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EVALUATION OF THE ACADEMIC PERFORMANCE OF THE EUROPEAN UNIVERSITIES ORTHODONTIC DEPARTMENTS

Πρεβεζάνος Δ. Παναγιώτης

ΑΘΗΝΑ 2016

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Στα μέλη ΔΕΠ του τμήματος Ορθοδοντικής

Στην οικογένεια μου

Στο σύννεφο

Ευχαριστίες

Ευχαριστώ το Ίδρυμα Κρατικών Υποτροφιών για την υποτροφία συγχρηματοδότησης του μεταπτυχιακού προγράμματος μέσω του Έργου «Υποτροφίες ΙΚΥ» από τους πόρους του ΕΠ «Εκπαίδευση και Δια Βίου Μάθηση», του Ευρωπαϊκού Κοινωνικού Ταμείου (ΕΚΤ) του ΕΣΠΑ, 2007-2013 τη χρονική περίοδο 12/2013- 5/2015.

Επιβλέπων Καθηγητής για την εκπόνηση της Μεταπτυχιακής Διπλωματικής Εργασίας:

Επίκουρος Καθηγητής κ. Απόστολος Τσολάκης

Τριμελής Επιτροπή για την αξιολόγηση της Μεταπτυχιακής Διπλωματικής Εργασίας:

1. Επίκουρος Καθηγητής κ. Απόστολος Τσολάκης

2. Επίκουρος Καθηγητής κ. Ηλίας Μπιτσάνης

3. Επίκουρος Καθηγητής κ. Ιωσήφ Σηφακάκης

Contents

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Μεθοδος: Πραγματοποιήθηκε αναζήτηση για επιστημονικά άρθρα και ανασκοπήσεις που έχουν δημοσιευτεί από τα 252 Τμήματα Ορθοδοντικής. Υπολογίστηκε το h-index (DHI) του κάθε τμήματος Ορθοδοντικής και άλλοι βιβλιομετρικοί δείκτες.

Επιπλέον, με τη μέθοδο h-classic αναζητήθηκαν οι δημοσιεύσεις με τη μεγαλύτερη απήχηση στην Ορθοδοντική κοινότητα για την ίδια χρονική περίοδο.

Αποτελέσματα: Η τιμή του h-index των τμημάτων Ορθοδοντικής κυμαίνεται από 0 έως 35. Ο μέσος αριθμός των δημοσιεύσεων όλων των τμημάτων ήταν 32.6, ενώ ο αντίστοιχος αριθμός για τα 25 και τα 10 κορυφαία τμήματα ήταν 123.7 και 164.5, αντίστοιχα. Ο συνολικός αριθμός των δημοσιεύσεων όλων των τμήματων Ορθοδοντικής ήταν 8293. Τα 8293 άρθρα δημοσιεύθηκαν σε 776 περιοδικά. Εντοπίστηκαν 80 h-classics άρθρα που δημοσιεύθηκαν ως επί το πλείστον το 2001 (17, 21.3%), το 2003 (13, 16,3%) και το 2005 (12, 15,0%).

Συμπεράσματα: Τα τμήματα που βρίσκονται στις υψηλότερες θέσεις στον πίνακα κατάταξης είναι περισσότερο προσανατολισμένα στην παραγωγή ερευνητικού έργου με αντίκτυπο στην επιστημονική κοινότητα, ενώ αυτά που βρίσκονται χαμηλότερα είναι επιστημονικά πιο εσωστρεφή και η δημοσίευση άρθρων σε έγκριτα διεθνή επιστημονικά περιοδικά ενδεχομένως να μην αποτελεί προτεραιότητα.

Summary

Aim: The evaluation of academic research performance of European Orthodontic departments for the timespan 2000-2015 with bibliometric indices and the quote of ranking list based on the departmental h-index. Furthermore we aimed to identify the h-classic articles in Orthodontics for the same period.

Material & Methods: A search for scientific articles and reviews published from the 252 Orthodontic Departments was conducted. The departmental h-index (DHI) and other bibliometric indicators were calculated. Ranking lists of the Orthodontic departments and the countries were created according to DHI. Moreover, with the h-classic method we identified the articles with the greatest impact in Orthodontics for the same period.

Results: The range of DHI of the Orthodontic departments is 0 to 35. The mean number of publications of all Orthodontic departments was 32.6 while the respective number for the top 25 and the top 10 departments was 123.7 and 164.5, respectively. The total number of publications from European Orthodontic departments was 8293, published in 776 journals.Eighty h-classics articles were identified, mostly published in 2001 (17, 21.3%), 2003 (13, 16.3%) and 2005 (12, 15.0%).

Conclusions: The departments that are placed higher on the ranking list produce research work that impacts the scientific community; however the lower ranked departments are scientifically more introvert and publishing papers in recognized international journals is apparently not a priority.

Introduction

Evaluating research performance of universities and institutions is more and more popular in the recent years. The fundamental purposes are: first, to identify areas for improvement in the quality of their research and, second, to help committees in funding, hiring, and making promotion and decisions that require prior benchmarking.

There are numerous organizations that provide ranking of world universities and offer a lot in having a quality assessment of them, and additionally they help students determine where to study. The three most popular organizations are the Academic Ranking of World Universities published by the Shanghai Jiao Tang University (SJTU), the Times Higher Education World University Rankings (THE) by Times Higher Education magazine and the QS World University Rankings by Quacquarelli Symonds (QS). THE had collaborated with Quacquarelli Symonds to announce the joint THE–QS World University Rankings from 2004 to 2009 before it turned to Thomson Reuters for a new ranking system. Then, QS chose to still use the pre-existing methodology while THE adopted a new one. Nevertheless these rankings have at times received much criticism and particularly an EU-commissioned report supports that the rankings published by these popular organizations are highly sensitive to methodological assumptions (Saisana and D' Hombres, 2008).

Traditionally, the assessment method of the academic performance of faculty members was based in two criteria: the opinions of colleagues— in the form of peer review, evaluation, judgment, or ranking—and the list of publications. The methodology of the peer review is almost standard and universal while several ways have been used for the evaluation of the list of publications. These vary from a simple count of publications to other more complex systems which take into consideration certain evaluative or weighting scales for different kinds of publications— books, chapters in books, articles in refereed and non-refereed journals, conference papers, etc (Meho and Sonnenwald, 2000). The peer review evaluation system is widely accepted and respected for evaluating academic performance of

faculty members. However, these evaluations suffer significantly from the level of knowledge, integrity, and research biases of the evaluators and committee members (Chubin and Hackett, 1990; Garfield, 1983; King, 1987). It has been criticized for its subjectivity and high costs, and because as research fields become narrower, the pool of fully qualified reviewers is limited (Huang, 2012). For this reason, the recent years more and more interest is concentrated on bibliometrics. The UK government has recently decided to replace, after 2008, the current method for determining quality in higher education and has considered using bibliometrics as a possible auxiliary tool in its Research Excellence Framework (Evidence, 2007).

Bibliometrics and bibliometric indicators are more and more used for the evaluation of academic output worldwide. The traditional bibliometric indicator toolset is based on simple statistical functions including means, relative frequencies and quantiles (Glänzel, 2006). Citation analysis is the most common and widely used bibliometric method (Chubin and Hackett, 1990; Martin, 1996; Thomas and Watkins, 1998). But the simple counting and analysis of the number of publications and citations has the disadvantage that they do not reflect the full impact of scientific research or that they are disproportionately affected by a single publication of major influence (Panaretos and Malesios, 2009). They constitute very good and reliable indicators for quantitative assessment in science but they say nothing about the quality and the impact of publications. For this reason, Hirsch in 2005 proposed an easily computable index called “h-index” which gives an estimate of importance, significance, and broad impact of a scientist's cumulative research contributions (Hirsch, 2005). The h-index is an index built to consider both the actual scientific productivity and the scientific impact of a scientist. It has been found to correlate well with peer judgment (van Raan, 2006). Hirsch’s index had immediate impact in the public (Ball, 2005) and was well accepted both in the physics community (Batista et al., 2005; Popov, 2005) and the scientometrics literature (Bornmann and Daniel, 2005; Braun et al., 2005). According to the

last two papers and to van Raan (2005), the h-index correlates with other bibliometric indicators of 'significance'.

Many studies have been published which strongly support the use of the index and other who claim to present disadvantages. Bibliometrics have been criticized for conceptual, technical and methodological problems (van Raan, 2006). After Hirsch, several works have been brought out suggesting changes and improvements for the index such as successive h-indices of Schubert (2007), the g-index (ig) proposed by Leo Egghe (2006) and an indicator proposed by Jin Bi-Hui (2006) and named the A-index (iA) by Ronald Rousseau (2006). Although Hirsch proposed the index for the assessment of the performance of an individual researcher, its use of can be generalized for the evaluation of research teams, scientific journals, departments, faculties, institutions or even countries (Saad, 2006; Braun et al., 2005; Cronin and Meho, 2006; van Raan, 2006; Prathap, 2006; Norris and Oppenheim, 2010). Related works which evaluate the performance of universities have took place in Greek Chemistry, Chemical Engineering, Materials Science, and Physics departments by Lazaridis (2009) and for Brazilian Psychiatric Post-graduation Programs by Pires Da Luz et al (2008). Spiroski (2010) has used the h-index information from SCImago's Journal and Country Rank to calculate the journal rankings in the field of medicine in the Former Yugoslav Republic of Macedonia and other countries of the former Yugoslavia, and Ponce and Lozano (2010) evaluated the publication performance of American and Canadian neurosurgical departments based on the Institute for Scientific Information (ISI) database using contemporary bibliometric indicators and the h-index. The popularity of this index is illustrated in many other studies in medical fields, including otolaryncology (Svider et al., 2013), radiology (Rad et al., 2010), gastroenterology (Poynard et al., 2011), anaesthesiology (Pagel and Hudetz, 2011) and urology (Benway et al., 2009). However, no study has ever evaluated the research productivity of Dental schools in Europe and even more specifically their Orthodontic departments.

"Citation classics" is a concept introduced by Garfield in 1977 aiming to identify the publications with the greatest impact on the scientific community in a given scientific area. Many studies following this rationale tried to find the highly-cited published articles setting thresholds of citations received like the 100 most cited (Christou and Antonarakis, 2015; Corbella et al., 2016) or the 50 most cited (Wong et al., 2013; Baldwin et al., 2012) in dentistry, and medicine in general. However, arbitrary thresholds take no account of the variability among research areas in the number of highly influential papers or of the fact that the achievement of many hundreds of citations may be commonplace in some areas and difficult to attain in others (Martinez et al., 2016). To overcome this, Martinez et al. (2013) suggested the selection of classic articles based on the h-index (Hirsch, 2005) and h-core concept (Rousseau, 2005). Hui et al. (2013) recently published a study with the 100 most cited articles in Orthodontics. However, no study has been conducted in Orthodontics using the h-classic approach. Martinez et al (2016) applied this method to identify classic articles in Implant Dentistry, Periodontics and Oral Surgery.

There is no previous evaluation of the academic performance of Orthodontic institutions. Although the scarce attempts in evaluating publications with the great impact in the orthodontic community (Christou and Antonarakis, 2015; Hui et al., 2013) there is no previous evaluation of the "Citation classics" for orthodontics using objective methodology such as the h-classic.

The aim of this study is the evaluation of academic research performance of the Orthodontic departments of Dental schools in Europe for the timespan 2000-2015 with the use of bibliometric indices and the quote of ranking list based on the departmental h-index. Furthermore we aimed to list the h-classic articles in Orthodontics for the same period.

Material and Methods

A search for articles affiliated to European Universities Orthodontic Departments was conducted in the research platform Thomson Reuters Web of Science (WoS) (http://apps.webofknowledge.com). The articles included were published in the timespan 2000-2015 and the search was performed from March to May 2016. The list of the Orthodontic departments of Universities in Europe was obtained from the European Orthodontic Society (EOS) website (http://www.eoseurope.org/useful_links/dental_schools). Specifically, the exact department title as it is referred in EOS list or the official website of the University, where feasible, was searched in the address field in WoS separately for each department. The EOS list was cross referenced with handsearching of public resources (Google). Handsearching yielded 7 more non-referenced departments of Orthodontics.

Only scientific articles and reviews were considered for evaluation in our study, while letters, responses, editorial material and other types of publications were excluded. The results were exported to the Thomson Reuters Endnote X7.5 (http://www.endnote.com) software to check and eliminate duplicates. After removing existing duplicates, the results were exported for bibliometric analysis.

The Bibliometric indicators and the h-index were used to evaluate the academic performance. Particularly:

- departmental h-index (DHI) of Orthodontic departments
- number of papers per journal for all the departments
- number of papers per journal per each department
- number of papers per journal per year per department
- number of papers per department
- number of papers per year per department
- number of citations per department
- number of authors per paper per department
- average number of affiliations per department
- country mean h-index

were calculated.

The departmental h-index (DHI) was calculated according to the h-index which is defined as follows: A scientist has index *h* if *h* of his or her *Np* papers have at least *h* citations each and the other (*Np* – *h*) papers have ≤ *h* citations each" (Hirsch, 2005).

The institutional h-index (IHI) is: "IHI=*h* if the institution has published *h* papers, each of which has at least *h* citations" (Prathap, 2006). This formula has been suggested for the calculation of institutional h-index but it can be applied for departments of an institution, similarly (Prathap, 2006). A mathematical-based definition can be given as follows: Consider an author who has published a series of n papers, where the i^{th} paper (i=1,2,…,n) has received X_i citations. If we order the number of citations of the n articles in a decreasing order, we have:

$X_1^* \geq X_2^* \geq \ldots\ldots^* \geq X_n^*$, where X_1^* denotes the number of citations received by the most cited paper and X_n denotes the number of citations received by the less cited paper. Under this setting:

h $\max\{j : X_j \geq j\}$ (Glänzel, 2006).

Departmental h-index of all the European Orthodontic departments was obtained and they were sorted in a decreasing order to create a ranking list. In case of the same h-index value, they were ranked secondarily in an increasing order of papers published. In order to record the h-index at country level, the mean h-index of all departments of a country was calculated. The records above were also analyzed for the first 10 (top 10) and the first 25 (top 25) Orthodontic departments of the list according to the h-index.

For calculation of the bibliometric indicators above, some values are provided automatically from WoS platform. For the rest, the bibliometric software Harzing's Publish or Perish (version 4.26.2, http://www.harzing.com/resources/publish-or-perish) was used.

H classic

We used h-classic, as proposed by Martinez et al., (2013) to identify recent classic articles with the greatest impact on the scientific community in Orthodontics. One search was performed using the WoS and included all publications in all databases (Web of Science Core Collection, KCI-Korean Journal Database, MEDLINE, BioSIS Citation Index and SciELO Citation Index) from 2000 to 2015 in the 89 journals indexed by the 2015 InCites Journal Citation Reports in the scientific area "Dentistry, Oral Surgery and Medicine". From the matches found, only scientific articles and reviews were included. Then, another search was performed in the same databases of the WoS platform as above for the same period using all Mesh Terms related to Orthodontics and that are provided by the United States National Library of Medicine (https://www.nlm.nih.gov/cgi/mesh/2014/MB_cgi?mode=andterm=Orthodonticsandfield=entry#TreeE06.658).

Specifically, the search was as following:

TS = ((mandibular advancement) OR (orthodontic anchorage procedures) OR (orthodontic appliance design) OR (orthodontic appliances) OR (occlusal splints) OR (orthodontic appliances, functional) OR (activator appliances) OR (orthodontic appliances, removable) OR (activator appliances) OR (extraoral traction appliances) OR (orthodontic brackets) OR (orthodontic retainers) OR (orthodontic wires) OR (orthodontics, corrective) OR (crown lengthening) OR (occlusal adjustment) OR (orthodontic extrusion) OR (orthodontic space closure) OR (palatal expansion technique) OR (tooth movement) OR (orthodontics, interceptive) OR (serial extraction) OR (orthodontics, preventive) OR (space maintenance)).

Then, using the AND command, the results of the two lists were combined to find the articles and reviews in common. The publications in the final list were sorted according to their citations in order to compute the h-index. Based on the h index calculation, the h-core articles were identified and the resources concerning those articles (authors, publication year,

journal, document type, number of citations, department) were retrieved by the WoS platform.

Results

Two hundred fifty two European Orthodontic departments in 42 countries were searched. Seven departments with academic output were not included in the EOS list and were revealed during our search. These are the University of Ulm (Germany), University of Rome Tor Vergata (Italy), University of Milano-Bicocca (Italy), Vita-Salute San Raffaele-Milano (Italy), Autonomous University of Madrid (Spain), Medipol University Istanbul (Turkey), Mustafa Kemal University (Turkey). Fifty-three of the 252 departments had no publications in the WoS database and thus only their ranking by h-index was evaluated. A total of 199 departments were analyzed using bibliometric indicators.

The range of DHI of the Orthodontic departments is 0 to 35. Sixty-two departments present a DHI of 0. The mean DHI for the 252 departments is 6.9 and the median is 4.5 .

The ranking list of the top 25 Orthodontic departments according to h-index is shown in Table I. Considering the top 25 departments, the DHI ranges from 18 to 35 the mean is 22.6 and the median is 22. The Radboud University Nijmegen Medical Centre (Netherlands) has the highest DHI 35 followed by University of Florence (Italy) and King's College London (UK) which are sharing the second place (DHI 29). The Aristotle University of Thessaloniki (Greece) is in the 5th place (DHI 26) while the University of Athens (Greece) is sharing the 15th place (DHI 20) with the University of Leuven (Belgium), Eastman Dental Institute (UK) and University of Sheffield (UK). University of Bristol is 25th in the top 25 departments. For the top 10 departments, the respective mean h-index is 26.6 and the median 26. The University of Helsinki is ranked 10th in the top 10 list.

Considering country mean h-index, the highest DHI value is 26 and the lowest 0. The mean DHI of all countries is 6.1 and the median 3.1. Netherlands is ranked first with average DHI 26, followed by Denmark (DHI 24) and Greece (DHI 23). Eleven of 42 countries have DHI 0 (Table II).

The total number of citations of the academic work of the 199 departments for the period 2000-2015 ranged from 0 to 5400. The mean number of citations was 333.5 and the median 67. Nine Orthodontic departments received no citations in addition to the 53 that had no publications (Table III).

Regarding the top 25 departments, the highest value was 5400 (Radboud University Nijmegen Medical Centre) while the 2nd score was 2904 (King's College London). The 25th department according to the h-index received 886 citations (University of Bristol). The mean number of citations was 1729.7. The mean of the top 10 was found 2501.7 and the 10th department received 1291 citations (University of Helsinki).

