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ORIGINAL

Bibliometric analysis of the Cuban Journal of Neurology and Neurosurgery between 2017 and 2021

Análisis bibliométrico de la Revista Cubana de Neurología y Neurocirugía entre 2017 y 2021

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ABSTRACT

Introduction: scientific publication in the field of neurology and neurosurgery occupies an essential role in the development of the Cuban biomedical sciences, which is why studying its research activity is necessary.
Objective: to characterize the scientific production of the Revista Cubana de Neurología y Neurocirugía between 2017 and 2021.
Methods: a bibliometric, descriptive, and cross-sectional study of the articles published in the RCNNC between 2017 and 2021. The universe was made up of 96 articles. The Productivity Index and the Price Index were used. Data were analyzed using descriptive statistics.
Results: a predominance of original articles was found (31,25 %); 100 % were written in Spanish. Two hundred fifty-eight signatories were reported, with a predominance of multiple authorship. 65,62 % of the articles had a man as their first author. 74,60 % of the authors were small producers, with no report of large investigations. The country with the largest signatories was Cuba (206), and the most productive institution was the International Center for Neurological Restoration (60). Three thousand one hundred twenty-three references were used, 2529 in English. The Price Index was found to be between 0,00 and 0,45.
Conclusions: the original articles, written in Spanish and with multiple authorship, constituted the axis of the journal's production. Male authors and small producers led the scientific output. There was a marked editorial and institutional endogamy. Bibliographical references in English were the most common, as well as a low Price Index.

Keywords: Bibliometrics; Scientific Publication as Subject; Scientific Journals; Neurosciences; Cuba.

RESUMEN

Introducción: la publicación científica en el campo de la neurología y neurocirugía ocupa en papel importante en desarrollo de las ciencias biomédicas cubanas por lo que se hace necesario el estudio de su actividad investigativa.
Objetivo: caracterizar la producción científica de la Revista Cubana de Neurología y Neurocirugía entre 2017 y 2021.
Métodos: estudio bibliométrico, descriptivo y transversal de los artículos publicados en la RCNNC entre 2017 y 2021. El universo lo constituyeron 96 artículos. Se empleó el Índice de productividad y el índice de Price. Los datos fueron analizados mediante estadística descriptiva.
Resultados: se encontró predominio de artículos originales (31,25 %); el 100 % de los artículos se redactaron

en español. Se reportaron 258 firmantes, con predominio de la autoría múltiple. El 65,62 % de los artículos tuvo como primer autor a un hombre. El 74,60 % de los autores fueron pequeños productores, sin reporte de grandes investigaciones. El país con mayor número de firmantes fue Cuba (206 firmantes) y la institución más productiva fue el Centro Internacional de Restauración Neurológica (60 firmantes). Se emplearon 3123 referencias, de ellas 2529 en inglés. El Índice de Price se encontró entre 0,00 y 0,45.
Conclusiones: los artículos originales, redactados en español y de autoría múltiple constituyeron el eje de la producción de la revista. Los autores masculinos y los pequeños productores lideraron la producción científica. Existió una marcada endogamia editorial e institucional. Las referencias bibliográficas en inglés fueron las más comunes, así como un Índice de Price bajo.

Palabras clave: Bibliometría; Publicación Científica como Asunto; Revistas Científicas; Neurociencias; Cuba.

INTRODUCTION

During the second half of the 20th century, neuroscience evolved from static to adaptable and changing, shaped by the research of its greatest exponents throughout history. Neurology in Cuba dates back to the beginning of the 19th century with the subsequent founding of the Institute of Neurology and Neurosurgery in 1962,[1] a fact that encouraged the training of professionals in this specialty to a great extent since they could count on a specialized center to carry out investigations.

Information and evidence constitute a vital element in Health Sciences, a field in constant expansion, where knowledge can vary relatively quickly. In this sense, scientific journals play a defining role, comprising the means par excellence for disseminating the science produced.

