World Orofacial Pain Research Production: A Bibliometric Study (2004–2005)

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Aims: *To provide a snapshot of the scientific literature on orofacial pain.* ***Methods:*** *The authors identified 975 papers related to orofacial pain in the* Current Contents Life Sciences and Clinical Medicine *collections of the Thomson Scientific database that were published during 2004 and 2005 and analyzed them using bibliometric indicators.* ***Results:*** *Among the 54 countries involved, the United States ranks first by number of papers (293), followed by Japan (107), and the United Kingdom (90). The high volume of research activity in some Northern European countries is highlighted, along with that of the European Union (384 papers). The scientific literature on orofacial pain was published in 247 journals; 13 of the top 15 most prolific journals for articles on orofacial pain were found in the* Dentistry, Oral Surgery and Medicine *subdiscipline of* Current Contents/Clinical Medicine*, and the* Journal of Orofacial Pain *was the highest ranked for such articles.* ***Conclusion:*** *This study complements subject reviews of orofacial pain research and provides a more complete picture of the research activity in this field.* J OROFAC PAIN 2008;22:181–189.

Key words: bibliometrics, journals, orofacial pain, scientific literature

Epidemiologic studies have reported that more than 25% of the adult population has experienced some type of orofacial pain in the last few months.[1,2] Even though orofacial pain is not a disease per se, it is characterized by a set of symptoms associated with a wide range of orofacial dysfunctions, including, for example, temporomandibular disorders, caries, periodontal diseases, and trigeminal neuralgia. Additionally, specific biologic, emotional, and psychologic manifestations in certain individuals increase the difficulties encountered in diagnostic and management procedures.

Over several decades, a number of studies on orofacial pain have led to important advances in the understanding and treatment of orofacial pain. These have been reviewed in qualitative evaluations of scientific research on orofacial pain from both its biologic[3–5] and psychologic[6,7] dimensions.

On the other hand, although recent quantitative overviews of 2 major disciplines (dental and/or neuroscience research) encompassing orofacial pain research have provided useful snapshots,[8,9] they have not focused on orofacial pain per se. Because orofacial

pain is a public health problem, it is important to judge the extent of research undertaken in the diagnosis and management of orofacial pain and its underlying mechanisms.

To this end, the aim of this study was to provide a quantitative overview of research on orofacial pain by using bibliometric techniques on recent scientific publications on orofacial pain indexed in the Thomson Scientific database. Through this basic presentation, we intend to provide orofacial pain researchers with an informative description of scientific publishing activity to date in this field; this in turn should help facilitate future interdisciplinary research in the overlapping research areas of dentistry, oral biology, and neuroscience.

Materials and Methods

Raw data obtained for this study were extracted from the Thomson Scientific *Current Contents/ Life Sciences* (CC/LS) and *Current Contents/ Clinical Medicine* (CC/CM) databases. The dataset includes papers published in 2004 and 2005.

Data collection was performed in 2 successive steps:

- Step 1 extracted publications dealing with orofacial pain in dentistry from the clinical and biologic databases. To retrieve papers dealing with orofacial pain, we used 2 sets of words (the use of asterisks retrieved all words following the stem character string): the first was related to orofacial terms (*odontol*, periodont*, tongue, endodont*, salivary glands, mandible, maxilla, mouth, tooth, jaw, gingiv*, temporomandibular, dent*, orofacial, trigeminal*), and the second set was related to pain terms (*pain*, nocicep*, analgesi*, hyperalg*, hypoalg*, allodynia, neuralgia, arthralgia, headache, migraine*). Boolean operators were used to select papers if at least one word of each set was present in the title, abstract, the author key words, or KeyWords Plus.
- Step 2 refined the selection in step 1. The title, abstract, and key words of each publication were scrutinized by 1 of the authors, and papers were retained only when published in peer-reviewed journals. Additionally, publications were excluded when the work presented did not refer to dental competency (for example, when the pain key word was related to another part of the body or when a study referred to the ophthalmic branch of the trigeminal nerve, the paper was discarded).

Following the refinement procedure, all publications (through inspection of their abstracts, titles, and key words) were classified into 1 of 4 topics: pain mechanisms, pain management, epidemiology, and orofacial pain as symptomatic but not the main focus of the paper.