The total number of publications affiliated to European Orthodontic departments was found 8293. The mean number of publications of all Orthodontic departments for the timespan 2000-2015 was found 32.6 while the respective number for the top 25 was 123.7 and 164.5 for the top 10, respectively. Considering the publications annually, all departments published on average 2 publications per year. The average number of publications per year for the top 25 departments was 7.7 and 10.7 for the top 10 (Fig 1, Fig 2, Fig 3). The number of publications of the top 25 departments represents the 37.3% of the total and the respective number of the top 10 represents the 19.8% of the total. The mean number of authors per publication for the whole list of departments that have published at least one paper, the top 25 and the top 10 departments is 4.6 , 4.3 and 4.6 respectively . The mean number of affiliations per paper for all departments, the top 25 and the top 10 is 2.9 , 2.8 and 3.0 respectively.

The 8293 published articles appeared in 776 journals, most frequently in the European Journal of Orthodontics (945, 11.4%), followed by the American Journal of Orthodontics and Dentofacial Orthopedics (878, 10.5%), Angle Orthodontist (828, 10.0%), Journal of Orofacial Orthopedics (491, 6.0%), Cleft Palate-Craniofacial Journal (228, 2.7%) and Orthodontics and Craniofacial Research (131, 1.6%). These six most frequent journals

are orthodontic journals and published a total of 42.2% of all publications. Of the 776 journals, 380 bear each only one publication of the total 8293 (Table IV).

As referred above, 3091 (37.3%) papers were affiliated to the top 25 departments. The same 6 orthodontic journals were the most frequent and they published 1.169 (44.3%) of their papers. European Journal of Orthodontics was the most preferred with 405 publications (13.1%), followed by American Journal of Orthodontics and Dentofacial Orthopedics with 361 (11.7%) and Angle Orthodontist with 292 (9.5%) (Table V).

H-classics

For the h-classic articles, the first search in the 89 journals of the 2015 InCites JCR list resulted in a total of 130812 hits and the second search in the WoS database using Mesh Terms related to Orthodontics retrieved 17128. Combination of the two searches produced a final result of 8167 documents. The h-index of these papers was 80 and consequently the 80 most cited articles were identified as the h-classics (Fig 6).

Most of the 80 h-classics were published in 2001 (17, 21.3%), 2003 (13, 16.3%) and 2005 (12, 15.0 %) while none was published in the last 3 years (2013-2015) (Fig 7). Sixty publications were original articles (75.0%) and 20 were reviews (25.0%).

The total number of citations of the 80 h-classics was 9294 and the paper with the highest number of citations was that of Cardaropoli et al. (2003) with 274, followed by Park et al., (2006) with 221 and Matinlinna et al. (2004) and Hermann et al. (2001) with 200 citations (Table VI) . The h-classics were published in 20 of the 89 journals of the 2015 InCites JCR list. The most were published in the American Journal of Orthodontics and Dentofacial Orthopedics (23, 28.8%), followed by the Angle Orthodontist (7, 8.8%) (TableVII).

In the 80 classic articles, 18 (22.5%) had at least one affiliation to one of the 252 European Orthodontic departments that were included in our study. Totally, 20 affiliations to European Orthodontic departments were recorded (Table VIII).

Discussion

The present study evaluated the academic performance of the 252 Orthodontics departments of European Universities for the timespan 2000-2015 with classic bibliometric indicators and the h-index.

Subscription-based databases such as Scopus (https://www.scopus.com/home.uri) and Thomson Reuters Web of Science (http://apps.webofknowledge.com) provide automatic functions for the calculation of the h-index and other indices and complete databases. The same applies to another research platform, Google Scholar (https://scholar.google.gr), which also calculates automatically the h-index of a researcher. However, each of the databases above is likely to provide a different h-index for the same academic researcher (Kosmulski, 2006; Bornmann and Daniel, 2007; Jin et al., 2007; Panaretos and Malesios, 2009). This is observed due to the different number of citations that each platform provides. According to Meho (2007) Google Scholar and Scopus can increase citation counts by an average of 160 percent and 35 percent respectively, compared to the WoS. Bar-Ilan (2008) compared the h-indices of a list of highly cited Israeli researches retrieved from the Web of Science, Scopus and Google Scholar respectively and found that the results obtained through Google Scholar are considerably different from that based on the Web of Science and Scopus. Moreover, Google Scholar has been criticized for including gray literature in its citation counts, since in addition to published papers it includes citations to working papers and books, among other sources (Panaretos and Malesios, 2009). These findings led us to exclude Google Scholar from our study.

Scopus and the Web of Science are two popular and complete citation databases but they present differences which make it difficult to prefer the one database over the other one clearly. The WoS pretends to have strong coverage of journal publications, but poor coverage of high impact conferences while Scopus has better coverage of conferences, but poor coverage of publications prior to 1992 (Panaretos and Malesios, 2009). Chadegani et al.

(2013) concluded that WoS has strong coverage which goes back to 1990 and most of its journals written in English but Scopus covers a superior number of journals but with lower impact and limited to recent articles. In our study we tried to find all papers affiliated to European Orthodontic departments and chose to use WoS only. This platform is more standardized in terms of providing the affiliations of papers and this was of basic importance in our study. On the contrary, the affiliations in Scopus are referred as they are written in papers, without any standard method.

The h-index was proposed in 2005 by Hirsch for the quantitative and qualitative analysis of an individual's scientific research output. Soon, this bibliometric indicator was well-accepted and was applied for the productivity and impact of a group of researchers, departments, universities or even countries, as already mentioned. It is an objective index in comparison with traditional evaluation methods such as peer-review. Generally, the main advantage of h-index is its simplicity in calculation and the balanced combination of "quantity" (number of publications) and "quality" (citation rate). The h-index is a robust cumulative indicator which means that increasing publications alone does not have immediate effect on this index. The cumulative aspect of the h-index and its ability to appraise the "lifetime production" instead of "publication peaks" is certainly an advantage. In addition, this measure seems to correlate well with other traditional bibliometric indicators of significance (Prathap, 2006; Sidiropoulos et al., 2007).

However, the h-index presents some weaknesses. The h-index is based on the number of publications and the citation rates and, as a result, it does not favor the young and maybe promising scientists with recent publications. This may have impact on the "younger" universities, respectively. Another important issue is the complexity of citations, and as Adler et al. (2008) stated, a citation cannot be counted a priori as an acknowledgment of a scientist's work, since there can be many other reasons that can create a citation, such as the negative (or "warning") citation, or a citation that explains some result, or even a self-citation. For example, citations in a paper are often made simply

to flesh-out an introduction, having no other reference to the essence of the work. Another problem is that the h-index puts small but highly-cited scientific outputs at a disadvantage. Two scientists may have the same h-index, i.e., h = 30, they both have 30 articles with at least 30 citations each. However, one may have 20 of these papers that have been cited more than 1000 times and the other may have all of his/hers h-core papers receiving just above 30 citations each. It is evident that the scientific work of the former scientist is more influential however not evidenced through the index (Panaretos and Malesios, 2009; Glänzel, 2006; Pires Da Luz et al., 2008). Moreover, all authors of a paper receive credits of a highly-cited paper in their personal h-index regardless their contribution to the paper. Last but not least, it seems that the h-index cannot be used for comparing scientists working in different scientific fields. It has been observed that average citation numbers differ widely among different fields (Hirsch, 2005; Podlubny, 2005). Despite these weaknesses, this indicator has already been used in other relevant investigations following the same method (Spiroski, 2010; Pires Da Luz et al., 2008).

Our ranking revealed predominance of the Radboud University Nijmegen Netherlands in all indicators and the h-index with marked difference from the 2nd department. A valid explanation is that the research activity of this department is oriented to oral biology and a number of papers is published in biology and medicine journals that generally receive more citations than dental and orthodontic journals. King's College London and University of Florence are sharing the 2nd place with an impressive performance as well. Focusing on the departments which are ranked high on the list, it is obvious that they have or had some reputed members of the orthodontic community as faculty members and researchers with research work of great impact and receive many citations. In addition, they present a marked production of papers.

Aristotle University of Thessaloniki, which is sharing the 5th place with University of Gothenburg, is showing impressive performance. University of Athens is sharing the 15th place with the University of Leuven, Eastman Dental Institute and University of Sheffield. It is

ranked high on the list and shows that it is a competitive European department in research with quality scientific output.

Considering all Orthodontic departments we could observe a skewed distribution of the h-index as shown in Fig 4 and Fig 5. Departments with a relatively low h-index are more than those which have for example h-index over 6.9 which is the mean. This could be interpreted that the departments that are placed higher on the ranking list are generally research-oriented and are interested in producing research work that will impact the scientific community. Another explanation may be that lower ranked departments are scientifically more introvert and publishing papers in international journals in English language or in journals internationally recognized with impact factor which are included in the popular databases is not a priority. Findings of our study showed that the number of publications of the top 25 departments (10%) represents more than 1/3 of (37.3%) the total and this led us to analyze bibliometric indicators of them only.

In the present study, we also calculated the mean h-index of each of the 42 countries included in the EOS list. Netherlands, which is the country of the also 1st ranked Radboud University Nijmegen, is ranked at the top of the list followed by Denmark and Greece with relatively similar mean h-indices and with a marked difference from the 4th Finland. The top 3 countries have a small number of orthodontic departments with good academic performance and this could explain their difference from countries such as Germany and Italy which have many departments (26 and 32, respectively) and despite the fact that some of their departments are very high in the ranking list, as a country they rank lower (Table II).

Concerning the journals that Orthodontic departments choose to publish their work, our findings showed that the most popular orthodontic journals (European Journal of Orthodontics, American Journal of Orthodontics and Dentofacial Orthopedics, Angle Orthodontist, Journal of Orofacial Orthopedics, Cleft Palate-Craniofacial Journal, Orthodontics and Craniofacial Research) are generally preferred over others bearing 42.2% of all publications. However, publications of orthodontic departments were identified in 776

journals (dental journals of general interest or journals of other scientific areas such as biology and general medicine).

A drawback of our study is that we evaluated the research output performance of the Orthodontic departments in Europe for a certain period of time and the impact of their work. The research output is static that cannot change however the impact, which is based on citations, is a dynamic process that constantly changes as more and more citations are added to published papers. Therefore the recorded condition of the period from March to May 2016 may now have changed. However the number of recent citations is expected to be low thus not significantly affecting h indexes calculated.

There are a lot of studies in the literature which present the classic articles in Orthodontics and many other scientific areas. Our study is the first to identify the significant publications in Orthodontics using the H-classic method proposed by Martinez et al. (2013) and not the arbitrary requirement for a minimum of 100 citations or the selection of number of most cited articles as it takes account of the volume of production in a given area.

Most of the H-classics were published in the first 6 years of the period searched and none was published in the last 3 years. This is an expected finding as citations accumulate over time and articles published in the period 2013-2015 could not receive enough citations to be included in H-classics.

Twenty-five of the 80 H-classics were reviews. Two of the latter were systematic reviews while no meta-analyses were recorded indicating that meta-analyses is a recent trend in the field of Orthodontics.

Only 18 articles were published from at least one of the 252 European Orthodontic departments. For the other 62, 44 were published from non-European orthodontic departments and 18 came from authors affiliated to non-orthodontic departments. Specifically, the articles could be attributed to only 14 European Orthodontic departments.

An inherent drawback of this method is that some Mesh Terms used for searching the database are not exclusively orthodontic as they are more pertinent to periodontology and maxillofacial surgery.

Further drawback of the present study is the use of author affiliations as referenced in each publication and this may be problematic, as there is no uniformity in stating an affiliation and authors liberally choose the format. Each author affiliation must be written correctly as it is stated on the list of the Orthodontic departments of the European Orthodontic Society or on the official website of the institution. This means that a paper without the affiliation of all authors was “lost” and it was not counted for the individual university in our study. The Swiss Federal Institutes of Technology at Zurich and Lausanne has issued instruction to their faculty members on using a uniform way to state their affiliation in their publications so that no paper is “lost” by misattribution because at least three different ways of stating the affiliation for each of them has been observed in the literature (Panaretos and Malesios, 2009). This, in combination with the non-specific MesH terms used in research might lead to misinterpreting an important number of studies.

Considering all these, we suggest a standardized reference of the affiliations from authors-departments and databases as well. Regarding to the list of the European Orthodontic Society, our search revealed non-referenced Orthodontic departments which were included in our study. It would be for the benefit of all to keep this list up-to-date with the contribution of the Universities as well.

Conclusions

The present study was the first aiming to assess the academic performance of the European Orthodontic departments using contemporary bibliometric indices.

Our results showed that 25 departments account for 37.3% of the publications in the field of Orthodontics.

Considering h-index related ranking Aristotle University of Thessaloniki is ranked 5th and University of Athens is 15th of the 252 departments studied. Greece ranks 3rd.

We could illustrate the need of establishing a standardized manner of stating the affiliation of the authors to facilitate the objective evaluation of academic performance of departments, institutions and universities thus avoiding erroneous misattribution of studies.

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Appendix – Raw data

Table I. Top 25 Orthodontic departments

Rank	Country	Department	Departmental h-index
1	Netherlands	Radboud University Nijmegen Medical Centre	35
2	Italy	University of Florence	29
3	UK	King's College London	29
4	Denmark	University of Aarhus	27
5	Greece	Aristotle University of Thessaloniki	26
6	Sweden	University of Gothenburg	26
7	Netherlands	ACTA	25
8	Germany	University of Bonn	24
9	Turkey	University of Konya	23
10	Finland	University of Helsinki	22
11	Norway	University of Oslo	22
12	Switzerland	University of Geneva	22
13	UK	Newcastle University	22
14	Denmark	University of Copenhagen	21
15	Belgium	University of Leuven	20
16	Greece	University of Athens	20
17	UK	Eastman Dental Institute	20
18	UK	University of Sheffield	20
19	Germany	University of Freiburg	19
20	Turkey	Marmara University Istanbul	19
21	Sweden	University of Malmo	19
22	Germany	University of Heidelberg	19
23	Switzerland	University of Bern	19
24	Sweden	University of Umea	18
25	UK	University of Bristol	18

Table II. Ranking of Countries (classification by mean h-index)

Rank	Country	Departments (No)	Cumulative h-index	Mean
1	Netherlands	3	78	26
2	Denmark	2	48	24
3	Greece	2	46	23
4	Finland	3	48	16
5	Switzerland	4	61	15.3
6	Norway	2	29	14.5
7	Sweden	8	111	13.9
8	Germany	26	341	13.1
9	UK	17	214	12.6
10	Ireland	2	21	10.5
11	Belgium	4	42	10.5
12	Turkey	26	258	9.9
14	Slovenia	1	8	8
13	Austria	3	24	8
15	Latvia	1	7	7
16	Lithuania	1	7	7
17	Italy	32	202	6.3
18	Croatia	3	15	5
19	Spain	13	57	4.4
20	Poland	11	48	4.4
21	Hungary	4	14	3.5
22	Serbia	3	8	2.7
23	Czech Republic	5	11	2.2
24	Bosnia and Herzegovina	1	2	2
25	Romania	8	15	1.9
26	France	16	20	1.3
27	Iceland	1	1	1

28	Portugal	6	5	0.8
29	Slovakia	2	1	0.5
30	Ukraine	5	1	0.2
31	Russia	25	3	0.1
32	Albania	1	0	0
33	Armenia	1	0	0
34	Azerbaijan	1	0	0
35	Belarus	1	0	0
36	Estonia	1	0	0
37	FYROM	1	0	0
38	Georgia	1	0	0
39	Kazakhstan	1	0	0
40	Malta	1	0	0
41	Moldova	1	0	0
42	Bulgaria	2	0	0

Table III. Bibliometric indicators of the 252 European Orthodontic departments

Rank	Department	Papers	Citations	Papers/year	Authors/paper	Affiliations mean	h-index
1	Radboud University Nijmegen	323	5400	20.2	5.1	2.9	35
2	King's College London	173	2904	10.8	4.6	3	29
3	University of Florence	195	2752	12.2	4.5	3	29
4	University of Aarhus	125	2335	7.8	4.4	2.7	27
5	University of Gothenburg	150	2400	9.4	3.9	3.1	26
6	Aristotle University Of Thessaloniki	162	2164	10.1	4.2	2.5	26
7	ACTA	121	1844	7.6	4.3	3.2	25
8	University of Bonn	206	2328	12.9	5.8	3.3	24
9	University of Konya	111	1599	6.9	3.8	2.3	23
10	University of Helsinki	79	1291	4.9	5.2	4.4	22
11	Newcastle University	93	1402	5.8	3.7	1.7	22
12	University of Oslo	102	1475	6.4	3.6	2.4	22
13	University of Geneva	150	1848	9.4	3.7	2.5	22
14	University of Copenhagen	125	1517	7.8	4	2.9	21
15	University of Leuven	74	1074	4.6	4.8	2.9	20
16	Eastman Dental Institute	96	1375	6	3.9	2.8	20
17	University of Sheffield	114	1211	7.1	4.3	2.5	20
18	University of Athens	130	1287	8.1	4	2.7	20
19	University of Freiburg	50	881	3.1	4.3	2.4	19
20	Marmara University Istanbul	68	829	4.3	3.4	2.5	19
21	University of Malmo	77	1109	4.8	3.2	2.5	19
22	University of Heidelberg	81	1128	5.1	5.7	2.9	19
23	University of Bern	189	1357	11.8	4.7	3.7	19
24	University of Umea	26	846	1.6	3.9	3.3	18
25	University of Bristol	71	886	4.4	3.9	2.4	18
26	University of Naples Ferderico II	80	1061	5	6	3.2	18
27	University of Hannover	86	1153	5.4	5.2	2.7	18
28	Second University of Naples	107	1063	6.7	7.3	1	18
29	University of Groningen	125	1065	7.8	4.6	2.9	18
30	Queen Mary London	47	659	2.9	3.1	2.8	16
31	Hacettepe University Ankara	70	801	4.4	3.7	3.3	16

