OVERVIEW OF RESEARCH AND PUBLICATION IN CHILDREN AND ADOLESCENT HEALTH IN BRAZIL

PANORAMA DE PESQUISA E PUBLICAÇÃO EM SAÚDE DA CRIANÇA E DO ADOLESCENTE NO BRASIL

PANORAMA DE LA INVESTIGACIÓN Y PUBLICACIÓN EN SALUD DEL NIÑO Y DEL ADOLESCENTE EN BRASIL

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ABSTRACT

Objective: To perform an overview of research and publications regarding the health of children and adolescents in Brazil. **Methods:** A bibliometric study was conducted in Brazil with 1698 researchers from 183 groups registered in the Research Groups Directory of the National Council for Scientific and Technological Development. **Results:** Most researchers were women (75%) and from the Northeast (35%) and Southeast (30%). The main areas were nursing (34%), physical therapy (19%), and medicine (14%). Also, the most used database was Google Scholar. Over half of the researchers were affiliated with a postgraduate program (master's or doctorate), and a positive correlation was found between the number of published studies of the researchers from a postgraduate program. **Conclusion:** Most researchers in the area of child and adolescent health in Brazil were women, mostly from the areas of nursing, physical therapy, and medicine, and working in the Northeast and Southeast. The findings helped identify the Brazilian areas with the highest scientific production and observe their strength in the world scenario.

Keywords: research groups, child development, professional training, evidence-based practice, health research policy

RESUMO

Objetivo: verificar o panorama de pesquisa e publicação em saúde da criança e do adolescente no Brasil, **Método**: estudo bibliométrico com amostra de 1.698 profissionais de 183 grupos de pesquisa cadastrados no Diretório de Grupos de Pesquisa no Brasil do CNPq. **Resultados:** A maior parte dos profissionais analisados são do sexo feminino (75%) e oriundos da região nordeste (35%) e sudeste (30%) do Brasil. As principais áreas de inserção dos pesquisadores são Enfermagem (34%), Fisioterapia (19%) e Medicina (14%). A base do Google Acadêmico é o indicador bibiliométrico mais utilizado pelos pesquisadores. Mais da metade dos profissionais estão vinculados a um programa de pós-graduação em nível de mestrado ou doutorado. Encontramos uma correlação positiva entre o número de produções científicas dos pesquisadores vinculados aos programas de pós-graduação. **Conclusão:** O estudo revelou que a maior parte dos pesquisadores da área da saúde da criança e do adolescente do Brasil são mulheres, provenientes da área de Enfermagem, Fisioterapia e Medicina e atuantes nas regiões nordeste e sudeste do país. Os achados são importantes para identificar as áreas que mais produzem e observar a força da produção científica brasileira no cenário mundial.

Palavras Chave: grupos de pesquisa, desenvolvimento infantil, formação profissional, prática baseada em evidências, política de pesquisa em saúde

RESUMEM

Objetivo: verificar el panorama de las investigaciones y publicaciones en salud del niño y del adolescente en Brasil. **Método:** estudio bibliométrico con muestra de 1.698 profesionales de 183 grupos de investigación registrados en el Directorio de Grupos de Investigación del CNPq de Brasil. **Resultados:** La mayoría de los profesionales analizados son mujeres (75%) y provienen de las regiones nordeste (35%) y sudeste (30%) de Brasil. Las principales áreas de inserción de investigadores son Enfermería (34%), Fisioterapia (19%) y Medicina (14%). La base de datos Google Scholar es el indicador bibiliométrico más utilizado por los investigadores. Más de la mitad de los profesionales están vinculados a algún programa de posgrado a nivel de maestría o doctorado. Encontramos una correlación positiva entre el número de producciones

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científicas de investigadores vinculados a programas de posgrado. **Conclusión:** El estudio reveló que la mayoría de los investigadores en el área de salud del niño y del adolescente en Brasil son mujeres, provenientes de las áreas de Enfermería, Fisioterapia y Medicina y que actúan en las regiones noreste y sureste del país. Los hallazgos son importantes para identificar las áreas que más producen y observar la fortaleza de la producción científica brasileña en el escenario mundial.

