BIBLIOMETRIC ANALYSIS OF THE BRAZILIAN SCIENTIFIC PRODUCTION IN PHARMACEUTICAL CARE AND CLINICAL PHARMACY FROM 1980 TO 2022

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Introduction

Pharmacists in Brazil have a broad field of practice. Some responsibilities are well-established and deeply rooted in both popular and professional knowledge, while Pharmaceutical Care, and especially Clinical Pharmacy, are relatively new concepts in the Brazilian job market.

Clinical pharmacy, in particular, was only regulated by the Federal Pharmacy Council in 2013, with the publication of Resolutions No. 585/2013 [1] and No. 586/2013 [2]. The first, defines the field as "focused on the science and practice of rational drug use, where pharmacists provide patient care to optimize pharmacotherapy, promote health and well-being, and prevent disease." [1]

With the development of the field, new resolutions were issued in 2019 [3] and 2022 [4], further confirming its emergent nature. Therefore, this study aims to delineate the profile of Brazilian scientific production on the topics of Pharmaceutical Care and Clinical Pharmacy from 1980 to 2022. Additionally, it seeks to assist clinical pharmacists in gaining an updated perspective on their field and to identify potential knowledge gaps through bibliometric analysis [5].

Material and Methods

Searches were conducted involving the title, abstract, and keywords in the following databases: Web of Science (WoS) Core Collection and *Biblioteca Virtual em Saúde* (BVS): Lilacs and Medline, using the keywords properly established as health descriptors indexed by DeCS/MeSH [6]: Clinical Pharmacy, Pharmaceutical Care, *Farmácia Clínica*, *Atenção Farmacêutica*, *Cuidado Farmacêutico*.

The following inclusion criteria were defined: (i) publications between 1980 and 2022; (ii) brief communications, articles, and review articles published in scientific journals; (iii) articles classified as early access; (iv) english and portuguese documents; (v) country of interest (Brazil).

The titles, abstracts and affiliations of each included study were manually analyzed with the help of Zotero 6.0.26 (RRID: SCR_013784) and organized using Microsoft Excel Professional Plus 2019 (RRID: SCR_016137). The results from each database were handled independently. Twenty-three topics were defined to group the articles by covered subject. Furthermore, the main journals and institutions were identified based on the number of publications associated with each. Qualis and impact factor were also evaluated.

Results and Discussion

A total of 325 articles from WoS and 1115 articles from BVS regarding Pharmaceutical Care and/or Clinical Pharmacy were evaluated. The majority of the scientific production in the area was found to be concentrated in the last 10 years (2012-2022), both nationally (79% in WoS and 77% in BVS) and internationally, highlighting the emergent nature of these topics. Brazil ranks second globally in scientific

production, according to WoS' data. However, Brazilian scientific output in this area is still only a fraction (about one-fifth) of that produced in the United States (n = 1975 (WoS)).

Brazilian research is primarily concentrated in the coastal states, which are also home to the majority of the population and public higher education institutions, responsible for more than 95% of the country's total scientific output [7]. Among the regions, the Southeast stands out the most, contributing around 50% of the total national production in the field of Pharmaceutical Care and Clinical Pharmacy, according to both WoS and BVS.

Out of 216 (BVS) and 93 (WoS) journals, the medium impact factor (IF) was 1.08, while the mode of the Qualis in the Pharmacy area was B1 (17%). The main journals were (i) *Revista Ciência & Saúde Coletiva* (A1; IF 2022-2023: 1.70); (ii) *Cadernos de Saúde Pública* (A1; IF 2022-2023: 3.37) ; (iii) *Revista de Saúde Pública* (A1; IF 2022-2023: 2.80); (iv) Brazilian Journal of Pharmaceutical Sciences (BJPS) (B1; IF 2022-2023: 1.21). This indicates a possible difficulty for Brazilian authors regarding the publication of manuscripts in English, as only the BJPS no longer accepts manuscripts in Portuguese.

Five out of twenty-three defined topics were most frequently addressed in the evaluated articles (n > 79 considering BVS and WoS, without excluding duplicates between platforms). The topics were: (i) satisfaction/opinion research; (ii) Pharmaceutical Care/Clinical Pharmacy in general; (iii) medication adherence/pharmacotherapeutic follow-up/medication reconciliation; (iv) determination of the profile of users/professionals/services or evaluation of knowledge/perspectives; (v) judicialization of medicines. Descriptive studies were the most common type of research in both databases (53% in BVS and 42% in WoS), while the most frequent review types were narrative (7% in BVS, n = 74) and systematic (7% in WoS, n = 23).

Conclusion

The challenges faced by Brazilian authors in publishing in English highlight the necessity for ongoing assistance and resources to foster international collaboration, facilitate knowledge dissemination, and provide incentives for these authors to enhance their English proficiency. Furthermore, descriptive studies are likely more prevalent because they require less investment and are inherently simpler to conduct. The lack of more complex studies underscores the need for further maturation of the field.

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