32	University of Hamburg-Eppendorf	72	711	4.5	4.9	2.5	16
33	University Johannes Gutenberg of Mainz	91	856	5.7	4.3	2.1	16
34	Ankara University	96	889	6	3.2	2.1	16
35	University of Glasgow	37	542	2.3	4.1	2.6	15
36	University of Manchester	46	556	2.9	4.6	2.7	15
37	Karolinska Institutet	51	628	3.2	5.1	3.2	15
38	Charite University of Berlin	65	717	4.1	5	2	15
39	University of Munster	68	717	4.3	4.9	2.4	15
40	University of Rome Tor Vergata	100	617	6.3	3.9	1.8	15
41	Queen's University of Belfast	24	607	1.5	4.7	2.1	14
42	University of Ulm	52	625	3.3	4.5	2	14
43	University Ludwig Maximillians of Munich	65	742	4.1	5.1	2.6	14
44	University Rhein Westfal Th Aachen	65	697	4.1	4.3	2.1	14
45	Baskent University Ankara	68	645	4.3	3.8	2.5	14
46	Technical University of Dresden	79	648	4.9	5	2	14
47	University of Rome La Sapienza	26	396	1.6	5.2	2.8	13
48	University of Jonkoping	36	437	2.3	3.2	2.4	13
49	University of Turku	40	530	2.5	4.6	3.2	13
50	University of Pavia	49	582	3.1	4.8	2.2	13
51	Trinity College of Dublin	59	495	3.7	3.9	2.1	13
52	University of Vienna	63	681	3.9	5.1	3	13
53	University of Oulu	68	523	4.3	5.3	3.8	13
54	Ataturk University of Erzurum	76	561	4.8	3.7	1.9	13
55	University of Samsun	77	458	4.8	4.5	2.9	13
56	University of Giessen And Marburg	93	661	5.8	3	1.7	13
57	University of Zurich	111	851	6.9	4.6	3.2	13
58	University of Cologne	38	650	2.4	11.3	6.4	12
59	University of Erlangen-Nuremberg	41	455	2.6	4.9	2.5	12
60	University of Sivas	42	405	2.6	4.3	2.6	12
61	University of Catania	44	392	2.8	4.8	3	12
62	University of Dusseldorf	48	474	3	4.3	1.6	12
63	University of Wurzburg	48	515	3	5.7	2.8	12
64	Ege University Izmir	56	483	3.5	3.8	2.9	12
65	Gulhane Military Medical Academy Ankara	69	588	4.3	4.9	4.3	12
66	University of Isparta	78	459	4.9	4	2.8	12

67	Gazi University Ankara	83	469	5.2	3.5	2.3	12
68	University of Tubingen	83	566	5.2	4.3	2.1	12
69	University of Gottingen	98	497	6.1	6	2.8	12
70	University Christian Albrecht of Kiel	33	479	2.1	4.8	2.5	11
71	Dicle University Diyarbakir	62	362	3.9	4.6	2.4	11
72	University of Regensburg	91	509	5.7	5.6	2.8	11
73	University of Rostock	22	293	1.4	4	2.5	10
74	Cukurova University Adana	27	275	1.7	3.6	2	10
75	University of Ghent	29	239	1.8	4.5	2.7	10
76	Cardiff University	33	332	2.1	4.6	2.2	10
77	University of Budapest	37	277	2.3	5.6	3.4	10
78	University Complutense of Madrid	43	375	2.7	4.7	2.5	10
79	Istanbul University	45	342	2.8	4.5	2.9	10
80	Karadeniz Technical University Trabzon	51	286	3.2	4.4	2.7	10
81	Yeditepe University Istanbul	63	375	3.9	3.7	1.6	10
82	Wroclaw Medical University	68	268	4.3	4	2.8	10
83	Vreji Free University of Brussels	18	247	1.1	3.6	2.5	9
84	University of Murcia	35	197	2.2	4.2	2.3	9
85	Leeds Dental Institute	42	271	2.6	3	2	9
86	University of Torino	46	306	2.9	5.8	2.9	9
87	University of Milan	90	292	5.6	5.3	2.2	9
88	University of Stockholm	15	338	0.9	5.2	5.5	8
89	University of Valencia	22	124	1.4	4.3	2.5	8
90	University College Cork	24	207	1.5	4.1	2.4	8
91	University Johann Wolfgang Goethe of Frankfurt	26	156	1.6	4.5	2.2	8
92	University of Seville	37	154	2.3	5.5	3	8
93	University of Zagreb	44	235	2.8	5	2.7	8
94	University of Ljubljana	45	262	2.8	4.4	3	8
95	University of Bologna	48	218	3	4.9	2.3	8
96	University of Saarland of Homburg	52	226	3.3	4.7	2.2	8
97	University of Birmingham	13	300	0.8	2.9	1.9	7
98	University of Bergen	14	193	0.9	6.1	3.9	7
99	Universtisy of Orebro	21	142	1.3	3.6	3.4	7
100	University of Riga	23	135	1.4	3.6	1.5	7
101	University of Kaunas	27	148	1.7	4.4	1	7

102	University of Basel	29	168	1.8	3.7	2	7
103	University of Dundee	30	434	1.9	8.6	5.2	7
104	University of Olomouc	31	108	1.9	4.7	4.3	7
105	Inonu University Malatya	35	141	2.2	4.6	2.4	7
106	Izmir Katip Celebi University	39	158	2.4	4.5	2.6	7
107	University of Halle-Wittenberg	13	67	0.8	3.5	1.8	6
108	University of Graz	16	104	1	3.8	1.9	6
109	University of Siena	17	81	1.1	4.4	2.2	6
110	University of Liverpool	18	184	1.1	3.4	2.1	6
111	University of Lublin	25	85	1.6	5.8	3.9	6
112	University of Belgarde	27	107	1.7	4.6	2.7	6
113	University of Rijeka	32	137	2	5.4	3.4	6
114	University of Insubria	33	126	2.1	4.6	2.5	6
115	University Paris Vii	5	69	0.3	5	3	5
116	University of Santiago De Compostela	11	119	0.7	5.3	3.2	5
117	University of Barcelona	12	81	0.8	5.2	2.8	5
118	University of Innsbruck	12	179	0.8	5.5	3.1	5
119	Kocaeli University	13	65	0.8	5.2	2.4	5
120	University of Padova	13	106	0.8	4.3	2.2	5
121	University of Linkoping	14	66	0.9	3.6	3.4	5
122	University of Messina	23	120	1.4	6.4	2.3	5
123	University of Genoa	24	131	1.5	6	3.7	5
124	University of Poznan	28	209	1.8	4.7	3	5
125	Kirikkale University	29	99	1.8	3.8	3.2	5
126	Pomeranian Medical University Szczecin	29	108	1.8	3.8	1	5
127	Medical University of Warsaw	32	61	2	4.8	1	5
128	Charles University of Prague	6	30	0.4	5	2.8	4
129	University of Jena	6	60	0.4	4.5	2	4
130	University of Pisa	6	67	0.4	3.8	1.5	4
131	Medical University of Gdansk	7	41	0.4	3.7	2.4	4
132	University of L'Aquila	7	43	0.4	6.4	3.4	4
133	Edinburgh Dental Institute	9	162	0.6	4.1	2.3	4
134	Rey Juan Carlos University of Madrid	10	41	0.6	4.5	3.3	4
135	University of Palermo	10	53	0.6	2.4	1.1	4
136	Jagiellonian University of Krakow	11	53	0.7	5.2	3.4	4

137	University of Granada	12	35	0.8	5.2	2.9	4
138	University of Brescia	14	53	0.9	6.1	3.9	4
139	Catholic University Sacre Cuore of Rome	20	62	1.3	6.1	2.1	4
140	University Paris V Rene Descartes	4	31	0.3	3.5	2.5	3
141	University of Liege	5	17	0.3	4.0	3	3
142	University of Trieste	5	18	0.3	5	4.2	3
143	International University of Catalunya	9	35	0.6	4.2	1.7	3
144	University of Targu Mures	13	17	0.8	5.5	4	3
145	Medical University of Bialystok	14	20	0.9	4.5	2.1	3
146	University of Cluj-Napoca	15	42	0.9	4.9	3.9	3
147	Medical University of Lodz	16	39	1	5.4	3	3
148	University of Szeged	17	26	1.1	8.3	4.5	3
149	University of Bucharest	19	32	1.2	5.6	3.6	3
150	Akdeniz University Antalya	25	33	1.6	3.8	3	3
151	University of Timisoara	26	24	1.6	5.7	3.8	3
152	Mediterranean University of Marseille	2	20	0.1	3	3.9	2
153	University of Milano Bicocca	2	17	0.1	6	3	2
154	University of Bordeaux 2 Victor Segalen	3	101	0.2	10.7	7	2
155	University of Verona	3	11	0.2	4.7	1	2
156	University of Sarajevo	4	27	0.3	5.3	3	2
157	Instituto Superior de Ciecias da Saude do Norte	6	20	0.4	2.5	3.8	2
158	Medipol University Istanbul	7	7	0.4	4.1	3.6	2
159	Peninsula University of Plymouth	7	8	0.4	5.7	2.3	2
160	University of Cagliari	9	10	0.6	4	2.2	2
161	Silesia University of Zabrze	10	15	0.6	4.8	3.8	2
162	University of Porto	10	10	0.6	3.9	2.2	2
163	University of Iasi	13	7	0.8	4.8	3	2
164	Bezmialem Vakif University Istanbul	15	15	0.9	4.6	3.2	2
165	Chuvashskiy State University Medical Institute	1	1	0.1	1	3.8	1
166	Kiev Medical University	1	2	0.1	4	1	1
167	Silesian University of Katowice	1	2	0.1	4	2.6	1
168	Central Scientific Research Dental Institute of Moscow	1	6	0.1	3	2.8	1
169	University of Auvergne of Clermont Ferrand	1	9	0.1	5	3	1
170	University of Bari	1	1	0.1	2	1	1
171	University of Iceland	1	7	0.1	4	5	1

172	University of Lisbon	1	30	0.1	2	2	1
173	University of Modena	1	17	0.1	4	2	1
174	University of Nantes	1	5	0.1	6	1	1
175	University of Novi Sad	1	7	0.1	3	3	1
176	University of Rennes 1	1	26	0.1	4	3	1
177	University of Strasbourg	1	2	0.1	6	6	1
178	Autonomous University of Madrid	2	1	0.1	3.3	2.5	1
179	University Claude Bernard of Lyon	2	2	0.1	4	4	1
180	University Henri Poincare of Nancy	2	1	0.1	7	6.5	1
181	University of Bratislava	2	4	0.1	7.5	7	1
182	University of Debrecen	2	3	0.1	5.5	3.5	1
183	University of Nice Sophia Antipolis	2	4	0.1	5.5	4	1
184	Moscow State Medical Dental University	3	5	0.2	5.0	2	1
185	Mustafa Kemal University Hatay	3	2	0.2	3	2.3	1
186	University of Oradea	3	5	0.2	5.7	4	1
187	University of Split	3	5	0.2	6	4	1
188	University of Toulouse III	3	4	0.2	6	4	1
189	Gaziosmanpasa University Tokat	4	2	0.3	5.3	1.8	1
190	University of Nis	10	3	0.6	5.5	3.2	1
191	Kuban's State Medical Academy of Krasnodar	1	0	0.1	7	4.2	0
192	Permskaya Medical Academy	1	0	0.1	3	5	0
193	Samarskiy State Medical University	1	0	0.1	1	2.5	0
194	University of Coimbra	1	0	0.1	6	6	0
195	Kazanskiy Medical University	2	0	0.1	2	3.8	0
196	Medical University of Plovdiv	2	0	0.1	2.5	3.7	0
197	Medical University of Sofia	2	0	0.1	2	1	0
198	University of Parma	2	0	0.1	4	1.5	0
199	University of Vita Salute San Raffaele Milano	3	0	0	6.3	3	0
200	University of Tirana	0	0	0	0	0	0
201	Medical State University Yerevan	0	0	0	0	0	0
202	Azerbaijan Medical University	0	0	0	0	0	0
203	University of Minsk	0	0	0	0	0	0
204	University of Brno	0	0	0	0	0	0
205	University of Hradec Kralove	0	0	0	0	0	0
206	University of Plzen	0	0	0	0	0	0

207	University of Tartu	0	0	0	0	0	0
208	University of Bretagne Occidentale of Brest	0	0	0	0	0	0
209	University of Lille 2	0	0	0	0	0	0
210	University of Monpellier	0	0	0	0	0	0
211	University of Reims Champagne-Ardenne	0	0	0	0	0	0
212	University of Skopje	0	0	0	0	0	0
213	Tbilisi State Medical University	0	0	0	0	0	0
214	University of Pecs	0	0	0	0	0	0
215	University of Ancona	0	0	0	0	0	0
216	University of Naples	0	0	0	0	0	0
217	University of Perugia	0	0	0	0	0	0
218	University of Sassari	0	0	0	0	0	0
219	Kazakh National Medical University name of S.D. Asfendiyarov	0	0	0	0	0	0
220	University of Malta Medical School	0	0	0	0	0	0
221	University of Chisinau	0	0	0	0	0	0
222	Instituto Superior de Ciecias da Saude do Sul	0	0	0	0	0	0
223	University Fernando Pessoa of Porto	0	0	0	0	0	0
224	University of Constanta	0	0	0	0	0	0
225	University of Sibiu	0	0	0	0	0	0
226	Altayskaya State Medikal Academy of Barnaul	0	0	0	0	0	0
227	Bashkirskiy State Medical University of Ufa	0	0	0	0	0	0
228	Dagestanskaya State Medical Academy of Makhachkala	0	0	0	0	0	0
229	Krasnoyarskaya State Medical Academy	0	0	0	0	0	0
230	Nizegorodskaya State Medical University of Nizniy Novgorod	0	0	0	0	0	0
231	Rostovskiy State Medical University of Rostov	0	0	0	0	0	0
232	Russian Medical Academy For Postgraduate Education of Moscow	0	0	0	0	0	0
233	Ryazaniskiy State Medical University named after Pavlov of Ryazan	0	0	0	0	0	0
234	Saratovskiy State Medical University of Satatov	0	0	0	0	0	0
235	Smolenskiy Medical Institute of Smolensk	0	0	0	0	0	0
236	St. Peterburgskiy State Medical University named after Pavlov	0	0	0	0	0	0
237	St. Petersburg Medical Academy	0	0	0	0	0	0
238	State Medical Academy St Petersburg	0	0	0	0	0	0
239	Tverskaya State Medical Academy of Tver	0	0	0	0	0	0

240	Ural's State Medical Institute of Yekaterinsburg	0	0	0	0	0	0
241	Vladivostokskiy State Medical University of Vladivostok	0	0	0	0	0	0
242	Volgogradskaya Medical Academy of Volgograd	0	0	0	0	0	0
243	Voronezskaya State Medical Academy named after Burdenko of Voronezh	0	0	0	0	0	0
244	University of Kosice	0	0	0	0	0	0
245	Alfonso X El Sabio University of Madrid	0	0	0	0	0	0
246	European University of Madrid	0	0	0	0	0	0
247	University of Bilbao	0	0	0	0	0	0
248	University of Central Lancashire	0	0	0	0	0	0
249	Danylo Halytsky Lviv National Medical University	0	0	0	0	0	0
250	Donetsk State Medical University	0	0	0	0	0	0
251	P.L. Shupik National Medical Academy of Kiev	0	0	0	0	0	0
252	Ternopil State Medical University Horbachevsky Memorial	0	0	0	0	0	0

The columns above refer to the total No of papers, total No of citations, No of papers per year, No of authors per paper, mean No of affiliations per department and DHI of each of the top 25 departments.

Table IV. Journals published all departments' publications

Rank	Journal	N	%
1	EUROPEAN JOURNAL OF ORTHODONTICS	945	11.4
2	AMERICAN JOURNAL OF ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS	878	10.5
3	ANGLE ORTHODONTIST	828	10.0
4	JOURNAL OF OROFACIAL ORTHOPEDICS-FORTSCHRITTE DER KIEFERORTHOPADIE	491	6.0
5	CLEFT PALATE-CRANIOFACIAL JOURNAL	228	2.7
6	ORTHODONTICS & CRANIOFACIAL RESEARCH	131	1.6
7	BRITISH DENTAL JOURNAL	125	1.5
8	ACTA ODONTOLOGICA SCANDINAVICA	118	1.4
9	CLINICAL ORAL INVESTIGATIONS	109	1.3
10	JOURNAL OF CLINICAL ORTHODONTICS : JCO	108	1.3
11	EUROPEAN JOURNAL OF PAEDIATRIC DENTISTRY	103	1.2
12	JOURNAL OF CRANIOFACIAL SURGERY	93	1.1
13	ARCHIVES OF ORAL BIOLOGY	92	1.1
14	JOURNAL OF ORAL AND MAXILLOFACIAL SURGERY	90	1.1
15	EUROPEAN JOURNAL OF ORAL SCIENCES	89	1.1
16	JOURNAL OF CRANIO-MAXILLOFACIAL SURGERY	87	1.0
17	INTERNATIONAL JOURNAL OF ORAL AND MAXILLOFACIAL SURGERY	87	1.0
18	JOURNAL OF ORAL REHABILITATION	84	1.0
19	KOREAN JOURNAL OF ORTHODONTICS	78	0.9
20	PROGRESS IN ORTHODONTICS	71	0.9
21	JOURNAL OF ORTHODONTICS	62	0.7
22	JOURNAL OF DENTAL RESEARCH	62	0.7
23	HEAD & FACE MEDICINE	61	0.8
24	INTERNATIONAL JOURNAL OF PAEDIATRIC DENTISTRY	60	0.8
25	AUSTRALIAN ORTHODONTIC JOURNAL	59	0.8
26	SWEDISH DENTAL JOURNAL	56	0.6
27	JOURNAL OF DENTISTRY	49	0.6
28	ANNALS OF ANATOMY-ANATOMISCHER ANZEIGER	48	0.6
29	QUINTESSENCE INTERNATIONAL	46	0.6
30	MEDICINA ORAL PATOLOGIA ORAL Y CIRUGIA BUCAL	46	0.6
31	WORLD JOURNAL OF ORTHODONTICS	45	0.5
32	PLOS ONE	45	0.5
33	DENTAL TRAUMATOLOGY	44	0.5
34	BRITISH JOURNAL OF ORAL & MAXILLOFACIAL SURGERY	44	0.5
35	JOURNAL OF CLINICAL PERIODONTOLOGY	40	0.5
36	CLINICAL ORAL IMPLANTS RESEARCH	40	0.5
37	DENTAL MATERIALS	38	0.4
38	ROMANIAN JOURNAL OF MORPHOLOGY AND EMBRYOLOGY	37	0.4
39	ORAL SURGERY ORAL MEDICINE ORAL PATHOLOGY ORAL RADIOLOGY AND ENDODONTOLOGY	36	0.4
40	MINERVA STOMATOLOGICA	35	0.4
41	INTERNATIONAL JOURNAL OF ORAL & MAXILLOFACIAL IMPLANTS	31	0.4
42	EUROPEAN JOURNAL OF DENTISTRY	28	0.3