For the selected publications the following measures were computed:

- The total number of papers/articles produced by each country. In publications for which authors came from more than 1 country, each contributing country received a whole (rather than a fractional) count.
- The mean national journal impact factor (IF) for countries with more than 10 publications. If there was more than 1 article in a journal, then the journal IF was multiplied by the number of articles in that journal; this was then summed for each journal and divided by the total number of articles produced by each country.
- The proportion of international collaborations for countries with more than 10 publications. This is the ratio of the number of articles coauthored with institutions of other countries, divided by the total number of articles of the country considered.
- The proportion of national collaborations for countries with more than 10 publications. This is the ratio of the number of articles coauthored with at least 2 institutions of the country considered, divided by the total number of articles published by the country.
- The ratio of the number of journal articles and the total 2005 population for the 15 most productive countries was computed and considered as a measure of diffusion of the orofacial pain research literature within a given country.
- The ratio between the number of journal articles and the 2005 Gross Domestic Product (GDP), expressed in billions of dollars (US$) was used to provide a simple economic index.

All journals were classified into either or both of the 2 scientific subdisciplines: *Clinical Medicine* or *Life Sciences*. This classification was based on the journal subject categories determined by Thomson Scientific.

The journal rank (JRK) for the most prolific journals in publishing articles within their subdisciplines established by the *Journal Citation Report* of the Thomson Scientific was computed using the following formula: $JRK = 1 - (n - 1)/N$, where n = descending ranked number of the journal within each sub-discipline, and N = total number of jour-

Table 1 Scientific Literature Productivity in Orofacial Pain in 54 Countries (2004–2005)

Country	No. of publications	Mean IF	% national collaboration	% international collaboration
World	975	1.71	-	-
European Union (25 countries)	384	1.64	63.28	14.84
United States	293	2.07	65.87	19.79
Japan	107	1.52	60.74	20.56
United Kingdom	90	1.50	37.77	25.55
Germany	67	1.45	53.73	28.35
Canada	52	2.16	42.30	51.92
Italy	49	1.50	61.22	12.24
Sweden	46	1.56	58.69	36.95
Brazil	44	1.50	45.45	27.27
Turkey	44	1.06	72.72	4.54
The Netherlands	33	1.68	54.54	36.36
Finland	30	1.56	83.33	26.66
France	29	3.01	51.72	41.37
Australia	26	1.58	11.53	53.84
Denmark	25	2.31	80.00	56.00
Switzerland	19	1.32	21.05	52.63
South Korea	18	3.03	66.66	16.66
Spain	17	1.34	35.29	23.52
Israel	17	1.62	82.35	17.64
Norway	14	1.78	35.71	28.57
Belgium	13	2.19	38.46	61.53
China	13	1.46	53.84	38.46
Austria	11	1.55	54.54	18.18
India, Singapore	7	-	-	-
Poland, Thailand	6	-	-	-
Taiwan	5	-	-	-
Saudi Arabia	4	-	-	-
Sri Lanka	3	-	-	-
Argentina, Estonia, Egypt, Greece, Hungary, Ireland, Kuwait, Nigeria, New Zealand, South Africa	2	-	-	-
Burkina Faso, Chile, Colombia, Cuba, Czech Rep., Indonesia, Iceland, Jordan, Lebanon, Malta, Mexico, Nepal, Portugal, Russia, Tanzania, Venezuela	1	-	-	-

IF = impact factor.

nals in the subdiscipline. With this formula, JRK = 1 for the first-ranked journal and JRK = near 0 for the last-ranked journal. The advantage of this index is the ability to weight the differences of the IF of 2 journals in different fields of research.

Finally, all data were manipulated using Microsoft Excel 2003. The European Union (EU) comprised 25 official member states as of May 1, 2004, and journal articles from England, Scotland, Northern Ireland, and Wales were assigned to the United Kingdom (UK).

Results

During 2004 and 2005, 975 documents on orofacial pain were published in journals indexed in the CC/CM and CC/LS collections of the Thomson Scientific databases. Most (98.8%) were written in English and were either original research articles (91.4%) or review-type papers (6.4%).

