







Publication Trends Studies Involving Disabled Persons with Dental Care Needs: A 20-Year Bibliometric Analysis

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ABSTRACT

Objective: To evaluate scientific production on disabled persons with dental care needs over a 20-year period.

Material and Methods: The search was conducted in the PubMed database using the MeSH terms “Disabled Persons” AND “Dentistry”. Three researchers selected articles based on readings of the title, abstract and full text. The articles were categorized according to periodical, country, study design, subject and classification of comorbidities and associated disorders. Three hundred ninety-seven articles published in 140 periodicals were included. **Results:** The periodicals *Special Care in Dentistry* (54), *Dental Clinics of North America* (14) and *British Dental Journal* (14) accounted for 21% of the publications. The studies were conducted in 50 countries, with the United States accounting for 33%. More than half (52%) of the studies had a cross-sectional design. The main subject addressed was oral diagnosis and most of the comorbidities were generalized disabilities.

Conclusion: Although a large number of the periodicals have contributed to knowledge building on disabled persons with dental care needs, the number of articles is small compared to other fields of dentistry. Moreover, important gaps in knowledge persist and projects with better methodological designs are needed to offer a more substantial contribution to clinical practice.

Keywords: Disabled Persons; Dentistry; Bibliometrics; Delivery of Health Care.

Introduction

The American Academy of Pediatric Dentistry (AAPD) defines Special Health Care Needs (SHCN) as any impairment or limiting condition related to mental, sensorial, behavioral, cognitive, or emotional development that requires health management, intervention and/or the use of specialized services [1]. Disabled persons with dental care needs have limitations regarding intellectual functioning and adaptive behavior [1]. This condition may be temporary or definitive, congenital, or acquired, encompassing individuals with systemic or neurological disorders as well as pregnant women and older adults. Within this group, persons with physical and/or intellectual disabilities require greater support with regard to dental care [2].

The World Health Organization estimates the prevalence of disabled persons to be 1:10 or 10% of the world population. Despite this considerable number, there is a lack of preventive, curative, rehabilitative, and palliative healthcare services for this population. Regarding dental care, more than two-thirds of disabled persons do not receive any type of support or treatment [3,4]. There is also a lack of specific knowledge on the dental care needs of disabled persons and few dentists are trained to offer this type of care. Thus, the dissemination of scientific and academic production on this issue is needed to stimulate the incorporation of new concepts, technologies, and strategies directed at dental care for individuals with special needs.

In the scientific-academic context, a bibliometric analysis emerges as a statistical aid that allows mapping and generating different indicators of treatment and management of contemporary knowledge information. It contributes to the reflections and attitudes of researchers, institutions, and health administrators, as well as changes in clinical practice and research protocols [5]. Bibliometric analyses have been performed in different fields of dentistry, such as endodontics, alveolar-dental trauma, oral-maxillofacial surgery, and pediatric dentistry [6,7]. However, bibliometric studies directed at disabled persons with dental care needs are scarce.

Considering the reduced number of studies with a more rigorous design involving disabled persons with dental care needs, the present bibliometric study aims to clarify the research trends for the theme and the existing gaps in the literature in the 20-year period from 2003 to 2022.

Material and Methods

Study Design and Bibliographic Search

A quantitative, cross-sectional study was conducted with a descriptive approach. Articles on the subject of special care dentistry indexed in the PubMed database from 2003/01/01 to 2022/12/31 were analyzed. The terms “Disabled Persons” AND “Dentistry”, which are listed as Medical Subject Headings (MeSH), were used. The search was conducted on December 31st, 2022.

Three experienced researchers (SHF, LMA, JRSC) performed the documental analysis independently, with analyses of the titles, abstracts, and full texts of the studies retrieved during the search of the database. In the second step, the researchers performed joint, consensual readings for the creation of the databank and descriptive analysis.

The following information was extracted from the articles: year of publication, periodical, country of corresponding author, study design, subject addressed, and classification of comorbidities and associated disorders. Regarding the design, the articles were classified as systematic review/meta-analysis, clinical trial, case-control, cross-sectional, case series/case report, and literature review [8].

The subjects were categorized as oral diagnosis, access to health care services, education and prevention, treatment, general anesthesia and sedation, social security, teaching, behavior, and quality of life [9]. Comorbidities and associated disorders were categorized as intellectual disability, sensory or communication

disorders, physical disability, developmental disorders, behavioral disorders, psychiatric disorders, congenital anomalies, chronic systemic diseases, and generalized/non-specified disabilities [10].

As inclusion criteria, articles that were in accordance with the research theme within the established study period without language restrictions were considered. The exclusion criteria were articles with insufficient information for the data of interest and those for which the full text was not available. Articles that addressed patients with SHCN in other health fields, those related to governmental issues regarding health care and insurance, editorials, and expert opinions were also excluded.

