

ORİJİNAL ARAŞTIRMA ORIGINAL RESEARCH

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A 6-Year Analysis of Publications from Turkey in the Field of Otolaryngology in Science Citation Index Journals: Before and After the Change in Criteria for Associate Professorship

Otolaringoloji Alanında Science Citation Index Dergilerdeki Türkiye’den Yapılan Yayınların 6 Yıllık Analizi: Değişen Doçentlik Kriterlerinin Öncesi ve Sonrası

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ABSTRACT Objective: Varying criteria for associate professorship have directed researchers to write more articles and to publish in international journals. Although there have been previous studies containing evaluations of the number of citations, the current study is the first to have evaluated the number of authors and their institutions. **Material and Methods:** Sixteen journals in the 2018 Science Citation Index in the field of otolaryngology were examined. A record was made of which journal the article was published in, the date, the number of authors, where the authors worked, the subject of the article, and whether or not it was an animal study. **Results:** A total of 398 original research articles were published in the 16 SCI journals in the field of otolaryngology between 01.01.2014 and 01.09.2019. When the institution of the leading author was examined, there were seen to be more articles accepted from universities (51.25%). When the articles were classified according to subject, the most articles in the field of otolaryngology were seen to be on the subject of pediatric otolaryngology (38.69%). When the number of authors was evaluated according to the year of publication, it was determined to be mean 6.61 in 2016 and 5.07 in the first 9 months of 2019 (paired t-test 2019-2016: p: 0.003, 2018-2016: p: 0.022, 2017-2016: p: 0.018). When the number of articles was evaluated according to the year of publication, a decrease was detected in 2017-2019, compared to the previous 3 years (paired t-test: p:0.039). **Conclusion:** With the change in the criteria for associate professorship, it has been observed that articles have been written with fewer researchers and there has been a decrease in the number of publications in the last 3 years. Good science requires teamwork and different ideas, and different points of view will raise the quality of publications.

ÖZET Amaç: Değişen doçentlik kriterleri, araştırmacıları daha çok makale yazmaya ve uluslararası dergilerde yayınlamaya yöneltmektedir. Daha önce özellikle atıf sayısı üzerine değerlendirmeler içeren çalışmalar olmakla beraber bu çalışma otolaringoloji alanında doçentlik kriterlerinin etkisini yazar sayısı ve yazarların kurumu konusunda değerlendirmeye alan ilk çalışmadır. **Gereç ve Yöntemler:** Otolaringoloji alanında 2018 yılı itibarıyla Science Citation Index (SCI)’te yer alan 16 dergi incelendi. Makalenin hangi dergide yayınlandığı, tarihi, yazar sayısı, yazarların nerede çalıştığı, konu grubu ve hayvan çalışması olup olmadığı kayıt altına alındı. **Bulgular:** 01.01.2014-01.09.2019 tarihleri arasında otolaringoloji alanında SCI’de dizinlenen 16 dergide toplamda 398 orijinal araştırma makalesi yayınlandığı belirlendi. Birinci yazarın kurumu değerlendirildiğinde daha çok makalenin üniversitelerden (%51,25) kabul edildiği, konu gruplarına göre değerlendirildiğinde en çok pediyatrik otolaringoloji (%38,69) alanında makalenin yayınlandığı görüldü. Yıllara göre yazar sayısına bakıldığında 2016’da ortalama 6,61 olan sayının 2019’un ilk 9 ayında 5,07’ye gerilediği görüldü (paired t-test 2019-2016: p: 0.003, 2018-2016: p: 0.022, 2017-2016: p: 0.018). Yıllara göre makale sayısı değerlendirildiğinde; 2017-2019 yıllarında önceki 3 yıla göre anlamlı derecede azalma olduğu görüldü (paired t-test: p:0.039). **Sonuç:** Doçentlik kriterlerinin değişmesiyle makalelerin daha az sayıda yazarla yapıldığı görülmüştür. Makale sayısına bakıldığında son 3 yılda kriterlerin değişmesinden önceki 3 yıla göre anlamlı azalma olduğu görülmüştür. Bilimsellik ekip çalışması gerektirir ve farklı fikirler, değişik bakış açıları yayınların kalitesini artırır.