Palabras clave: grupos de investigación, desarrollo infantil, formación profesional, práctica basada en evidencia, política de investigación en salud.

Introduction

Child and adolescent health is a medical field focused on diseases and impairments that affect individuals from birth to puberty. This field is continuously researched for expanding the scientific knowledge.[1,2]

The growth and development phases are important because they develop the health conditions that precede adulthood. At this stage, individuals are subject to diseases specific to children. Therefore, they represent a crucial moment to implement interventions and ensure good nutrition and healthy development, which brings lifelong benefits.[3,4]

In this context, monitoring by health professionals during childhood is essential. Managing and alleviating diseases in children demands extensive knowledge, skills, and training. In this sense, the scientific production in this field has been increasing, and it is gaining more space in research. Therefore, evidence-based practice (EBP) is crucial to acquiring knowledge about child and adolescent health.[5,6]

EBP is a methodology based on scientific evidence, accurate studies, and precise methods. It demonstrates efficient responses in decision-making regarding the clinical conditions of patients. Consequently, scientific publications are valuable in enhancing the healthcare overview. However, EBP is not well explored in undergraduate health courses, leaving professionals unprepared to combine clinical practice with scientific evidence.[7-9]

Research must meet the demands of EBP, the complementary education of health professionals, and monitor a society that has gained more access to information via the Internet. Thus, healthcare professionals must be constantly updated through research to meet these demands.[8,10]

Despite this, the main study on health services for children was published more than 15 years ago, evidencing a gap in the literature on this topic[11]. Thus, this study aimed to verify the profile of researchers and their groups in the area of child and adolescent health in Brazil and to perform an overview of research and publications in this area.

Materials and Methods

A bibliometric study was conducted in Brazil with an initial sample of 183 child and adolescent health research groups containing 1,698 researchers with updated curriculum in the last three years on the Lattes Platform. The databases used were the Research Groups Directory (RDG) of the National Council for Scientific and Technological Development (CNPq) and the Sucupira platform of Foundation Coordination for the Improvement of Higher Education Personnel (CAPES).

The inclusion criteria were groups in physical therapy, certified by the institution, and attested and updated by the platform. The researchers included were from health-related

disciplines (physical education, physical therapy, nursing, medicine I, II, and III, nutrition, dentistry, and psychology). They were evaluated and recognized by the Sucupira Platform and postgraduate programs (PPG) of master's and doctorate recognized by CAPES. Research lines unrelated to child and adolescent health, groups with incomplete or outdated information, and researchers who did not present an updated curriculum on the Lattes platform researchers were excluded.

RGD available on http://lattes.cnpq.br/web/dgp/home was used to obtain quantitative information about the research groups. The filters "child health," "adolescent health," and "child and adolescent health" were applied with the option "exact search," consulting the research lines within the broad area of "health sciences".

The curriculum of the researchers was obtained on the Lattes platform (http://lattes.cnpq.br/). Then, the CAPES database from the Sucupira Platform (https://sucupira.capes.gov.br) was used to search (by region) the PPG reported by researchers.

The information was organized into two Excel spreadsheets. The first contained the data from the groups: name, affiliation with the areas of physical and occupational therapy, year of creation, date of last update, major area and subarea, institution name and whether it is public or private, region of the country, accreditation type, number and categories of research lines, numbers of leaders, researchers, students and technicians, and the group impact.