Data Analysis

The data were descriptively analyzed with IBM SPSS Statistics for Windows, version 2.0 (IBMCorp., Armonk, NY, USA).

Results

The search led to the retrieval of 499 articles on disabled persons with dental care needs. A total of 397 articles indexed in PubMed were selected for study throughout the 20-year period of interest (2003-2022) (Figure 1).

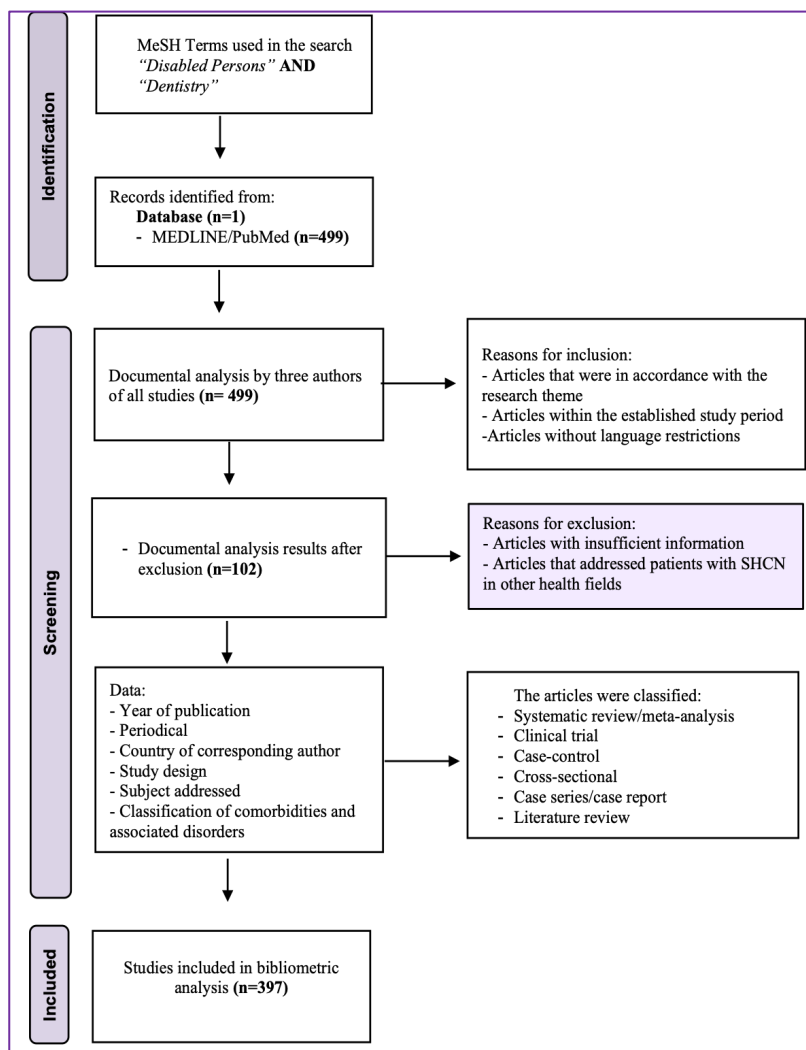


Figure 1. Complete selection process of the studies.

The articles were published in 140 periodicals (Appendix 1). Approximately one-third of the articles (129/397) were published in the following periodicals: *Special Care in Dentistry* (n=54/14%), *Dental Clinics of North America* (n=14/4%), *British Dental Journal* (n=14/4%), *Journal of Indian Society of Pedodontics & Preventive Dentistry* (n=13/3%), *Journal of Dental Education* (n=10/3%), *Journal of Clinical Pediatric Dentistry* (n=9/2%), *Pediatric Dentistry* (n=9/2%) and *International Journal of Paediatric Dentistry* (n=7/2%) (Table 1).

Table 1. Journals and total number of publications (2003-2022).

Journal	N	%
Spec Care Dentist	54	14.0
Dent Clin North Am	14	4.0
Br Dent J	14	4.0
J Indian Soc Pedod Prev Dent	13	3.0
J Dent Educ	10	3.0
J Clin Pediatr Dent	9	2%
Pediatr Dent	8	2.0
Int J Paediatr Dent	7	2.0
Others	268	68.0
Total	397	100.0

Articles on disabled persons with dental care needs were published in 50 countries (Appendix 2). The countries with the largest number of publications were the United States (n=131/33%), India (n=43/11%), United Kingdom (n=21/5%), Japan (n=16/4%), Brazil (n=16/4%), Australia (n= 11/ 3%) and Taiwan (n=10/3%), accounting for approximately two-thirds of the publications (248/397) (Table 2).

