



DESCRIPTIVE BIBLIOMETRIC STUDY

Participation of the Mexican General Surgery in International Journals

Rodea-Montellano Sarahí Elizabeth^{1*}  and Lucero León Rocha²

¹Department of General Surgery of Hospital de Especialidades “Bernardo Sepúlveda Gutiérrez”, Centro Médico Nacional Siglo XXI, Mexico

²Department of General Surgery of Hospital, General de Zona 2 A Troncoso, Mexico

*Corresponding author: Dra. Rodea Montellano Sarahí Elizabeth, Department of General Surgery, Hospital de Especialidades “Bernardo Sepúlveda Gutiérrez” Centro Médico Nacional Siglo XXI, IMSS, Av. Cuauhtémoc 330, Doctores, Cuauhtémoc, 06720, México City, México, Tel: +521-5545126972



Abstract

Background: Scientific publications are essential for disseminating knowledge and updates among physicians. Integrating scientific research into clinical practice and medical education is crucial for improving patient care. Developing scientific skills alongside clinical skills is essential for applying the scientific method in evidence-based medicine. Publishing research findings in journals is the final step in the scientific process, but it is sometimes overlooked, affecting a country's scientific output.

Aim: The aim of this study is to quantify Mexico's contribution to the most significant international journals in the field of surgery.

Material and methods: Descriptive bibliometric study, of articles published in a 5-year period between 2018 and 2022 in one of the top 10 journals with the highest impact factor in the field of general surgery, articles were included if it was identified that one of the authors was affiliated with a Mexican institution.

Results: 59 articles published in 10 of the journals with the highest impact in the area of surgery. The journals with the most publications were the British Journal of Surgery with 11 articles (17.2%), Mexico City representing 83.2% of the total publications. The average number of citations for each article was 20.36 ± 31.4 (range 0-198). The institution with the highest number of publications was the Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán with 15 (25%).

Conclusion: This study provides a comprehensive overview of general surgery research in Mexico, highlighting both achievements and areas for improvement. By understanding the current landscape and identifying key challenges, Mexican surgeons and researchers can chart

a course for continued growth and advancement in their specialty.

Keywords

General surgery, Bibliometric analysis, Scientific publications, Impact, Mexican authors, International journals

Introduction

Scientific publications are an essential source of knowledge as it is the way in which physicians can share findings, experiences, updates. Scientific research is important throughout medical practice, therefore it is appropriate to initiate this process and find a balance with clinical practice, and include it in the training of students and residents, and encourage the development of their scientific skills, which are as important as clinical skills, for the knowledge of the scientific method and its application in practice, thus helping to effectively exercise evidence-based medicine. In this sense, the final link in the scientific process is the publication of its results in a journal, a process that sometimes is not completed and is reflected in the scientific production of the country [1].

It is indisputable that Mexico contributes to the progress of medicine and has been published in national and international scientific journals and there are publications that analyze the trends of the literature on surgery worldwide; however, the scientific productivity of Mexican surgeons in high impact journals is still unknown.



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Objective

The aim of this study is to quantify Mexico's contribution to the most significant international journals in the field of surgery.

Materials and Methods

A descriptive bibliometric study was performed after a computerized search in Scopus of articles published in a 5-year period between January 1, 2018 and December 31, 2022 in any of the 10 journals with the highest impact factor related to the field of general surgery, in which it was identified that any of the authors belonged to a Mexican institution.

The journals included were selected according to the impact factor reported by the *Journal Citation Reports* in 2021. The journals with the highest impact factor were the following: *JAMA Surgery*, *Annals of Surgery*, *International Journal of Surgery*, *British Journal of Surgery*, *Endoscopy*, *Hepatobiliary Surgery and Nutrition*, *World Journal of Emergency Surgery*, *Journal of the American College of Surgeons*, *Digestive Endoscopy*, *American Journal of Surgical Pathology*.

The identified articles were exported to a data base sheet that included article's name, journal, year of publication, authors, and citations

Resultados

59 articles published in 10 of the journals with the highest impact in the area of surgery. The journals with the most publications were *British Journal of Surgery*, 11 articles (17.2%), *World Journal of Emergency Surgery* 10 articles (15.6%), *American Journal of Surgical Pathology*

10 articles (15.6%) ([Table 1](#)).

The map shows that the production of publications in international journals is concentrated in the urban areas of the country. Mexico City, for example, represents 83.2% of the total publications ([Figure 1](#)).

This map reflects the scientific and technological development of Mexico. The states that produce the most publications in international journals are those with the best universities, research institutes, and technology development centers.

The [Graph 1](#) shows the chronological progression of publications during the selected period.

