Revista MedEs
Revista Científica Estudiantil de Matanzas
MedEst. 2025 Vol.5; e336 ISSN: 2789-7567 RNPS: 2524

ORIGINAL ARTICLE

Bibliometric study of cardiovascular disorders in children with cancer in SciELO (2019-2023)

Estudio bibliométrico de trastornos cardiovasculares en niños con cáncer en SciELO (2019-2023)

Carlos David Boris Miclin [1]*, https://orcid.org/0009-0003-7658-7645

Amanda Camila Corbacho Faulkner [2], https://orcid.org/0009-0000-9830-5838

Rainel Martínez Quintana [2], https://orcid.org/0009-0008-1586-7703

Virgen Claudia Delis Mustelier [1], https://orcid.org/0009-0006-6101-9735

Karen Oviedo Pérez [2], https://orcid.org/0000-0002-6307-8652

Yoandri López Matamoros [1], https://orcid.org/0000-0002-2135-7266

[1] University of Medical Sciences of Santiago de Cuba. Faculty of Medicine No. 2. Santiago de Cuba, Cuba.

[2] University of Medical Sciences of Matanzas. Dr. Juan Guiteras Gener Faculty of Medical Sciences. Matanzas, Cuba.

*** Corresponding author:** carlosdavidborismiclin@gmail.com

Received: 05/11/2024

Accepted: 21/05/2025

How to cite this article: Boris-Miclín CD, Corbacho-Faulkner AC, Martínez-Quintana R, Delis-Mustelier VC, Oviedo-Pérez K, López-Matamoros Y. Bibliometric study of cardiovascular disorders in children with cancer in SciELO (2019-2023). MedEst. [Internet]. 2025 [cited access date]; 5:e336. Available in: https://revmedest.sld.cu/index.php/medest/article/view/336

MedEst. 2025 Vol.5; e336
ISSN: 2789-7567 RNPS: 2524

ABSTRACT

Introduction: Most childhood cancer survivors do not develop treatment-related cardiotoxicity; however, certain therapies increase the risk of long-term cardiovascular diseases. Bibliometrics enables the quantitative analysis of scientific output (articles, citations, keywords) to identify research patterns and trends.

Objective: To analyze scientific production in SciELO (2019-2023) on cardiovascular disorders in children with cancer using bibliometric indicators.

Method: An observational, cross-sectional, and descriptive study based on 26 articles retrieved from SciELO (filtered by year and topic). Productivity indicators were analyzed by country and publication type.

Results: Chile accounted for the highest output 26,92 %, while Colombia had the lowest 3,84 %. Original articles predominated over other publication types.

Conclusions: Research on pediatric cardiotoxicity in SciELO is limited, with geographic disparities and a focus on original studies. International collaboration should be expanded to address knowledge gaps.

Keywords: Cardiotoxicity; Pediatric Neoplasms; Bibliometrics; Cancer Survivors; Cardiovascular Diseases

RESUMEN

Introducción: La mayoría de los sobrevivientes de cáncer infantil no desarrolla cardiotoxicidad asociada a tratamientos oncológicos; sin embargo, ciertas terapias incrementan el riesgo de enfermedades cardiovasculares a largo plazo. La bibliometría permite analizar cuantitativamente la producción científica (artículos, citas, palabras clave) para identificar patrones y tendencias en la investigación.

Objetivo: Analizar la producción científica en SciELO (2019-2023) sobre trastornos cardiovasculares en niños con cáncer mediante indicadores bibliométricos.

Método: Estudio observacional, transversal y descriptivo basado en 26 artículos recuperados de SciELO (filtrados por año y temática). Se analizaron indicadores de productividad por país y tipo de publicación.

MedEst. 2025 Vol.5; e336
ISSN: 2789-7567 RNPS: 2524

Resultados: Chile concentró la mayor producción 26,92%, mientras Colombia tuvo la menor 3,84 %. Predominaron los artículos originales sobre otras tipologías.

Conclusiones: La investigación en SciELO sobre cardiotoxicidad pediátrica es limitada, con disparidades geográficas y enfoque en estudios originales. Se sugiere ampliar la colaboración internacional para abordar brechas de conocimiento.

Palabras clave: Cardiotoxicidad; Neoplasias pediátricas; Bibliometría; Supervivientes de cáncer; Enfermedades cardiovasculares

INTRODUCTION

Most childhood cancer survivors do not develop cardiotoxicity as a direct consequence of cancer treatments. However, certain antineoplastic therapies can induce late cardiovascular complications. Cardiotoxicity is the most serious chronic complication associated with these treatments, the clinical manifestations and time of onset of which vary depending on the therapeutic agent used and the patient's cardiac reserve [1-2].

