



LITERATURE REVIEW:

The 100 Most Cited Articles in Gerodontology: Bibliometric Analysis

Los 100 artículos más citados en Gerodontología: análisis bibliométrico

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ABSTRACT: This study evaluated the characteristics of the 100 most-cited papers on gerodontology through bibliometric metrics, focusing on understanding the international production of knowledge. Papers on gerodontology were selected based on their titles and scopes from the Web of Science Core Collection (WoS-CC) database between January 1st and January 31st, 2025. Additional comparisons were conducted in the Scopus and Google Scholar databases. Several bibliometric parameters were extracted, including title, number of citations, citation density, country of origin of the first author, year of publication, study design, and addressed topic. The VOSviewer software was used to create graphical bibliometric maps. The screening process identified 2,730 papers in the WoS-CC database, of which the 100 most-cited papers totaled 10,813 citations, ranging from 62 to 289 citations per paper. The most cited article, by Petersen (2010), accumulated a total of 1,264 citations across the three databases analyzed in the study. Cross-sectional studies were the most frequent (n=32), followed by reviews (n=14), with health services research being the category with the highest citation-per-paper ratio (276.11). In total, 324 researchers contributed to these studies, with Locker, D., being the most-cited author. Community Dentistry and Oral Epidemiology was the most frequent journal among the top 100 most cited publications. Geographically, Europe led the publications (46 papers). Based on the 100 most cited articles, it is evident that research in gerodontology is predominantly characterized by cross-sectional studies. These studies have had a significant impact on healthcare services research. Future implications suggest the need for more longitudinal studies to better understand the long-term effects of interventions in geriatric dentistry. Additionally, there is a growing need for research that integrates diverse methodologies and explores the effectiveness of oral health strategies across different cultural and socioeconomic contexts.



KEYWORDS: Bibliometric analysis; Bibliometrics; Citation index; Health of the elderly.

RESUMEN: Este estudio evaluó las características de los 100 artículos más citados sobre gerodontología mediante métricas bibliométricas, con el objetivo de comprender la producción internacional de conocimiento. Los artículos sobre gerodontología fueron seleccionados según sus títulos y alcances en la base de datos Web of Science Core Collection (WoS-CC) entre el 1 y el 31 de enero de 2025. Se realizaron comparaciones adicionales en las bases de datos Scopus y Google Scholar. Se extrajeron diversos parámetros bibliométricos, como título, número de citas, densidad de citación, país de origen del primer autor, año de publicación, diseño del estudio y tema abordado. El software VOSviewer se utilizó para crear mapas bibliométricos gráficos. El proceso de selección identificó 2.730 artículos en la base de datos WoS-CC, de los cuales los 100 más citados totalizaron 10.813 citas, con un rango de 62 a 289 citas por artículo. El artículo más citado, de Petersen (2010), acumuló un total de 1.264 citas en las tres bases de datos analizadas en el estudio. Los estudios transversales fueron los más frecuentes ($n=32$), seguidos por las revisiones ($n=14$), siendo la categoría de investigación en servicios de salud la que presentó la mayor razón de citas por artículo (276,11). En total, 324 investigadores contribuyeron a estos estudios, siendo Locker, D. el autor más citado. Community Dentistry and Oral Epidemiology fue la revista más frecuente entre las 100 publicaciones más citadas. Geográficamente, Europa lideró las publicaciones (46 artículos). Con base en los 100 artículos más citados, es evidente que la investigación en gerodontología se caracteriza predominantemente por estudios transversales, los cuales han tenido un impacto significativo en la investigación de servicios de salud. Las implicaciones futuras sugieren la necesidad de realizar más estudios longitudinales para comprender mejor los efectos a largo plazo de las intervenciones en odontología geriátrica. Además, se destaca la necesidad creciente de investigaciones que integren metodologías diversas y exploren la efectividad de las estrategias de salud bucal en diferentes contextos culturales y socioeconómicos.

PALABRAS CLAVE: Análisis bibliométrico; Bibliometría; Índice de citaciones; Salud de los ancianos.

INTRODUCTION

Bibliometrics has emerged globally as a fundamental tool for analyzing scientific production in various dental specialties-such as oral surgery, orthodontics, pediatric dentistry, periodontics, and endodontics (1-3). However, the application of this approach to evaluating the most-cited papers in gerodontology remains an underexplored field, despite its potential to shed light on research dynamics in the specialty (1).

In this context, bibliometric analysis can significantly contribute to identifying publications

that have influenced the formulation of concepts, the implementation of public health policies, and clinical practice (3). Understanding the key topics addressed, the predominant types of research, and the most-cited authors in gerodontology not only guides professionals in selecting scientific evidence to support their decisions but also provides journal editors with a comprehensive view of the relevance and impact of international publications in the field (1,3).

The relevance of gerodontology becomes even more pronounced considering the current aging population scenario (4). The increase in life

expectancy, combined with greater retention of natural teeth, poses significant challenges for the prevention and treatment of oral diseases in older adults. Maintaining good oral health in advanced ages directly impacts quality of life, nutrition, and overall health, being intrinsically linked to morbidity and mortality in this age group (3-5).

Studies indicate that older adults frequently exhibit higher rates of gingival bleeding, periodontitis, plaque accumulation, and dependency on assistance for oral hygiene (6). Additionally, conditions such as candidiasis, stomatitis, and reduced salivary flow are prevalent, along with an increased incidence of root caries on exposed surfaces (3,7). Another relevant aspect concerns the relationship between oral health and cognitive decline, as individuals with dementia often present poorer oral health, with greater plaque accumulation and disease. Moreover, inadequate oral hygiene and the use of dentures during sleep have been linked to an increased risk of pneumonia (3,7,8).

Despite advances in dentistry, the treatment and prevention needs for the elderly population remain significant, and it is essential that oral health professionals are equipped to provide personalized, evidence-based care that meets the specific needs of this population (9,10). In this context, research analyzing the characteristics of the 100 most-cited papers on gerodontology, with the aim of understanding global knowledge production in this specialty, becomes crucial to consolidate a solid knowledge base on the topic. Understanding the main themes addressed, the most frequent types of research, and the most-cited authors in the field can help professionals identify the most relevant scientific evidence to support their clinical decisions. For journal editors, this type of study offers a broader perspective on

the importance of publications related to the topic in the international academic landscape.

MATERIALS AND METHODS

A bibliometric study with a qualitative-quantitative approach was conducted from January 1st to January 31st, 2025, to retrieve and analyze the 100 most-cited papers in leading gerodontology journals. The key gerodontology journals were those listed in the Journal of Citation Reports of Thomson Reuters Web of Science (WoS; <http://www.webofknowledge.com>) under the Dentistry, Oral Surgery & Medicine category, provided they contained terms related to gerodontology in their titles or covered this topic in their scopes (Web of Science). The search strategy used across all three databases was based on keywords related to gerodontology and elderly health. The terms used included "gerodontology," "elderly," "geriatrics," "oral health in the elderly," "geriatric dental care," "oral hygiene in the elderly," "geriatric dental treatment," and "dental prevention in the elderly."

The selection of papers was carried out by two researchers. Initially, a list of papers published in these journals was organized in descending order based on the number of citations in the WoS-CC database, with no restrictions on language or year of publication. Conference papers, letters to the editor, editorials, comments, abstracts, narrative reviews, and scoping reviews were excluded from the selection. Each paper's position in the list was determined by the highest number of citations in WoS-CC. Additionally, a cross-check was performed by comparing the citation count of each paper in the Scopus (<https://www.scopus.com>) and Google Scholar (<https://scholar.google.com>) databases for further comparisons. In case of a tie, the tiebreaker criterion was the highest

citation density in WoS-CC, followed by the highest number of citations in Scopus. The selection was finalized at the 100th most-cited paper, and full texts were obtained for analysis.

The following bibliometric parameters were extracted from each paper: title, number of citations in WoS-CC, citation density in WoS-CC (average number of citations per year) (11), authorship (names and number of authors), country and continent (based on the first author's affiliation at the time of publication), year of publication, journal title, study design, and research topic. (12) To ensure data accuracy, all information was verified, and any discrepancies were resolved through a re-examination of the original papers. A panel of three researchers analyzed these characteristics and resolved any uncertainties by consensus.