For their part, the dissemination of scientific production became increasingly necessary, which is why neurologists and neurosurgeons at the center set out to find a medium that would allow them to inform the scientific community of the results of their work for what arises in 2011 the *Revista Cubana de Neurología y Neurocirugía*, the official publication of the Cuban Society of Neurology and Neurosurgery.[2]

The scientific articles published in this journal are refereed by a critical review of experts anonymously and independently,[3] for which they have high scientific quality, evidenced in the journal's achievements and merits and the institution's achievements.

Bibliometrics as a science is becoming more and more necessary, and it has created a trend in the research field. This allows detailed analysis of publications, subject areas, institutions, and researchers,[4] for which it uses metric indicators and tools that guarantee an in-depth study of their behavior. Its results encourage new guidelines to consolidate and improve the quality of scientific research. In the same way, it exposes the panorama of achievements and weaknesses of the journal. The present investigation was developed with the objective of characterizing the scientific production of the *Revista Cubana de Neurología y Neurocirugía* between 2017 and 2021.

METHODS

A bibliometric, descriptive and cross-sectional study of the articles published in the *Revista Cubana de Neurología y Neurocirugía* was carried out until November 2021. The study universe comprised 96 articles published in the journal's issues in 2017-2021.

To access and obtain the information, the journal's website (https://revneuro.sld.cu) was accessed on November 6, 2021, and each published issue was reviewed. The articles were downloaded in PDF format, and a series of data was extracted using a data collection form.

The following variables were studied: articles's volume and issue, typology, language, authors per article, authors' gender, first author's gender, authors' productivity, authors' affiliation, number of references, age of the references, and language of references.

The Subramanyam Index (IS) was used as a collaboration indicator, representing the proportion of articles with multiple authorship. The IS is the quotient resulting from the division of the articles with multiple authorship (two or more authors) among all the articles. Its maximum value is 1, representing that all articles have at least two signers.

To determine the productivity of the authors, the Productivity Index (IPr) was used. It is calculated using the formula IPr = logN, where N is the number of articles published by the author. Based on this calculation, the authors separate into small (IPr=0), medium (0<IPr<1) and large (IPr=1) producers. To calculate the obsolescence of the references, the Price index (IP) was used, which is based on the number of references in the 5 years before the submission of the article.

The data obtained were stored in a Microsoft Excel 2013 database and processed using SPSS 21.0. The data were analyzed using absolute and relative percentage frequencies.

RESULTS

A predominance of original articles (31,25 %) and case presentations (27,08 %) was found. The number with the highest number of articles was 1 of volume 10, with 29 articles, and the number with the lowest number of articles was supplement 2 of volume 11, with 5 articles (table 1).

Table 1. Distribution according to typology, volume and numbers of articles published in the Revista Cubana de Neurología y Neurocirugía, 2017-2021

Typology	Vol.	7	8	9	9	10	11	11	11	Total	
	Núm.	1	1	1	2	1	1	2	Sup.	No.	%
Editorial		0	2	2	2	2	0	1	0	9	9,38
Original article		5	5	4	2	8	4	2	0	30	31,25
Case presentation		2	2	2	3	12	3	2	0	26	27,08
Bibliographic review		0	5	0	2	7	2	3	4	23	23,96
Special article		3	0	0	1	0	0	1	1	6	6,25
Story		0	0	0	0	0	0	0	0	0	0,00
Review		0	0	0	0	0	0	0	0	0	0,00
Neuroscientific Event		2	0	0	0	0	0	0	0	2	2,08
Total		12	14	8	10	29	9	9	5	96	100

100 % of the articles were written in Spanish. 258 authors were reported in the articles, with a predominance of multiple authorship, where 6 or more authors signed 50,56 %. The IS was 0,76. 65,62 % of the articles had a man as their first author, although the gender distribution was 50 % (table 2).

Table 2. Characteristics of the articles and their authors

Variable	Scale	N	%
Language	Spanish	96	100
	English	0	0
Number of authors	1	23	24
	2 a 5	10	10,40
	6 or more	63	65,60
Sex of first author	Male	63	65,62
	Female	33	34,38

Based on the productivity index of the authors, 74,60 % were small producers, and 25 % were medium producers. One author was reported as a large producer (IP 1.04). 187 authors published only one article, 41 published 2 articles, and 22 published 3 or more. Table 3 shows the most productive authors.

