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LETTER TO THE EDITOR

Scientific production on *Helicobacter Pylori* in Colombia: a bibliometric analysis of the last 25 years

Producción científica sobre Helicobacter Pylori en Colombia: un análisis bibliométrico de los últimos 25 años

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Dear editor:

Helicobacter pylori infection is a bacterial infection that affects almost half of the world's population, although its prevalence varies depending on location and health conditions.[1-4] *H. Pylori* is the most common cause of chronic gastritis, which in some cases can progress to severe gastrointestinal diseases such as gastric duodenal peptic ulcer and gastric cancer.[4] Given its high prevalence and serious impact on health, this bacterium has become a major topic of study in gastroenterology. In fact, scientific production on *H. pylori* has steadily increased over the last two decades and has diversified towards topics such as antimicrobial resistance, eradication strategies, gastric cancer, and interaction with the microbiota.[5]

In Colombia, where the prevalence of *H. pylori* infection reaches rates close to 80%,[6] scientific production on this bacterium has not yet been systematically quantified. Therefore, a bibliometric analysis would make it possible to identify the characteristics of such scientific production in the country, including main research trends, thematic gaps, leading institutions, and collaboration networks,[7] which, in addition to giving more visibility to the national literature on *H. pylori*, would help guide research and public health policies aimed at reducing the high rates of infection and, consequently, the risk of associated digestive diseases.

In this sense, and as a preliminary proposal, we conducted a non-systematic search in Scopus, the database with the greatest coverage of Latin American biomedical journals,[8] to identify studies on *H. pylori* published in the last 25 years by authors with at least one affiliation with Colombian institutions. The search strategy was based on the following MeSH terms (alone and in combination with the Boolean operators "AND", "OR", etc.): TITLE-ABS-KEY("Helicobacter pylori" OR "Campylobacter pylori subsp. pylori" OR "Campylobacter pyloridis" OR "Campylobacter pylori" OR "Helicobacter nemestrinae") AND AFFILCOUNTRY ("Colombia") AND PUBYEAR >1999 AND PUBYEAR <2025. After removing duplicates, all articles that were not related *to H. pylori* after reading the title, abstract, and keywords were excluded. Bibliometric analysis was performed using the Bibliometrix package of R (v. 4.3.1).

A total of 261 articles on *H. pylori* by authors with at least one affiliation with a Colombian institution were found, of which 225 (86.2%) were original articles (cohort studies, cross-sectional studies, case-control studies, etc.). Concerning authorship, there were 1 231 authors and only 12 (0.97%) articles had a single author. International collaboration was found in 123 articles (47.13%). Scientific production grew at an average annual rate of 6.49% and, on average, each paper had 23.38 citations (Table 1).

Table 1. General characteristics of articles on *Helicobacter pylori* with at least one author affiliated with a Colombian institution.

Variables		n	%
Type of article	Original article	225	86.2
	Review article	22	8.4
	Letters	11	4.2
	Case reports	3	1.1
Authorship		1 231	-
Collaboration	Single-authored articles	12	-
	Co-authorships per article (Mean)	8.69	-
	International co-authorship	-	47.13
Keywords		499	-
Journals		117	-
Annual growth rate		-	6.49
Average number of citations per paper		23.38	-

The journal in which most articles were published was Revista Colombiana de Gastroenterología (n=48; 18.39%). Regarding the impact factor of the journals in which the 261 articles were published, Helicobacter, Revista Colombiana de Gastroenterología, Biomédica, and Gut had the highest h-index, with a total of 77 articles published in these journals. Furthermore, although Helicobacter had the highest h-index (10), Gut had the highest number of citations (n=763). As for authors, Luis Eduardo Bravo (Universidad del Valle) was the most prolific, with 48 published articles, and Pelayo Correa stood out for his influence, reaching an h-index of 29 (Table 2).

Table 2. Journals and authors with the highest production of articles on *Helicobacter pylori* with at least one author with affiliation with a Colombian institution.

Name of the journal	Published articles	H Index	Total citations
Revista Colombiana de Gastroenterología	48	8	226
Helicobacter	14	10	335
Biomédica	11	7	91
Gut	4	4	763
Bravo LE	48	28	2 881
Correa P	40	29	2 957
Piazuelo MB	22	16	1 470

With respect to the Colombian institutions with the highest scientific production on *H. pylori*, the Universidad Nacional de Colombia ranked first with 62 publications, followed by the Universidad del Valle (n=57), and the Pontificia Universidad Javeriana (n=46) (Figure 1).