Study designs were categorized into the following types: cross-sectional, review, validation, cohort, systematic review, longitudinal, clinical trial, and ecological. Additionally, all papers were grouped into two major themes: epidemiology or health services research.

Validation studies were classified as those that assessed the reliability, accuracy, or applicability of specific instruments, diagnostic tools, or methodologies within gerodontology. These studies typically included comparisons with established gold standards or statistical measures such as sensitivity, specificity, and intra/inter-examiner agreement.

Ecological studies, on the other hand, were defined as those that analyzed data at a population or group level rather than at an individual level. These studies often examined associations between environmental, socioeconomic, or health-related factors and oral health outcomes in elderly populations. Unlike cross-sectional studies, which collect individual-level data at a single point in time, ecological studies aggregate data at a broader level,

such as by geographic regions, healthcare units, or demographic groups.

However, some studies may exhibit characteristics of both ecological and cross-sectional designs. In cases where the study analyzed group-level trends but also included individual-level assessments, classification was based on the primary unit of analysis reported by the authors. These distinctions ensured consistency in categorizing study designs within the bibliometric analysis.

To enhance the bibliometric analysis, the study was divided into two main components: performance analysis and scientific mapping. Performance analysis focused on evaluating the impact of publications based on citation metrics, authorship patterns, and journal contributions. For scientific mapping, keyword mapping was conducted using VOSviewer to identify key thematic areas in gerodontology research. Keywords from the 100 most-cited papers were extracted and analyzed to detect emerging trends and major research domains. The co-occurrence network of keywords was generated to illustrate the relationships between various research themes, helping to identify influential topics and potential gaps in the literature.

For the creation of bibliometric networks, VOSviewer software was used. In the co-authorship map, author names were inserted as analysis units and connected based on the number of co-authored papers. Only authors with at least two papers among the 100 most-cited were included in the analysis. The software grouped network nodes into clusters, representing sets of authors with strong connections. The number of clusters was determined by a resolution parameter, where higher values resulted in a greater number of clusters. (13) Each cluster was represented by a color, with more relevant terms highlighted by larger circles, while strongly related terms were

positioned closer together. Lines between terms indicated connections, with thicker lines representing stronger links between two terms.(13)

Data analysis was conducted using SPSS for Windows (version 24.0; IBM Corp), employing descriptive statistics for data evaluation.

RESULTS

PERFORMANCE ANALYSIS

The screening process identified 2,730 papers from the WoS-CC database. Table 1 presents the 100 most-cited papers in leading dentistry journals, which collectively accumulated 10,813 citations in WoS-CC. The number of citations per paper ranged from 62 to 289, with eight papers cited more than 200 times. The citation count was highest in Google Scholar (24,196 citations) and

lowest in Scopus (12,143 citations). Abaixo, a Figure 1 apresenta o fluxograma PRISMA para os estudos incluídos na pesquisa.

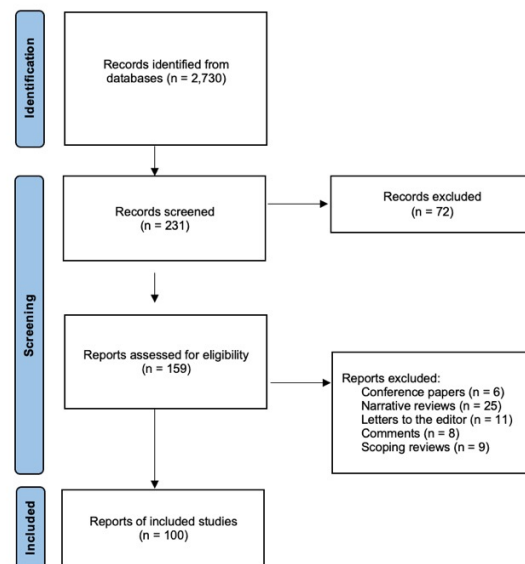


Figure 1. Flowchart (PRISMA) from screening to study inclusion.

Table 1. The 100 most-cited papers on gerodontology.

Rank	Papers	Number of citations (averagea)			
		Year of publication	WoS Core	Scopus	Google Scholar
1	Minakuchi S, Tsuga K, Ikebe K, Ueda T, Tamura F, Nagao K, Furuya J, Matsuo K, Yamamoto K, Kanazawa M, Watanabe Y, Hirano H, Kikutani T, Sakurai K. Oral hypofunction in the older population: Position paper of the Japanese Society of Gerodontology in 2016. <i>Gerodontology</i> . 2018 Dec;35(4):317-324. doi: 10.1111/ger.12347	2016	289 (41.28)	300 (42.85)	431 (61.57)
2	Heydecke G, Locker D, Awad MA, Lund JP, Feine JS. Oral and general health-related quality of life with conventional and implant dentures. <i>Community Dent Oral Epidemiol</i> . 2003 Jun;31(3):161-8. doi: 10.1034/j.1600-0528.2003.00029.x	2003	273 (12.40)	291 (13.22)	631 (28.68)
3	Petersen PE, Kandelman D, Arpin S, Ogawa H. Global oral health of older people-call for public health action. <i>Community Dent Health</i> . 2010 Dec;27(4 Suppl 2):257-67. doi: 10.1922/CDH_2711Petersen11	2010	271 (18.06)	299 (19.93)	694 (46.26)
4	Shimazaki Y, Soh I, Saito T, Yamashita Y, Koga T, Miyazaki H, Takehara T. Influence of dentition status on physical disability, mental impairment, and mortality in institutionalized elderly people. <i>J Dent Res</i> . 2001 Jan;80(1):340-5. doi: 10.1177/00220345010800010801	2001	265 (11.04)	287 (11.95)	531 (22.12)
5	Awad MA, Lund JP, Shapiro SH, Locker D, Klemetti E, Chehade A, Savard A, Feine JS. Oral health status and treatment satisfaction with mandibular implant overdentures and conventional dentures: a randomized clinical trial in a senior population. <i>Int J Prosthodont</i> . 2003 Jul-Aug;16(4):390-6	2003	258 (11.72)	305 (13.86)	615 (27.95)
6	Locker D, Matear D, Stephens M, Lawrence H, Payne B. Comparison of the GOHAI and OHIP-14 as measures of the oral health-related quality of life of the elderly. <i>Community Dent Oral Epidemiol</i> . 2001 Oct;29(5):373-81. doi: 10.1034/j.1600-0528.2001.290507.x	2001	234 (9.75)	249 (10.37)	556 (23.16)
7	Awano S, Ansai T, Takata Y, Soh I, Akifusa S, Hamasaki T, Yoshida A, Sonoki K, Fujisawa K, Takehara T. Oral Health and Mortality Risk from Pneumonia in the Elderly. <i>J Dent Res</i> . 2008;87(4):334-339. doi:10.1177/154405910808700418	2008	207 (12.17)	230 (13.52)	445 (26.17)
8	Hatakka K, Ahola AJ, Yli-Knuutila H, Richardson M, Poussa T, Meurman JH, Korpela R. Probiotics reduce the prevalence of oral candida in the elderly--a randomized controlled trial. <i>J Dent Res</i> . 2007 Feb;86(2):125-30. doi: 10.1177/154405910708600204	2007	202 (11.22)	252 (14.0)	515 (28.61)
9	Närhi TO. Prevalence of subjective feelings of dry mouth in the elderly. <i>J Dent Res</i> . 1994 Jan;73(1):20-5. doi: 10.1177/00220345940730010301	1994	180 (5.80)	206 (6.64)	426 (13.74)
10	Tonetti MS, Bottenberg P, Conrads G, Eickholz P, Heasman P, Huysmans MC, López R, Madianos P, Müller F, Needleman I, Nyvad B, Preshaw PM, Pretty I, Renvert S, Schwendicke F, Trombelli L, van der Putten GJ, Vanobbergen J, West N, Young A, Paris S. Dental caries and periodontal diseases in the ageing population: call to action to protect and enhance oral health and well-being as an essential component of healthy ageing - Consensus report of group 4 of the joint EFP/ORCA workshop on the boundaries between caries and periodontal diseases. <i>J Clin Periodontol</i> . 2017 Mar;44 Suppl 18:S135-S144. doi: 10.1111/jcpe.12681	2017	178 (22.25)	209 (26.12)	365 (45.62)
11	López R, Smith PC, Göstemeier G, Schwendicke F. Ageing, dental caries and periodontal diseases. <i>J Clin Periodontol</i> . 2017 Mar;44 Suppl 18:S145-S152. doi: 10.1111/jcpe.12683	2017	174 (21.75)	201 (25.12)	336 (42.0)
12	Hildebrandt GH, Dominguez BL, Schork MA, Loesche WJ. Functional units, chewing, swallowing, and food avoidance among the elderly. <i>J Prosthet Dent</i> . 1997 Jun;77(6):588-95. doi: 10.1016/s0022-3913(97)70100-8	1997	172 (6.14)	193 (6.90)	345 (12.32)
13	Slade GD, Spencer AJ, Locker D, Hunt RJ, Strauss RP, Beck JD. Variations in the social impact of oral conditions among older adults in South Australia, Ontario, and North Carolina. <i>J Dent Res</i> . 1996 Jul;75(7):1439-50. doi: 10.1177/00220345960750070301	1996	170 (5.86)	188 (6.48)	358 (8.90)
15	Reichert PA. Oral mucosal lesions in a representative cross-sectional study of aging Germans. <i>Community Dent Oral Epidemiol</i> . 2000 Oct;28(5):390-8. doi: 10.1034/j.1600-0528.2000.028005390.x	2000	153 (6.12)	180 (7.20)	428 (17.12)