Table 3. Most productive authors in the Cuban Journal of Neurology and Neurosurgery, 2017-2021

Authors	N
Lilia María Morales Chacón	11
Ramiro Jorge García García	6
Alina González Quevedo Monteagudo	5
Melba Zaldívar Santiesteban	5
Pedro Luis Rodríguez García	5
Annety Beatriz Aguilera Cruz	4

Eduardo Morales Carmenates	4
Gilberto Durán Torres	4
Juan Enrique Bender del Busto	4
Margarita Minou Báez Martín	4

Manuscripts came from 74 institutions, and the most productive institution was the International Center for Neurological Restoration (60 signatories) (table 4).

Table 4. Distribution of the most productive institutions in the Revista Cubana de Neurología y Neurocirugía, 2017-2021

Institutions	N
Centro Internacional de Restauración Neurológica, La Habana	60
Instituto de Neurología y Neurocirugía, La Habana	54
Hospital Clínico Quirúrgico “Hermanos Ameijeiras”, La Habana	25
Hospital Pediátrico Docente “Juan Manuel Márquez”, La Habana	20
Hospital Universitario Clínico Quirúrgico “Manuel Fajardo”, La Habana	13
Hospital General Docente "Dr. Ernesto Guevara de la Serna", Las Tunas	12
Hospital General Docente “Roberto Rodríguez Fernández”, Ciego de Ávila	10
Hospital Pediátrico Universitario “Octavio de la Concepción de la Pedraja”, Holguín	10
Hospital Clínico Quirúrgico “Lucía Íñiguez Landín”, Holguín	9
Hospital Provincial Clínico Quirúrgico Docente “Saturnino Lora”, Santiago de Cuba	9

The articles came from 9 countries, with the highest number of signatories being Cuba (203) (table 5).

Table 5. Distribution of countries of origin of manuscripts

Country	N	%
Cuba	203	78,68
Spain	31	12,02
Ecuador	7	2,71
Colombia	6	2,33
Mexico	5	1,94
Mozambique	3	1,16
United States	2	0,77
Switzerland	1	0,39
Total	258	100

3123 references were used, with an average of 32,53 per article, mainly in bibliographic reviews (957) and original articles (955). The PI was between 0,45 (original articles, case presentation, bibliographic review) and 0,00 (History and review). Most references were in English (2529 vs 605) (table 6).

Table 6. Characteristics of references

Typology	Number of References	<5	Price Index	References in Spanish	References in English
Editorial	121	47	0,39	48	73
Original article	955	430	0,45	196	770

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Case presentation	591	263	0,45	88	503
Bibliographic review	957	429	0,45	45	912
Special article	293	102	0,35	76	217
Story	159	0	0	121	38
Review	47	0	0	31	16
Neuroscientific Event	0	0	0	0	0
Total	3123	1271	0,41	605	2529

DISCUSSION

There has been a considerable growth of scientific publications in neurology. The *Revista Cubana de Neurología y Neurocirugía* occupies an essential part of the Cuban biomedical publication. However, there is little examination of its productivity and post patterns.

A study by Espino-Hernández et al.[5] (67,40 %) alleges that the highest percentage of the articles published in the Panorama de Cuba y Salud journal were original articles, which coincides with the metric analysis of Díaz-Chieng et al.[6] (57,41 %); This was an expected result since the Infomed journal network is subject to the laws governing international publication that regulate that most of the articles published must be original articles.

However, when comparing the percentages, it can be seen that in the *Revista Cubana de Neurología y Neurocirugía,* there is a low percentage compared to the others, considering this an indicator that should increase in the journal, since they have other sections that bring together original results of research under different titles such as "Literature review" and "Case presentation".