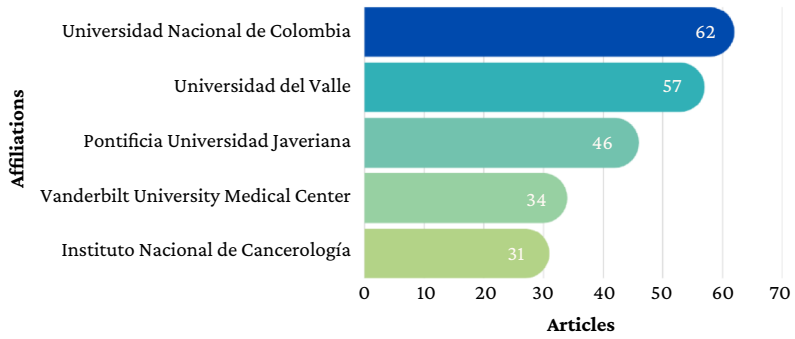

Figure 1. Institutions with the highest production of articles on *Helicobacter pylori* published in the last 25 years with at least one author with affiliation with a Colombian institution.

The analysis of international collaboration revealed an extensive and diverse network, with strong links to researchers in the United States and several European, Latin American, and even Asian countries (Figure 2).

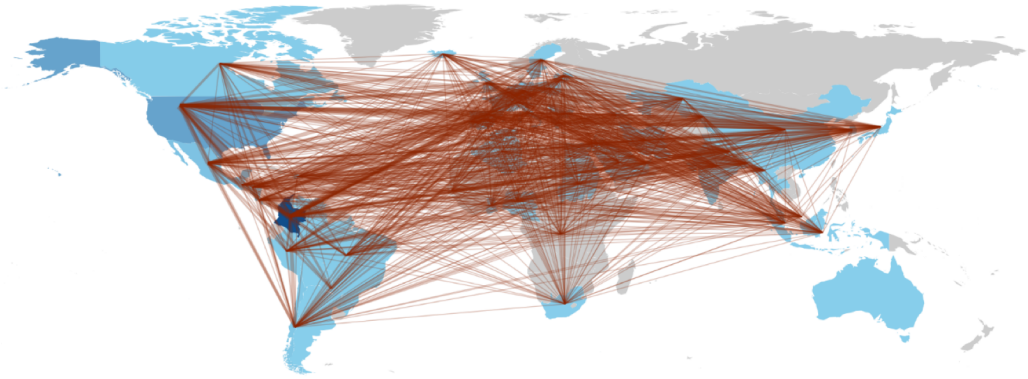

Figure 2. International collaboration in articles on *Helicobacter pylori* published in the last 25 years with at least one author with affiliation with a Colombian institution.

The articles with the highest impact factor were, in this order, Importance of *Helicobacter pylori* oipA in clinical presentation, gastric inflammation, and mucosal interleukin 8 production;[9] Long term follow-up of patients treated for *Helicobacter pylori* infection;[10] and 14-day triple, 5-day concomitant, and 10-day sequential therapies for *Helicobacter pylori* infection in seven Latin American sites: a randomised trial.[11] These three studies were published in very high impact journals and all involved institutions from high-income countries (Table 3).

Table 3. Top 3 articles with the highest number of total citations.

Authors of article	Year of publication	Journal	Total citations	Average citations per year	DOI
Yamaoka *et al.*[8]	2002	Gastroenterology	299	12.46	10.1053/gast.2002.34781
Mera *et al.*[9]	2005	Gut	295	14.05	10.1136/gut.2005.072009
Greenberg *et al.*[10]	2011	Lancet	231	15.40	10.1016/S0140-6736(11)60825-8

In the last 5 years, studies have focused on gastric cancer, intestinal metaplasia, strategies for *H. pylori* eradication, and drug resistance mechanisms.

This preliminary bibliometric analysis provides an objective overview of the last 25 years of *H. pylori* research conducted by Colombian authors or with academic or employment relationships with Colombian institutions and its impact worldwide. Although the data presented here are extremely important to get a general picture of the scientific research on *H. pylori* in the country, more robust bibliometric studies of the scientific production on the subject in recent years are needed, as this information could be used as input for the design and implementation of actions aimed at strengthening research on the treatment of *H. pylori* infection and associated complications, as well as public health policies aimed at reducing the transmission of this bacterium in the country.

Conflicts of interest

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