43	DENTOMAXILLOFACIAL RADIOLOGY	28	0.3
44	COLLEGIUM ANTROPOLOGICUM	28	0.3
45	JOURNAL OF CLINICAL PEDIATRIC DENTISTRY	26	0.3
46	EUROPEAN JOURNAL OF DENTAL EDUCATION	26	0.4
47	COCHRANE DATABASE OF SYSTEMATIC REVIEWS	26	0.3
48	ADVANCES IN CLINICAL AND EXPERIMENTAL MEDICINE	26	0.3
49	JOURNAL OF PERIODONTOLOGY	25	0.3
50	INTERNATIONAL JOURNAL OF PROSTHODONTICS	24	0.3
51	COMMUNITY DENTISTRY AND ORAL EPIDEMIOLOGY	24	0.3
52	LASERS IN MEDICAL SCIENCE	23	0.3
53	JOURNAL OF PROSTHETIC DENTISTRY	23	0.3
54	AMERICAN JOURNAL OF DENTISTRY	23	0.3
55	ORAL SURGERY ORAL MEDICINE ORAL PATHOLOGY ORAL RADIOLOGY AND ENDODONTICS	22	0.3
56	NEDERLANDS TIJDSCHRIFT VOOR TANDHEELKUNDE	22	0.3
57	ORAL SURGERY ORAL MEDICINE ORAL PATHOLOGY ORAL RADIOLOGY	21	0.3
58	INTERNATIONAL JOURNAL OF PEDIATRIC OTORHINOLARYNGOLOGY	21	0.3
59	JOURNAL OF OROFACIAL PAIN	20	0.2
60	REVISTA DE CHIMIE	19	0.2
61	JOURNAL OF PHYSIOLOGY AND PHARMACOLOGY	19	0.2
62	SCIENTIFIC WORLD JOURNAL	18	0.2
63	INTERNATIONAL ENDODONTIC JOURNAL	18	0.2
64	BIOMED RESEARCH INTERNATIONAL	18	0.2
65	PEDIATRIC DENTISTRY	17	0.2
66	JOURNAL OF PERIODONTAL RESEARCH	17	0.2
67	JOURNAL OF ORAL PATHOLOGY & MEDICINE	17	0.2
68	BIOMATERIALS	17	0.2
69	STOMATOLOGIJA / ISSUED BY PUBLIC INSTITUTION ODONTOLOGIJOS STUDIJA ... [ET AL.]	16	0.2
70	SEMINARS IN ORTHODONTICS	16	0.2
71	MEDICAL SCIENCE MONITOR	16	0.2
72	JOURNAL OF ENDODONTICS	16	0.2
73	DENTAL UPDATE	16	0.2
74	CRANIO-THE JOURNAL OF CRANIOMANDIBULAR PRACTICE	16	0.2
75	ORAL DISEASES	15	0.2
76	JOURNAL OF BIOMECHANICS	15	0.2
77	SCANDINAVIAN JOURNAL OF PLASTIC AND RECONSTRUCTIVE SURGERY AND HAND SURGERY	14	0.2
78	JOURNAL OF FORENSIC SCIENCES	14	0.2
79	COMMUNITY DENTAL HEALTH	14	0.2
80	BONE	14	0.2
81	AMERICAN JOURNAL OF MEDICAL GENETICS PART A	14	0.2
82	JOURNAL OF THE AMERICAN DENTAL ASSOCIATION	13	0.2
83	JOURNAL OF ELECTROMYOGRAPHY AND KINESIOLOGY	13	0.2
84	JOURNAL OF DENTISTRY FOR CHILDREN	13	0.2
85	JOURNAL OF ANATOMY	13	0.2
86	EUROPEAN ARCHIVES OF PAEDIATRIC DENTISTRY : OFFICIAL JOURNAL OF THE	13	0.2

	EUROPEAN ACADEMY OF PAEDIATRIC DENTISTRY		
87	JOURNAL OF ADHESIVE DENTISTRY	12	0.1
88	INTERNATIONAL JOURNAL OF PERIODONTICS & RESTORATIVE DENTISTRY	12	0.1
89	INTERNATIONAL JOURNAL OF IMMUNOPATHOLOGY AND PHARMACOLOGY	12	0.1
90	FORENSIC SCIENCE INTERNATIONAL	12	0.1
91	BMC ORAL HEALTH	12	0.1
92	BIOMEDIZINISCHE TECHNIK	12	0.1
93	THE INTERNATIONAL JOURNAL OF ADULT ORTHODONTICS AND ORTHOGNATHIC SURGERY	11	0.1
94	PLASTIC AND RECONSTRUCTIVE SURGERY	11	0.1
95	CELL AND TISSUE RESEARCH	11	0.1
96	AUSTRALIAN DENTAL JOURNAL	11	0.1
97	VOJNOSANITETSKI PREGLED	10	0.1
98	JOURNAL OF CLINICAL EPIDEMIOLOGY	10	0.1
99	INTERNATIONAL DENTAL JOURNAL	10	0.1
100	DEVELOPMENTAL BIOLOGY	10	0.1
101	DENTAL MATERIALS JOURNAL	10	0.1
102	CHILDS NERVOUS SYSTEM	10	0.1
103	ACTA OF BIOENGINEERING AND BIOMECHANICS	10	0.1
104	SRPSKI ARHIV ZA CELOKUPNO LEKARSTVO	9	0.1
105	PHOTOMEDICINE AND LASER SURGERY	9	0.1
106	JOURNAL OF RHEUMATOLOGY	9	0.1
107	JOURNAL OF PROSTHODONTICS-IMPLANT ESTHETIC AND RECONSTRUCTIVE DENTISTRY	9	0.1
108	JOURNAL OF ORAL SCIENCE	9	0.1
109	JOURNAL OF MATERIALS SCIENCE-MATERIALS IN MEDICINE	9	0.1
110	JOURNAL OF DENTAL SCIENCES	9	0.1
111	JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART A	9	0.1
112	INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES	9	0.1
113	IN VIVO	9	0.1
114	EUROPEAN JOURNAL OF HUMAN GENETICS	9	0.1
115	BIRTH DEFECTS RESEARCH PART A-CLINICAL AND MOLECULAR TERATOLOGY	9	0.1
116	BIOMEDICAL ENGINEERING-BIOMEDIZINISCHE TECHNIK	9	0.1
117	BIOLOGICAL TRACE ELEMENT RESEARCH	9	0.1
118	WOUND REPAIR AND REGENERATION	8	0.1
119	SLEEP AND BREATHING	8	0.1
120	PROGRESS IN ORTHODONTICS	8	0.1
121	PEDIATRIC RHEUMATOLOGY	8	0.1
122	MEDIATORS OF INFLAMMATION	8	0.1
123	MATERIALE PLASTICE	8	0.1
124	JOURNAL OF EVIDENCE-BASED DENTAL PRACTICE	8	0.1
125	JOURNAL OF APPLIED ORAL SCIENCE	8	0.1
126	CLINICAL IMPLANT DENTISTRY AND RELATED RESEARCH	8	0.1
127	CARIES RESEARCH	8	0.1
128	ADVANCES IN MEDICAL SCIENCES	8	0.1
129	THE JOURNAL OF CONTEMPORARY DENTAL PRACTICE	7	0.1

130	TRIALS	7	0.1
131	SPECIAL CARE IN DENTISTRY : OFFICIAL PUBLICATION OF THE AMERICAN ASSOCIATION OF HOSPITAL DENTISTS, THE ACADEMY OF DENTISTRY FOR THE HANDICAPPED, AND THE AMERICAN SOCIETY FOR GERIATRIC DENTISTRY	7	0.1
132	L' ORTHODONTIE FRANCAISE	7	0.1
133	JOURNAL OF THE IRISH DENTAL ASSOCIATION	7	0.1
134	JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART B-APPLIED BIOMATERIALS	7	0.1
135	HUMAN MOLECULAR GENETICS	7	0.1
136	DEVELOPMENTAL DYNAMICS	7	0.1
137	CELL AND TISSUE BANKING	7	0.1
138	AMERICAN JOURNAL OF MEDICAL GENETICS	7	0.1
139	NATURE GENETICS	6	0.1
140	MEDICINA-LITHUANIA	6	0.1
141	JOURNAL OF PLASTIC RECONSTRUCTIVE AND AESTHETIC SURGERY	6	0.1
142	JOURNAL OF ESTHETIC AND RESTORATIVE DENTISTRY	6	0.1
143	JOURNAL OF BONE AND MINERAL RESEARCH	6	0.1
144	GERODONTOLOGY	6	0.1
145	FRONTIERS IN PHYSIOLOGY	6	0.1
146	CONTEMPORARY CLINICAL TRIALS	6	0.1
147	CLINICAL NEUROPHYSIOLOGY	6	0.1
148	CALCIFIED TISSUE INTERNATIONAL	6	0.1
149	BIOTECHNOLOGY & BIOTECHNOLOGICAL EQUIPMENT	6	0.1
150	ANNALS OF AGRICULTURAL AND ENVIRONMENTAL MEDICINE	6	0.1
151	AMERICAN JOURNAL OF PHYSICAL ANTHROPOLOGY	6	0.1
152	AMERICAN JOURNAL OF HUMAN GENETICS	6	0.1
153	SHANGHAI KOU QIANG YI XUE = SHANGHAI JOURNAL OF STOMATOLOGY	5	0.1
154	SCANNING	5	0.1
155	POLISH JOURNAL OF ENVIRONMENTAL STUDIES	5	0.1
156	OXIDATIVE MEDICINE AND CELLULAR LONGEVITY	5	0.1
157	NIGERIAN JOURNAL OF CLINICAL PRACTICE	5	0.1
158	JOURNAL OF THE ROYAL COLLEGE OF SURGEONS OF EDINBURGH	5	0.1
159	JOURNAL OF PLASTIC SURGERY AND HAND SURGERY	5	0.1
160	JOURNAL OF ORAL & FACIAL PAIN AND HEADACHE	5	0.1
161	JOURNAL OF FORENSIC AND LEGAL MEDICINE	5	0.1
162	JOURNAL OF EXPERIMENTAL ZOOLOGY PART B-MOLECULAR AND DEVELOPMENTAL EVOLUTION	5	0.1
163	JOURNAL OF CELLULAR PHYSIOLOGY	5	0.1
164	INTERNATIONAL ORTHODONTICS / COLLEGE EUROPEEN D'ORTHODONTIE	5	0.1
165	INTERNATIONAL JOURNAL OF COMPUTERIZED DENTISTRY	5	0.1
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523	JOURNAL OF PAIN	1	0.0
524	JOURNAL OF OCCUPATIONAL MEDICINE AND TOXICOLOGY	1	0.0
525	JOURNAL OF NUTRITION	1	0.0
526	JOURNAL OF NEUROSURGERY-PEDIATRICS	1	0.0
527	JOURNAL OF NEUROSCIENCE METHODS	1	0.0
528	JOURNAL OF NEUROPHYSIOLOGY	1	0.0
529	JOURNAL OF NEURO-ONCOLOGY	1	0.0
530	JOURNAL OF MOLECULAR HISTOLOGY	1	0.0
531	JOURNAL OF MEDICAL SYSTEMS	1	0.0
532	JOURNAL OF MEDICAL GENETICS	1	0.0
533	JOURNAL OF MEDICAL ETHICS	1	0.0
534	JOURNAL OF MATERIALS RESEARCH	1	0.0
535	JOURNAL OF MATERIALS ENGINEERING AND PERFORMANCE	1	0.0
536	JOURNAL OF MATERIALS CHEMISTRY	1	0.0
537	JOURNAL OF INTERPROFESSIONAL CARE	1	0.0
538	JOURNAL OF HUMAN NUTRITION AND DIETETICS	1	0.0
539	JOURNAL OF HISTOCHEMISTRY & CYTOCHEMISTRY	1	0.0
540	JOURNAL OF HEALTHCARE ENGINEERING	1	0.0
541	JOURNAL OF HEADACHE AND PAIN	1	0.0
542	JOURNAL OF GLAUCOMA	1	0.0
543	JOURNAL OF GASTROINTESTINAL AND LIVER DISEASES	1	0.0
544	JOURNAL OF EXPOSURE SCIENCE AND ENVIRONMENTAL EPIDEMIOLOGY	1	0.0
545	JOURNAL OF EXPERIMENTAL MEDICINE	1	0.0
546	JOURNAL OF EXPERIMENTAL BIOLOGY	1	0.0
547	JOURNAL OF EPIDEMIOLOGY AND COMMUNITY HEALTH	1	0.0
548	JOURNAL OF ENVIRONMENTAL PROTECTION AND ECOLOGY	1	0.0
549	JOURNAL OF ENDOCRINOLOGY	1	0.0
550	JOURNAL OF DIABETES RESEARCH	1	0.0
551	JOURNAL OF CRANIOVERTEBRAL JUNCTION AND SPINE	1	0.0
552	JOURNAL OF COMMUNICATION DISORDERS	1	0.0
553	JOURNAL OF CLINICAL VIROLOGY	1	0.0
554	JOURNAL OF CLINICAL PATHOLOGY	1	0.0
555	JOURNAL OF CLINICAL MICROBIOLOGY	1	0.0
556	JOURNAL OF CHILD NEUROLOGY	1	0.0
557	JOURNAL OF CHEMISTRY	1	0.0
558	JOURNAL OF CELLULAR BIOCHEMISTRY	1	0.0
559	JOURNAL OF CELLULAR AND MOLECULAR MEDICINE	1	0.0
560	JOURNAL OF CANCER RESEARCH AND CLINICAL ONCOLOGY	1	0.0
561	JOURNAL OF BUON	1	0.0
562	JOURNAL OF BONE AND MINERAL METABOLISM	1	0.0
563	JOURNAL OF BIOMEDICINE AND BIOTECHNOLOGY	1	0.0
564	JOURNAL OF BIOMATERIALS SCIENCE-POLYMER EDITION	1	0.0
565	JOURNAL OF BIOMATERIALS AND TISSUE ENGINEERING	1	0.0
566	JOURNAL OF BIOLOGICAL INORGANIC CHEMISTRY	1	0.0
567	JOURNAL OF BACK AND MUSCULOSKELETAL REHABILITATION	1	0.0

568	JOURNAL OF APPLIED TOXICOLOGY	1	0.0
569	JOURNAL OF APPLIED PHYSIOLOGY	1	0.0
570	JOURNAL OF APPLIED ICHTHYOLOGY	1	0.0
571	JOURNAL OF APPLIED GENETICS	1	0.0
572	JOURNAL OF ANTHROPOLOGICAL SCIENCES	1	0.0
573	JOURNAL OF ANIMAL AND VETERINARY ADVANCES	1	0.0
574	JOURNAL DER DEUTSCHEN DERMATOLOGISCHEN GESELLSCHAFT	1	0.0
575	JOURNAL DE PHYSIQUE IV	1	0.0
576	JAMA FACIAL PLASTIC SURGERY	1	0.0
577	IRISH MEDICAL JOURNAL	1	0.0
578	INTERNATIONAL JOURNAL OF GENERAL MEDICINE	1	0.0
579	INDIAN JOURNAL OF PLASTIC SURGERY : OFFICIAL PUBLICATION OF THE ASSOCIATION OF PLASTIC SURGEONS OF INDIA	1	0.0
580	IRISH JOURNAL OF MEDICAL SCIENCE	1	0.0
581	IRANIAN JOURNAL OF PEDIATRICS	1	0.0
582	INVESTIGATIVE OPHTHALMOLOGY & VISUAL SCIENCE	1	0.0
583	INTERVIROLOGY	1	0.0
584	INTERNATIONAL ORTHOPAEDICS	1	0.0
585	INTERNATIONAL JOURNAL OF PEPTIDE RESEARCH AND THERAPEUTICS	1	0.0
586	INTERNATIONAL JOURNAL OF OSTEOARCHAEOLOGY	1	0.0
587	INTERNATIONAL JOURNAL OF ONCOLOGY	1	0.0
588	INTERNATIONAL JOURNAL OF NANOMEDICINE	1	0.0
589	INTERNATIONAL JOURNAL OF MORPHOLOGY	1	0.0
590	INTERNATIONAL JOURNAL OF LEGAL MEDICINE	1	0.0
591	INTERNATIONAL JOURNAL OF FOOD SCIENCES AND NUTRITION	1	0.0
592	INTERNATIONAL JOURNAL OF EPIDEMIOLOGY	1	0.0
593	INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH	1	0.0
594	INTERNATIONAL JOURNAL OF ENDOCRINOLOGY	1	0.0
595	INTERNATIONAL JOURNAL OF COMPUTER ASSISTED RADIOLOGY AND SURGERY	1	0.0
596	INTERNATIONAL JOURNAL OF CLINICAL AND EXPERIMENTAL PATHOLOGY	1	0.0
597	INTERNATIONAL JOURNAL OF BIOLOGICAL SCIENCES	1	0.0
598	INTERNATIONAL JOURNAL OF ARTIFICIAL ORGANS	1	0.0
599	INFORMATION TECHNOLOGIES IN BIOMEDICINE, VOL 2	1	0.0
600	INFLAMMATORY BOWEL DISEASES	1	0.0
601	INFECTION GENETICS AND EVOLUTION	1	0.0
602	IMMUNOPHARMACOLOGY AND IMMUNOTOXICOLOGY	1	0.0
603	IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT	1	0.0
604	IEEE JOURNAL OF SOLID-STATE CIRCUITS	1	0.0
605	HEALTH PROMOTION PRACTICE	1	0.0
606	HUMAN GENETICS	1	0.0
607	HORMONE RESEARCH IN PAEDIATRICS	1	0.0
608	HORMONE AND METABOLIC RESEARCH	1	0.0
609	HONG KONG JOURNAL OF PAEDIATRICS	1	0.0
610	HOMO-JOURNAL OF COMPARATIVE HUMAN BIOLOGY	1	0.0
611	HISTOPATHOLOGY	1	0.0

612	HEAD AND NECK-JOURNAL FOR THE SCIENCES AND SPECIALTIES OF THE HEAD AND NECK	1	0.0
613	HANDBOOK OF PEDIATRIC HIV CARE, 2ND EDITION	1	0.0
614	HANDBOOK OF HAIR IN HEALTH AND DISEASE	1	0.0
615	HANDBOOK OF DOWN SYNDROME RESEARCH	1	0.0
616	GAZZETTA MEDICA ITALIANA ARCHIVIO PER LE SCIENZE MEDICHE	1	0.0
617	GRAEFES ARCHIVE FOR CLINICAL AND EXPERIMENTAL OPHTHALMOLOGY	1	0.0
618	GLOBAL HEALTH PROMOTION	1	0.0
619	GINEKOLOGIA POLSKA	1	0.0
620	GENESIS	1	0.0
621	GENES AND IMMUNITY	1	0.0
622	GASTROENTEROLOGY RESEARCH AND PRACTICE	1	0.0
623	FRONTIERS IN BIOSCIENCE SCHOLAR EDITION	1	0.0
624	FRONTIERS IN BIOSCIENCE ELITE EDITION	1	0.0
625	FIBROGENESIS & TISSUE REPAIR	1	0.0
626	FRONTIERS IN PHARMACOLOGY	1	0.0
627	FRONTIERS IN BIOSCIENCE	1	0.0
628	FREE RADICAL BIOLOGY AND MEDICINE	1	0.0
629	FOLIA BIOLOGICA	1	0.0
630	FETAL DIAGNOSIS AND THERAPY	1	0.0
631	FEMS MICROBIOLOGY REVIEWS	1	0.0
632	FEMS MICROBIOLOGY LETTERS	1	0.0
633	FEMINISM & PSYCHOLOGY	1	0.0
634	FEBS LETTERS	1	0.0
635	FEBS JOURNAL	1	0.0
636	FASEB JOURNAL	1	0.0
637	FAMILIAL CANCER	1	0.0
638	EVIDENCE-BASED DENTISTRY	1	0.0
639	EUROPEAN JOURNAL OF MORPHOLOGY	1	0.0
640	ENVIRONMENTAL HEALTH AND PREVENTIVE MEDICINE	1	0.0
641	EXPERIMENTAL PARASITOLOGY	1	0.0
642	EXPERIMENTAL BRAIN RESEARCH	1	0.0
643	EXPERIMENTAL AND MOLECULAR MEDICINE	1	0.0
644	EVIDENCE-BASED CLINICAL ORTHODONTICS	1	0.0
645	EUROPEAN SPINE JOURNAL	1	0.0
646	EUROPEAN REVIEW FOR MEDICAL AND PHARMACOLOGICAL SCIENCES	1	0.0
647	EUROPEAN JOURNAL OF ORTHOPAEDIC SURGERY AND TRAUMATOLOGY	1	0.0
648	EUROPEAN JOURNAL OF NEUROLOGY	1	0.0
649	EUROPEAN JOURNAL OF INTERNAL MEDICINE	1	0.0
650	EUROPEAN JOURNAL OF CANCER	1	0.0
651	EURO CERAMICS VIII, PTS 1-3	1	0.0
652	EPIDEMIOLOGY	1	0.0
653	ENVIRONMENTAL HEALTH PERSPECTIVES	1	0.0
654	ENDOKRYNOLOGIA POLSKA	1	0.0
655	ENDOCRINOLOGY	1	0.0
656	EMBO JOURNAL	1	0.0