In the world of publications, one of the main criteria taken in the quality of a publication is the number of published originals, which is justified by the fact that they are the definitive source of contributions to science since their results can coincide or contrast previous studies or make discoveries. Similarly, clinical cases report atypical behavior of diseases, unusual techniques or other cases that contribute to the development of science; hence its publication is a necessity and, therefore, a common fact.

An analysis in the Finlay journal based on the records generated in the Web of Science found that 100 % of the articles were published in Spanish.[7] The same results are reported here despite having authors from the United States. The United States is a country whose language is English. The authors consider that the totality of articles in Spanish is to be expected, as this is the language of the journal, institution and country where editorial management is carried out. From the authors' perspective, publishing English articles is necessary to reach a broader audience, not only Spanish speakers. In addition, to achieve indexing in services and infrastructures that confer greater visibility to published science, aligning with the highest editorial standards, including publishing articles in English, is necessary.

From a gender perspective, Cruz-Aguilera et al.[8] report the predominance of the male sex, a result that contrasts with the present one, where the distribution of sex was equal (50 %). However, in terms of primary authorship, the male sex predominated.

Multiple authorship is becoming more and more common in publications. An analysis of the collaboration patterns carried out by Piedra-Salomón et al.[9] shows that collaboration in the medical sciences constitutes a growing need, as a group of professionals such as technologists, nurses, and others mediate patient care. Collaboration positively influences the visibility of research since authors from different areas, institutions or countries extend the public or readers of the articles as long as it is accurate and well justified. In this aspect, strategies that allow determining the integrity of the role of the author play a fundamental role, where the journal implements alternatives such as the CRediT Taxonomy.[10]

The studies by Salas et al.[11] and O'Brien et al.[12] identified an IS greater than 0,70. These results indicate the proportion with multiple authorship, indicating values close to one, which are slightly higher than reported in the present investigation. However, in both studies, they reflect high collaboration.

A bibliometric analysis in the *Revista Cubana de Pedriatía* showed a predominance of authors who published a single article (small producers),[13] with results that coincide with the present investigation. Similarly, it coincides with the results of Morales et al.[14], who reported 97 % of small producers in the *Revista CorSalud*.

A study conducted by Carvajal-Tapia et al.[15] identified Brazil (58,55 %) and Cuba (10,52 %) as the most producing countries in the area of Health Sciences in Latin America. The authors consider that Brazil has two fundamental factors in its favor regarding scientific production: a wide territorial extension and, therefore, a more significant number of institutions associated with research and having created the SciELO network. The latter has endowed Brazil with a broad culture in scientific publication, which has allowed researchers to grow in terms of good practices in research, writing and scientific publication.

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A study in the *Revista Cubana de Pediatría* in 2012-2018[16] reports Cuba as a leading country in scientific production, which coincides with the present one. This result is expected since Cuba is the sponsoring country of the journal, and its purpose is to disseminate knowledge of the specialty with an emphasis on national research. However, the journal's editorial committee must draw up strategies to attract international authors, which favors their inclusion in higher-level indexing services since the internationalization of authors is a condition.

In a bibliometric study carried out in the journal *Universidad Médica Pinareña*,[17] a PI was reported that fluctuated between 0,52 and 0,87, with a mean PI of 0,76 and 0,83 in the original articles, these being higher values than those found here. The PI determines the references' age, where higher values represent a higher update. Due to their constant progress in medical sciences, it is necessary to use the most up-to-date scientific evidence. Hence this is a point for the journal to improve.

Regarding the references' language, a study by Flores-Fernández et al.[18] reported that 85 % were in English. These results agree with the present one. This fact may be based on factors such as the availability of medical literature, the authors' knowledge in search of information, and the fact that the journals that form the core of this area are published in that language, as explained by Aneja[19].

CONCLUSIONS

The original articles, written in Spanish and of multiple authorship, constituted the axis of the journal's production. Male authors and small producers led the scientific output. There was a marked editorial and institutional endogamy. Bibliographical references in English were the most common, as well as a low Price Index.

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CONFLICT OF INTEREST

No conflict of interest is declared.

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