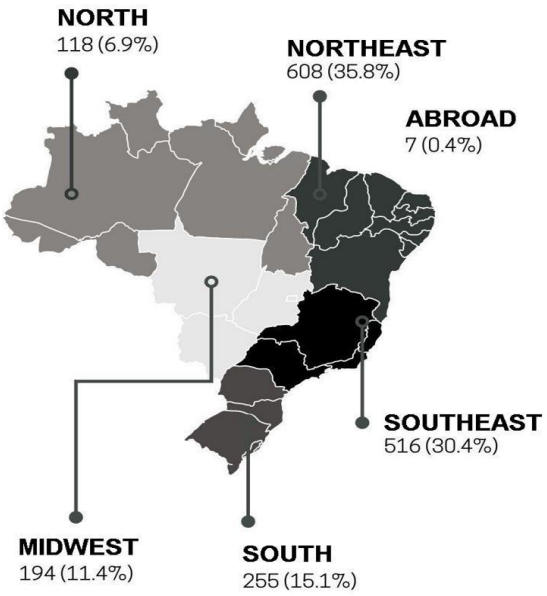
The second spreadsheet contained the data of researchers: name, sex, state, date of curriculum update, higher education institution, graduation year, number of specializations and further education, academic titles (master's and doctorate degrees), CNPq productive scholarship and its respective level, research lines, and number of productions (books, book chapters, and national and international articles). The h-index and overall citations were also collected on Google Scholar and Research Gate.

Considering the researchers affiliated with a PPG, we analyzed the area of formation, university, state and region, affiliation with master's, doctorate, and other PPG, research lines in child health, CAPES basic and evaluation area, creation year, modality, and program rating. Data analysis was performed using the SPSS (version 23.0). Descriptive and inferential analyses were conducted based on the nature of the variables.

Results

The sample comprised 183 research groups certified and updated by the RDG, totaling 1,698 researchers. Of these, 1,284 (75.6%) were women, and 414 (24.4%) were men. Among the researchers, 1,637 (96.4%) had an updated Lattes curriculum between 2019 and 2022. Regarding geographic distribution, most researchers were from the Northeast (n = 608 [35.8%]; Figure 1). Conversely, the state with the most researchers was São Paulo (n = 239; 14.1%).

Figure 1. Geographic distribution of healthcare professionals in Brazil.



Source: The author. Data are presented in frequency and percentage.

Regarding the universities, 341 were identified: the Federal University of Pernambuco had 69(4.1%) researchers, followed by the Federal University of São Carlos (52[3.1%]), and the Federal University of Rio Grande do Sul (46[2.7%]). Considering the course conclusion, the mean graduation year was 1995 (maximum = 1968 [54 years of education]; minimum = 2021). In addition, 1,528(90.0%) researchers had no complementary education, and 70(4.1%) had a productivity scholarship from CNPq (Table 1). Furthermore, the "school" was the research line most studied by researchers (n = 859[50.6%]; Table 1).

Table 1 – Profile of researchers of groups in child and adolescent health.

Information	Number of researchers	%
Occupation area		
Nursing	587	34.6%
Physical therapy	324	19.1%
Medicine	243	14.3%
Nutrition	90	5.3%
Physical education	88	5.2%
Occupational therapy	86	5.1%
Pharmacy	43	2.5%
Others	237	13.9%
Academic titles		
Specializations	1414	83.3%
Master's degree	1574	92.7%
Doctorate	1369	80.6%
Postdoctoral	319	18.8%
Productivity grant level		
Level 2	33	1,9%
Level 1A	21	1.2%
Level 1D	8	0.5%

Level B	4	0.2%
Level 1C	2	0.1%
Research lines		
Neonatal	754	44.5%
Infant	720	42.4%
Preschool	793	46.7%
School	859	50.6%
Adolescent	738	43.5%

Source: The author. Caption: The data are presented in frequency and percentage.

Considering the number of workplaces, 651(38.3%) had only one activity, 561(33.0%) had two, 233(13.7%) had three, and 102(6.0%) had four or more; 46(2.7%) did not have any employment described in the Lattes curriculum. The profiles of researchers on digital platforms were also analyzed. On Google Scholar, 441(26.0%) had information on the site, the maximum number of citations was 24,006 (mean = 324.13[± 1254.722]), and the maximum h-index was 114 (mean = 15.56[± 12.164]). In Publons, 160(9.4%) researchers have h-index information, with a maximum of 169 and a mean of 9.63(±15.941). The results of bibliographic production are presented in Table 2.