Keywords: Academic promotion; bibliometrics; Turkey; publications

Anahtar Kelimeler: Akademik ilerleme; bibliyometrik; Türkiye; yayınlar

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The scientific writing and publication of articles is one of the most important indicators of the productivity of a researcher.¹ Varying criteria for associate professorship have directed researchers to write more articles and to publish in international journals. Through an examination of which journals in the Science Citation Index (SCI) had accepted studies from Turkey in the field of otolaryngology, what subjects these had covered, whether or not the number of authors had changed over the years, whether studies had been conducted in a university, a training and research hospital, or a state hospital, and the weighting of animal experiments in these publications, it was aimed to obtain an idea of to which areas researchers should be directed. Although there have been previous studies containing evaluations of the number of citations, the current study is the first to have evaluated the number of authors and their institutions.^{2,3}

MATERIAL AND METHODS

For this retrospective, bibliometric analysis, 16 journals in the 2018 Science Citation Index in the field of otolaryngology were examined (Table 1). These journals were defined by examining the Clarivate Analytics, Web of Science Master Journal List. Publications from Turkey published between 01.01.2014 and 01.09.2019 in these journals were included in the

study for evaluation. Only original research articles were included and any case reports, reviews, book chapters, letters to editors, clinical images or abstracts were excluded from the study. Otolaryngologic Clinics of North America journal, which published only review articles, was excluded from the study in which only original studies were evaluated.

The criteria for associate professorship changed in December 2016. The criteria for publication of international articles before and after 2016 are shown in Table 2. The years 2014, 2015 and 2016 were evaluated as before the change in criteria, and 2017, 2018, and the first 9 months of 2019 were evaluated as the period after the change in criteria. Studies published from Turkey where the leading author was Turkish were included in the evaluations.

Screening was performed by 2 researchers separately scanning the websites of the journals between the defined dates to examine each edition in the archives, and by scanning the National Library of Medicine-National Institutes of Health, PubMed using the journal name. The data obtained were collated with cross-checks. A record was made of which journal the article was published in, the date, the number of authors, where the authors worked, the subject of the article, and whether or not it was an animal study. Subject groups were defined as otology, rhinology/allergy, head and

TABLE 1: Science Citation Index journals in the field of otolaryngology.

n	Name of the Journal	Publisher	Country
1	Acta Oto-Laryngologica	Taylor-Francis	England
2	American Journal of Rhinology&Allergy	Sage	USA
3	Annals of Otology Rhinology and Laryngology	Sage	USA
4	Audiology and Neuro-Otology	Karger	Switzerland
5	Clinical Otolaryngology	Wiley	USA
6	Dysphagia	Springer	USA
7	Ear and Hearing	Lippincott Williams	USA
8	Head and Neck-Journal for the Sciences	Wiley	USA
9	Hearing Research	Elsevier	Holland
10	International Journal of Pediatric Otorhinolaryngology	Elsevier Ireland	Ireland
11	JAMA Otolaryngology-Head & Neck Surgery	Amer Medical	USA
12	JARO-Journal of the Association for Research in Otolaryngology	Springer	USA
13	Laryngoscope	Wiley	USA
14	Otolaryngologic Clinics of North America	W B Saunders	USA
15	Otolaryngology-Head and Neck Surgery	Sage	England
16	Otology & Neurotology	Lippincott Williams	USA

TABLE 2: International publication criteria for associate professorship before and after 2016.

2016 April and before	2016 December and after
To have been named as the first author on at least one original research article published in an SCI-Expanded, SSCI or AHCI journal related to the scientific area for which associate professorship is applied, and which has not been produced from the specialist or doctorate thesis of the candidate (this does not include sub-branch specialism theses), and to have published at least three original research articles after obtaining doctorate or medical specialist.	<p>1. Full research articles not produced from the doctorate thesis in the scientific area for which associate professorship is applied (not including letters to the editor, abstract, review, or book review)</p> <p>a) Original research article published in an SSCI, SCI, SCI-Expanded, or AHCI journal (20 points)</p> <p>b) Original research article published in a journal scanned by an international index (other than the indexes stated in 1a) (10 points)</p> <p>c) Case presentation published in a journal as defined in 1a (5 points)</p> <p>With at least 20 points obtained as the leading author in the scope of 1a, at least 40 points must be obtained in this item.</p>

neck, laryngology, facial plastic surgery, general otolaryngology and pediatric otolaryngology. The places of employment of the authors were classified as university, training and research hospital, private university, state hospital, private hospital, and private practice. Changes in the number of authors were evaluated according to the years. The areas in which animal studies were conducted were defined.

