ColNes PUBLISHING

Low birth weight: Cuban scientific production in Scopus, 2000-2021

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ABSTRACT

Objective. The study of birth weight determines great value for satisfactory growth and development. The monitoring of these patients is a priority within the goals of the Maternal and Child Care Program. This paper aims to describe the Cuban scientific production on low birth weight in the Scopus database.

Design/Methodology/Approach. This is observational, descriptive, longitudinal, and retrospective research. A bibliometric analysis was employed in Scopus articles indexed during 2000-2021.

Results/Discussion. A total of 178 articles were identified, where 161 were original. The most productive year was 2001 (n=16), the thematic area of Medicine (n=171), and the language Spanish (n=150). Cooperation was found with 21 countries, the United States (n=9), Argentina (n=6), and Switzerland (6), the most productive. Forty-six journals where the articles were published were identified, and Cuban institutions published 12. One hundred fifty-one terms with an occurrence more significant than 10 were identified, with birth weight being the highest occurrence (n=304). The terms were grouped into 5 clusters.

Conclusions. There was a low scientific production on low birth weight in Scopus with Cuban authorship, written mainly in Spanish and published primarily in Cuban journals. There is a marked international collaboration.

Keywords: growth and development; birth weight; bibliometrics; decision making.

INTRODUCTION

Low birth weight (LBW) is a significant health indicator (Ortiz Núñez & Fernández Brizuela, 2021). This is defined as any newborn weighing less than 2500 grams below the tenth percentile, regardless of gestational age and the cause. Two significant reasons generate it: preterm birth and retarded intrauterine growth (CIUR) (Góngora-Ávila, 2021; Villaalta, 2021). In Cuba, the monitoring of the LBW is reflected in the Statistical Health Yearbook. An analysis of this indicator shows that in 1985, 14.693 live births with low birth weight were reported, for a percentage of 8.2%. From 1985-2020, the highest percentage of LBW was reported in 1993 (9%). In 2020, the national average of LBW was 5.6%, reporting the lowest rate in the Isla de la Juventud municipality (3.5%) and the highest in the Las Tunas province (6.1%) (National Directorate of Medical Records and Health Statistics, 2020).

Several studies have characterized the factors that condition LBW in Cuba. For example, Góngora-Ávila *et al.* (2021) described the women who conceived low-weight children in a hospital in Las Tunas province. The study identified that 64.3% of the pregnant women were between the ages of 20 and 34, with 42.8% being smokers. Arterial hypertension was the most frequent personal pathological history (17.8%). Both urinary and vaginal infections occurred in 25% of cases. While at the beginning of the pregnancy, 32.1% of the mothers were malnourished, and at the end of the pregnancy, 39.3%. In another Cuban province, -Pinar del Río-, Monzón-Tamargo (2021) identified the main risk factors associated with LBW. The study showed that 48% of the pregnant women were between 27 and 34. In comparison, 52% of the LBW were born between weeks 33 and 36 as risk factors in pregnant women, vaginal sepsis (42.6%) and arterial hypertension (18.6%) of the patients were found (Zorrilla Quiñones & de la Cruz Pérez, 2020; Miranda, 2022).

Bibliometrics, as a technique for studying scientific production, helps understand the behavior of this area of study. Although metric studies on LBW have been carried out in Cuba (Ortiz Núñez & Fernández Brizuela, 2021), the analysis has been oriented to Cuban medical journals. There has been much exclusion from foreign journals, which Cuban authors have also published. For this reason, this article focuses on characterizing the Cuban scientific production of Scopus on low birth weight.