The notable increase in the diagnosis and treatment of pediatric cancers with chemotherapy and radiotherapy, coupled with the fact that cardiovascular complications represent the second cause of morbidity and mortality in this population of survivors [3-4], makes it imperative to substantially increase scientific production on this topic. This demand responds to the clinical reality faced by a significant number of pediatric patients, not only in Cuba but globally.

At the national and international levels, there is a notable lack of updated bibliometric studies on cardiovascular disorders in children with cancer. This limitation prevents the establishment of reliable indicators to evaluate scientific production in this field, as well as the analysis of the most relevant types of articles or the identification of publications with the necessary methodological rigor. [5] Furthermore, it hampers the statistical characterization of specialized medical literature, which represents an outstanding challenge that must be addressed through rigorous research and quality scientific publications.

Bibliometrics, as an analytical discipline, focuses on the quantitative examination of scientific documents (articles, books, journals) and their associated metadata (citations, keywords, abstracts). Through statistical

methods, it allows for the identification of patterns and relationships in academic production, offering an objective view of the development of scientific knowledge. Its application is particularly valuable in complex medical fields such as pediatric cardiotoxicity. (6)

Bibliometric studies are a fundamental tool for the evaluation of scientific activity. They allow for the quantification of the volume of publications, the analysis of collaboration patterns between authors and institutions, and the evaluation of the impact of research through citation indicators. Beyond quantitative analysis, they provide valuable information for decision-making in scientific policy, helping to identify priority areas and optimize resource allocation. Their ability to reveal emerging trends and diagnose the current state of knowledge makes them indispensable tools for promoting transparency and the advancement of medical research. (7)

The insufficient production and bibliometric characterization of studies on late-stage cardiovascular complications in childhood cancer survivors limits the assessment of existing knowledge, the identification of research trends, and evidence-based clinical decision-making, particularly in contexts such as Cuba, where this issue lacks updated studies.

The scientific problem is: How can we characterize, through bibliometric analysis, global and Cuban scientific production on cardiovascular complications in childhood cancer survivors, in order to identify publication patterns, institutional collaborations, and knowledge gaps that guide future research?

Taking into account the above, it is essential to carry out this research with the aim of analyzing the scientific production in SciELO (2019-2023) on cardiovascular disorders in children with cancer using bibliometric indicators.

MATERIALS AND METHODS

This was a bibliometric, observational, cross-sectional, and descriptive study based on a quantitative analysis of scientific production indexed in SciELO on cardiovascular disorders in children with cancer (2019-2023).

The study population consisted of 26 articles; these were manually downloaded by accessing the SciELO database and filtered by year of publication (2019-2023) related to the topic under study. The entire study population was used.

MedEst. 2025 Vol.5; e336
ISSN: 2789-7567 RNPS: 2524

Scientific articles published in SciELO-indexed journals with the main topic: cardiovascular disorders in children with cancer, with full text and metadata availability (title, authors, citations, keywords) were included. Off-topic articles, articles without complete data/metadata, articles that were inaccessible, or articles of low methodological quality were excluded.

The variables analyzed were: SciELO collection (Argentina, Spain, Cuba, Chile, Colombia, Mexico, and Peru), year of publication (2019, 2020, 2021, 2022, 2023), article type (original article, case report, review article, and short communication), journal (Revista de Ciencias Médicas de Pinar del Río, Revista Latinoamericana de Ciencias Sociales y Humanidades, Revista Boletín Redipe 12, Revista Asociación de Docentes e Investigadores Jóvenes en Educación y Salud), and language (Spanish, English, and Spanish and English).

For this research, the statistical analysis of the data was performed using absolute and percentage frequency statistics. Excel and the SciELO database were used.

During the research process, the statutes established in the Cuban ethical standards for research in health sciences and the bioethical principles established in the Declaration of Helsinki were followed. Informed consent was not required as this was a bibliometric study with publicly accessible data.

RESULTS

As shown in Table 1, Chile leads the scientific production on the topic with seven articles, representing 26,92 % of the total analyzed. In contrast, Colombia has the lowest representation, with just one article (3,84 %), suggesting significant differences in research development on this topic across countries.

Table 1. Distribution of articles by SciELO collection by country

SciELO Collection by country	Number of items	Percentage (%)
Argentina	2	7,69
Spain	5	19,23
Cuba	4	15,38
Chile	7	26,92
Colombia	1	3,84
Mexico	2	7,69
Peru	5	19,23

Total	**26**	**100**

Source: SciELO database

The data presented in Table 2 reveal an uneven distribution of annual scientific output on the topic. The year 2023 recorded the highest volume of publications, with 8 articles (30,76 % of the total). In contrast, 2020 had the lowest productivity, with only 11,53 % of the publications in the period analyzed.