The results are presented as percentages, mean and the number (%) of patients. A paired t-test was used to evaluate for differences between mean number of authors and articles according to years. A p value of <0.05 was considered a significant difference for the results. Statistical analyses were performed using the Statistical Package for Social Sciences (SPSS 17.0 for Windows; IBM, Armonk, NY, USA) software. As this was a bibliometric analysis, ethics committee approval was not required.

RESULTS

A total of 398 original research articles were published in 16 SCI journals in the field of otolaryngology between 01.01.2014 and 01.09.2019. In the distribution according to journal, 141 (35.42%) were published in the International Journal of Pediatric Otorhinolaryngology, and 254 (63.81%) in the International Journal of Pediatric Otorhinolaryngology, Acta Otolaryngologica and Laryngoscope journals. In the specified study period, no article had been accepted by the Ear and Hearing, Hearing Research and JARO-Journal of the Association for Research in Otolaryngology.

The distribution of articles published according to year was seen to be 70 in 2014, 83 in 2015, 87 in 2016, 54 in 2017, 41 in 2018, and 63 in the 9-month period of 2019. The distribution according to journals and years is shown in Table 3. When the number of articles was evaluated according to the year of publication, there was a decrease in 2017-2019, compared to the previous 3 years (paired t-test: p: 0.039). The number of articles declining after 2016 was statistically significant (paired t-test 2018-2016: p: 0.021, 2018-2015: p: 0.058, 2017-2016: p: 0.043, 2017-2015: p: 0.054).

When the institution of the leading author was examined, there were seen to be more articles accepted from universities. Of the 398 articles in the field of otolaryngology, 204 (51.25%) were from universities, 113 (28.39%) from training and research hospitals, 35 (8.79%) from state hospitals, 34 (8.54%) from private universities, and 12 (3.01%) from private hospitals/private practices. The rate of articles originating from state hospitals and private hospitals/practices in the 2-year period before 2016 was 14.37% (22/153) and in the 3-year period after 2016, this rate fell to 8.22% (13/158) (Table 4).

When the articles were classified according to subject, the most articles in the field of otolaryngology were seen to be on the subject of pediatric otolaryngology (154/398, 38.69%) followed by otology (n:90, 22.61%), rhinology/allergy (n:63, 15.82%), laryngology (n:33, 8.29%), head and neck (n:30, 7.53%), general otolaryngology (n:14, 3.51%), and facial plastic surgery (n:14, 3.51%) (Table 5).

TABLE 3: Number of articles according to journals and years.

Name of the journal	Number of articles according to years						Total
	2019*	2018	2017	2016	2015	2014	
Acta Oto-Laryngologica	5	7	11	16	12	6	57
American Journal of Rhinology&Allergy	3	3	1	16	9	10	42
Annals of Otolaryngology and Laryngology	4	1	2	3	6	8	24
Audiology and Neuro-Otology	1	1	0	1	1	0	4
Clinical Otolaryngology	10	8	4	5	3	2	32
Dysphagia	0	0	1	0	0	0	1
Ear and Hearing	0	0	0	0	0	0	0
Head and Neck-Journal for the Sciences	1	1	3	5	6	0	16
Hearing Research	0	0	0	0	0	0	0
International Journal of Pediatric Otorhino	28	15	19	21	29	29	141
JAMA Otolaryngology-Head & Neck Surgery	0	0	2	3	0	0	5
JARO-Journal of the Association for Research	0	0	0	0	0	0	0
Laryngoscope	9	2	9	12	15	9	56
Otolaryngology-Head and Neck Surgery	0	1	0	1	0	0	2
Otology & Neurotology	2	2	2	4	2	6	18
Total Number of Years	63	41	54	87	83	70	398

TABLE 4: The number of articles according to the institute of the leading author and the year.

