needs	
Describe the activities classified into EPA 1	
EPA 2- Analyze information to determine the effects of medication therapy, identify medication-related problems, and prioritize health-related needs	
Describe the activities classified into EPA 2	
EPA 3- Establish patient-centered goals and create a care plan for a patient in collaboration with the patient, caregiver(s), and other health professionals that is evidence-based and cost-effective	
Describe the activities classified into EPA 3	
EPA 4- Implement a care plan in collaboration with the patient, caregivers, and other health professionals.	
Describe the activities classified into EPA 4	
EPA 5- Follow-up and monitor a care plan	
Describe the activities classified into EPA 5	
EPA 6- Collaborate as a member of an interprofessional team	
Describe the activities classified into EPA 6	
EPA 7- Identify patients at risk for prevalent diseases in a population	
Describe the activities classified into EPA 7	
EPA 8- Minimize adverse drug events and medication errors	
Describe the activities classified into EPA 8	
EPA 9- Maximize the appropriate use of medications in a population	
Describe the activities classified into EPA 9	
EPA 10- Ensure that patients have been immunized against vaccine-preventable diseases	
Describe the activities classified into EPA 10	
EPA 11- Educate patients and professional colleagues regarding the appropriate use of medications	
Describe the activities classified into EPA 11	
EPA 12- Use evidence-based information to advance patient care	
Describe the activities classified into EPA 12	
EPA 13- Oversee the pharmacy operations for an assigned work shift	
Describe the activities classified into EPA 13	
EPA 14- Fulfill a medication order	

Describe the activities classified into EPA 14	
EPA 15- Create a written plan for continuous professional development	
Describe the activities classified into EPA 15	
17. Choose one or more outcomes of practice experience programs evaluated in the article. For each outcome, describe details reported in the article.	
Satisfaction of students and preceptors	
Describe how the outcome above was evaluated and the main findings	
Development of knowledge, skills and attitudes by the students	
Describe how the outcome above was evaluated and the main findings	
Improvements in pharmacy	
Describe how the outcome above was evaluated and the main findings	
18. Describe any noteworthy items you feel compelled to document	

Source: Authors.

2.4 Data analysis and presentation

The extracted data will be presented in a table containing the following aspects of each article included in the review:

1. Authors, year of publication and country of origin; 2. Study design and aims; 3. Participants; 4. Characteristics of pharmacy practice experience program (including type of practice experience, duration, workload, preceptor training, teaching activities adopted by preceptors and faculty members, professional activities performed by the students classified according to EPAs); 5. Outcomes of the programs evaluated in the studies (including students and preceptors satisfaction, development of knowledge, skills and attitudes by the students, improvements in pharmacy). A narrative summary will accompany the tabulated results and will describe how the results relate to the review's objective and question, and how the results might inform future practice experience programs for pharmacy students in community pharmacy

3. Partial Final Considerations

The results obtained in this scoping review will support the reformulation of pharmacy internship programs and the construction of an instrument to assess the acquisition of competences according to the student's perception. Indeed, the findings can also be used for curriculum planning and activities related to the continuing professional development of preceptors and pharmacy students.

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