Rank	Papers	Number of citations (average)			
		Year of publication	WoS Core	Scopus	Google Scholar
17	Adachi M, Ishihara K, Abe S, Okuda K, Ishikawa T. Effect of professional oral health care on the elderly living in nursing homes. <i>Oral Surg Oral Med Oral Pathol Oral Radiol Endod.</i> 2002 Aug;94(2):191-5. doi: 10.1067/moe.2002.123493	2002	148 (6.43)	173 (7.52)	346 (15.04)
18	Gupta A, Epstein JB, Sroussi H. Hyposalivation in elderly patients. <i>J Can Dent Assoc.</i> 2006 Nov;72(9):841-6	2006	141 (7.42)	157 (8.26)	343 (18.05)
19	McGrath C, Bedi R. The association between dental anxiety and oral health-related quality of life in Britain. <i>Community Dent Oral Epidemiol.</i> 2004 Feb;32(1):67-72. doi: 10.1111/j.1600-0528.2004.00119.x	2004	140 (6.66)	155 (7.38)	372 (17.71)
20	Frenkel H, Harvey I, Newcombe RG. Improving oral health in institutionalised elderly people by educating caregivers: a randomised controlled trial. <i>Community Dent Oral Epidemiol.</i> 2001 Aug;29(4):289-97. doi: 10.1034/j.1600-0528.2001.290408.x	2001	137 (5.70)	153 (6.37)	311 (12.95)
21	Espinoza I, Rojas R, Aranda W, Gamonal J. Prevalence of oral mucosal lesions in elderly people in Santiago, Chile. <i>J Oral Pathol Med.</i> 2003 Nov;32(10):571-5. doi: 10.1034/j.1600-0714.2003.00031.x	2003	136 (6.18)	173 (7.86)	507 (23.04)
22	Douglass CW, Berlin J, Tennstedt S. The validity of self-reported oral health status in the elderly. <i>J Public Health Dent.</i> 1991 Fall;51(4):220-2. doi: 10.1111/j.1752-7325.1991.tb02218.x	1991	127 (3.73)	131 (6.79)	195 (5.73)
23	Delwel S, Binnekade TT, Perez RSGM, Hertogh CPM, Scherder EJA, Lobbezoo F. Oral hygiene and oral health in older people with dementia: a comprehensive review with focus on oral soft tissues. <i>Clin Oral Invest.</i> 2018 Jan;22(1):93-108. doi: 10.1007/s00784-017-2264-2	2018	123 (17.57)	137 (19.57)	250 (35.71)
24	Jainkittivong A, Aneksuk V, Langlais RP. Oral mucosal conditions in elderly dental patients. <i>Oral Dis.</i> 2002 Jul;8(4):218-23. doi: 10.1034/j.1601-0825.2002.01789.x	2002	122 (5.30)	157 (6.82)	407 (17.69)
25	Iinuma T, Arai Y, Abe Y, Takayama M, Fukumoto M, Fukui Y, Iwase T, Takebayashi T, Hirose N, Gionhaku N, Komiya K. Denture wearing during sleep doubles the risk of pneumonia in the very elderly. <i>J Dent Res.</i> 2015 Mar;94(3 Suppl):28S-36S. doi: 10.1177/0022034514552493	2015	121 (12.10)	139 (13.90)	256 (25.60)
26	Lockhart SR, Joly S, Vargas K, Swails-Wenger J, Enger L, Soll DR. Natural defenses against Candida colonization breakdown in the oral cavities of the elderly. <i>J Dent Res.</i> 1999 Apr;78(4):857-68. doi: 10.1177/00220345990780040601	1999	120 (4.61)	151 (5.80)	271 (10.42)
27	O'Donnell LE, Smith K, Williams C, Nile CJ, Lappin DF, Bradshaw D, Lambert M, Robertson DP, Bagg J, Hannah V, Ramage G. Dentures are a Reservoir for Respiratory Pathogens. <i>J Prosthodont.</i> 2016 Feb;25(2):99-104. doi: 10.1111/jopr.12342	2016	116 (12.88)	230 (25.55)	212 (23.55)
28	Lamy M, Mojon P, Kalykakis G, Legrand R, Butz-Jorgensen E. Oral status and nutrition in the institutionalized elderly. <i>J Dent.</i> 1999 Aug;27(6):443-8. doi: 10.1016/s0300-5712(99)00002-0	1999	116 (4.46)	131 (5.03)	288 (11.07)
29	Collin HL, Uusitupa M, Niskanen L, Konturi-Närhi V, Markkanen H, Koivisto AM, Meurman JH. Periodontal findings in elderly patients with non-insulin dependent diabetes mellitus. <i>J Periodontol.</i> 1998 Sep;69(9):962-6. doi: 10.1902/jop.1998.69.9.962	1998	114 (4.22)	125 (4.62)	302 (11.18)
31	Wallis AW, Steele JG, Sheiham A, Marceus W, Moynihan PJ. Oral health and nutrition in older people. <i>J Public Health Dent.</i> 2000 Fall;60(4):304-7. doi: 10.1111/j.1752-7325.2000.tb03339.x	2000	113 (4.52)	132 (5.28)	280 (11.20)
32	Budtz-Jørgensen E, Isidor F. A 5-year longitudinal study of cantilevered fixed partial dentures compared with removable partial dentures in a geriatric population. <i>J Prosthet Dent.</i> 1990 Jul;64(1):42-7. doi: 10.1016/0022-3913(90)90151-2	1990	109 (3.11)	128 (3.65)	212 (6.05)
33	Masood M, Newton T, Bakri NN, Khalid T, Masood Y. The relationship between oral health and oral health related quality of life among elderly people in United Kingdom. <i>J Dent.</i> 2017 Jan;56:78-83. doi: 10.1016/j.ident.2016.11.002	2017	108 (13.50)	126 (15.75)	241 (30.12)