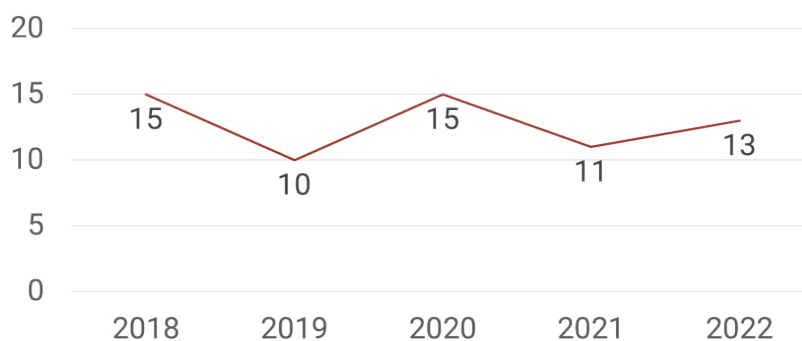
Of the 59 articles found in the search, it can be noted that the maximum production per year was in 2018 and 2022 with a total of fifteen documents, while in 2019, ten works were published.

Table 1: Number of Mexican Publications by Journal.

JOURNALS	MEXICAN PUBLICATIONS
JAMA Surgery	4
Annals of Surgery	4
International Journal of Surgery	8
British Journal of Surgery	11
Endoscopy	9
Hepatobiliary Surgery and Nutrition	0
World Journal of Emergency Surgery	10
Journal of the American College of Surgeons	2
Digestive Endoscopy	1
American Journal of Surgical Pathology	10



PUBLICATIONS PER YEAR



Graph 1: Number of articles published per year.

The average number of citations for each article was 20.36 ± 31.4 (range 0-198). Each article had an average of 249.62 ± 858.27 coauthors (range 2-4744).

The institution with the highest number of publications was the Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán with 15 (25%), followed by the Centro Médico Nacional Siglo XXI (CMN Siglo XXI) with nine publications (14.1%).

Discussion

Bibliometric studies are becoming increasingly common in international literature and have been conducted to assess various specialties, allowing us to understand topics of interest, levels of evidence, citation counts, or general publication trends. There are similar initiatives focused on the evaluation of general surgery on a global scale, the majority of which originate from North America or Europe [2,3].

The analysis of scientific publications constitutes a fundamental tool for understanding the dissemination of scientific developments and novel surgical techniques [3].

Scientific publications are essential to keep general surgery up to date. Despite the increase in publications due to the COVID-19 pandemic, the highest impact journals in the field have not experienced a significant increase in general surgery publications [4]. The importance of Mexican scientific journals and the challenges they face are highlighted. In 2021, Ulloa-Aguirre, et al. analyzed 6 Mexican scientific journals recognized by the same body (JCR), where the importance of Mexican scientific journals and the challenges they face are denoted [1].

In 2022, Esteban-Zubero and García-Muro, confront us with the importance of research during specialist physician training, showing that few programs include this area [5]. This also represents an area of opportunity to carry out scientific research and culminate it with the publication of results in high impact journals.

There are several factors that have contributed to the growth of Mexican surgery. One of the most important factors is the growing demand for surgical procedures

in Mexico. The Mexican population is aging, and chronic diseases, such as cancer, are becoming more common. This has led to an increase in the demand for surgical procedures to treat these diseases.

Another factor that has contributed to the growth of Mexican surgery is the increase in the number of surgeon training programs in the country. In recent years, new medical schools and surgical schools have opened in Mexico, which has led to an increase in the number of qualified surgeons in the country [6].

Finally, the growing collaboration between Mexican and foreign surgeons has also contributed to the growth of Mexican surgery. Mexican surgeons are working with colleagues from other countries on research and development projects, which is allowing them to learn new techniques and share their knowledge [7].

Despite these findings, there are encouraging factors to consider that can serve as guidance or examples to follow. Institutions with a higher number of publications stand out as dynamic academic centers with the presence of resident physicians and active researchers [8]. This results in a greater capacity for scientific production compared to clinics or surgeons in private practice [9].

In short, due to the complexity of the subject and related factors such as the promotion of scientific productivity in Mexico, this work aims to provide estimates for the analysis and evaluation of health research to promote scientific growth and development in our country [9].

This study has certain limitations, such as exclusively searching in high-impact journals and ignoring other databases. However, focusing on high-impact journals allows for a better evaluation of the international impact of our specialty.

Conclusions

Our research is one of the first on the quantity and quality of surgical research in Mexico, and will serve as a reference for future research in this area, we hope that the imperative need to promote clinical research in Mexico, is initiated from the residence so that our

publications increase the quality and originality of its contents and can increase their recognition among the national and international scientific communities, allowing them to be placed in a place worthy of the scientific level of its researchers.

This study provides a comprehensive overview of general surgery research in Mexico, highlighting both achievements and areas for improvement. By understanding the current landscape and identifying key challenges, Mexican surgeons and researchers can chart a course for continued growth and advancement in their specialty.

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