METHODOLOGY

An observational, descriptive, longitudinal, and retrospective investigation was carried out. Bibliometric techniques were applied to articles published in Scopus from 2000-2021. To obtain the data, the advanced search of Scopus was accessed using the terms: "low birth weight" or "low birthweight" in the field: title, abstract, or keywords. The temporal coverage was 2000-2021, and Cuba was selected as the country of affiliation of the authors. The resulting search strategy was as follows:

(TITLE-ABS-KEY ("low birth weight") OR TITLE-ABS-KEY ("low birthweight")) AND (PUBYEAR > 1999 AND PUBYEAR < 2022) AND AFFILCOUNTRY (cuba)

The following indicators were analyzed:

- Number of documents (Ndoc): referring to the number of documents.
- Year: year of publication of the article.
- Thematic areas: thematic area in which the article is indexed.
- Language: the language of publication (It can be more than one language).
- Signatory countries: country of affiliation of the authors.
- Journal: title of the journal.
- Scimajo Journal Rank (SJR): based on the number of citations received by the articles published in the journal and the importance

of the journals that cite these articles. The SJR measures the relative importance of scientific journals in a research field (Guerrero-Bote & Moya-Anegón, 2012).

- 2021 Quartile: Quartiles (Q): Journal quartiles are defined by journal metrics (SCImago Journal Rank, in this case). Percentiles are used to calculate each quartile: Q1 (≤ top 25 percentile), Q2 (26-50 percentile), Q3 (51-75 percentile), and Q4 (76-100 percentile) (SciVal Support Center, 2022).
- H-index: there is an H-index if the H of the documents has at least H citations each. (Hirsch, 2005).
- Institutions: affiliation of the authors.
- Co-words: the network of keywords for the identification of thematic clusters.

The results obtained were exported in RIS format for normalization and processing. For the analysis of the co-occurrence of terms, the VOSviewer software was used. Those terms with an occurrence greater than 10 were selected (no parameter was modified).

RESULTS

One hundred seventy-eight articles were identified, where 161 were original, 9 reviews, 3 conference articles, 2 were letters, 1 editorial, 1 brief communication, and 1 book chapter. Regarding productivity, the most relevant years were 2001 (n=16), 2010 (n=14), and 2015 (13). While in 2020, no articles were published (Figure 1).
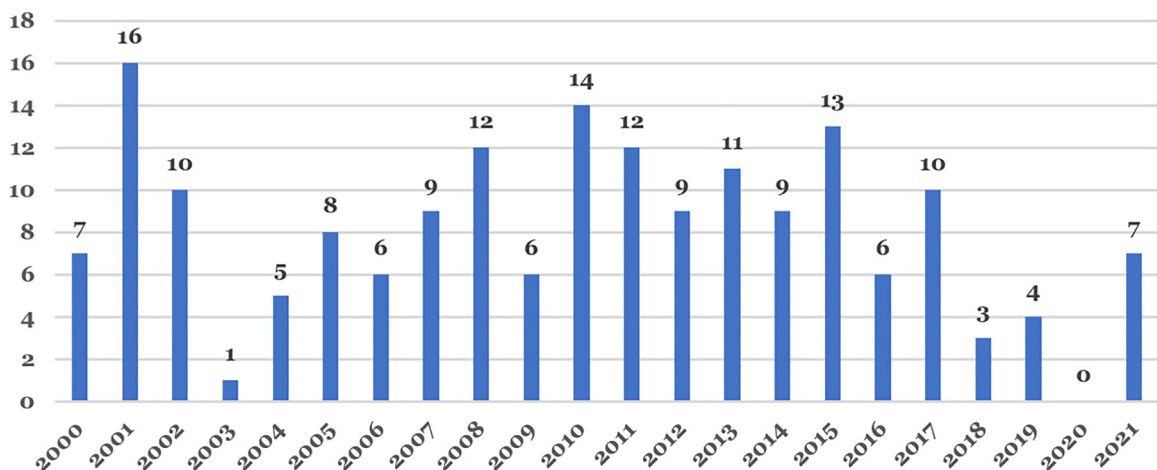

Figure 1. Distribution by year of the Cuban scientific production on LBW in Scopus, 2000-2021.