657	DENTAL PRESS JOURNAL OF ORTHODONTICS	1	0.0
658	DENTAL HISTORIAN : LINDSAY CLUB NEWSLETTER	1	0.0
659	DISPLAYS	1	0.0
660	DISEASE MARKERS	1	0.0
661	DISABILITY AND REHABILITATION	1	0.0
662	DIABETOLOGY & METABOLIC SYNDROME	1	0.0
663	DEVELOPMENTAL MEDICINE AND CHILD NEUROLOGY	1	0.0
664	DEVELOPMENT GROWTH & DIFFERENTIATION	1	0.0
665	CYTOTHERAPY	1	0.0
666	CURRENT TOPICS IN DEVELOPMENTAL BIOLOGY, VOL 65	1	0.0
667	CURRENT PSYCHOLOGY	1	0.0
668	CURRENT MOLECULAR MEDICINE	1	0.0
669	CURRENT DRUG TARGETS	1	0.0
670	CURRENT BIOLOGY	1	0.0
671	CRYSTENGCOMM	1	0.0
672	CROATIAN MEDICAL JOURNAL	1	0.0
673	CONTEMPORARY TOPICS IN LABORATORY ANIMAL SCIENCE	1	0.0
674	CONCEPTS IN MAGNETIC RESONANCE PART A	1	0.0
675	COMPUTERS & ELECTRICAL ENGINEERING	1	0.0
676	COMPUTERIZED MEDICAL IMAGING AND GRAPHICS	1	0.0
677	CLINICS IN PLASTIC SURGERY	1	0.0
678	CLINICAL SCIENCE	1	0.0
679	CLINICAL LINGUISTICS & PHONETICS	1	0.0
680	CLINICAL DYSMORPHOLOGY	1	0.0
681	CLINICAL & DEVELOPMENTAL IMMUNOLOGY	1	0.0
682	CLINICA CHIMICA ACTA	1	0.0
683	CHEMOTHERAPY	1	0.0
684	CERAMICS-SILIKATY	1	0.0
685	CENTRAL EUROPEAN JOURNAL OF IMMUNOLOGY	1	0.0
686	CELLULAR PHYSIOLOGY AND BIOCHEMISTRY	1	0.0
687	CELLULAR & MOLECULAR BIOLOGY LETTERS	1	0.0
688	CELL PROLIFERATION	1	0.0
689	CELL CYCLE	1	0.0
690	CELL BIOCHEMISTRY AND FUNCTION	1	0.0
691	CELL BIOCHEMISTRY AND BIOPHYSICS	1	0.0
692	CELL ADHESION & MIGRATION	1	0.0
693	CANCER INVESTIGATION	1	0.0
694	CANCER CELL INTERNATIONAL	1	0.0
695	CANCER BIOLOGY & THERAPY	1	0.0
696	CANCER	1	0.0
697	BULLETIN OF THE WORLD HEALTH ORGANIZATION	1	0.0
698	BULLETIN OF THE POLISH ACADEMY OF SCIENCES-TECHNICAL SCIENCES	1	0.0
699	BRITISH JOURNAL OF PLASTIC SURGERY	1	0.0
700	BRITISH JOURNAL OF OPHTHALMOLOGY	1	0.0
701	BRITISH JOURNAL OF NUTRITION	1	0.0
702	BRITISH JOURNAL OF HEALTH PSYCHOLOGY	1	0.0

703	BRAIN RESEARCH	1	0.0
704	BOSNIAN JOURNAL OF BASIC MEDICAL SCIENCES	1	0.0
705	BMC RESEARCH NOTES	1	0.0
706	BMC PUBLIC HEALTH	1	0.0
707	BMC IMMUNOLOGY	1	0.0
708	BMC GENOMICS	1	0.0
709	BMC DEVELOPMENTAL BIOLOGY	1	0.0
710	BMC CANCER	1	0.0
711	BMC BIOLOGY	1	0.0
712	BMC BIOINFORMATICS	1	0.0
713	BIOTECHNIQUES	1	0.0
714	BIORESEARCH OPEN ACCESS	1	0.0
715	BIOORGANIC & MEDICINAL CHEMISTRY	1	0.0
716	BIOMETALS	1	0.0
717	BIOMEDICINE & PHARMACOTHERAPY	1	0.0
718	BIOMEDICAL RESEARCH-TOKYO	1	0.0
719	BIOMEDICAL MATERIALS	1	0.0
720	BIOMECHANICAL FOUNDATION OF CLINICAL ORTHODONTICS	1	0.0
721	BIOMACROMOLECULES	1	0.0
722	BIOLOGY OF THE CELL	1	0.0
723	BIOINSPIRATION & BIOMIMETICS	1	0.0
724	BIOINFORMATICS	1	0.0
725	BIOCONJUGATE CHEMISTRY	1	0.0
726	BIOCHIMICA ET BIOPHYSICA ACTA-MOLECULAR CELL RESEARCH	1	0.0
727	BIOCHIMICA ET BIOPHYSICA ACTA-MOLECULAR BASIS OF DISEASE	1	0.0
728	BIOCHIMICA ET BIOPHYSICA ACTA-GENERAL SUBJECTS	1	0.0
729	BIOCHEMICAL SOCIETY TRANSACTIONS	1	0.0
730	BIO-MEDICAL MATERIALS AND ENGINEERING	1	0.0
731	BEHAVIORAL SLEEP MEDICINE	1	0.0
732	BASIC & CLINICAL PHARMACOLOGY & TOXICOLOGY	1	0.0
733	BALKAN MEDICAL JOURNAL	1	0.0
734	ANNALS OF MAXILLOFACIAL SURGERY	1	0.0
735	AGING CLINICAL AND EXPERIMENTAL RESEARCH	1	0.0
736	ADVANCES IN DENTAL RESEARCH	1	0.0
737	ACTA MEDICA ACADEMICA	1	0.0
738	ACTA INFORMATICA MEDICA : AIM : JOURNAL OF THE SOCIETY FOR MEDICAL INFORMATICS OF BOSNIA & HERZEGOVINA : CASOPIS DRUSTVA ZA MEDICINSKU INFORMATIKU BIH	1	0.0
739	AVIATION SPACE AND ENVIRONMENTAL MEDICINE	1	0.0
740	AUTOIMMUNITY REVIEWS	1	0.0
741	AUTOIMMUNITY	1	0.0
742	ASIA PACIFIC JOURNAL OF CLINICAL NUTRITION	1	0.0
743	ARTHRITIS RESEARCH & THERAPY	1	0.0
744	ARTERIOSCLEROSIS THROMBOSIS AND VASCULAR BIOLOGY	1	0.0
745	ARCHIVES OF ORTHOPAEDIC AND TRAUMA SURGERY	1	0.0
746	ARCHIVES OF METALLURGY AND MATERIALS	1	0.0

747	ARCHIVES OF MEDICAL RESEARCH	1	0.0
748	ARCHIVES OF GYNECOLOGY AND OBSTETRICS	1	0.0
749	ARCHIVES OF DERMATOLOGICAL RESEARCH	1	0.0
750	ARCHIVES OF CIVIL AND MECHANICAL ENGINEERING	1	0.0
751	ANTI-CANCER DRUGS	1	0.0
752	ANNALS OF THE RHEUMATIC DISEASES	1	0.0
753	ANNALS OF OTOLOGY RHINOLOGY AND LARYNGOLOGY	1	0.0
754	ANNALS OF OPERATIONS RESEARCH	1	0.0
755	ANNALI DELL ISTITUTO SUPERIORE DI SANITA	1	0.0
756	ANNALES D ENDOCRINOLOGIE	1	0.0
757	ANIMAL CELLS AND SYSTEMS	1	0.0
758	ANALYTICAL AND BIOANALYTICAL CHEMISTRY	1	0.0
759	AMPHIBIA-REPTILIA	1	0.0
760	AMERICAN JOURNAL OF RHINOLOGY	1	0.0
761	AMERICAN JOURNAL OF NEURORADIOLOGY	1	0.0
762	AMERICAN JOURNAL OF INFECTION CONTROL	1	0.0
763	AMERICAN JOURNAL OF EPIDEMIOLOGY	1	0.0
764	AMERICAN JOURNAL OF DERMATOPATHOLOGY	1	0.0
765	AIF	1	0.0
766	AGING-US	1	0.0
767	AFRICAN JOURNAL OF BIOTECHNOLOGY	1	0.0
768	ACUPUNCTURE IN MEDICINE	1	0.0
769	ACTA RADIOLOGICA	1	0.0
770	ACTA PHYSIOLOGICA HUNGARICA	1	0.0
771	ACTA PARASITOLOGICA	1	0.0
772	ACTA NEUROLOGICA SCANDINAVICA	1	0.0
773	ACTA MICROBIOLOGICA ET IMMUNOLOGICA HUNGARICA	1	0.0
774	ACTA GASTRO-ENTEROLOGICA BELGICA	1	0.0
775	ACTA CLINICA CROATICA	1	0.0
776	ACS NANO	1	0.0

Table V. Journals published the top 25 departments' publications

Rank	Journal	N	(%)
1	EUROPEAN JOURNAL OF ORTHODONTICS	405	13.1
2	AMERICAN JOURNAL OF ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS	361	11.7
3	ANGLE ORTHODONTIST	292	9.5
4	CLEFT PALATE-CRANIOFACIAL JOURNAL	133	4.3
5	JOURNAL OF OROFACIAL ORTHOPEDICS-FORTSCHRITTE DER KIEFERORTHOPADIE	88	2.9
6	ORTHODONTICS & CRANIOFACIAL RESEARCH	79	2.6
7	BRITISH DENTAL JOURNAL	72	2.3
8	ACTA ODONTOLOGICA SCANDINAVICA	69	2.2
9	ARCHIVES OF ORAL BIOLOGY	57	1.9
10	EUROPEAN JOURNAL OF ORAL SCIENCES	57	1.9
11	INTERNATIONAL JOURNAL OF ORAL AND MAXILLOFACIAL SURGERY	44	1.4
12	JOURNAL OF DENTAL RESEARCH	42	1.4
13	JOURNAL OF ORAL AND MAXILLOFACIAL SURGERY	42	1.4
14	CLINICAL ORAL INVESTIGATIONS	41	1.3
15	INTERNATIONAL JOURNAL OF PAEDIATRIC DENTISTRY	40	1.3
16	SWEDISH DENTAL JOURNAL	37	1.2
17	JOURNAL OF ORAL REHABILITATION	32	1.0
18	PLOS ONE	30	1.0
19	JOURNAL OF CRANIO-MAXILLOFACIAL SURGERY	27	0.9
20	JOURNAL OF ORTHODONTICS	23	0.7
21	AUSTRALIAN ORTHODONTIC JOURNAL	22	0.7
22	JOURNAL OF DENTISTRY	22	0.7
23	NEDERLANDS TIJDSCHRIFT VOOR TANDHEELKUNDE	22	0.7
24	JOURNAL OF CLINICAL PERIODONTOLOGY	20	0.6
25	JOURNAL OF CRANIOFACIAL SURGERY	20	0.6
26	DENTAL MATERIALS	19	0.6
27	COMMUNITY DENTISTRY AND ORAL EPIDEMIOLOGY	17	0.6
28	INTERNATIONAL JOURNAL OF PROSTHODONTICS	16	0.5
29	JOURNAL OF PERIODONTAL RESEARCH	16	0.5
30	WORLD JOURNAL OF ORTHODONTICS	16	0.5
31	DENTAL UPDATE	15	0.5
32	COCHRANE DATABASE OF SYSTEMATIC REVIEWS	14	0.5
33	JOURNAL OF CLINICAL ORTHODONTICS : JCO	14	0.5
34	PROGRESS IN ORTHODONTICS	14	0.5
35	BRITISH JOURNAL OF ORAL & MAXILLOFACIAL SURGERY	13	0.4
36	INTERNATIONAL JOURNAL OF ORAL & MAXILLOFACIAL IMPLANTS	13	0.4
37	SCANDINAVIAN JOURNAL OF PLASTIC AND RECONSTRUCTIVE SURGERY AND HAND SURGERY	13	0.4
38	DENTAL TRAUMATOLOGY	12	0.4
39	JOURNAL OF ANATOMY	12	0.4
40	ORAL SURGERY ORAL MEDICINE ORAL PATHOLOGY ORAL RADIOLOGY AND ENDODONTICS	12	0.4
41	ANNALS OF ANATOMY-ANATOMISCHER ANZEIGER	10	0.3

42	DEVELOPMENTAL BIOLOGY	10	0.3
43	EUROPEAN JOURNAL OF PAEDIATRIC DENTISTRY	10	0.3
44	JOURNAL OF PERIODONTOLOGY	10	0.3
45	QUINTESSENCE INTERNATIONAL	10	0.3
46	AMERICAN JOURNAL OF MEDICAL GENETICS PART A	9	0.3
47	CELL AND TISSUE RESEARCH	9	0.3
48	JOURNAL OF CLINICAL EPIDEMIOLOGY	9	0.3
49	BIOMATERIALS	8	0.3
50	BONE	8	0.3
51	EUROPEAN JOURNAL OF DENTAL EDUCATION	8	0.3
52	JOURNAL OF BIOMECHANICS	8	0.3
53	JOURNAL OF OROFACIAL PAIN	8	0.3
54	PLASTIC AND RECONSTRUCTIVE SURGERY	8	0.3
55	SEMINARS IN ORTHODONTICS	8	0.3
56	DENTOMAXILLOFACIAL RADIOLOGY	7	0.2
57	DEVELOPMENTAL DYNAMICS	7	0.2
58	JOURNAL OF EVIDENCE-BASED DENTAL PRACTICE	7	0.2
59	JOURNAL OF ORAL PATHOLOGY & MEDICINE	7	0.2
60	MEDIATORS OF INFLAMMATION	7	0.2
61	ORAL SURGERY ORAL MEDICINE ORAL PATHOLOGY ORAL RADIOLOGY AND ENDODONTOLOGY	7	0.2
62	AMERICAN JOURNAL OF MEDICAL GENETICS	6	0.2
63	JOURNAL OF BONE AND MINERAL RESEARCH	6	0.2
64	JOURNAL OF RHEUMATOLOGY	6	0.2
65	WOUND REPAIR AND REGENERATION	6	0.2
66	Journal of orthodontics	6	0.2
67	AMERICAN JOURNAL OF PHYSICAL ANTHROPOLOGY	5	0.2
68	BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS	5	0.2
69	CALCIFIED TISSUE INTERNATIONAL	5	0.2
70	CARIES RESEARCH	5	0.2
71	CLINICAL ORAL IMPLANTS RESEARCH	5	0.2
72	EUROPEAN JOURNAL OF HUMAN GENETICS	5	0.2
73	FRONTIERS IN PHYSIOLOGY	5	0.2
74	HUMAN MOLECULAR GENETICS	5	0.2
75	INTERNATIONAL ENDODONTIC JOURNAL	5	0.2
76	INTERNATIONAL JOURNAL OF PERIODONTICS & RESTORATIVE DENTISTRY	5	0.2
77	JOURNAL OF EXPERIMENTAL ZOOLOGY PART B-MOLECULAR AND DEVELOPMENTAL EVOLUTION	5	0.2
78	JOURNAL OF FORENSIC SCIENCES	5	0.2
79	ORAL DISEASES	5	0.2
80	ORAL SURGERY ORAL MEDICINE ORAL PATHOLOGY ORAL RADIOLOGY	5	0.2
81	THE INTERNATIONAL JOURNAL OF ADULT ORTHODONTICS AND ORTHOGNATHIC SURGERY	5	0.2
82	BMC ORAL HEALTH	4	0.1
83	COMMUNITY DENTAL HEALTH	4	0.1
84	DEVELOPMENT	4	0.1
85	HISTOCHEMISTRY AND CELL BIOLOGY	4	0.1