Rank	Papers	Number of citations (averagea)			
		Year of publication	WoS Core	Scopus	Google Scholar
35	Smith JM, Sheiham A. How dental conditions handicap the elderly. <i>Community Dent Oral Epidemiol.</i> 1979;7(6):305-10. doi: 10.1111/j.1600-0528.1979.tb01238.x	1979	106 (2.30)	123 (2.67)	251 (5.45)
36	Musacchio E, Perissinotto E, Binotto P, Sartori L, Silva-Netto F, Zambon S, Manzato E, Corti MC, Baggio G, Crepaldi G. Tooth loss in the elderly and its association with nutritional status, socio-economic and lifestyle factors. <i>Acta Odontol Scand.</i> 2007 Apr;65(2):78-86. doi: 10.1080/00016350601058069	2007	102 (5.66)	116 (6.44)	281 (15.61)
37	Locker D, Gibson B. Discrepancies between self-ratings of and satisfaction with oral health in two older adult populations. <i>Community Dent Oral Epidemiol.</i> 2005 Aug;33(4):280-8. doi: 10.1111/j.1600-0528.2005.00209.x	2005	101 (5.05)	109 (5.45)	210 (10.50)
38	Nicol R, Petrina Sweeney M, McHugh S, Bagg J. Effectiveness of health care worker training on the oral health of elderly residents of nursing homes. <i>Community Dent Oral Epidemiol.</i> 2005 Apr;33(2):115-24. doi: 10.1111/j.1600-0528.2004.00212.x	2005	101 (5.05)	115 (5.75)	235 (11.75)
39	Ikebe K, Matsuda K, Morii K, Wada M, Hazeiyama T, Nokubi T, Ettinger RL. Impact of dry mouth and hyposalivation on oral health-related quality of life of elderly Japanese. <i>Oral Surg Oral Med Oral Pathol Oral Radiol Endod.</i> 2007 Feb;103(2):216-22. doi: 10.1016/j.tripleo.2005.12.001	2007	99 (5.50)	103 (5.72)	216 (12.00)
40	Thomson WM. Dry mouth and older people. <i>Aust Dent J.</i> 2015 Mar;60 Suppl 1:54-63. doi: 10.1111/adj.12284	2015	96 (9.60)	105 (10.50)	186 (18.60)
41	Poisson P, Laffond T, Campos S, Dupuis V, Bourdel-Marchasson I. Relationships between oral health, dysphagia and undernutrition in hospitalised elderly patients. <i>Gerodontology.</i> 2016 Jun;33(2):161-8. doi: 10.1111/ger.12123	2016	95 (10.55)	100 (11.11)	181 (20.11)
42	Brodeur JM, Laurin D, Vallee R, Lachapelle D. Nutrient intake and gastrointestinal disorders related to masticatory performance in the edentulous elderly. <i>J Prosthet Dent.</i> 1993 Nov;70(5):468-73. doi: 10.1016/0022-3913(93)90087-5	1993	95 (2.96)	114 (3.56)	309 (9.65)
43	Langer A, Michman J, Seifert I. Factors influencing satisfaction with complete dentures in geriatric patients. <i>J Prosthet Dent.</i> 1961 Nov; 11(6):1019-31. doi: 10.1016/0022-3913(61)90038-5	1961	95 (1.48)	99 (1.54)	213 (3.32)
44	Müller F, Shimazaki Y, Kanabuka F, Schimmel M. Oral health for an ageing population: the importance of a natural dentition in older adults. <i>Int Dent J.</i> 2017 Sep;67 Suppl 2(Suppl 2):7-13. doi: 10.1111/rdj.12329	2017	93 (11.62)	101 (12.62)	187 (23.37)
45	Inomata C, Ikebe K, Kagawa R, Okubo H, Sasaki S, Okada T, Takeshita H, Tada S, Matsuda K, Kurushima Y, Kitamura M, Murakami S, Gondo Y, Kamide K, Masui Y, Takahashi R, Arai Y, Maeda Y. Significance of occlusal force for dietary fibre and vitamin intakes in independently living 70-year-old Japanese: from SONIC Study. <i>J Dent.</i> 2014 May;42(5):556-64. doi: 10.1016/j.jdent.2014.02.015	2014	92 (8.36)	96 (8.72)	139 (12.63)
47	Wong MC, Liu JK, Lo EC. Translation and validation of the Chinese version of GOHAI. <i>J Public Health Dent.</i> 2002 Spring;62(2):78-83. doi: 10.1111/j.1752-7325.2002.tb03426.x	2002	91 (3.95)	88 (3.82)	164 (7.13)
48	Hugo FN, Hilgert JB, de Sousa Mda L, da Silva DD, Pucca GA Jr. Correlates of partial tooth loss and edentulism in the Brazilian elderly. <i>Community Dent Oral Epidemiol.</i> 2007 Jun;35(3):224-32. doi: 10.1111/j.0301-5661.2007.00346.x	2007	90 (5.00)	94 (5.22)	269 (14.94)
49	Grabowski M, Bertram U. Oral health status and need of dental treatment in the elderly Danish population. <i>Community Dent Oral Epidemiol.</i> 1975 May;3(3):108-14. doi: 10.1111/j.1600-0528.1975.tb00290.x	1975	89 (1.78)	83 (1.66)	160 (3.20)
50	Ekstrand K, Martignon S, Holm-Pedersen P. Development and evaluation of two root caries controlling programmes for home-based frail people older than 75 years. <i>Gerodontology.</i> 2008 Jun;25(2):67-75. doi: 10.1111/j.1741-2358.2007.00200.x	2008	88 (5.17)	100 (5.88)	176 (10.35)
51	Hägglin C, Hakeberg M, Ahlqvist M, Sullivan M, Berggren U. Factors associated with dental anxiety and attendance in middle-aged and elderly women. <i>Community Dent Oral Epidemiol.</i> 2000 Dec;28(6):451-60. doi: 10.1034/j.1600-0528.2000.028006451.x	2000	88 (3.52)	103 (4.12)	265 (10.60)

Rank	Papers	Number of citations (average)			
		Year of publication	WoS Core	Scopus	Google Scholar
53	Weyant RJ, Pearlstein ME, Churak AP, Forrest K, Famili P, Cauley JA. The association between osteopenia and periodontal attachment loss in older women. <i>J Periodontol</i> . 1999 Sep;70(9):982-91. doi: 10.1902/jop.1999.70.9.982.	1999	87 (3.34)	100 (3.84)	204 (7.84)
54	Burt BA. Periodontitis and aging: reviewing recent evidence. <i>J Am Dent Assoc</i> . 1994 Mar;125(3):273-9. doi: 10.14219/jada.archive.1994.0034	1994	87 (2.80)	107 (3.45)	241 (7.77)
55	Kiyak HA, Grayston MN, Crinean CL. Oral health problems and needs of nursing home residents. <i>Community Dent Oral Epidemiol</i> . 1993 Feb;21(1):49-52. doi: 10.1111/j.1600-0528.1993.tb00719.x	1993	87 (2.71)	96 (3.00)	196 (6.12)
56	Hugo FN, Hilgert JB, de Sousa Mda L, Cury JA. Oral status and its association with general quality of life in older independent-living south-Brazilians. <i>Community Dent Oral Epidemiol</i> . 2009 Jun;37(3):231-40. doi: 10.1111/j.1600-0528.2009.00459.x	2009	85 (5.31)	94 (5.87)	196 (12.25)
57	Takata Y, Ansai T, Awano S, Hamasaki T, Yoshitake Y, Kimura Y, Sonoki K, Wakisaka M, Fukuhara M, Takehara T. Relationship of physical fitness to chewing in an 80-year-old population. <i>Oral Dis</i> . 2004 Jan;10(1):44-9. doi: 10.1046/j.1354-523x.2003.00972.x	2004	85 (4.04)	90 (4.28)	136 (6.47)
58	Smith JM, Sheiham A. Dental treatment needs and demands of an elderly population in England. <i>Community Dent Oral Epidemiol</i> . 1980 Oct;8(7):360-4. doi: 10.1111/j.1600-0528.1980.tb01308.x	1980	85 (1.88)	74 (1.64)	163 (3.62)
59	Heydecke G, Penrod JR, Takanashi Y, Lund JP, Feine JS, Thomason JM. Cost-effectiveness of mandibular two-implant overdentures and conventional dentures in the edentulous elderly. <i>J Dent Res</i> . 2005 Sep;84(9):794-9. doi: 10.1177/154405910508400903	2005	84 (4.20)	95 (4.75)	169 (8.45)
60	Hänsel Petersson G, Fure S, Bratthall D. Evaluation of a computer-based caries risk assessment program in an elderly group of individuals. <i>Acta Odontol Scand</i> . 2003 Jun;61(3):164-71. doi: 10.1080/00016350310002261	2003	83 (3.77)	88 (4.00)	184 (8.36)
61	Delwel S, Binnekade TT, Perez RS, Hertogh CM, Scherder EJ, Lobbezoo F. Oral health and orofacial pain in older people with dementia: a systematic review with focus on dental hard tissues. <i>Clin Oral Invest</i> . 2017 Jan;21(1):17-32. doi: 10.1007/s00784-016-1934-9	2017	81 (10.12)	92 (11.50)	153 (19.12)
62	Osterberg T, Carlsson GE, Sundh V, Mellström D. Number of teeth--a predictor of mortality in 70-year-old subjects. <i>Community Dent Oral Epidemiol</i> . 2008 Jun;36(3):258-68. doi: 10.1111/j.1600-0528.2007.00413.x	2008	80 (4.70)	88 (5.17)	159 (9.35)
64	Slade GD, Gansky SA, Spencer AJ. Two-year incidence of tooth loss among South Australians aged 60+ years. <i>Community Dent Oral Epidemiol</i> . 1997 Dec;25(6):429-37. doi: 10.1111/j.1600-0528.1997.tb01734.x	1997	78 (2.78)	90 (3.21)	169 (6.03)
65	Eisig F, Schimmel M, Duvernay E, Giannelli SV, Graf CE, Carlier S, Herrmann FR, Michel JP, Gold G, Zekry D, Müller F. Tooth loss, chewing efficiency and cognitive impairment in geriatric patients. <i>Gerodontology</i> . 2015 Jun;32(2):149-56. doi: 10.1111/ger.12079	2015	76 (7.60)	90 (9.00)	150 (15.00)
66	Niessen D, van Mourik K, van der Sanden W. The impact of frailty on oral care behavior of older people: a qualitative study. <i>BMC Oral Health</i> . 2013 Nov 1;13:61. doi: 10.1186/1472-6831-13-61	2013	76 (6.33)	78 (6.50)	131 (10.91)
67	Zhang W, McGrath C, Lo EC, Li JY. Silver diamine fluoride and education to prevent and arrest root caries among community-dwelling elders. <i>Caries Res</i> . 2013;47(4):284-90. doi: 10.1159/000346620	2013	76 (6.33)	96 (8.00)	187 (15.58)
68	Göstemeyer G, Baker SR, Schwendicke F. Barriers and facilitators for provision of oral health care in dependent older people: a systematic review. <i>Clin Oral Invest</i> . 2019 Mar;23(3):979-993. doi: 10.1007/s00784-019-02812-4	2019	75 (12.50)	76 (12.66)	150 (25.00)
69	Hebling E, Pereira AC. Oral health-related quality of life: a critical appraisal of assessment tools used in elderly people. <i>Gerodontology</i> . 2007 Sep;24(3):151-61. doi: 10.1111/j.1741-2358.2007.00178.x	2007	75 (4.16)	82 (4.55)	208 (11.55)
70	Mummolo S, Ortu E, Necozione S, Monaco A, Marzo G. Relationship between mastication and cognitive function in elderly in L'Aquila. <i>Int J Clin Exp Med</i> . 2014 Apr 15;7(4):1040-6.	2014	75 (6.81)	83 (7.54)	168 (15.27)