Table 2. Distribution of articles by year of publication

Year of publication	Number of items	Porcentaje (%)
2019	4	15,38
2020	3	11,53
2021	5	19,23
2022	6	23,07
2023	8	30,76
Total	**26**	**100**

Source: SciELO database

Table 3 reveals a clear predominance of original articles in the literature studied, representing 65,38 %. Only two, representing 7,69 %, were short communications.

Table 3. Distribution of articles by article type

Type of articles	Number of items	Percentage (%)
Review Article	4	15,38
Original Article	17	65,38
Case Presentation	3	11,53
Short Communication	2	7,69
Total	**26**	**100**

Source: SciELO database

Analyzing the distribution of articles by SciELO subject area is essential to understanding the magnitude of this study. Hence, the most prevalent articles are those in the Health Sciences, with 20 articles, followed by those in the Biological Sciences.

Table 4. Distribution of articles by SciELO Subject Area

Thematic Areas according to SciELO	Number of Items
Biological Sciences	3
Health Sciences	20
Applied Social Sciences	1
Humanities	2
Total	**26**

Source: SciELO database

DISSCUSION

Having literature that addresses such core topics in Health Sciences as cardiovascular and oncological diseases in pediatric patients is essential to achieve better preparation and/or training not only for undergraduate and graduate students and specialists from different services, but also for those involved in providing quality services to this highly vulnerable patient group.

The specialized literature agrees on the significant impact of chronic non-communicable diseases on global morbidity and mortality indicators.

Mendoza Torres et al. [5] highlight that cardiovascular diseases and cancer are the leading causes of mortality worldwide, with approximately 17,7 and 8,8 million deaths annually, respectively. These data reflect the urgent need to implement more effective preventive and therapeutic strategies for these pathologies. In the Cuban context, Uclés Villalobos et al. [9] report findings that are particularly relevant to the pediatric population (0-18 years), where cancer is the second leading cause of disease incidence and mortality in this age group.

In the authors' view, this dual condition (high incidence and mortality) positions pediatric neoplasia as a priority public health problem in Cuba, requiring special attention to early diagnosis programs, updated treatment protocols, and long-term follow-up of survivors.

According to Zayas Mujica [10], the implementation of the SciELO strategy has allowed Cuban medical journals to overcome the traditional barriers between scientific publications from the Global North and the Global South, establishing

a more inclusive and equitable scientific communication system. This model has been fundamental in raising the profile of Cuban research internationally, particularly in critical areas such as public health. The findings of Limaymanta CH et al.,[11] confirm this trend, demonstrating an exponential growth in publications on diagnosis and control of diseases during the last months, especially in the field of public health.

For the authors, in this context, the use of bibliometric methods is an indispensable tool for analyzing the intellectual structure of these publications, allowing them to identify both the most active authors and research groups and the theoretical foundations that support these works. This methodological approach not only facilitates the mapping of scientific production but also contributes to assessing its real impact and identifying emerging trends in this field of knowledge.

Rodríguez Camiño et al.[12] report that users and information institutions do not always have the time, technological infrastructure, and connectivity facilities to browse the internet, consult updated scientific publications online, or search for new information in databases. This process is often complex without the appropriate information retrieval tools, especially bibliographic databases and indexes. Castro-Rodríguez [13], in his article "The Scientific Production of Students Associated with Health Sciences Programs," argues that the scientific work of students in medical science programs has grown rapidly in recent years, driven by the need for spaces for knowledge sharing and ongoing feedback, and the creation of student scientific journals (RCE) to disseminate the results of scientific research conducted by students from higher education institutions.

Zacca González [14] notes that a current and persistent problem in the academic world regarding scientific practice is the productivity of its participants in the form of publications, not only in their qualitative aspects but also in their quantitative ones.

Mayor Guerra et al.,[15] in their article "Scientific Production on Biomedical Sciences in the Province of Santiago de Cuba," argue that efforts have been made in the eastern province to study scientific production by librarians and researchers in the sector, but the results presented are not representative of the number of health institutions in the province. Management for the search and dissemination of knowledge production, as well as training for the efficient use of new information and communications technologies among researchers, professors, and university faculty members in all medical settings, are still insufficient.