86	INTERNATIONAL DENTAL JOURNAL	4	0.1
87	INTERNATIONAL JOURNAL OF BIOCHEMISTRY & CELL BIOLOGY	4	0.1
88	JOURNAL OF BIOLOGICAL CHEMISTRY	4	0.1
89	JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART A	4	0.1
90	JOURNAL OF CELLULAR PHYSIOLOGY	4	0.1
91	JOURNAL OF FORENSIC AND LEGAL MEDICINE	4	0.1
92	JOURNAL OF PLASTIC SURGERY AND HAND SURGERY	4	0.1
93	JOURNAL OF THE AMERICAN DENTAL ASSOCIATION	4	0.1
94	JOURNAL OF THE ROYAL COLLEGE OF SURGEONS OF EDINBURGH	4	0.1
95	KOREAN JOURNAL OF ORTHODONTICS	4	0.1
96	PEDIATRIC DENTISTRY	4	0.1
97	PEDIATRIC RHEUMATOLOGY	4	0.1
98	SCIENTIFIC REPORTS	4	0.1
99	BIOMED RESEARCH INTERNATIONAL	3	0.1
100	CELL CALCIUM	3	0.1
101	CHEST	3	0.1
102	CLINICAL NEUROPHYSIOLOGY	3	0.1
103	EUROPEAN JOURNAL OF CELL BIOLOGY	3	0.1
104	EXPERIMENTAL CELL RESEARCH	3	0.1
105	FORENSIC SCIENCE INTERNATIONAL	3	0.1
106	GENE EXPRESSION PATTERNS	3	0.1
107	GERODONTOLOGY	3	0.1
108	IEEE TRANSACTIONS ON MEDICAL IMAGING	3	0.1
109	INTERNATIONAL JOURNAL OF DENTAL HYGIENE	3	0.1
110	INTERNATIONAL JOURNAL OF DEVELOPMENTAL BIOLOGY	3	0.1
111	JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART B-APPLIED BIOMATERIALS	3	0.1
112	JOURNAL OF DENTISTRY FOR CHILDREN	3	0.1
113	JOURNAL OF ENDODONTICS	3	0.1
114	JOURNAL OF PLASTIC RECONSTRUCTIVE AND AESTHETIC SURGERY	3	0.1
115	JOURNAL OF PROSTHETIC DENTISTRY	3	0.1
116	JOURNAL OF SLEEP RESEARCH	3	0.1
117	LASERS IN MEDICAL SCIENCE	3	0.1
118	NUTRITION	3	0.1
119	OPERATIVE DENTISTRY	3	0.1
120	PEDIATRIC NEUROLOGY	3	0.1
121	SLEEP AND BREATHING	3	0.1
122	STEM CELLS IN CRANIOFACIAL DEVELOPMENT AND REGENERATION	3	0.1
123	TISSUE ENGINEERING PART A	3	0.1
124	TOXICOLOGY AND APPLIED PHARMACOLOGY	3	0.1
125	COMPUTER METHODS IN BIOMECHANICS AND BIOMEDICAL ENGINEERING	3	0.1
126	EUROPEAN ARCHIVES OF PAEDIATRIC DENTISTRY	3	0.1
127	EUROPEAN JOURNAL OF DENTAL EDUCATION	3	0.1
128	ACTA BIOMATERIALIA	2	0.1
129	ACTA OTO-LARYNGOLOGICA	2	0.1
130	ANTIMICROBIAL AGENTS AND CHEMOTHERAPY	2	0.1

131	APMIS	2	0.1
132	AUSTRALIAN ENDODONTIC JOURNAL	2	0.1
133	BIOLOGY OPEN	2	0.1
134	BIOMEDICAL ENGINEERING-BIOMEDIZINISCHE TECHNIK	2	0.1
135	BIRTH DEFECTS RESEARCH PART A-CLINICAL AND MOLECULAR TERATOLOGY	2	0.1
136	BLOOD	2	0.1
137	BMC CELL BIOLOGY	2	0.1
138	BONE MARROW TRANSPLANTATION	2	0.1
139	BRITISH JOURNAL OF SPORTS MEDICINE	2	0.1
140	CELLULAR IMMUNOLOGY	2	0.1
141	CLINICAL AND EXPERIMENTAL RHEUMATOLOGY	2	0.1
142	CLINICAL BIOMECHANICS	2	0.1
143	CLINICAL IMPLANT DENTISTRY AND RELATED RESEARCH	2	0.1
144	CONNECTIVE TISSUE RESEARCH	2	0.1
145	CONTACT DERMATITIS	2	0.1
146	CONTEMPORARY CLINICAL TRIALS	2	0.1
147	DENTAL MATERIALS JOURNAL	2	0.1
148	DIFFERENTIATION	2	0.1
149	HEAD & FACE MEDICINE	2	0.1
150	INNATE IMMUNITY	2	0.1
151	INTERNATIONAL JOURNAL OF CANCER	2	0.1
152	INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES	2	0.1
153	INTERNATIONAL JOURNAL OF PEDIATRIC OTORHINOLARYNGOLOGY	2	0.1
154	JOURNAL OF CELL SCIENCE	2	0.1
155	JOURNAL OF CLINICAL INVESTIGATION	2	0.1
156	JOURNAL OF CLINICAL PEDIATRIC DENTISTRY	2	0.1
157	JOURNAL OF ESTHETIC AND RESTORATIVE DENTISTRY	2	0.1
158	JOURNAL OF INVESTIGATIVE DERMATOLOGY	2	0.1
159	JOURNAL OF MATERIALS SCIENCE	2	0.1
160	JOURNAL OF MATERIALS SCIENCE-MATERIALS IN MEDICINE	2	0.1
161	JOURNAL OF NEUROSURGERY	2	0.1
162	JOURNAL OF ORTHOPAEDIC RESEARCH	2	0.1
163	JOURNAL OF PHYSIOLOGY AND PHARMACOLOGY	2	0.1
164	JOURNAL OF PROSTHODONTICS-IMPLANT ESTHETIC AND RECONSTRUCTIVE DENTISTRY	2	0.1
165	JOVE-JOURNAL OF VISUALIZED EXPERIMENTS	2	0.1
166	LABORATORY ANIMALS	2	0.1
167	LASERS IN SURGERY AND MEDICINE	2	0.1
168	NEPHROLOGY DIALYSIS TRANSPLANTATION	2	0.1
169	ODONTOLOGY	2	0.1
170	PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART H-JOURNAL OF ENGINEERING IN MEDICINE	2	0.1
171	RHEUMATOLOGY	2	0.1
172	RHINOLOGY	2	0.1
173	SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE IN SPORTS	2	0.1
174	SCANDINAVIAN JOURNAL OF RHEUMATOLOGY	2	0.1

175	SEMINARS IN CELL & DEVELOPMENTAL BIOLOGY	2	0.1
176	SPINE	2	0.1
177	SURGEON-JOURNAL OF THE ROYAL COLLEGES OF SURGEONS OF EDINBURGH AND IRELAND	2	0.1
178	TISSUE ENGINEERING	2	0.1
179	TWIN RESEARCH AND HUMAN GENETICS	2	0.1
180	EUROPEAN JOURNAL OF DENTISTRY	2	0.1
181	INDIAN JOURNAL OF DENTAL RESEARCH	2	0.1
182	JOURNAL OF ORAL SCIENCE	2	0.1
183	L' ORTHODONTIE FRANCAISE	2	0.1
184	ARCHIVES OF DISEASE IN CHILDHOOD	2	0.1
185	IN VITRO CELLULAR & DEVELOPMENTAL BIOLOGY-ANIMAL	2	0.1
186	MATRIX BIOLOGY	2	0.1
187	VIROLOGY	2	0.1
188	WOUND REPAIR AND REGENERATION	2	0.1
189	ACS NANO	1	0.0
190	ACTA NEUROLOGICA SCANDINAVICA	1	0.0
191	ACTA OPHTHALMOLOGICA	1	0.0
192	ADVANCES IN MEDICAL SCIENCES	1	0.0
193	AESTHETIC PLASTIC SURGERY	1	0.0
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195	AMERICAN JOURNAL OF EPIDEMIOLOGY	1	0.0
196	AMERICAN JOURNAL OF HUMAN BIOLOGY	1	0.0
197	AMERICAN JOURNAL OF PATHOLOGY	1	0.0
198	AMPHIBIA-REPTILIA	1	0.0
199	ANATOMICAL RECORD-ADVANCES IN INTEGRATIVE ANATOMY AND EVOLUTIONARY BIOLOGY	1	0.0
200	ANIMAL CELLS AND SYSTEMS	1	0.0
201	ANNALS OF BIOMEDICAL ENGINEERING	1	0.0
202	ANNALS OF OTOLOGY RHINOLOGY AND LARYNGOLOGY	1	0.0
203	ARCHIVES OF DERMATOLOGICAL RESEARCH	1	0.0
204	ARCHIVES OF OTOLARYNGOLOGY-HEAD & NECK SURGERY	1	0.0
205	ARTERIOSCLEROSIS THROMBOSIS AND VASCULAR BIOLOGY	1	0.0
206	ARTHRITIS RESEARCH & THERAPY	1	0.0
207	ASIA PACIFIC JOURNAL OF CLINICAL NUTRITION	1	0.0
208	B-ENT	1	0.0
209	BIOCHEMICAL SOCIETY TRANSACTIONS	1	0.0
210	BIOCHIMICA ET BIOPHYSICA ACTA-GENERAL SUBJECTS	1	0.0
211	BIOCONJUGATE CHEMISTRY	1	0.0
212	BIOGERONTOLOGY	1	0.0
213	BIOLOGY OF THE CELL	1	0.0
214	BIOMACROMOLECULES	1	0.0
215	BIOMEDICAL MATERIALS	1	0.0
216	BIOTECHNIQUES	1	0.0
217	BMC BIOLOGY	1	0.0
218	BMC DEVELOPMENTAL BIOLOGY	1	0.0

219	BMC MUSCULOSKELETAL DISORDERS	1	0.0
220	BMC research notes	1	0.0
221	BRAIN RESEARCH	1	0.0
222	BRITISH JOURNAL OF HEALTH PSYCHOLOGY	1	0.0
223	BRITISH JOURNAL OF NUTRITION	1	0.0
224	BRITISH JOURNAL OF PLASTIC SURGERY	1	0.0
225	BULLETIN OF THE WORLD HEALTH ORGANIZATION	1	0.0
226	CANCER	1	0.0
227	CANCER CELL INTERNATIONAL	1	0.0
228	CANCER INVESTIGATION	1	0.0
229	CELL BIOCHEMISTRY AND BIOPHYSICS	1	0.0
230	CELL PROLIFERATION	1	0.0
231	CELLULAR PHYSIOLOGY AND BIOCHEMISTRY	1	0.0
232	CHILDS NERVOUS SYSTEM	1	0.0
233	CLINICAL & DEVELOPMENTAL IMMUNOLOGY	1	0.0
234	CLINICAL DYSMORPHOLOGY	1	0.0
235	CLINICAL GENETICS	1	0.0
236	CLINICAL SCIENCE	1	0.0
237	CLINICS IN PLASTIC SURGERY	1	0.0
238	CRANIO-THE JOURNAL OF CRANIOMANDIBULAR PRACTICE	1	0.0
239	CURRENT DRUG TARGETS	1	0.0
240	CURRENT MOLECULAR MEDICINE	1	0.0
241	CURRENT PHARMACEUTICAL DESIGN	1	0.0
242	CURRENT PSYCHOLOGY	1	0.0
243	CURRENT TOPICS IN DEVELOPMENTAL BIOLOGY, VOL 65	1	0.0
244	CYTOKINE	1	0.0
245	CYTOTHERAPY	1	0.0
246	DEVELOPMENTAL MEDICINE AND CHILD NEUROLOGY	1	0.0
247	DEVELOPMENTS IN X-RAY TOMOGRAPHY VI	1	0.0
248	DISABILITY AND REHABILITATION	1	0.0
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250	ENVIRONMENTAL HEALTH PERSPECTIVES	1	0.0
251	EPIDEMIOLOGY	1	0.0
252	EUROPEAN JOURNAL OF ORAL IMPLANTOLOGY	1	0.0
253	EUROPEAN JOURNAL OF PEDIATRICS	1	0.0
254	EUROPEAN JOURNAL OF PHARMACOLOGY	1	0.0
255	EVIDENCE-BASED CLINICAL ORTHODONTICS	1	0.0
256	EVIDENCE-BASED ORTHODONTICS	1	0.0
257	EXPERIMENTAL AND MOLECULAR MEDICINE	1	0.0
258	EXPERIMENTAL BRAIN RESEARCH	1	0.0
259	EXPERIMENTAL GERONTOLOGY	1	0.0
260	FEBS JOURNAL	1	0.0
261	FEBS LETTERS	1	0.0
262	FEMINISM & PSYCHOLOGY	1	0.0
263	FEMS MICROBIOLOGY LETTERS	1	0.0
264	FETAL DIAGNOSIS AND THERAPY	1	0.0

265	FOLIA HISTOCHEMICA ET CYTOBIOLOGICA	1	0.0
266	FOLIA PHONIATRICA ET LOGOPAEDICA	1	0.0
267	FREE RADICAL BIOLOGY AND MEDICINE	1	0.0
268	FRONTIERS IN PHARMACOLOGY	1	0.0
269	GENESIS	1	0.0
270	GLOBAL HEALTH PROMOTION	1	0.0
271	GRAEFES ARCHIVE FOR CLINICAL AND EXPERIMENTAL OPHTHALMOLOGY	1	0.0
272	HISTOLOGY AND HISTOPATHOLOGY	1	0.0
273	HISTOPATHOLOGY	1	0.0
274	HORMONE RESEARCH IN PAEDIATRICS	1	0.0
275	INFECTION GENETICS AND EVOLUTION	1	0.0
276	INTERNATIONAL JOURNAL OF CLINICAL AND EXPERIMENTAL PATHOLOGY	1	0.0
277	INTERNATIONAL JOURNAL OF ENDOCRINOLOGY	1	0.0
278	INTERNATIONAL JOURNAL OF FOOD SCIENCES AND NUTRITION	1	0.0
279	INTERNATIONAL JOURNAL OF INFECTIOUS DISEASES	1	0.0
280	INTERNATIONAL JOURNAL OF NANOMEDICINE	1	0.0
281	INTERNATIONAL JOURNAL OF ORAL SCIENCE	1	0.0
282	JAMA FACIAL PLASTIC SURGERY	1	0.0
283	JOURNAL OF ADHESIVE DENTISTRY	1	0.0
284	JOURNAL OF ANTHROPOLOGICAL SCIENCES	1	0.0
285	JOURNAL OF APPLIED ICHTHYOLOGY	1	0.0
286	JOURNAL OF APPLIED ORAL SCIENCE	1	0.0
287	JOURNAL OF APPLIED PHYSIOLOGY	1	0.0
288	JOURNAL OF BIOLOGICAL REGULATORS AND HOMEOSTATIC AGENTS	1	0.0
289	JOURNAL OF BIOMATERIALS SCIENCE-POLYMER EDITION	1	0.0
290	JOURNAL OF BONE AND MINERAL METABOLISM	1	0.0
291	JOURNAL OF CELLULAR AND MOLECULAR MEDICINE	1	0.0
292	JOURNAL OF COMMUNICATION DISORDERS	1	0.0
293	JOURNAL OF CRANIOFACIAL GENETICS AND DEVELOPMENTAL BIOLOGY	1	0.0
294	JOURNAL OF DENTAL SCIENCES	1	0.0
295	JOURNAL OF DIABETES RESEARCH	1	0.0
296	JOURNAL OF DIGITAL IMAGING	1	0.0
297	JOURNAL OF ELECTROMYOGRAPHY AND KINESIOLOGY	1	0.0
298	JOURNAL OF ENDOCRINOLOGY	1	0.0
299	JOURNAL OF EPIDEMIOLOGY AND COMMUNITY HEALTH	1	0.0
300	JOURNAL OF EXPERIMENTAL BIOLOGY	1	0.0
301	JOURNAL OF GLAUCOMA	1	0.0
302	JOURNAL OF HISTOCHEMISTRY & CYTOCHEMISTRY	1	0.0
303	JOURNAL OF HUMAN NUTRITION AND DIETETICS	1	0.0
304	JOURNAL OF LARYNGOLOGY AND OTOLOGY	1	0.0
305	JOURNAL OF MOLECULAR HISTOLOGY	1	0.0
306	JOURNAL OF MUSCLE RESEARCH AND CELL MOTILITY	1	0.0
307	JOURNAL OF NEUROPHYSIOLOGY	1	0.0
308	JOURNAL OF NEUROSCIENCE METHODS	1	0.0
309	JOURNAL OF NEUROSURGERY-PEDIATRICS	1	0.0
310	JOURNAL OF NUTRITION	1	0.0

311	JOURNAL OF ORAL & FACIAL PAIN AND HEADACHE	1	0.0
312	JOURNAL OF PAIN	1	0.0
313	JOURNAL OF PUBLIC HEALTH DENTISTRY	1	0.0
314	JOURNAL OF STRUCTURAL BIOLOGY	1	0.0
315	JOURNAL OF THE AMERICAN ASSOCIATION FOR LABORATORY ANIMAL SCIENCE	1	0.0
316	JOURNAL OF TISSUE ENGINEERING AND REGENERATIVE MEDICINE	1	0.0
317	JOURNAL OF TRACE ELEMENTS IN MEDICINE AND BIOLOGY	1	0.0
318	LARYNGO-RHINO-OTOLOGIE	1	0.0
319	MATERIALS SCIENCE & ENGINEERING C-MATERIALS FOR BIOLOGICAL APPLICATIONS	1	0.0
320	MECHANISMS OF DEVELOPMENT	1	0.0
321	MEDICAL ENGINEERING & PHYSICS	1	0.0
322	MEDICINE AND SCIENCE IN SPORTS AND EXERCISE	1	0.0
323	MICROSCOPY RESEARCH AND TECHNIQUE	1	0.0
324	NATURE GENETICS	1	0.0
325	NATURE PROTOCOLS	1	0.0
326	NEUROPEDIATRICS	1	0.0
327	NONINVASIVE ASSESSMENT OF TRABECULAR BONE ARCHITECTURE AND THE COMPETENCE OF BONE	1	0.0
328	NUTRITION REVIEWS	1	0.0
329	OMICS-A JOURNAL OF INTEGRATIVE BIOLOGY	1	0.0
330	ORTHODONTICS: PRINCIPLES AND PRACTICE	1	0.0
331	OTOLOGY & NEUROTOLOGY	1	0.0
332	PEDIATRIC AND DEVELOPMENTAL PATHOLOGY	1	0.0
333	PEDIATRIC RESEARCH	1	0.0
334	PERSPECTIVES IN PUBLIC HEALTH	1	0.0
335	PHARMACY WORLD & SCIENCE	1	0.0
336	PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA	1	0.0
337	PRZEGLAD GASTROENTEROLOGICZNY	1	0.0
338	PSYCHOLOGY & HEALTH	1	0.0
339	PSYCHOPHYSIOLOGY	1	0.0
340	PUBLIC HEALTH	1	0.0
341	QUALITY OF LIFE RESEARCH	1	0.0
342	RADIATION RESEARCH	1	0.0
343	REGENERATIVE MEDICINE	1	0.0
344	RESPIRATION	1	0.0
345	SAAD DIGEST	1	0.0
346	SCANDINAVIAN JOURNAL OF INFECTIOUS DISEASES	1	0.0
347	SCANDINAVIAN JOURNAL OF SURGERY	1	0.0
348	SEMINARS IN ARTHRITIS AND RHEUMATISM	1	0.0
349	SOFT MATTER	1	0.0
350	STEM CELLS	1	0.0
351	STEM CELLS AND DEVELOPMENT	1	0.0
352	SURGICAL AND RADIOLOGIC ANATOMY	1	0.0
353	TISSUE ENGINEERING PART B-REVIEWS	1	0.0
354	TOXICOLOGICAL SCIENCES	1	0.0