Rank	Papers	Number of citations (averagea)			
		Year of publication	WoS Core	Scopus	Google Scholar
72	Imazato S, Ikebe K, Nokubi T, Ebisu S, Walls AW. Prevalence of root caries in a selected population of older adults in Japan. <i>J Oral Rehabil</i> . 2006 Feb;33(2):137-43. doi: 10.1111/j.1365-2842.2006.01547.x	2006	74 (3.89)	90 (4.73)	176 (9.26)
73	Kikutani T, Tamura F, Nishiwaki K, Kodama M, Suda M, Fukui T, Takahashi N, Yoshida M, Akagawa Y, Kimura M. Oral motor function and masticatory performance in the community-dwelling elderly. <i>Odontology</i> . 2009 Jan;97(1):38-42. doi: 10.1007/s10266-008-0094-z	2009	73 (4.56)	88 (5.50)	139 (8.68)
74	Okamoto N, Amano N, Nakamura T, Yanagi M. Relationship between tooth loss, low masticatory ability, and nutritional indices in the elderly: a cross-sectional study. <i>BMC Oral Health</i> . 2019 Jun 13;19(1):110. doi: 10.1186/s12903-019-0778-5	2019	71 (11.83)	73 (12.16)	113 (18.83)
75	Pattussi MP, Peres KG, Boing AF, Peres MA, da Costa JS. Self-rated oral health and associated factors in Brazilian elders. <i>Community Dent Oral Epidemiol</i> . 2010 Aug;38(4):348-59. doi: 10.1111/j.1600-0528.2010.00542.x	2010	71 (4.73)	80 (5.33)	185 (12.33)
76	Morita K, Tsuka H, Kato K, Mori T, Nishimura R, Yoshida M, Tsuga K. Factors related to masticatory performance in healthy elderly individuals. <i>J Prosthodont Res</i> . 2018 Oct;62(4):432-435. doi: 10.1016/j.jpor.2018.03.007	2018	70 (10.00)	71 (10.14)	109 (15.57)
77	Krennmair G, Ulm C. The symphyseal single-tooth implant for anchorage of a mandibular complete denture in geriatric patients: a clinical report. <i>Int J Oral Maxillofac Implants</i> . 2001 Jan-Feb;16(1):98-104	2001	70 (2.91)	82 (3.41)	182 (7.58)
78	wasaki M, Taylor GW, Manz MC, Yoshihara A, Sato M, Muramatsu K, Watanabe R, Miyazaki H. Oral health status: relationship to nutrient and food intake among 80-year-old Japanese adults. <i>Community Dent Oral Epidemiol</i> . 2014 Oct;42(5):441-50. doi: 10.1111/cdoe.12100	2014	69 (6.27)	77 (7.00)	124 (11.27)
79	Hilgert JB, Hugo FN, de Sousa Mda L, Bozzetti MC. Oral status and its association with obesity in Southern Brazilian older people. <i>Gerodontology</i> . 2009 Mar;26(1):46-52. doi: 10.1111/j.1741-2358.2008.00226.x	2009	69 (4.31)	80 (5.00)	121 (7.56)
80	Ogawa H, Yoshihara A, Hirotsu T, Ando Y, Miyazaki H. Risk factors for periodontal disease progression among elderly people. <i>J Clin Periodontol</i> . 2002 Jul;29(7):592-7. doi: 10.1034/j.1600-051x.2002.290702.x	2002	69 (3.00)	80 (3.47)	180 (7.82)
82	Hämäläinen P, Meurman JH, Keskinen M, Heikkinen E. Relationship between dental health and 10-year mortality in a cohort of community-dwelling elderly people. <i>Eur J Oral Sci</i> . 2003 Aug;111(4):291-6. doi: 10.1034/j.1600-0722.2003.00055.x	2003	68 (3.09)	76 (3.45)	126 (5.72)
83	stvaldsdóttir Á, Bostrom AM, Davidson T, Gabre P, Gahnberg L, Sandborgh Englund G, Skott P, Ståhlacke K, Traneus S, Wilhelmsson H, Wårdh I, Östlund P, Nilsson M. Oral health and dental care of older persons-A systematic map of systematic reviews. <i>Gerodontology</i> . 2018 Dec;35(4):290-304. doi: 10.1111/ger.12368	2018	67 (9.57)	74 (10.57)	152 (21.71)
84	Kraft-Bodi E, Jørgensen MR, Keller MK, Kragelund C, Twetman S. Effect of Probiotic Bacteria on Oral Candida in Frail Elderly. <i>J Dent Res</i> . 2015 Sep;94(9 Suppl):181S-6S. doi: 10.1177/0022034515595950	2015	167 (16.70)	86 (8.60)	161 (16.10)
85	Ekstrand KR, Poulsen JE, Hede B, Twetman S, Qvist V, Eliwood RP. A randomized clinical trial of the anti-caries efficacy of 5,000 compared to 1,450 ppm fluoridated toothpaste on root caries lesions in elderly disabled nursing home residents. <i>Caries Res</i> . 2013;47(5):391-8. doi: 10.1159/000348581	2013	67 (5.58)	85 (7.08)	151 (12.58)
86	Furugen R, Hayashida H, Yamaguchi N, Yoshihara A, Ogawa H, Miyazaki H, Salto T. The relationship between periodontal condition and serum levels of resistin and adiponectin in elderly Japanese. <i>J Periodontol Res</i> . 2008 Oct;43(5):556-62. doi: 10.1111/j.1600-0765.2008.01085.x	2008	67 (3.94)	76 (4.47)	154 (9.05)
87	Smidt D, Torpet LA, Nauntofte B, Heegaard KM, Pedersen AM. Associations between oral and ocular dryness, labial and whole salivary flow rates, systemic diseases and medications in a sample of older people. <i>Community Dent Oral Epidemiol</i> . 2011 Jun;39(3):276-88. doi: 10.1111/j.1600-0528.2010.00588.x	2011	66 (4.71)	80 (5.71)	151 (10.78)
88	Nevalainen MJ, Närhi TO, Alinamo A. Oral mucosal lesions and oral hygiene habits in the home-living elderly. <i>J Oral Rehabil</i> . 1997 May;24(5):332-7. doi: 10.1046/j.1365-2842.1997.d01-298.x	1997	66 (2.35)	78 (2.78)	224 (8.00)