MedEst. 2025 Vol.5; e336
ISSN: 2789-7567 RNPS: 2524

Ruiz Coronel et al.,[16] state that scientific research is an essential part of the activities carried out in health science programs, as it allows for staying abreast of scientific advances in oncology and fosters a critical attitude toward evidence-based decision-making. During the undergraduate program, undergraduate students will produce multiple academic products, such as essays, monographs, seminars, presentations, articles, theses, etc.

Piñera Castro et al. [17] state that the evaluation of the national research system is essential for political decision-making. Díaz Rodríguez et al. [18] state that its implementation is justified by the need to optimize the distribution of resources, reduce the asymmetry in information between knowledge producers and users, and demonstrate that the investment is effective and provides public benefits.

Jiménez Pérez et al. [19] and Vitón Castillo et al. [20] emphasize the importance of multidisciplinary research in pediatric oncology, ranging from basic studies to technological developments, in order to improve the comprehensive management (prevention, diagnosis, treatment, and rehabilitation) of these patients.

This bibliometric study has significant limitations as it analyzes only the SciELO database, excluding other international sources and potentially biasing the results toward Ibero-American production. The analysis was restricted to basic quantitative indicators (geographic distribution, document types), without advanced metrics of scientific impact. The short period (2019-2023) and manual collection limit the identification of long-term trends. The quality of the articles and their actual clinical impact were not assessed. Although they reflect common challenges in resource-limited settings, the findings serve as a baseline for future, more comprehensive research.

CONCLUSIONS

It is recommended that bibliometric studies related to this topic be conducted in other databases to obtain a more comprehensive and up-to-date view of this trend. Scientific production on cardiovascular disorders in children with oncological diseases in SciELO is predominantly composed of original articles. Chile is the country with the largest contributions to the platform on this topic during the period studied, and Spanish was the most widely used language.

BIBLIOGRAPHIC REFERENCES

1. González Morejón AE. La cardiooncología pediátrica como disciplina emergente en Cuba. Rev Cubana Pediatr [Internet]. 2019 [cited 30/10/2024]; 91(2). Available in: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0034-75312019000200016&lng=es

2. Figueiras-Graillet LM. Cancer and cardiotoxicity in the transgender population. Cáncer y cardiotoxicidad en la población transgénero. Arch Cardiol Mex. [Internet] 2023 [cited 30/10/2024]; 93(Supl):23-25. Available in: https://pubmed.ncbi.nlm.nih.gov/37992701/

3. Rubens-Figueroa J, Cárdenas-Cardós R. Importance of cardio-oncology. How to detect suclinical heart failure. Importancia de la cardiooncología. Cómo detectar la insuficiencia cardiaca subclínica. *Arch Cardiol Mex*. [Internet] 2021 [cited 30/10/2024]; 91(2):229-234. Available in: https://pubmed.ncbi.nlm.nih.gov/33887756/

4. Jiménez-Carbajal MG. Estudio y seguimiento cardiovascular de niños y adolescentes sometidos a tratamientos oncohematológicos. ¿Por qué, cómo y cuándo?. Arch. Cardiol. Méx. [Internet]. 2020 [cited 30/10/2024]; 90(4):511-519. Available in: http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S1405-99402020000400511&lng=es

5. Alert Silva J, Pérez Trejo M, Verdecia Cañizares C, Forteza Saez M, García Socarras D, del Castillo Bahi R. Cardiotoxicidad por irradiación en pediatría. Rev Cubana Pediatr [Internet]. 2019 [cited 30/10/2024]; 91(3). Available in: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0034-75312019000300008&lng=es

6. Ninkov A, Frank JR, Maggio LA. Bibliometrics: Methods for studying academic publishing. Perspect Med Educ. [Internet] 2022 [cited 30/10/2024]; 11(3):173-176. Available in: https://pubmed.ncbi.nlm.nih.gov/34914027/

7. Manterola D.C, Rivadeneira D.J, Salgado C.C. Estudios bibliométricos. Una opción para desarrollar investigación en cirugía y disciplinas afines. Rev. cir. [Internet]. 2024 [cited 30/10/2024]; 76(2):147-156. Available in: http://www.scielo.cl/scielo.php?script=sci_arttext&pid=S2452-45492024000200147&lng=es

8. Mendoza-Torres E, Bravo-Sagua Ro, Villa M, Flores N, Olivares MJ, Calle X et al. Enfermedades cardiovasculares y cáncer: ¿dos entidades mutuamente relacionadas?. Rev Chil Cardiol [Internet]. 2019 [cited 30/10/2024]; 38(1):54-63. Available in: http://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0718-85602019000100054&lng=es