355	TOXICOLOGY LETTERS	1	0.0
356	TOXICOLOGY MECHANISMS AND METHODS	1	0.0
357	TRIALS	1	0.0
358	TUMOR BIOLOGY	1	0.0
359	ULTRASOUND IN OBSTETRICS & GYNECOLOGY	1	0.0
360	VETERINARY AND COMPARATIVE ORTHOPAEDICS AND TRAUMATOLOGY	1	0.0
361	WEAR	1	0.0
362	WEST INDIAN MEDICAL JOURNAL	1	0.0
363	ADVANCES IN DENTAL RESEARCH	1	0.0
364	BULLETIN DU GROUPEMENT INTERNATIONAL POUR LA RECHERCHE SCIENTIFIQUE EN STOMATOLOGIE & ODONTOLOGIE	1	0.0
365	DEVELOPMENTS IN X-RAY TOMOGRAPHY V	1	0.0
366	EUROPEAN JOURNAL OF MORPHOLOGY	1	0.0
367	FIBROGENESIS & TISSUE REPAIR	1	0.0
368	HEALTH PROMOTION PRACTICE	1	0.0
369	INTERNATIONAL JOURNAL OF COMPUTERIZED DENTISTRY	1	0.0
370	INTERNATIONAL JOURNAL OF GENERAL MEDICINE	1	0.0
371	INTERNATIONAL ORTHODONTICS / COLLEGE EUROPEEN D'ORTHODONTIE	1	0.0
372	JOURNAL OF DENTAL EDUCATION	1	0.0
373	JOURNAL OF EPIDEMIOLOGY AND BIOSTATISTICS	1	0.0
374	JOURNAL OF THE INTERNATIONAL ACADEMY OF PERIODONTOLOGY	1	0.0
375	ORTHODONTICS : THE ART AND PRACTICE OF DENTOFACIAL ENHANCEMENT	1	0.0
376	PRACTICAL PERIODONTICS AND AESTHETIC DENTISTRY : PPAD	1	0.0
377	THE COCHRANE DATABASE OF SYSTEMATIC REVIEWS	1	0.0
378	THE JOURNAL OF FORENSIC ODONTO-STOMATOLOGY	1	0.0
379	THE OPEN DENTISTRY JOURNAL	1	0.0
380	ADVANCED FUNCTIONAL MATERIALS	1	0.0
381	AMERICAN JOURNAL OF RESPIRATORY AND CRITICAL CARE MEDICINE	1	0.0
382	ANNALS OF OPERATIONS RESEARCH	1	0.0
383	AUSTRALIAN DENTAL JOURNAL	1	0.0
384	BIOCHIMICA ET BIOPHYSICA ACTA-MOLECULAR BASIS OF DISEASE	1	0.0
385	BIOCHIMICA ET BIOPHYSICA ACTA-MOLECULAR CELL RESEARCH	1	0.0
386	BIOINFORMATICS	1	0.0
387	BIOINSPIRATION & BIOMIMETICS	1	0.0
388	BMC BIOINFORMATICS	1	0.0
389	CELL ADHESION & MIGRATION	1	0.0
390	CERAMICS-SILIKATY	1	0.0
391	CONTEMPORARY TOPICS IN LABORATORY ANIMAL SCIENCE	1	0.0
392	Dental historian : Lindsay Club newsletter	1	0.0
393	DEVELOPMENT GROWTH & DIFFERENTIATION	1	0.0
394	ENDOCRINOLOGY	1	0.0
395	EUROPEAN JOURNAL OF CANCER	1	0.0
396	EUROPEAN RESPIRATORY JOURNAL	1	0.0
397	FASEB JOURNAL	1	0.0
398	HUMAN GENETICS	1	0.0
399	INTERNATIONAL JOURNAL OF BIOLOGICAL SCIENCES	1	0.0

400	INTERNATIONAL JOURNAL OF EPIDEMIOLOGY	1	0.0
401	INTERVIROLOGY	1	0.0
402	JOURNAL OF CELLULAR BIOCHEMISTRY	1	0.0
403	JOURNAL OF CLINICAL SLEEP MEDICINE	1	0.0
404	JOURNAL OF EXPERIMENTAL MEDICINE	1	0.0
405	JOURNAL OF EXPOSURE SCIENCE AND ENVIRONMENTAL EPIDEMIOLOGY	1	0.0
406	JOURNAL OF NEURO-ONCOLOGY	1	0.0
407	MECHANISMS OF AGEING AND DEVELOPMENT	1	0.0
408	MOLECULAR AND CELLULAR ENDOCRINOLOGY	1	0.0
409	NANO LETTERS	1	0.0
410	NITRIC OXIDE-BIOLOGY AND CHEMISTRY	1	0.0
411	ONCOGENE	1	0.0
412	ORPHANET JOURNAL OF RARE DISEASES	1	0.0
413	OSTEOPOROSIS INTERNATIONAL	1	0.0
414	PROGRESS IN ORTHODONTICS	1	0.0
415	RESEARCH SYNTHESIS METHODS	1	0.0
416	SLEEP MEDICINE REVIEWS	1	0.0
417	Special care in dentistry	1	0.0
418	STRESS-THE INTERNATIONAL JOURNAL ON THE BIOLOGY OF STRESS	1	0.0
419	SWISS DENTAL JOURNAL	1	0.0

Table VI. List of the 80 h-classics in Orthodontics

Rank	Times cited	Title
1	274	Cardaropoli G, Araujo M, Lindhe J. Dynamics of bone tissue formation in tooth extraction sites - An experimental study in dogs. Journal of Clinical Periodontology. 2003;30(9):809-18.
2	221	Park H-S, Jeong S-H, Kwon O-W. Factors affecting the clinical success of screw implants used as orthodontic anchorage. American Journal of Orthodontics and Dentofacial Orthopedics. 2006;130(1):18-25.
3	200	Matinlinna JP, Lassila LVJ, Ozcan M, Yli-Urpo A, Vallittu PK. An introduction to silanes and their clinical applications in dentistry. International Journal of Prosthodontics. 2004;17(2):155-64.
4	200	Hermann JS, Schoolfield JD, Schenk RK, Buser D, Cochran DL. Influence of the size of the microgap on crestal bone changes around titanium implants. A histometric evaluation of unloaded non-submerged implants in the canine mandible. Journal of Periodontology. 2001;72(10):1372-83.
5	196	Liou EJW, Pai BCJ, Lin JCY. Do miniscrews remain stationary under orthodontic forces? American Journal of Orthodontics and Dentofacial Orthopedics. 2004;126(1):42-7.
6	188	Lavigne GJ, Kato T, Kolta A, Sessle BJ. Neurobiological mechanisms involved in sleep bruxism. Critical Reviews in Oral Biology & Medicine. 2003;14(1):30-46.
7	174	Yukna RA, Mellonig JT. Histologic evaluation of periodontal healing in humans following regenerative therapy with enamel matrix derivative. A 10-case series. Journal of Periodontology. 2000;71(5):752-9.
8	172	Lavigne GJ, Khoury S, Abe S, Yamaguchi T, Raphael K. Bruxism physiology and pathology: an overview for clinicians. Journal of Oral Rehabilitation. 2008;35(7):476-94.
9	171	Kuroda S, Sugawara Y, Deguchi T, Kyung H-M, Takano-Yamamoto T. Clinical use of miniscrew implants as orthodontic anchorage: Success rates and postoperative discomfort. American Journal of Orthodontics and Dentofacial Orthopedics. 2007;131(1):9-15.
10	170	Ausiello P, Apicella A, Davidson CL. Effect of adhesive layer properties on stress distribution in composite restorations - a 3D finite element analysis. Dental Materials. 2002;18(4):295-303.
11	167	Lobbezoo F, Naeije M. Bruxism is mainly regulated centrally, not peripherally. Journal of Oral Rehabilitation. 2001;28(12):1085-91.
12	163	Wise GE, King GJ. Mechanisms of tooth eruption and orthodontic tooth movement. Journal of Dental Research. 2008;87(5):414-34.
13	159	Bosshardt DD. Are cementoblasts a subpopulation of osteoblasts or a unique phenotype? Journal of Dental Research. 2005;84(5):390-406.
14	151	Bishara SE, VonWald L, Laffoon JF, Warren JJ. Effect of a self-etch primer/adhesive on the shear bond strength of orthodontic brackets. American Journal of Orthodontics and Dentofacial Orthopedics. 2001;119(6):621-4.
15	149	Ren YJ, Maltha JC, Kuijpers-Jagtman AM. Optimum force magnitude for orthodontic tooth movement: A systematic literature review. Angle Orthodontist. 2003;73(1):86-92.
16	144	Ohmae M, Saito S, Morohashi T, Seki K, Qu H, Kanomi R, et al. A clinical and histological evaluation of titanium mini-implants as anchors for orthodontic intrusion in the beagle dog. American Journal of Orthodontics and Dentofacial Orthopedics. 2001;119(5):489-97.
17	143	Cattaneo PM, Dalstra M, Melsen B. The finite element method: a tool to study orthodontic tooth movement. Journal of Dental Research. 2005;84(5):428-33.
18	139	Wilcko WM, Wilcko T, Bouquot JE, Ferguson DJ. Rapid orthodontics with alveolar reshaping: Two case reports of decrowding. International Journal of Periodontics & Restorative Dentistry. 2001;21(1):9-19.
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74	83	Asscherickx K, Vannet BV, Wehrbein H, Sabzevar MM. Root repair after injury from mini-screw. Clinical Oral Implants Research. 2005;16(5):575-8.
75	83	Brezniak N, Wasserstein A. Orthodontically induced inflammatory root resorption. Part II: The clinical aspects. Angle Orthodontist. 2002;72(2):180-4.
76	82	Cevidanes LHS, Bailey LTJ, Tucker SF, Styner MA, Mol A, Phillips CL, et al. Three-dimensional cone-beam computed tomography for assessment of mandibular changes after orthognathic surgery. American Journal of Orthodontics and Dentofacial Orthopedics. 2007;131(1):44-50.
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Table VII. Journals where the 80 h-classics appear

Journal	Records	(%)
AMERICAN JOURNAL OF ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS	23	28.8
ANGLE ORTHODONTIST	7	8.8
CLINICAL ORAL IMPLANTS RESEARCH	6	7.5
DENTAL MATERIALS	6	7.5
EUROPEAN JOURNAL OF ORTHODONTICS	6	7.5
JOURNAL OF DENTAL RESEARCH	6	7.5
JOURNAL OF ORAL REHABILITATION	6	7.5
CRITICAL REVIEWS IN ORAL BIOLOGY and MEDICINE	3	3.8
JOURNAL OF PERIODONTOLOGY	3	3.8
JOURNAL OF PROSTHETIC DENTISTRY	3	3.8
JOURNAL OF ORAL AND MAXILLOFACIAL SURGERY	2	2.5
EUROPEAN JOURNAL OF ORAL SCIENCES	1	1.3
INTERNATIONAL JOURNAL OF ORAL AND MAXILLOFACIAL SURGERY	1	1.3
INTERNATIONAL JOURNAL OF PERIODONTICS and RESTORATIVE DENTISTRY	1	1.3
INTERNATIONAL JOURNAL OF PROSTHODONTICS	1	1.3
JOURNAL OF CLINICAL PERIODONTOLOGY	1	1.3
JOURNAL OF OROFACIAL PAIN	1	1.3
JOURNAL OF PERIODONTAL RESEARCH	1	1.3
ORAL SURGERY ORAL MEDICINE ORAL PATHOLOGY ORAL RADIOLOGY AND ENDODONTOLOGY	1	1.3
PERIODONTOLOGY 2000	1	1.3

Table VIII. Participation of the European Orthodontic departments in the 80 h-classics

Department	Country	Affiliations
The Royal Dental College of Aarhus	Denmark	2
Hannover Medical School	Germany	2
Aristotle University of Thessaloniki	Greece	2
Radboud University Nijmegen Medical Centre	Netherlands	2
University of Bergen	Norway	2
Goteborg University	Sweden	2
Bernhard Gottlieb University of Vienna	Austria	1
Free University of Brussels	Belgium	1
University of Bonn	Germany	1
Johannes-Gutenberg University of Mainz	Germany	1
University of Oslo	Norway	1
Ege university of Izmir	Turkey	1
Queen Mary University of London	United Kingdom	1
University Dental Hospital of Manchester	United Kingdom	1

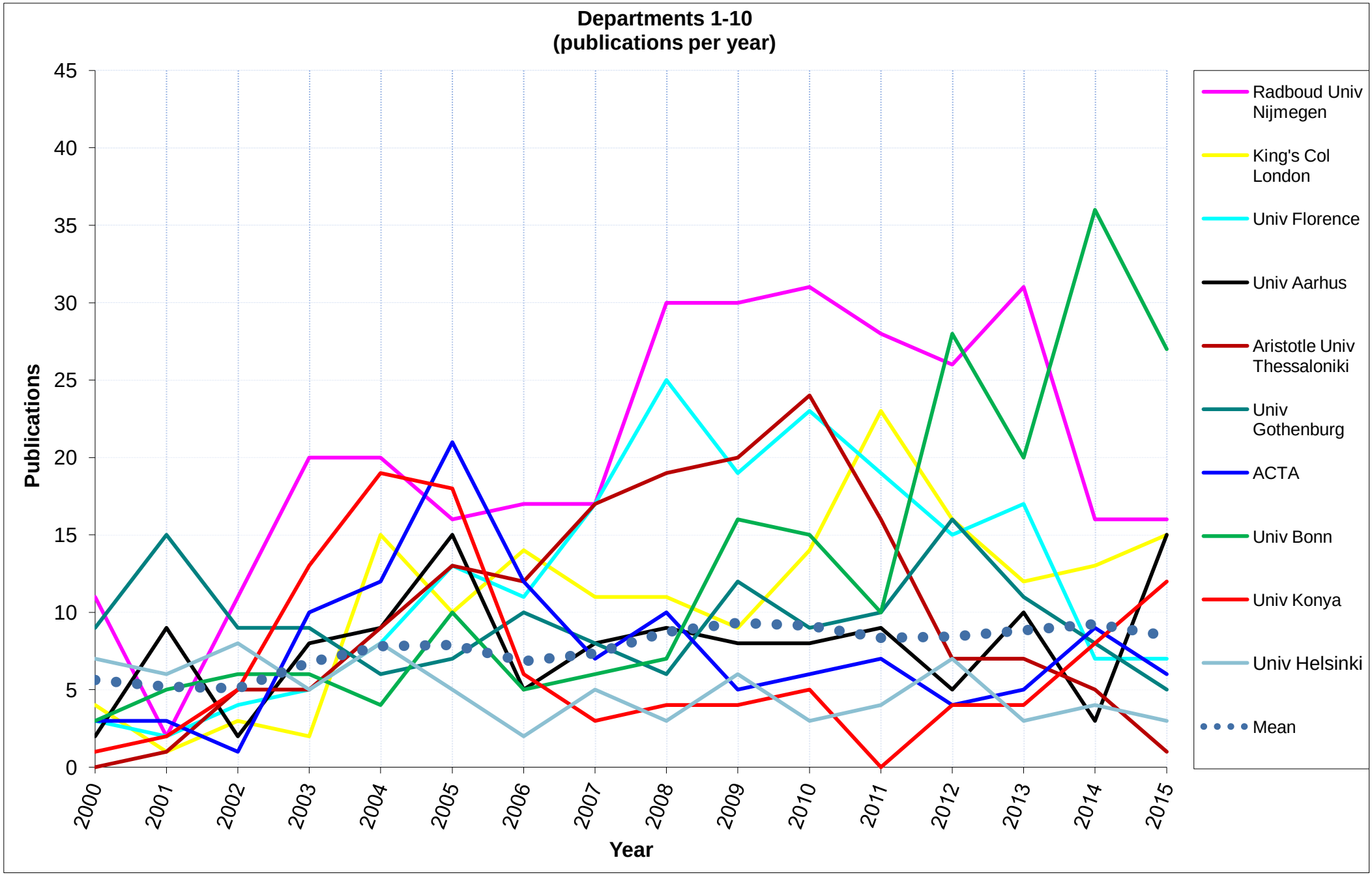

Fig 1. Publications per year for the top 10 departments. The bold line represents the mean of the top 10 departments.

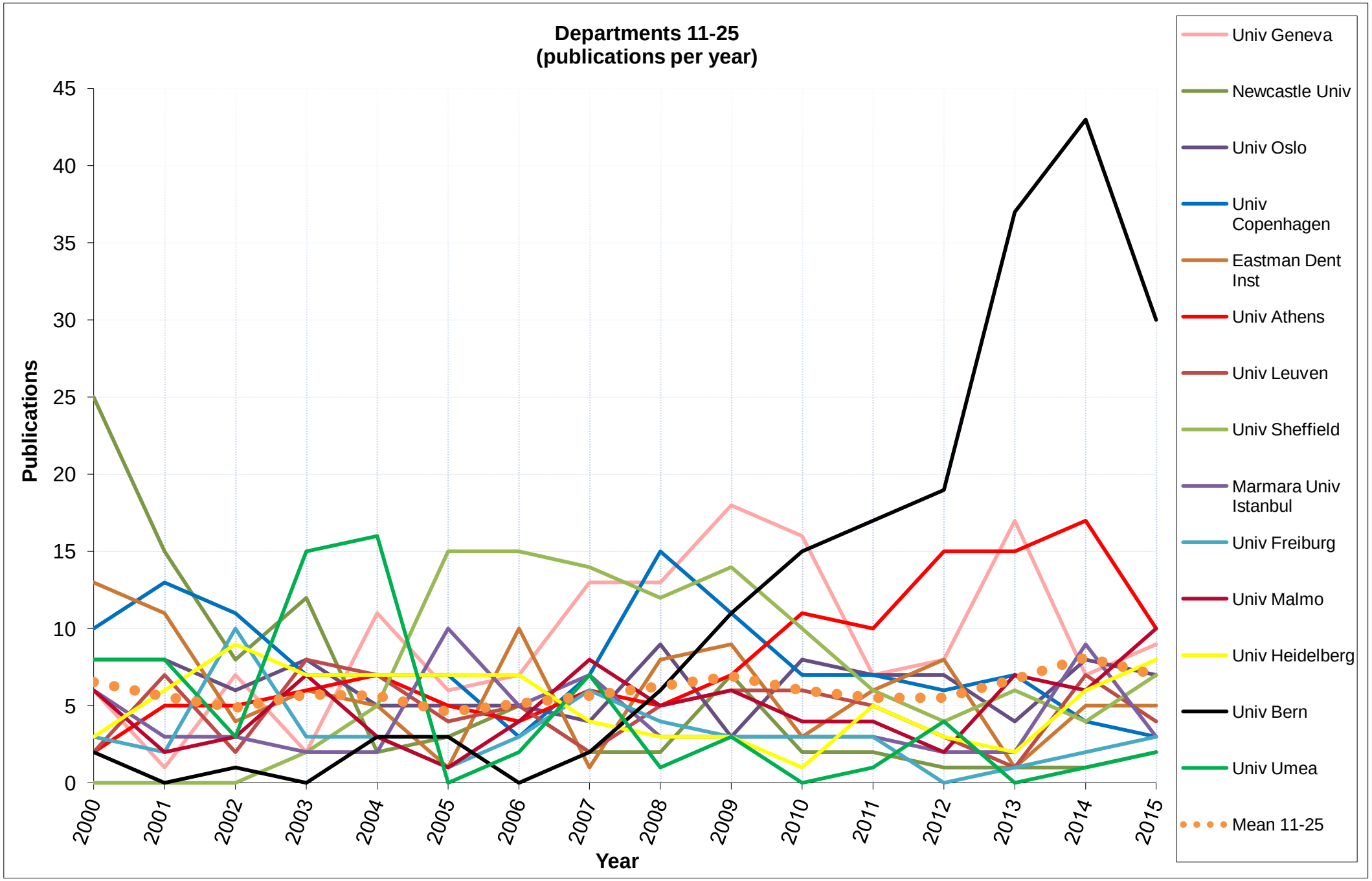

Fig 2. Publications per year for the 11-25 departments. The bold line represents the mean of these departments.