Rank	Papers	Number of citations (average)			
		Year of publication	WoS Core	Scopus	Google Scholar
90	Saito S, Ohi T, Murakami T, Komiya T, Miyoshi Y, Endo K, Satoh M, Asayama K, Inoue R, Kikuya M, Metoki H, Imai Y, Ohkubo T, Hattori Y. Association between tooth loss and cognitive impairment in community-dwelling older Japanese adults: a 4-year prospective cohort study from the Ohasama study. BMC Oral Health. 2018 Aug 20;18(1):142. doi: 10.1186/s12903-018-0602-7	2018	65 (9.28)	75 (10.71)	122 (17.42)
91	Martori E, Ayuso-Montero R, Martinez-Gomis J, Viñas M, Peraire M. Risk factors for denture-related oral mucosal lesions in a geriatric population. J Prosthet Dent. 2014 Apr;111(4):273-9. doi: 10.1016/j.prosdent.2013.07.015	2014	65 (5.90)	75 (6.81)	249 (22.63)
92	Dharamsi S, Jivani K, Dean C, Wyatt C. Oral care for frail elders: knowledge, attitudes, and practices of long-term care staff. J Dent Educ. 2009 May;73(5):581-8. doi: 10.1002/j.0022-0337.2009.73.5.tb04733.x	2009	65 (4.06)	65 (4.06)	161 (10.06)
93	Mack F, Schwahn C, Feine JS, Mundt T, Bernhardt O, John U, Kocher PT, Biffar R. The impact of tooth loss on general health related to quality of life among elderly Pomeranians: results from the study of health in Pomerania (SHIP-O). Int J Prosthodont. 2005 Sep-Oct;18(5):414-9.	2005	65 (3.25)	77 (3.85)	210 (10.50)
94	Iwasaki M, Yoshihara A, Sato N, Sato M, Minagawa K, Shimada M, Nishimura M, Ansai T, Yoshitake Y, Ono T, Miyazaki H. A 5-year longitudinal study of association of maximum bite force with development of frailty in community-dwelling older adults. J Oral Rehabil. 2018 Jan;45(1):17-24. doi: 10.1111/joor.12578	2018	64 (9.14)	73 (10.42)	104 (14.85)
95	Iwasaki M, Yoshihara A, Ogawa H, Sato M, Muramatsu K, Watanabe R, Ansai T, Miyazaki H. Longitudinal association of dentition status with dietary intake in Japanese adults aged 75 to 80 years. J Oral Rehabil. 2016 Oct;43(10):737-44. doi: 10.1111/joor.12427	2016	64 (7.11)	67 (7.44)	105 (11.66)
96	Hanson BS, Liedberg B, Owall B. Social network, social support and dental status in elderly Swedish men. Community Dent Oral Epidemiol. 1994 Oct;22(5 Pt 1):331-7. doi: 10.1111/j.1600-0528.1994.tb02063.x	1994	64 (2.06)	69 (2.22)	112 (3.61)
97	Arrivé E, Letenneur L, Matharan F, Laporte C, Helmer C, Barberger-Gateau P, Miquel JL, Dartigues JF. Oral health condition of French elderly and risk of dementia: a longitudinal cohort study. Community Dent Oral Epidemiol. 2012 Jun;40(3):230-8. doi: 10.1111/j.1600-0528.2011.00650.x	2012	63 (4.84)	77 (5.92)	113 (8.69)
98	Samson H, Strand GV, Haugejorden O. Change in oral health status among the institutionalized Norwegian elderly over a period of 16 years. Acta Odontol Scand. 2008;66(6):368-73. doi: 10.1080/00016350802378654	2008	63 (3.70)	67 (3.94)	149 (8.76)
99	Lewis A, Wallace J, Deutsch A, King P. Improving the oral health of frail and functionally dependent elderly. Aust Dent J. 2015 Mar;60 Suppl 1:95-105. doi: 10.1111/adj.12288	2015	62 (6.20)	72 (7.20)	155 (15.50)
100	Famili P, Cauley J, Suzuki JB, Weyant R. Longitudinal study of periodontal disease and edentulism with rates of bone loss in older women. J Periodontol. 2005 Jan;76(1):11-5. doi: 10.1902/jop.2005.76.1.11	2005	62 (3.10)	74 (3.70)	157 (7.85)

Average based on the ratio between the number of citations and the period from the year of publication to January 2025.

The most cited article was "Global oral health of older people-call for public health action" by Petersen, published in the journal *Community Dental Health* in 2010. Considering the three databases analyzed, it has received 1,264 citations and has a citation density of 90.28 (Table 1 – third author). Most of the papers were published in the 2010s, although papers from different periods since the 1960s have been included in the list of the top 100 most-cited. The oldest paper, a cohort study by Langer published in 1961, received 95 citations (citation density: 1.50) (Figure 2). The most recent papers, published in 2019, include a systematic review by Göstemeyer *et al.*, with 75 citations (citation density: 15.0), and a cohort study by Okamoto *et al.*, with 71 citations (citation density: 14.2). The majority of the articles included in the analysis had three or more authors ($n=86$), indicating a strong tendency toward collaborative research in the field. This was followed by studies with two authors ($n=9$), while single-author publications were the least common ($n=5$).

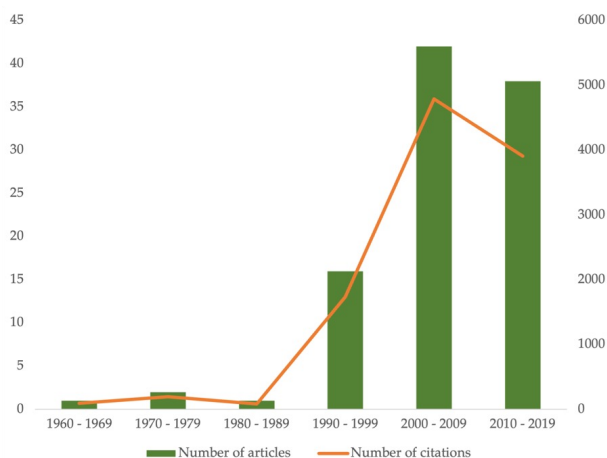


Figure 2. Number of publications of the 100 most-cited papers by decade and citation count.

Table 2 presents the study design and the most common topics in geriatric dentistry. Among the study types, cross-sectional studies were the most frequent, with 32 papers totaling 4,210 citations and a citation ratio of 131.56 citations

per paper. Next, reviews stand out with 14 papers and 3,756 citations, showing the highest citation ratio per paper (268.29). Cohort and validation studies appear with similar numbers of papers (17 and 5, respectively), accumulating 3,332 and 650 citations. The citation ratio per paper is 196 for cohort studies and 130 for validation studies. Additionally, there is one systematic review paper with 81 citations and 8 longitudinal studies, totaling 744 citations with a ratio of 93 citations per paper. Clinical studies are represented by 21 papers, with a total of 3,350 citations, resulting in a ratio of 159.52 citations per paper. Finally, ecological studies are the least frequent, with only 2 papers and 232 citations, yielding a ratio of 116 citations per paper.

The analyzed papers address two major themes: epidemiology and health services research. The first is the most predominant, with 64 papers and 13,123 citations, resulting in a citation ratio of 205.05 citations per paper. Health services research, on the other hand, includes 36 papers and 9,940 citations, being the category with the highest citation ratio per paper (276.11).

A total of 324 researchers contributed to the 100 most-cited papers in geriatric dentistry, with the number of authors per paper ranging from 1 to 18, resulting in an average of 5.3 authors per publication. Distinct clusters are presented in the co-authorship network map (Figure 3).

Regarding the most-cited authors, as shown in Table 3, researcher Locker, D leads with five studies and a total of 1,036 citations. Feine, J, with four studies and 680 citations, also demonstrates a significant academic presence. Other notable researchers include Lund, J, with three studies and 615 citations, and Miyazaki, H, who, despite having six studies published, accumulates 598 citations, indicating relevance distributed across various publications. Authors such

as Takehara, T and Ikebe, K, with three and four studies, respectively, have citation counts close to each other, with 557 and 554 citations, suggesting a significant contribution to the field. Additionally, Awad, M, with only two studies, has 531 citations, indicating substantial impact per publication. Similarly, Kikutani, T, Shimazaki, Y, and Soh, I, with three and two studies each, accumulate between 472 and 512 citations, further emphasizing their importance in disseminating scientific knowledge.