Countries

Table 1 shows the productivity of 54 countries with publications on orofacial pain for the years 2004 and 2005. The 5 most productive countries were the United States (USA), with 293 papers; Japan (107), the UK (90), Germany (67), and Canada (52). Seventeen countries followed, with 11 to 49 publications, and the remaining 32 countries each had 1 to 7 publications; nearly half (26) of the countries had only 1 or 2 publications. Considering the mean IF per paper, most of the 22 countries with more than 10 papers were in the narrow range of 1.3 to 2.3, with a few exceptions: South Korea (3.03), France (3.01), and Turkey (1.06). Most of these 22 countries showed a pref-

Table 2 Sociodemographic Indicators of the 22 Top-Ranked Countries in Orofacial Pain Research

Country	No. of papers	Population 2005 (inhabitants ×1,000)*	Papers/population ×1,000	GDP 2005 (US$ billion)**	Papers/GDP ×10,000
Finland	30	5,223	5.74	193,491	1.55
Sweden	46	9,001	5.11	358,819	1.28
Denmark	25	5,432	4.60	259,746	0.96
Norway	14	4,593	3.05	296,017	0.47
Israel	17	6,276	2.71	123,526	1.38
Switzerland	19	7,489	2.54	367,513	0.52
Netherlands	33	16,407	2.01	625,271	0.53
Canada	52	32,805	1.59	1,130,208	0.46
United Kingdom	90	60,441	1.49	2,201,473	0.41
Austria	11	8,184	1.34	307,036	0.36
Australia	26	20,090	1.29	707,992	0.37
Belgium	13	10,364	1.25	372,091	0.35
United States	293	295,734	0.99	12,485,725	0.23
Italy	49	58,103	0.84	1,766,160	0.28
Japan	107	127,417	0.84	4,571,314	0.23
Germany	67	82,431	0.81	2,797,343	0.24
Turkey	44	69,660	0.63	362,461	1.21
France	29	60,656	0.48	2,105,864	0.14
Spain	17	40,341	0.42	1,126,565	0.15
Korea	18	48,422	0.37	793,070	0.23
Brazil	44	186,112	0.24	792,683	0.56
China	13	1,306,313	0.01	2,224,811	0.06

*Source: 2005 CIA World FactBook. **Source: International Monetary Fund, World Economic Outlook Database.

erence for national collaboration, with the exception of Canada, Australia, Switzerland, and Belgium, where more than half (52% to 62%) of the papers were coauthored with researchers from other countries (international collaboration).

Table 2 shows that 3 Northern European countries (Finland, Sweden, and Denmark) led the top 22 most productive countries with respect to basic economic and demographic statistics: the ratio between the number of papers and GDP and the ratio between the number of papers and population.

Comparison of USA and EU Productivity

Of the 975 journal papers published in 2004 and 2005, 293 (30.0%) had at least 1 author from the USA, whereas 384 (39.3%) had 1 or more EU author(s) (Table 1). Within these two sets, only 21 papers were written collaboratively between USA and EU authors. The general distributions of all 2004 and 2005 papers dealing with orofacial pain research for journal subject categories in the fields of life sciences and clinical medicine are presented in Table 3, along with distributions for the USA and the EU. Most papers dealing with orofacial pain research in the CC/CM collection were published in the subdisciplines "dentistry, oral surgery, and medicine" (62.8%) and "neurology" (11.0%). More than 40% of papers in the CC/LS collection were published in journals belonging to the "neurosciences and behavior" subdiscipline, followed by more than 25% in the subdiscipline "medical research: organs and systems."

Statistical analysis did not reveal any differences between the profiles of the EU and the USA in either the CC/CM subdisciplines (c^2 test, df = 21; c^2 = 15.1; P = .81) or in the CC/LS subdisciplines (c^2 test, df = 12; c^2 = 13.6; P = .32).

Journal Characteristics

The 975 papers were published in 247 different journals. Table 4 displays the top 15 (6%) journals, which published nearly half (448, or 45.9%) of all the publications on orofacial pain. More than three-quarters (187, 75.7%) of the journals published 3 or fewer papers. The most prolific journal, the *Journal of Orofacial Pain,* is specifically dedicated to orofacial pain and publishes, for example, more than 4 times more papers on this topic than the 15th-ranked journal, *International Endodontic Journal*. The IFs of these 15 journals range from 0.52 (*CRANIO*) to 1.93 (*Journal of Endodontics* and *Journal of Orofacial Pain*) for the dentistry journals; 2 nondentistry journals have higher IFs: *Pain* (4.30) and *Brain Research* (2.29). The JRK index values

Table 3 Distribution of World, European Union (EU), and United States (USA) Publications on Orofacial Pain During 2004 and 2005 in *Current Contents/Clinical Medicine* and *Current Contents/Life Sciences*