Table 2 - Bibliographic, technical, and academic guidance productions of researchers from the child and adolescent health.

Information	Mean	Standard deviation	Minimum	Maximum	Number of researchers	%
Complementary education						
Complementary course	19.87	16.625	2	601	1,596	92.4
Bibliographic productions						
Articles (total)	31.64	45.461	0	619	1,591	93.7
Articles (SCA)					1,134	
Books	1.64	3.224	0	59	690	66.8
Book chapters	6.57	11.717	0	232	1,255	73.9
Abstracts	50.90	67.911	0	633	1,520	89.5
Articles published in proceedings	4.59	11.372	0	154	923	54.4
Technical production						
Technical works	8.40	27.177	0	574	814	47.9
Events						
Participation	63.11	65.257	0	981	1653	97.3
Organization	9.17	11.696	0	98	1430	84.2
Guidelines						
Scientific Research	7.72	15.137	0	256	958	56.4
Graduation	13.22	17.013	0	149	1288	75.9
Specialization	5.90	11.367	0	159	1011	59.5
Master's	4.44	11.686	0	319	720	42.4
Doctorate	1.40	4.308	0	48	398	23.4
Other	5.27	17.095	0	319	710	41.8

Source: The author. Data are presented in frequency and percentage.

Table 3 - Bibliographic productions of researchers affiliated and not affiliated with postgraduate programs at master's and doctorate degrees.

Information	Affiliation	Mean	Standard deviation	p-value
Complementary education				
Supplementary course	Affiliated	20.54	20.140	0.058
	Not affiliated	18.71	17.260	
Bibliographic productions				
Articles (total)	Affiliated	48.98	57.924	< 0.05
	Not affiliated	24.45	36.846	
Articles (SCA)	Affiliated	16.20	29.470	< 0.05
	Not affiliated	6.32	13.874	
Books	Affiliated	1.74	4.117	< 0.05
	Not affiliated	1.06	2.747	
Book chapters	Affiliated	9.41	16.101	< 0.05
	Not affiliated	5.39	9.061	
Abstract	Affiliated	73.83	80.766	< 0.05
	Not affiliated	41.58	59.387	
Articles published in proceeding	Affiliated	5.88	13.123	< 0.05
	Not affiliated	4.05	10.520	
Technical production				
Technical work	Affiliated	14.36	41.464	< 0.05
	Not affiliated	5.92	17.659	
Digital platforms				
Google Scholar				
Citations	Affiliated	633.54	1400.357	< 0.05
	Not affiliated	221.19	1168.524	
H-index	Affiliated	17.96	10.437	< 0.05
	Not affiliated	13.61	13.099	
ResearchGate				
Citations	Affiliated	658.93	1082.596	< 0.05
	Not affiliated	326.06	626.806	
Events				
Participation	Affiliated	78.54	78.408	< 0.05
	Not affiliated	56.71	57.783	
Organization	Affiliated	13.23	14.162	< 0.05
	Not affiliated	7.90	10.246	
Orientations				
Scientific initiation	Affiliated	11.45	16.831	< 0.05
	Not affiliated	6.18	14.096	
Graduation	Affiliated	15.95	16.652	< 0.05
	Not affiliated	12.09	17.040	
Specialization	Affiliated	7.99	12.753	< 0.05
	Not affiliated	5.03	10.627	
Master	Affiliated	8.56	18.583	< 0.05
	Not affiliated	2.73	6.331	
PhD	Affiliated	2.77	6.442	< 0.05
	Not affiliated	0.83	2.822	
Other	Affiliated	7.83	21.392	< 0.05
	Not affiliated	4.20	14.835	

Source: The author. Data are presented in frequency and percentage.