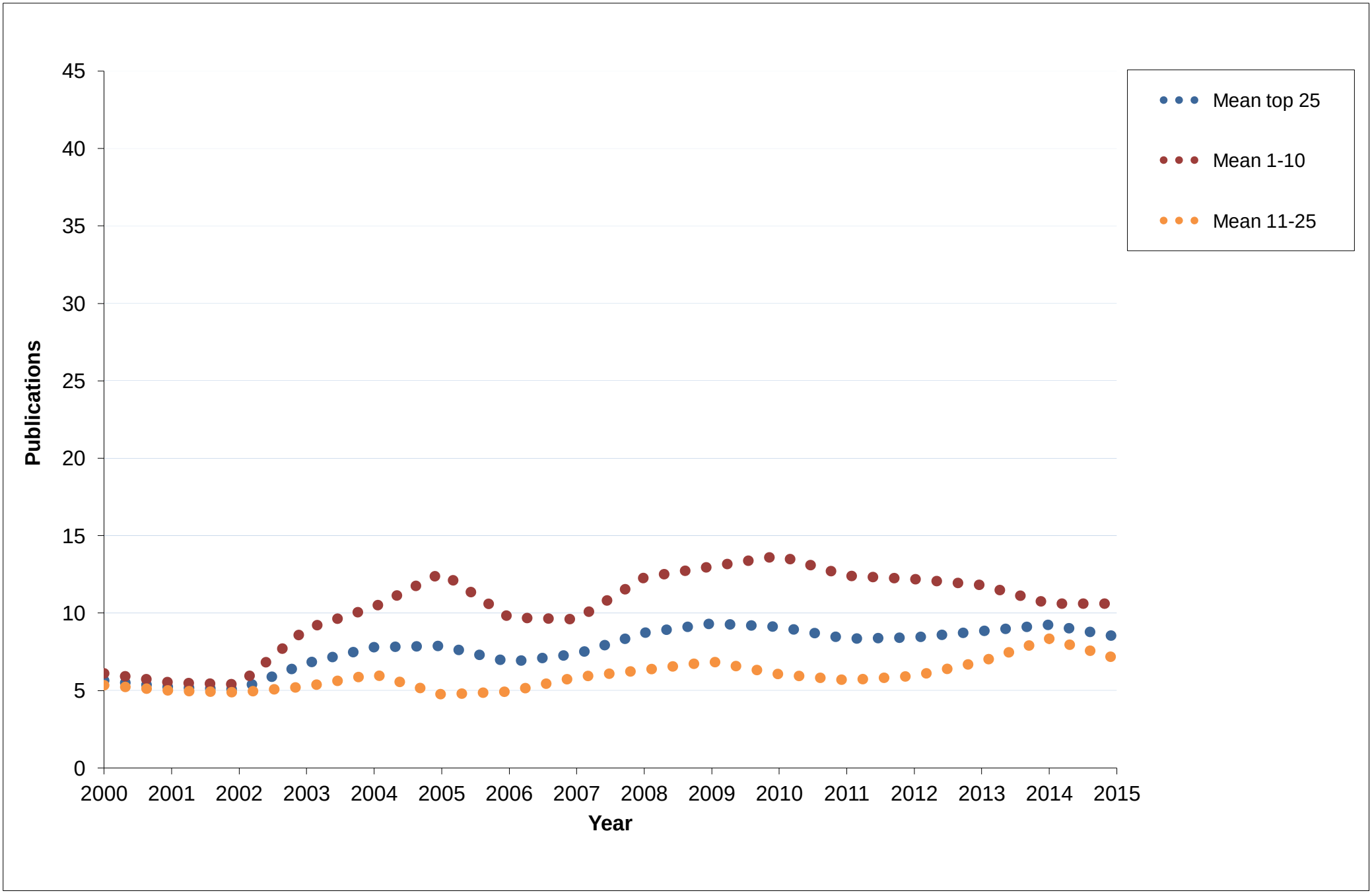

Fig 3. Average number of publications per year for the top 25, top 10 and 11-20 departments.

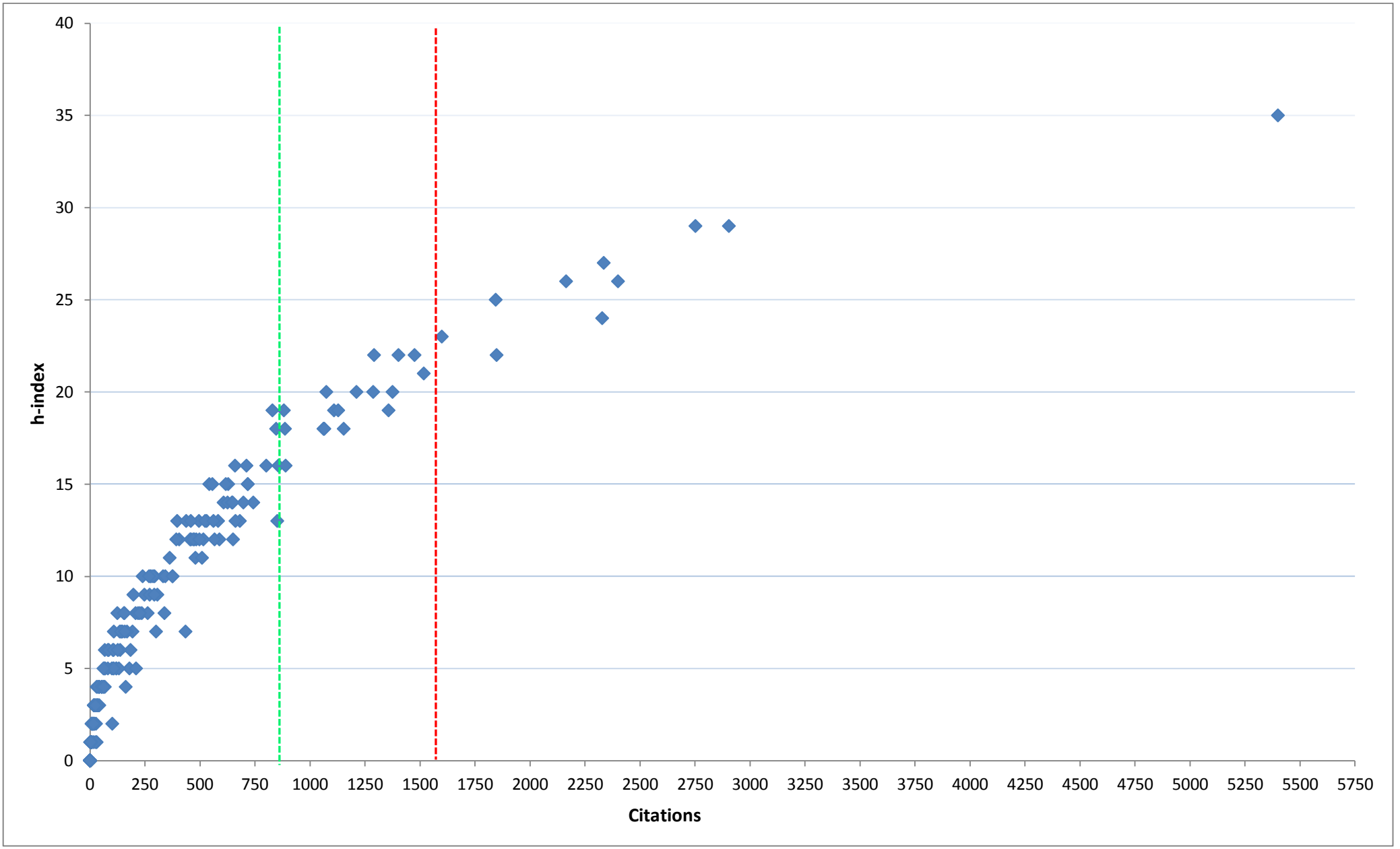

Fig 4. Scatter plot chart showing the distribution of the h-index in relation to the number of total citations. The outlier observed belongs to the 1st ranked Radboud University Nijmegen Medical Centre which publishes a lot of papers in biology and medicine journals that generally receive more citations than dental and orthodontic journals. The red dot line defines the top 10 and the green the top 25 departments.

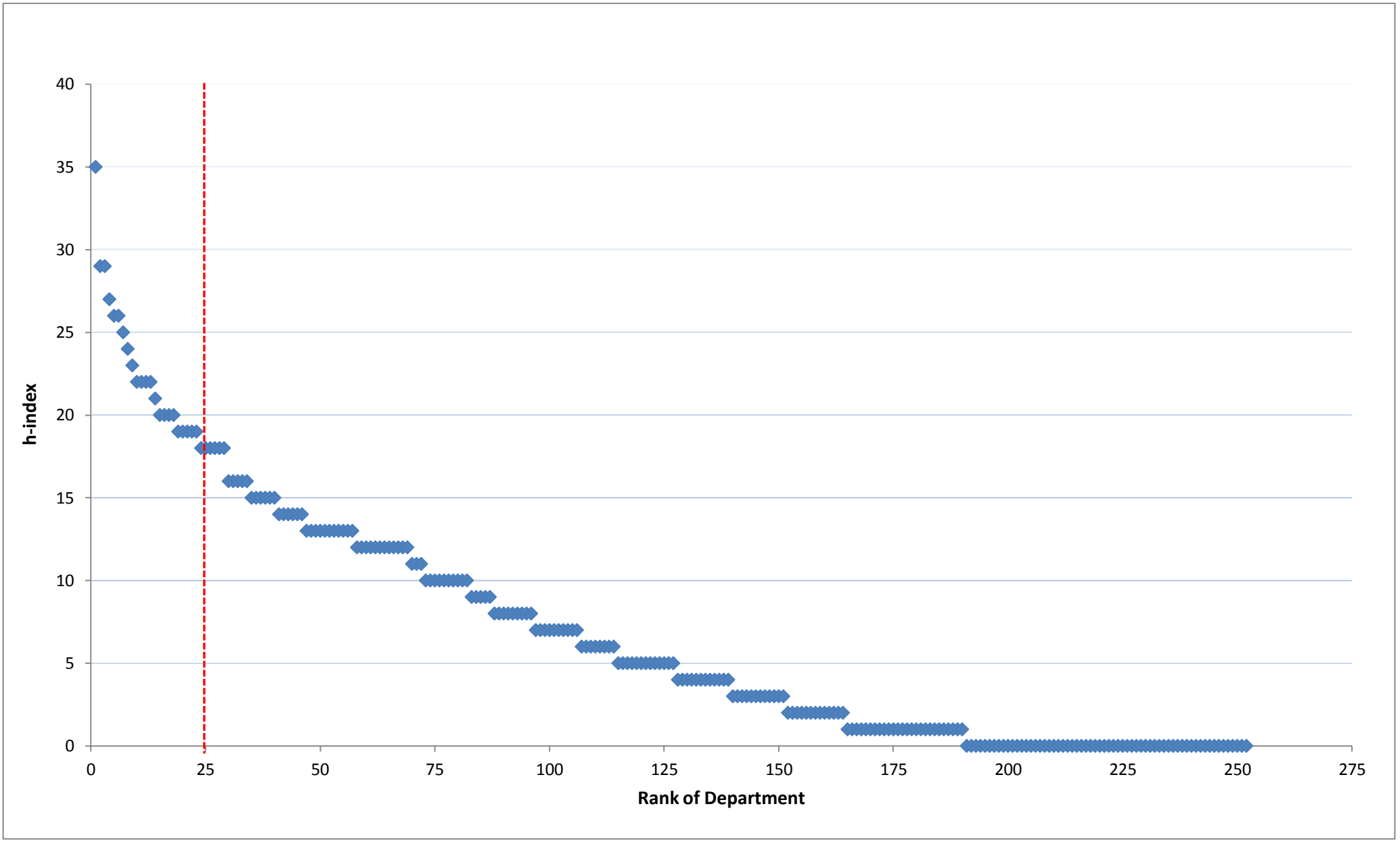

Fig 5. Scatter plot chart showing the h-index of departments in relation to their ranking. A skewed distribution of the h-index is observed as most points are found below the level of h-index 7 (mean 6.9). The red dot line defines the top 25 departments on the left.

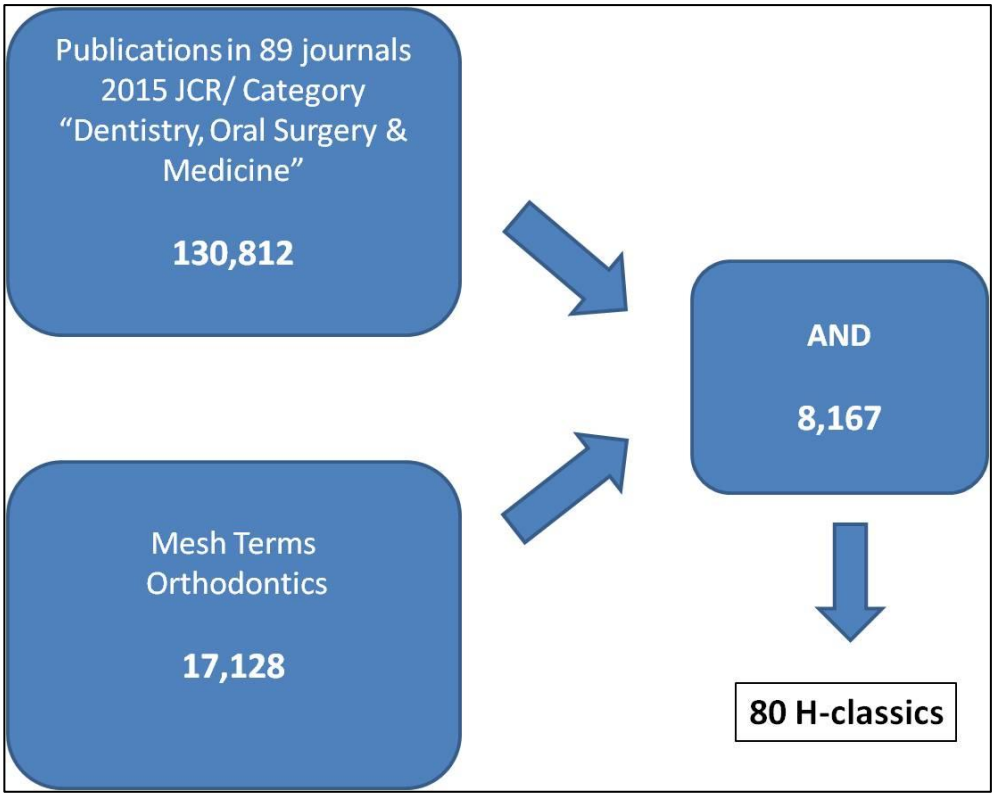

Fig. 6 Search strategy. The combination of the two searches gave a result of 8167 papers. The calculation of the h-index of this list resulted in 80 h-classic articles.

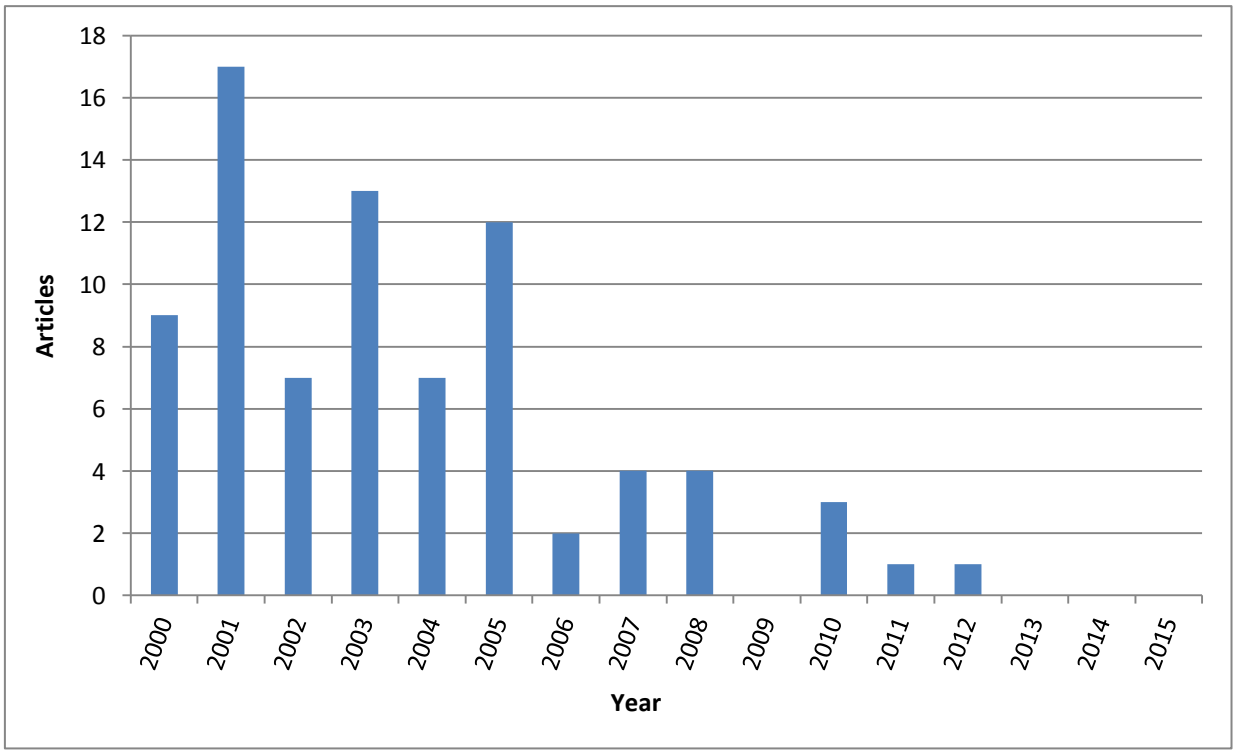

Fig 7. Classic articles per year. Classic articles were most frequently published in 2001, 2003 and 2005.