Discipline/Subdiscipline	World	EU	USA
Clinical Medicine			
Dentistry, oral surgery, and medicine	523	206	150
Neurology	92	40	42
Otolaryngology	34	16	13
Anesthesia and intensive care	31	13	9
General and internal medicine	21	8	10
Radiology, nuclear medicine, and imaging	21	8	6
Surgery	21	6	3
Pharmacology and toxicology	17	3	9
Dermatology	11	3	5
Research/laboratory medicine and medical technique	11	4	4
Rheumatology	10	3	3
Environmental medicine and public health	7	3	2
Health care, sciences, and services	6	3	2
Orthopedics, rehabilitation, and sports medicine	6	3	2
Hematology	4	1	3
Ophthalmology	4	1	1
Pediatrics	4	2	2
Clinical psychology and psychiatry	3	1	2
Oncology	3	2	1
Endocrinology, metabolism, and nutrition	2	2	0
Gastroenterology and hepatology	1	1	0
Reproductive medicine	1	1	0
Cardiovascular and respiratory systems	0	0	0
Clinical immunology and infectious diseases	0	0	0
Urology and nephrology	0	0	0
Total	833	330	269
Life Sciences			
Neurosciences and behavior	131	50	45
Medical research: organs and systems	83	40	21
Medical research: diagnosis and treatment	27	13	7
Pharmacology and toxicology	22	10	1
Medical research: general topics	12	4	2
Oncogenesis and cancer research	5	2	2
Multidisciplinary	4	0	0
Cell and developmental biology	3	1	0
Immunology	3	3	0
Microbiology	3	1	0
Biochemistry and biophysics	2	0	0
Experimental biology	2	1	0
Cardiovascular and hematology	1	1	0
Endocrinology, metabolism, and nutrition	1	1	0
Molecular biology and genetics	1	0	0
Physiology	1	1	0
Animal and plant sciences	0	0	0
Chemistry and analysis	0	0	0
Total	301	128	78

(ranking within the CC subdisciplines) ranged between 0.02 and 0.83 and were concentrated around 0.5. Almost all leading journals focused on orofacial pain or dentistry research and were in the subdiscipline "dentistry, oral surgery, and medicine" of the CC/CM collection. The exceptions were *Pain* and *Brain Research* in the "neurosciences and behavior" subdiscipline of the CC/LS collection.

Distribution of Papers Among Specific Topics

Most (89%) of the 975 papers analyzed in this study related to orofacial pain in humans; the remaining 11% dealt with orofacial pain in animal experiments. The distribution of papers among the main topics is depicted in Fig 1. Nearly 52% discussed pain symptoms, 24% examined pain man-

Table 4 Top 15 Most Productive Journals in Orofacial Pain Research During 2004 and 2005

Source	No. of articles	IF (2005)	JRK (2005)	CC/LS	CC/CM
J Orofac Pain	59	1.93	0.77	-	Dentistry, oral surgery, and medicine
Oral Surg Oral Med Oral Pathol Oral Radiol Endod	51	1.19	0.46	-	Dentistry, oral surgery, and medicine
J Oral Rehabil	43	0.71	0.20	-	Dentistry, oral surgery, and medicine
J Oral Maxillofac Surg	39	1.24	0.48	-	Dentistry, oral surgery, and medicine
Pain	39	4.30	0.83	Neurosciences and behavior	Neurology
J Am Dent Assoc	38	0.93	0.36	-	Dentistry, oral surgery, and medicine
Cranio	29	0.52	0.02	-	Dentistry, oral surgery, and medicine
Int J Oral Maxillofac Surg	23	1.12	0.42	-	Dentistry, oral surgery, and medicine
Acta Odontol Scand	22	0.78	0.28	-	Dentistry, oral surgery, and medicine
J Periodontol	21	1.78	0.73	Medical research: organs and systems	Dentistry, oral surgery, and medicine
Br Dent J	20	0.65	0.16	-	Dentistry, oral surgery, and medicine
Brain Res	18	2.29	0.49	Neurosciences and behavior	-
J Endod	17	1.93	0.79	-	Dentistry, oral surgery, and medicine
Community Dent Oral Epidemiol	15	1.63	0.61	-	Dentistry, oral surgery, and medicine
Int Endod J	14	1.60	0.59	-	Dentistry, oral surgery, and medicine

IF = impact factor; JRK = journal rank; CC/LS = *Current Contents/Life Sciences;* CC/CM = *Current Contents/Clinical Medicine.*