Table 2. Countries and total number of publications (2003-2022).

Country	N	%
United States of America	131	33.0
India	43	11.0
United Kingdom	21	5.0
Japan	16	4.0
Brazil	16	4.0
Australia	11	3.0
Taiwan	10	3.0
Others	149	38.0
Total	397	100.0

The most prevalent study designs are displayed in Table 3. Cross-sectional studies (n=207/52%) and literature reviews (n=91/23%) accounted for three-quarters of the methodological designs of the articles selected. Clinical trials (n=38/9%), Case-control studies (n=32/8%), Case series/Case reports (n=14/4%), Cohort studies (n=12/3%), and Systematic review/Meta-analysis (n=3/1%) corresponded to the other designs.

Table 3. Distribution of study designs (2003-2022).

Study Design	N	%
Cross Sectional	207	52.0
Literature Review	91	23.0
Clinical Trial	38	9.0
Case-Control	32	8.0
Case Series / Case Report	14	4.0
Cohort	12	3.0
Systematic Review / Meta-Analysis	3	1.0
Total	397	100.0

The subjects addressed in the studies are displayed in Table 4. Articles on oral diagnosis and access to health care services accounted for nearly 50% of the publications. The other studies addressed education and prevention (n=54/14%), treatment (n=44/11%), general anesthesia and sedation (n=37/9%), social security (n=31/8%), teaching (n=23/6%), behavior (n=17/4%), and quality of life (n=7/2%).

Table 4. Distribution of subjects and total number of publications (2003-2022).

Subjects	N	%
Diagnosis	106	27.0
Health services & Access	78	20.0
Education & Prevention	54	14.0
Treatment	44	11.0
General anesthesia & Sedation	37	9.0
Social Security	31	8.0
Teaching	23	6.0
Behavior	17	4.0
Quality of life	7	2.0
Total	397	100.0

Regarding the classification of comorbidities and associated disorders, the majority of studies (n=236/59%) were related to general/non-specified disabilities. Intellectual disabilities were addressed in 17% of the publications, followed by visual and hearing impairment (n=54/14%), physical disabilities (n=13/4%), behavioral and psychiatric disorders (n=12/3%), developmental disorders (n=7/2%), congenital anomalies (n=4/1%), and chronic systemic diseases (n=3/1%) (Table 5).

Table 5. Distribution of classification of comorbidities/associated disorders and total number of publications (2003-2022).

Comorbidity	Associated Disorders	N	(%)
General	Not Specified	236	59.0
Intellectual Disability	Mental Disorder	68	17.0
Sensory and Communication Disorders	Visual and Hearing Impairment	54	14.0
Physical Disability	Diverse Paralysis	7	2.0
	Physical Disability	3	1.0
	Cerebral Palsy	2	1.0
	Not Specified	1	0.0
Behavioral Disorders	Autism	6	2.0
	Not Specified	1	0.0
Psychiatric Disorder	Psychoses	4	1.0
	Depression	1	0.0
	Not Specified	1	0.0
Developmental Disorders	Not Specified	6	2.0
Congenital Anomalies	Syndromes in General	4	1.0
Chronic systemic Diseases	Congenital or Acquired Heart Disease	2	1.0
	Neuromuscular	1	0.0
Total		397	100.0

Discussion

The present study involved a systematized search of the literature and demonstrated the characteristics of studies on disabled persons with dental care needs from 2003 to 2022. The identification of the prominent periodicals, and the dental fields of knowledge by research groups, emerge to better quality of study designs, and subjects of interest that could contribute to identifying gaps in knowledge, thereby creating prospects to answer relevant study questions. Future research trends on disabled persons with dental care needs should focus on behavior guidance, dental education, and access to dental services.

Our main findings demonstrate that this is a subject of global interest. We identified publications in 140 periodicals in 50 different countries, demonstrating an extensive network of this field of knowledge. Regarding study design, most publications were cross-sectional studies and simple literature reviews, which hinders the direct application of the results in clinical practice, although it indicates paths for future research. Moreover, important issues have been addressed little, such as teaching, behavioral adaptation, and specific comorbidities (e.g., psychiatric disorders).

The periodical *Special Care Dentistry*, which is the official publication of the Special Care Dentistry Association, stood out with the majority of articles. This may be explained by the scope of the journal. Others, such as *Disability and Health Journal*; *Disability and Rehabilitation*; *Journal of Applied Research in Intellectual Disabilities*; *Intellectual and Developmental Disabilities*; *Research in Developmental Disabilities*; and *Journal of Intellectual Disability Research* also have the scope of periodicals directed at disabled persons with dental care needs.