The most productive subject areas were Medicine (n=171), Nursing (n=9), Immunology and Microbiology (n=5), and Biochemistry, Genetics and Molecular Biology (n=5). Regarding language, 150 publications were written in Spanish and 62 in English. Forty-six journals where the articles were published were identified, 12 of them being Cuban. The most productive journals are shown in Table 1. The most productive Cuban authors are shown in Table 2.

| Journal	Ndoc	SJR	Quartile 2021	H Index
Revista Cubana de Obstetricia y Ginecología	34	0,120	Q4	10
Revista Cubana de Pediatría	33	0,116	Q4	10
Revista Cubana de Medicina General Integral	26	0,144	Q4	14
Revista Habanera de Ciencias Médicas	11	0,153	Q4	8
Medicc Review	7	0,260	Q3	22
Revista Cubana de Salud Pública	6	0,173	Q4	15
Revista Cubana de Investigaciones Biomédicas	5	0,117	Q4	13

Table 1. Most productive journals.

Author	Ndoc	Institution
Ubaldo Farnot	5	Hospital Gineco-Obstétrico "América Arias". Habana, Cuba
Jesús Hernández Cabrera	5	Hospital Ginecobstétrico Docente "Julio Alfonso Medina". Matanzas, Cuba
Rosa María Alonso Uría	4	Facultad de Ciencias Médicas "Dr Miguel Enriquez". Habana, Cuba
Gerardo Rogelio Robaina-Castellanos	3	Hospital Ginecoobstétrico Docente Provincial de Matanzas "José Ramón López Tabrane", Matanzas, Cuba
Miriam Aliño Santiago	3	Hospital Gineco-Obstétrico "América Arias". Habana, Cuba
Armando Rodríguez Suárez	3	Instituto Nacional de Higiene, Epidemiología y Microbiología. La Habana, Cuba.

Table 2. Most productive Cuban authors.

One hundred fifty-one terms were identified whose occurrence was ≥10. The most frequent terms were: birth weight (304), study (207), woman (158), child (134), and age (102). The terms were grouped into 5 clusters, which show LBW risk factors as the main areas (e.g., adolescence, arterial hypertension), maternal LBW conditioning factors (overweight, obesity, and vaginal sepsis), their prevalence, and prevention. Other areas studied related to the causes of newborn admission to hospital areas (infections, sepsis, and neonatal sepsis) and special care (antibiotic therapy and ventilation) (Figure 2).
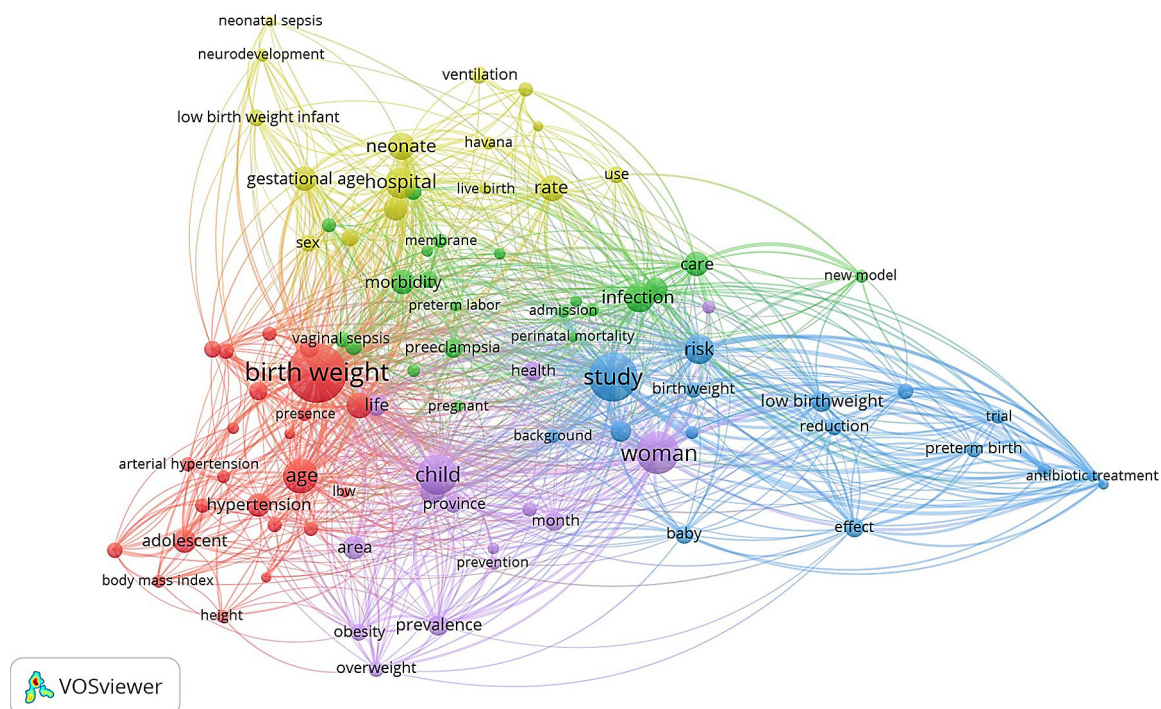
Figure 2. Network of co-occurrence of terms.