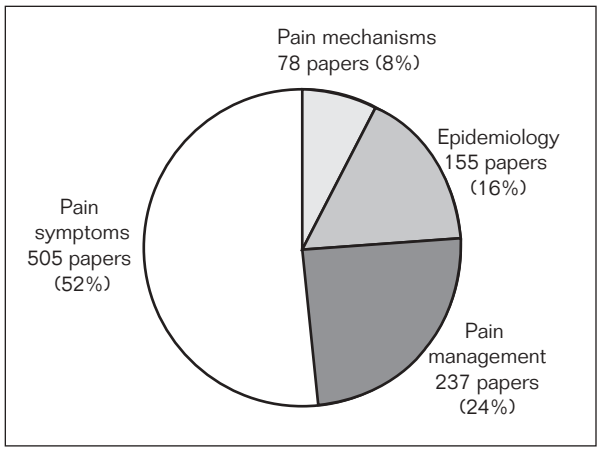

Fig 1 Distribution of the scientific literature published during 2004-2005 on orofacial pain according to the following topics: *Epidemiology*, *Pain Mechanisms*, *Pain Management*, and *Pain Symptoms*.

agement, 16% were epidemiologic studies, and 8% studied pain mechanisms. Of the relatively few (78) papers on pain mechanisms, most (59) involved animal experiments and the rest (19) related to human studies. The reverse was found for papers on pain management: most (201) dealt with humans, and only (33) were animal studies.

Discussion

The top 4 countries (USA, Japan, UK, and Germany) in the production of scientific papers on orofacial pain were the same top 4 producers in major scientific fields in the 1990s.[10] In considering the ranking of the 10 most productive countries in scientific research (and more particularly in biologic and medical research), our study highlights the absence of 2 major countries, France and Australia (ranked 12th and 13th). When compared to that of the 2 main fields of research into orofacial pain ("dentistry, oral surgery, and medicine" and "neurosciences and behavior"), 8 of the countries present in the top 10 in orofacial pain research are also in the top 10 in the field "neurosciences and behavior."[10] More interesting is the similar ranking of the top 10 countries in our study with that of the most productive countries in the field "dentistry, oral surgery, and medicine."[8] The IFs of the top 10 countries ranged between 1.1 and 2.2—much lower than those for other fields such as sleep research[11] or neurology.[9] Indeed, the lower IFs observed for most of the countries were the result of over half (536) of the journal papers being published in the subdiscipline "dentistry, oral surgery, and medicine," with a mean 2005 IF of only 1.3.

The predominance of national rather than international collaborations between institutions and/or countries was not surprising; one can readily appreciate the attractions of cultural similarities (particularly language) and geographic proximities. Such collaborative practice was evident in other fields such as sleep research[11] and gerontology.[12]

In addition to the orientation and bias of the Thomson Scientific databases, the contribution of nearly one third (293) of the publications by the USA can be related to the activities of the American Academy of Orofacial Pain (AAOP), an organization of health care professionals dedicated "to alleviating pain and suffering through the promotion of excellence in education, research and patient care in the field of orofacial pain and associated disorders" and to supporting the leading orofacial pain journal, the *Journal of Orofacial Pain*. Furthermore, the USA and Canada are engaged in at least 33 projects linked with orofacial pain and supported by the USA's National Institute of Dental and Craniofacial Research, with some researchers' projects supported continuously for the past 30 years.[3,4] (A rapid search of the CRISP [Computer Retrieval of Information on Scientific Projects, a searchable database of federally funded biomedical research projects conducted at universities, hospitals, and other research institutions, at crisp.cit.nih.gov/] with the term "orofacial pain" was conducted on August 13, 2007.)

Similar to the USA, Europe's strong interest in orofacial pain research has been encouraged through the development of the European Academy of Craniomandibular Disorders (EACMD). The AAOP and the EACMD have strong links; both organizations support the *Journal of Orofacial Pain*. Unlike the USA, with 33 projects, only 2 projects supported by the European research community either focused on orofacial pain or had links to orofacial pain. (A search of the website of the Community Research and Development Information Service [ica.cordis.lu/ search/index.cfm] using the term "orofacial pain" was conducted on August 13, 2007.) It would appear that the European research community has only partially integrated the need for granting projects on experimental or clinical research in orofacial pain. Indeed, the research activity to date on orofacial pain in European countries results more from national support than from institutional support from the European research community. However, with nearly two fifths (384) of the world scientific literature on orofacial pain, and with 11 EU nations among the top 22 countries, the EU is the most active community in orofacial pain research. Although the same observation applies to dental research[8] and in other scientific fields,[13,14] this lead has been challenged by the USA.[9,15] Indeed, if publication outputs on orofacial pain research of the USA and the EU differ in quantity, the present study showed no difference in their distribution within the CC/LS and CC/CM collections. A potential extension of the present work would involve an investigation of the publishing behaviors of these two communities in different orofacial pain topics, for example, temporomandibular joint disorders, periodontal pain, and trigeminal neuralgia.