The journal *Community Dentistry and Oral Epidemiology* stands out as the most frequent,

with 15 publications, and an impact factor of 3.3 (Table 3). Following closely is the *Journal of Dental Research*, with nine publications, boasting the highest impact factor among the most-cited journals at 6.1. Other relevant journals include *Gerodontology*, with seven publications and an impact factor of 2.4, and *Journal of Prosthetic Dentistry*, with five publications and an impact factor of 4.1. Some journals, though less frequent, still hold significance, such as *Journal of Clinical Periodontology*, which, despite having only three publications, boasts a high impact factor of 8.7, demonstrating its importance in the field.

Table 2. Study design and topics of the 100 most-cited papers in key geriatric dentistry journals.

	Number of papers	Number of citations	Citation ratio ^a
Study design			
Cross-sectional	32	4,210	131.56
Review	14	3,756	268.29
Validation	5	650	130
Cohort	17	3,332	196
Systematic Review	1	81	81
Longitudinal	8	744	93
Clinical Trial	21	3,350	159.52
Ecological	2	232	116
Total	100	15,855	158.55
Subject			
Epidemiology	64	13,123	205.05
Health services research	36	9,940	276.11
Total	100	15,855	158.55

^aCitation ratio=number of citations per number of papers in each study design and subject.

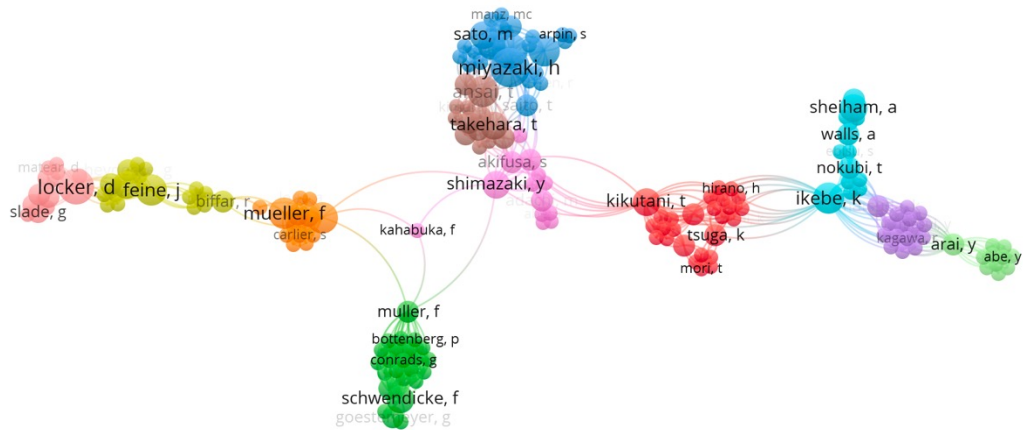


Figure 3. Co-authorship network map of the 100 most-cited papers on geriatric dentistry research.

Table 3. Frequency of publications in scientific journals and the ten authors with the highest number of citations in geriatric dentistry.

Journal	Frequency	Impact Factor	
Community Dentistry and Oral Epidemiology	15	3.3	
Journal of Dental Research	9	6.1	
Gerodontology	7	2.4	
Journal of Prosthetic Dentistry	5	4.1	
Journal of Oral Rehabilitation	4	3.9	
Journal of Clinical Periodontology	3	8.7	
Journal of Periodontology	3	4.2	
BMC Oral Health	3	2.9	
Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology	3	2.0	
Caries Research	3	3.5	
Journal of Public Health Dentistry	3	2.0	
Acta Odontologica Scandinavica	3	1.7	
Journal of Dentistry	3	4.8	
The 10 most cited authors	h index	Number of studies	Citations
Locker, D	52	5	1036
Feine, J	36	4	680
Lund, J	58	3	615
Miyazaki, H	14	6	598
Takehara, T	18	3	557
Ikebe, K	36	4	554
Awad, M	22	2	531
Kikutani, T	35	3	512
Shimazaki, Y	23	3	508
Soh, I	20	2	472

SCIENTIFIC MAPPING ANALYSIS

The geographical analysis of the papers reveals that Europe accounts for the largest volume of publications (Figure 4), with 46 papers and 4,766 citations. Within this group, Finland stands out with 7 papers and 743 citations. Asia follows with 27 papers and 2,958 citations, with Japan leading the region with 21 papers and 1,590 citations. North America contributes 19 papers and 2,297 citations, with the United States accounting for 12 papers and 1,187 citations. South America has a smaller share, with 6 papers and 526 citations, with Brazil being the most represented country, with 5 papers and 390 citations. Oceania shows the least representation, with only 2 papers and 170 citations, all from Australia.

To enhance scientific mapping, a keyword co-occurrence analysis was conducted to identify the most relevant research areas in geriatric dentistry. The most frequent keywords, such as tooth

loss, oral health, elderly, prevalence, and quality of life, indicate a focus on the impacts of tooth loss on the elderly population. Additionally, terms like health, disease, risk, and geriatric dentistry suggest a relationship between diseases and risk factors in oral health. The presence of words like teeth, mortality, and people points to the influence of oral health on life expectancy and overall well-being, while concepts such as dental caries, older people, and quality of life reinforce concerns about dental caries and its effects on aging. Furthermore, the connection between xerostomia and symptoms highlights the importance of dry mouth as a common issue among older adults. The high interconnectivity among these terms suggests that the research addresses the intersection between oral health, risk factors, and quality of life in the elderly population, emphasizing the relevance of geriatric dentistry in promoting health and well-being. Figure 5 illustrates the keyword network, highlighting the interconnections between dominant research topics in gerodontology.

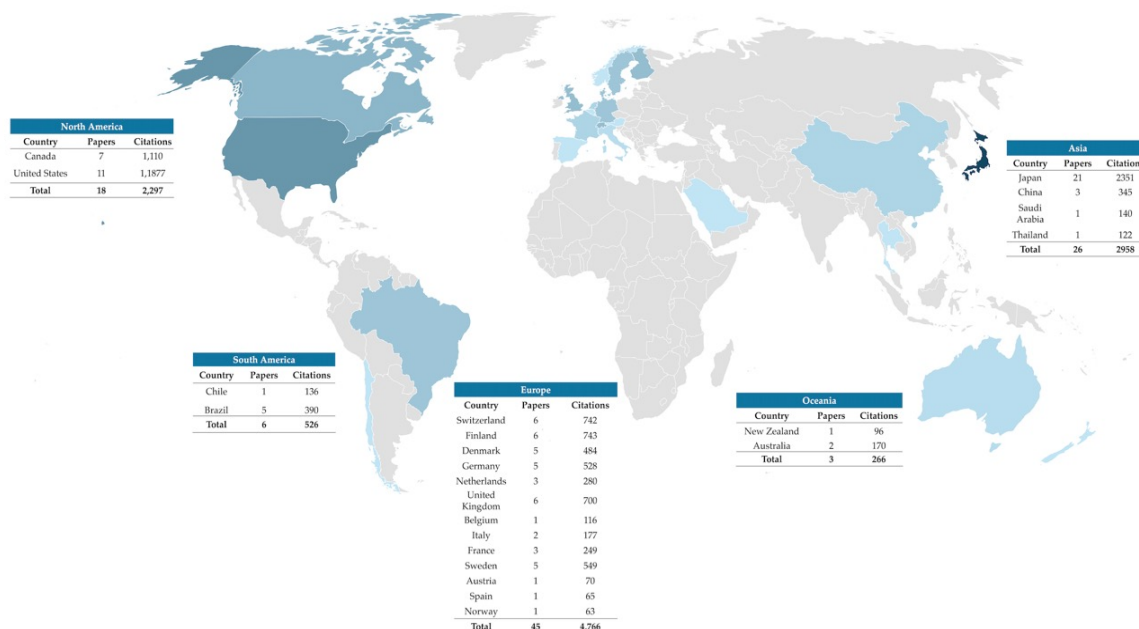


Figure 4. Global distribution of the 100 most-cited papers on geriatric dentistry.