9. Uclés Villalobos V, Vargas Chaves P. Rehabilitación en cardiotoxicidad relacionada al cáncer. Rev. costarric. cardiol [Internet]. 2022 [cited 30/10/2024]; 24(1):24-28. Available in: http://www.scielo.sa.cr/scielo.php?script=sci_arttext&pid=S1409-41422022000100024&lng=en

10. Zayas Mujica R. Estrategia para el perfeccionamiento de la publicación científica en Cuba en Ciencias de la Salud. Rev haban cienc méd [Internet]. 2019 [cited 01/11/2024]; 18(4). Available in: https://revhabanera.sld.cu/index.php/rhab/article/view/2975

11. Limaymanta CH., Amado J, Suclupe-Navarro P, Restrepo-Arango C. Intellectual structure of scientific production on COVID-19 in the area of Public, Environmental and Occupational Health. Rev. cuba. inf. cienc. salud [Internet]. 2021 [cited 01/11/2024]; 32(3). Available in: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2307-21132021000300003&lng=es

12. Rodríguez Camiño R, Torres Chávez TE, Zamora Gonzalez MA. Revista Cubana de Informática Médica. Índice referativo de la producción científica correspondiente al período 2022-2023. [Internet]. 2024 [cited 01/11/2024]; 16(1). Available in: https://revinformatica.sld.cu/index.php/rcim/article/view/708

13. Castro-Rodríguez Y. La producción científica de estudiantes relacionados con los programas de las Ciencias de la Salud. Rev. cuba. inf. cienc. salud [Internet]. 2023 [cited 01/11/2024]; 34. Available in: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2307-21132023000100023&lng=es

14. Zacca González G. Cuban scientific output about Medicine in SCImago Institutions Rankings: thematic distribution, impact and international collaboration. Rev. cuba. inf. cienc. salud [Internet]. 2021 [cited 01/11/2024]; 32(1). Available in:

http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2307-21132021000100003&lng=es

15. Mayor Guerra E, Sagaro del Campo NM. Producción científica sobre ciencias biomédicas en la provincia de Santiago de Cuba. Rev. cuba. inf. cienc. salud [Internet]. 2021 [cited 01/11/2024]; 32(2). Available in: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2307-21132021000200008&lng=es

16. Ruiz-Coronel A, Jiménez Andrade JL, Carrillo-Calvet H. Análisis cienciométrico de la producción científica del Instituto Nacional de Cancerología. Gac. Méd. Méx [Internet]. 2020 [cited 01/11/2024]; 156(1):4-10. Available in: http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0016-38132020000100004&lng=es

17. Piñera-Castro HJ, Ruiz-González Lisandra A. Producción científica de la Universidad de Ciencias Médicas de La Habana en revistas estudiantiles cubanas. REMS [Internet]. 2023 [cited 02/11/2024]; 37(1). Available in: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-21412023000100008&lng=es

18. Díaz-Rodríguez YL, Torrecilla-Venegas R. Producción científica sobre Medicina Natural y Tradicional en revistas científicas estudiantiles cubanas, 2014-2020. Rev. electron. Zoilo [Internet]. 2021 [cited 02/11/2024]; 46(1). Available in: https://revzoilomarinello.sld.cu/index.php/zmv/article/view/2483

19. Jiménez-Pérez MdlC, Góngora-Valdés J, Caballero-Cruz G, Zayas-Fundora E. Producción científica sobre pediatría publicada en las revistas científicas estudiantiles cubanas. Rev Cubana Pediatr [Internet]. 2023 [cited 02/11/2024]; 95. Available in: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0034-75312023000100002&lng=es

20. Vitón-Castillo AA, González-Vázquez LA, Benítez-Rojas LdlC, Lazo-Herrera LA. Producción científica sobre COVID-19 en revistas estudiantiles cubanas. Rev. cuba. inf. cienc. salud [Internet]. 2020 [cited 02/11/2024] ; 31 (4). Available in: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2307-21132020000400002&lng=es

MedEst. 2025 Vol.5; e336
ISSN: 2789-7567 RNPS: 2524

STATEMENT OF AUTHORSHIP

CDBM: Conceptualization, Research, Methodology, Project Administration, Visualization, Validation, Supervision, Writing - Review and Editing.

ACCF: Conceptualization, Formal Analysis, Research, Resources, Software, Visualization.

RMQ: Conceptualization, Formal Analysis, Research, Resources, Software, Visualization.

VCDM: Conceptualization, Formal Analysis, Research, Resources, Software, Visualization.

KOP: Conceptualization, Formal Analysis, Research, Resources, Software, Visualization.

YLM: Conceptualization, Formal Analysis, Research, Resources, Software, Visualization.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

FUNDING SOURCES

The authors declare that they did not receive funding for the development of this research.