The combined publication contribution (107 papers) of the high-ranking Northern European countries (Sweden 7th, Finland 11th, Denmark 14th, and Norway 19th), accompanied by their high economic and demographic rankings (see Table 2), corroborates their ranking in dental research literature productivity,[8] confirming the traditional importance placed by these countries on dental education and on research on orofacial pain.[16] It is worth noting that the share of these countries in scientific literature is higher in orofacial pain research than in the overall scientific literature.[17]

France's productivity ranking (12th) is somewhat puzzling but does corroborate its middling position in the field of dentistry research[8]; however, its mean IF (3.01) is much higher than those of the leading countries. Indeed, French publication patterns combine: (*1*) a low proportion of publications in dental journals (slightly over 17%), whereas the proportions are between 40% to 73% for the top 11 countries; (*2*) and a high proportion of publications (over 72%) indexed in the CC/LS collection, as compared to 11% to 38% for the 11 countries ranked above France (data not shown). Tracking the dynamics of France's atypical publishing behavior would be an interesting focus for future studies.

When the numbers of papers were plotted against the number of inhabitants or against the GDP, small countries (Finland, Sweden, Denmark, Norway, Israel, and Switzerland) showed higher scientific outputs. These 6 countries were also among the leading producers in dental research.[8] Our findings for orofacial pain research agreed with the data obtained for other fields such as neurology,[9] gerontology,[12] and medical research.[18] Reasons for these findings include, among other things, an equitable distribution of resources and assignment of higher percentages of the GDP to scientific research. Indeed, a discussion of the wide diversity of factors influencing the research policy of a nation (eg, sociopolitical, economic, cultural) is

beyond the scope of this study. However, the leading positions of Northern European countries in adjusted rankings can be viewed as a consequence of important orofacial pain research over many years.[16]

The acceptance of the importance of research on orofacial pain by dentistry and the oral science communities is evidenced by the majority of journals (42 of 49) being indexed in the subdiscipline "dentistry, oral surgery, and medicine." Additionally, the number of publications on orofacial pain in this subdiscipline (523) is 4 times higher than the number of publications in the subdiscipline "neurosciences and behavior" (131). However, the presence of *Pain* and *Brain Research* (2 important journals in neuroscience) among the top journals demonstrates that fundamental neuroscientific studies into orofacial pain are not neglected.

As in the case of most bibliometric investigations, this study has certain limitations, such as the restricted number of journals in the databases used. For example, the CC/CM and CC/LS collections cover approximately 2,800 biomedical journals, whereas PubMed (MEDLINE), an important freely available database covering the fields of biology and medicine, includes approximately 4,600 journals. However, the reader must remember that the intent of this study was to provide a global description of the research on orofacial pain through an analysis of a sample of its scientific literature; therefore some publications on this topic have undoubtedly been missed.

Regarding the overall research publishing activity, the field of orofacial pain occupies a limited place in the field of clinical and experimental research. For example, only 1 journal (the *Journal of Orofacial Pain*) is devoted wholly to orofacial pain; only a small percentage (5.1%; 39 of 751) of orofacial pain publications appeared in the leading journal *Pain* during 2004 and 2005; and only a small percentage (4.9%, or 546 of the 11,138) of orofacial pain papers were published in the subdiscipline "dentistry, oral surgery, and medicine." Additionally, only about one third of all publications (see Fig 1) were devoted to the understanding of pain mechanisms or specifically the management of orofacial pain; the rest were epidemiologic studies or publications in which the context of orofacial pain was not the core of the investigation. Moreover, the number of publications on orofacial pain involving animal studies was marginal (11%) compared to the publications involving human studies. The use of different methods of investigation, including advanced diagnostic imaging modalities[19] or molecular biology,[20] in addition to recent pharmacologic advances in orofacial pain,[21] should lead to a significant increase in the percentage of publications directly related to experimental and clinical investigations.

The USA, Japan, and the UK, along with the EU and Northern European countries as geographic regions, were found to be the most productive contributors of orofacial pain research. Led by the *Journal of Orofacial Pain*, most of the top journals are in the field of dentistry or oral sciences. On the other hand, the journals *Pain* and *Brain Research* are in the top 15 journals, thus demonstrating the importance of the neuroscientific approach required to understand the fundamentals and the mechanisms of orofacial pain. Still in a developing stage, research on orofacial pain can be seen as making some important advances, promising a bright future for the field.

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