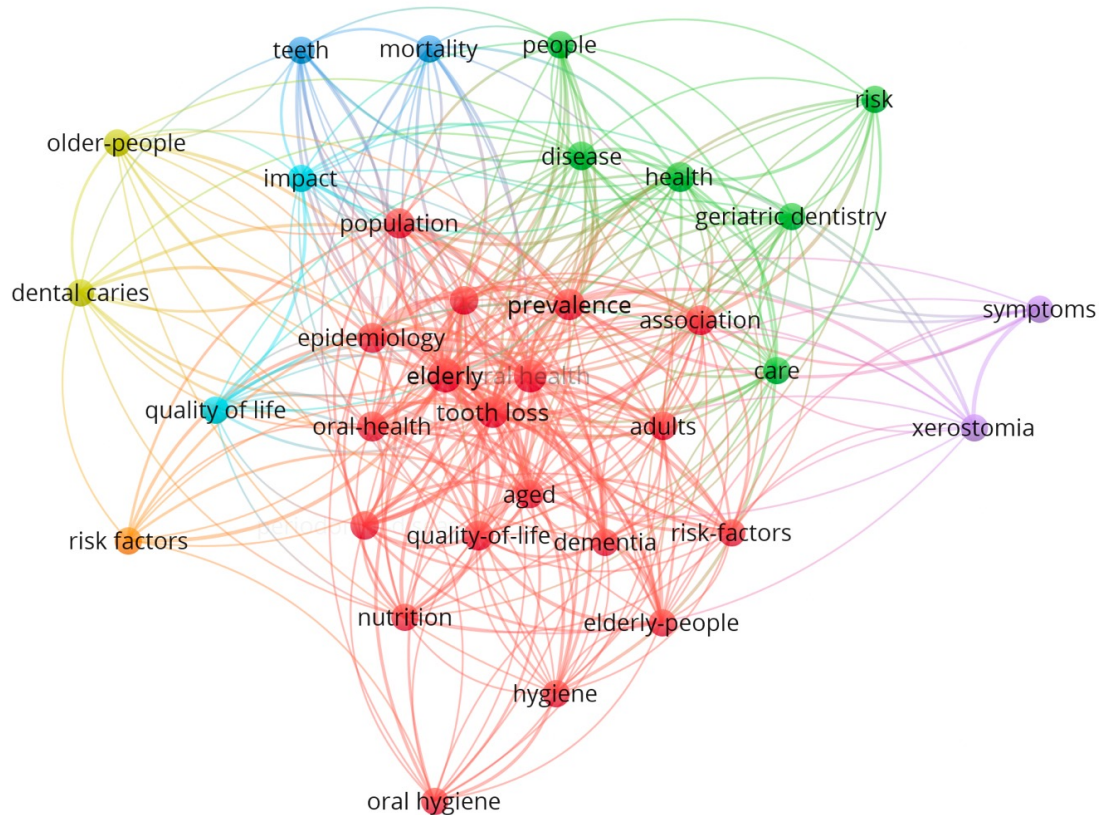


Figure 5. Co-occurrence network of keywords in the 100 most-cited papers on geriatric dentistry.

DISCUSSION

The bibliometric analysis of the 100 most-cited papers in Geriatric Dentistry not only allowed us to identify theoretical and practical milestones influencing the field but also revealed trends in scientific production, research methods, and international collaboration. This study highlights the ongoing evolution of research in Geriatric Dentistry and underscores the historical importance of this specialty in the context of population aging.

The results show that the most cited studies focus on epidemiology and healthcare services research, with special emphasis on issues addressing the prevalence of oral diseases and challenges in caring for the elderly. The dominance of

the epidemiological theme, which accumulated a citation ratio of 205.05 per paper, highlights the need to understand the patterns and factors associated with oral health in this population (14-17). In turn, the high citation ratio observed in the healthcare services research category (276.11 citations per paper) emphasizes the relevance of studies investigating care models, public policies, and strategies to improve the quality of dental care for the elderly (10,18,19).

The paper by Petersen (20), the most-cited of this survey, exemplifies how a global approach can influence public health practices and mobilize efforts to promote better oral health among the elderly. This influence is reflected in both the high number of citations and the citation density,

demonstrating that studies focused on health strategies and policies can have a lasting impact on clinical practice and research.

The predominance of cross-sectional studies and systematic reviews among the most-cited papers reflects a methodological trend that favors large-scale data assessment and the synthesis of available knowledge (1,21). These types of studies are fundamental to establishing a solid foundation to support the formulation of policies and clinical guidelines. Although cohort and validation studies also significantly contributed to advancing knowledge, the high citation ratio of reviews suggests that consolidating evidence through systematic approaches is especially valued in the field (22-24).

It is also worth emphasizing the importance of adapting dental care to the specific needs of the elderly, considering factors such as the prevalence of conditions like periodontitis, candidiasis, and cognitive decline, which are often associated with the deterioration of oral health in this population (25,26). The findings reinforce the idea that maintaining oral health not only improves the quality of life for the elderly but also may reduce morbidity associated with other systemic conditions, such as pneumonia. Thus, dental health professionals and policymakers can use these data to guide prevention and treatment strategies, emphasizing the importance of evidence-based interventions (27,28).

While this study provides a comprehensive view of the most influential papers in Geriatric Dentistry, it is important to consider some limitations. The reliance on specific databases and the selection criterion based on citation counts may introduce biases, such as a preference for papers in English or from journals with greater international

visibility. Additionally, the exclusion of conference proceedings may limit a complete understanding of the development of knowledge in the field.

The results of this study suggest promising directions for future research in Geriatric Dentistry. The diversification of study designs and intensification of international collaborations could potentially expand the understanding of the challenges faced in elderly oral health. Furthermore, the integration of new technologies and data analysis methodologies may allow for an even more accurate assessment of the impact of studies and facilitate the identification of knowledge gaps. Such advances will be crucial for the development of innovative strategies to improve the quality of life of the elderly and promote healthy aging.

The study reveals a low concentration of publications originating from less privileged countries, highlighting the need for strategies to enhance their representation in academic research. To address this, journals and editors should implement measures such as waivers or discounts on publication fees, the inclusion of editors and reviewers from underrepresented regions, the promotion of multilingual accessibility, and support for capacity-building initiatives such as workshops and mentoring programs. Additionally, fostering research on topics relevant to these regions, launching special issues, and strengthening open-access models are essential to facilitating knowledge dissemination. More flexible submission guidelines that consider local challenges and specificities, along with the encouragement of international collaborations, can further contribute to greater inclusion. Recognizing the importance of studies addressing health disparities and regional interventions is crucial to ensuring greater visibility and impact for scientific contributions from less privileged countries in the global research landscape.

Although bibliometric analysis provides valuable insights into the evolution of research in Geriatric Dentistry, it also highlights critical gaps and areas where future studies should focus. The dominance of epidemiological studies and healthcare services research, despite their high citation impact, suggests an opportunity to diversify methodologies by incorporating longitudinal and interventional studies to better understand causality and the long-term effects of interventions.

Furthermore, while systematic reviews play a crucial role in consolidating knowledge, there is a need for more original research exploring emerging issues such as the integration of digital health tools, personalized treatment approaches, and interdisciplinary care models for elderly patients. Another notable gap lies in the underrepresentation of studies addressing social determinants of oral health in aging populations, including disparities in access to dental care and the influence of socioeconomic status on oral health outcomes. Additionally, the strong citation impact of studies focused on public health strategies underscores the need for further exploration of the practical implementation and effectiveness of these policies in different healthcare contexts. As the field advances, embracing technological innovations and fostering greater international collaboration will be essential to bridging these gaps and ensuring that research findings translate into tangible improvements in geriatric dental care.

CONCLUSION

Based on the 100 most-cited articles, it is evident that research in geriatric dentistry is predominantly characterized by cross-sectional studies. These studies have had a significant impact on health services research. Future implications

suggest the need for more longitudinal studies to better understand the long-term effects of interventions in geriatric dentistry. Additionally, there is a growing need for research that integrates diverse methodologies and explores the effectiveness of oral health strategies in different cultural and socioeconomic contexts.

DATA AVAILABILITY STATEMENT: The raw data supporting the conclusions of this article will be made available by the authors upon request.

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CONSENT STATEMENT: This study did not involve human participants or data collection requiring informed consent. Therefore, obtaining consent was not necessary.

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