Journals in the field of pediatric dentistry, such as the *Journal of the Indian Society of Pedodontics and Preventive Dentistry*, *Journal of Clinical Pediatric Dentistry*, *Pediatric Dentistry*, *International Journal of Paediatric Dentistry*, *Journal of Dentistry for Children*, *European Archives of Paediatric Dentistry* and *European Journal of Paediatric Dentistry* also stood out, with (12%) of the publications in the period. In contrast, periodicals with a high impact factor according to the 2020 ranking of the Journal Citation Reports (JCR) Clarivate, such as *Community Dentistry and Oral Epidemiology*; *Plos One*; *Journal of Dental Research*; *Dental Traumatology*; *Caries Research*; and *Pediatrics*, accounted for a low percentage (3%) of publications.

The United States, India, the United Kingdom, and Japan stood out with the greatest number of publications, confirming data from other bibliometric analyses published in different fields of knowledge [11,12]. The capacity to invest in research is directly related to socioeconomic status, investment in public policies, and income per capita, which, in turn, exert a direct influence on the capacity to fund research groups and foster the dissemination of knowledge [13].

The majority of the most-cited papers had an observational design and only a minority had an interventional design. Moreover, this research subject predominantly involves cross-sectional designs, which are the most frequent in the health field due to the cost-benefit relationship and relatively simple execution [14]. However, this design is not able to establish causal relationships, which limits the strength of the evidence. For instance, Liu et al. [15] reported that the high prevalence of dental caries experience, traumatic dental injury, tooth loss, and periodontal disease in disabled persons with dental care needs indicates difficulty in oral hygiene care as well as barriers to communication and the interpretation of signs and symptoms in dependent patients.

Clinical trials, cohort studies, and systematic reviews accounted for only 13% of the publications. This may indicate an evidence gap in the literature. A bibliometric analysis on traumatic dental injury also revealed the scarcity of studies with greater strength of evidence and the authors underscored the need for studies with greater scientific rigor [7]. In a retrospective cohort, Schnabl et al. [16] found that the need for restorative and surgical treatment in disabled persons with dental care needs characterized the procrastination of dental care as a decisive factor in the accentuated impact of the diseases.

An overview of oral health care and conditions is achieved through equalitarian access to quality care [17]. However, there is evidence of difficulties and barriers to access to health care services and a lack of professional training in providing care for disabled persons with dental care needs. Scully et al. [18] describe four categories of barriers that prevent access to oral health care in individuals with disabilities: individual, dental profession, societal, and governmental. This critical perspective was portrayed in a systematic review conducted

by da Rosa et al. [19], who concluded that disabling, physical, structural, behavioral, and professional issues hinder access to dental treatment for this population, despite being a constitutional right that must be respected.







Limited basic functions and progressive disorders may be linked to diverse motor, cognitive, behavioral, and proprioceptive deficiencies. In the present study, intellectual deficiency was addressed in 17% of the publications. In a bibliometric analysis, Kammer et al. [20] found that studies on individuals with neurodevelopmental disorders have a tendency to focus on Down Syndrome and Autism Spectrum Disorder. Krekmanova et al. [21] reported a high occurrence of dental pain and discomfort in patients with intellectual deficiency as well as characteristics such as hypomineralized teeth, hypersensitivity, and dental erosion due to regurgitation.

Although the present study was designed to minimize information bias, the limitations of the study involve the limited period and the use of only one database. However, the academic parameters observed in the study can be used for both clinical and scientific communities to evaluate which journals and authors can be most useful and prominent when searching scientific databases. Moreover, bibliometric studies can assist in the identification of research gaps and the most widely discussed topics.

Conclusion

As persons with disabilities represent an important and growing group of individuals in the world, with almost a billion adults living with some type of disability, research and education on this topic need to grow and focus on how to prevent and combat inequalities in access to health. Recent evidence related to disabled persons with dental care needs is hoped to call the attention of investigators and research funding agencies to increase the number and quality of investigations on this issue and motivate editors and reviewers of dental journals to reserve more space for these articles. Projects with better methodological designs can be considered an important gap in knowledge. Well-conducted and relevant studies can offer a more substantial contribution to clinical practice.

Authors' Contributions

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JRSC		https://orcid.org/0000-0002-2542-2053	Conceptualization and Writing - Original Draft.
GFK		https://orcid.org/0000-0002-4040-1293	Writing - Review and Editing and Supervision.
CNS		https://orcid.org/0000-0003-3932-5550	Writing - Review and Editing and Supervision.
PFK		https://orcid.org/0000-0002-3378-3545	Conceptualization, Methodology, Formal Analysis, Investigation, Writing - Review and Editing, and Project Administration.

All authors declare that they contributed to critical review of intellectual content and approval of the final version to be published.

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Conflict of Interest

The authors declare no conflicts of interest.

Data Availability

The data used to support the findings of this study can be made available upon request to the corresponding author.

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