DISCUSSION

Original articles constitute a pillar in the socialization of new knowledge. These communicate for the first time to the scientific community the results of an investigation, using a methodology that allows the qualitative and/or quantitative evaluation of a phenomenon, verification of a hypothesis, comparison of results, and contribution of scientific knowledge in various areas

(Hernandez-Negrin & Vitón-Castillo, 2021; Robaina Castillo, 2022; Piñera-Castro & Moreno-Cubela, 2022; Ledesma & Malave González, 2022). The authors consider a greater volume of articles of this type as an expected result, which coincides with other investigations (Musa *et al.,* 2021; Corrales-Reyes *et al.,* 2021; Vitón-Castillo *et al.,* 2022). The predominance of qualified articles within the Medicine area and the predominance of articles in Spanish were expected. The fact that articles are found in more than one area shows the existence of transdisciplinary research. Scopus uses a classification system where a unit of analysis (Journal) can be indexed in more than one area (Arencibia-Jorge & Peralta-González, 2020).

The language barrier in scientific communication constitutes one of the challenges in Cuba, where it is generally published in Spanish. This limits publication in impact journals in English, concentrating the articles in regional and national journals. A study by Martínez Delgado *et al.* (2019) identified a greater volume of articles on adolescent health in the *Revista Cubana de Medicina General Integral,* largely coinciding with this.

In health, Cuba has shown itself over the years as a country open to collaboration (Ronda-Pupo, 2021), leading to medical missions in several countries. This has made it possible to establish relationships in the field of biomedical research, which are reflected in this document by having the co-authorship of researchers from 21 countries. This has been identified in several metric studies (Martínez-Prince, Martínez-Rodríguez & Novo-Castro, 2021) and cooperation with researchers from the United States. Also, journals such as *Revista Cubana de Obstetricia y Ginecología, Revista Cubana de Pediatría,* and *Revista Cubana de Medicina General Integral* are the most productive, following their thematic profiles. These journals are highly oriented toward LBW studies. In addition, as they are highly visible national journals, they are preferred by local researchers.

A study by Martínez Delgado *et al.* (2019) was developed to characterize the behavior of scientific production related to adolescence in Cuban journals indexed in SciELO. The study identified sexual and reproductive health as the central theme (16%); Similarly, it found other areas, such as adolescent pregnancy (12%), and

arterial hypertension (8%), coinciding with the keywords identified in the clusters and those identified by Ortiz Nuñes *et al.* (2021) It can be inferred that the clusters were formed based on the risk factors and cause for the occurrence of a patient with LBW, maternal factors, the consequences and specialized services provided during and after delivery, as well as the situations related to a patient with LBW after leaving the health services. ●

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