Regarding PPG, 498(29.3%) researchers were affiliated with master's, 383(22.6%) with doctorate programs, and 317(18.7%) had affiliations with more than one PPG. Concerning the basic area, nursing had the highest number of PPG (n = 234;13.8%), followed by physical and occupation therapy (n = 57;3.4%), physical education (n = 29;1.7%), and medicine (n = 27;1.6%). The evaluation area highlights nursing with 228(13.4%) programs, followed by physical education with 76(4.5%), and medicine I with 50(2.9%). Moreover, the mean year of creation was 1996 (maximum = 1970; minimum = 2022); Most (n = 503;29.6%) are in-person. Grades ranged from one to seven; 158 programs (9.3%) had grade four, 138(8.1%) grade five, 113(6.7%) grade three, 80 (4.7%) grade six, 34(2.0%) grade seven, and 7(0.4%) grade one.

Due to the higher number of affiliated, master programs were used as a reference to compare bibliographical production by researchers affiliated and not affiliated with the PPG (Table 3).

Discussion

The present study conducted an overview of the research and publication regarding child and adolescent health in Brazil based on data provided by the RGD and the Lattes Platform. Most researchers were women, probably due to the caregiving associated with healthcare, which is historically and culturally connected to women. However, this finding highlights the competence of women in taking on any activity, demonstrating female empowerment in a scenario of sexism and the lack of equality in opportunities.[12-14]

According to Scimago Journal & Country Rank[15], Brazil is the 14th country that publishes articles worldwide. In the present study, most researchers were in the Northeast, contradicting studies highlighting the Southeast as the most promising due to more labor campuses, investment, and educational institutions.[16,17]

In this study, the state of São Paulo had more researchers, having the University of São Paulo in its academic program, an educational institution with the greatest global impact, according to Times Higher Education.[16,18]

Regarding the area of activity, over 34% were nurses. A previous report demonstrated the importance of this area; nursing presents more than 28 million professionals worldwide, representing more than half of the healthcare field.[19] In addition, the main research line was school and preschool, an age group that is constantly developing. This result may be related to the research themes; most demonstrate relationships between children and schooling, overweight, diet, chronic diseases, and obesity.[20]

According to the Observatory of Science, Technology, and Innovation (2021) and SJCR (2022), the production of Brazilian articles has grown by more than 30% recently. Therefore, the importance of publications in international journals, especially in English, is highlighted since it is the most used in scientific communication[15,21]. Also, this language indicates the strength of the study as it has one of the biggest factors of impact and relevance worldwide.[22]

The h-index (i.e., an indicator of the balance between the scientific production and citation impact of a researcher) evidenced a high standard deviation, showing a

heterogeneity in the production of the researchers. Also, a low mean value may be related to a lack of knowledge of registration networks, how to fill in this information, or a recent career, causing a disadvantage since the h-index is not just related to the relevance of the research.[23]

A study conducted in 2020 showed the importance of complementary education after graduation to enrich their profile. In the present study, the mean of courses of complementary education was 19, demonstrating a constant search for knowledge. At least 93% of the researchers searched for complementary education, demonstrating a concern with personal development.[24] A prevalence in the in-person modality was observed regarding the affiliations with PPG. Corroborating a prospective study, the main area at CAPES was nursing, confirming the increased number of PPG at master's and doctorate degrees in nursing, physical education, and pharmacy between 2008 and 2022.[25]

The study had some limitations. The infrequent updating of the Lattes curriculum and the incorrect filling of indicators may have limited the analysis. Nevertheless, an overview was conducted regarding the scientific production of researchers studying child and adolescent health in Brazil. These findings are important to identify the areas with highest production and observe the strength of Brazilian scientific production.

Conclusion

The study revealed an overview of the profile of research groups and researchers in the area of child and adolescent health in Brazil. Our study showed that the most of researchers in the area of child and adolescent health in Brazil were women, predominantly working in the Northeast and Southeast. The majority had master's or doctorate degrees, had a complementary education, and participated in events. Also, those affiliated with a PPG demonstrated higher productivity than those not affiliated.

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