Institute of the leading author	Number of articles according to years						Total
	2019	2018	2017	2016	2015	2014	
University	42	22	25	41	44	30	204
Training and Research Hospital	16	8	20	29	21	19	113
Private University	1	6	5	5	9	8	34
State Hospital	4	3	4	9	4	11	35
Private Hospital/ Private Practice	0	2	0	3	5	2	12

TABLE 5: Classification of subjects according to years.

Subjects	Classification of subjects according to years						Total
	2019	2018	2017	2016	2015	2014	
Pediatric Otolaryngology	29	15	21	27	32	30	154
Otology	11	12	16	22	15	14	90
Rhinology/Allergy	10	4	4	15	13	17	63
Head and Neck	4	4	4	3	11	4	30
Laryngology	6	3	6	9	8	1	33
General Otolaryngology	1	2	1	8	1	1	14
Facial Plastic Surgery	2	1	2	3	3	3	14

When the pediatric otolaryngology articles were classified according to sub-subject, the most articles were seen to be on the subject of otology (74/154, 48.05%), general otolaryngology (n:44, 28.57%), rhinology/allergy (n:21, 13.63%), laryngology (n:9,

5.84%), facial plastic surgery (n:4, 2.59%) and head and neck (n:2, 1.29%).

When the number of authors was evaluated according to the year of publication, there were mean 6.04 authors in 2014, 5.72 in 2015, 6.61 in 2016, 5.62

in 2017, 5.21 in 2018 and 5.07 in the first 9 months of 2019 (Figure 1). The number reached 6.61 in 2016, then gradually reduced to 5.07 in 2019. The number of authors declining after 2016 was statistically significant (paired t-test 2019-2016: $p: 0.003$, 2018-2016: $p: 0.022$, 2017-2016: $p: 0.018$).

Of the total 398 articles examined, 50 were animal studies. In this period, 28 of these experimental animal studies were published in the International Journal of Pediatric Otorhinolaryngology, constituting 19.85% (28/141) of all the studies published in the journal. The second journal giving most weighting to animal studies was the Laryngoscope Journal with 10 (17.85%) of the total 56 articles accepted being experimental animal studies. The subjects of the animal studies were otology in 34 (68%) articles, rhinology/allergy in 7 (14%), the neck in 5 (10%), laryngology in 2 (4%) and general otolaryngology in 2 (4%).

DISCUSSION

In this study, which evaluated research specifically conducted in Turkey and published in 16 SCI journals in the field of otolaryngology, there was seen to be an intensity in certain journals.³ The journals which are better known in Turkey and are more closely followed have a greater effect on authors during the submission process. Clinic habits and tendencies and the author's previous experiences of the article evaluation process are predominant in the journal selection by the authors, who will also select journals according to those which have previously accepted their own articles.⁴

The reasons that no articles were published in the Ear and Hearing, Hearing Research and JARO-Journal of the Association for Research in Otolaryn-

gology were seen to be these journals, giving precedence to genetic, morphological, and molecular level studies conducted in countries with a developed scientific research culture, which is a lengthy process requiring high costs. There are thought to be few of these types of studies in Turkey.

In respect of the institution where the studies were conducted, the weighting towards universities was noticeable. Universities are in a more advantageous situation than training and research hospitals and state hospitals, in respect of both faculty members and patient numbers. The time for faculty members to conduct academic studies and the facilities provided by the institutions to be able to do this are at a better level. Patients with health problems that cannot be resolved in state hospitals and private hospitals are referred to higher level centres, thereby increasing the range of cases in university and training and research hospitals. The range of cases helps the emergence of different ideas and provides extensive case series. In addition, the experience, foresight and scientific capability of faculty members supporting the writing and publishing of articles constitute an advantage for authors.⁵

Academic experience increased throughout the whole process, from the stage of the emergence of ideas in article preparation, the determination of innovations which will contribute to literature, data collection, writing the article, academic English language ability, and the quality and selection of the journal. In the fields of medicine, biology and other natural sciences, Turkish universities are not at the desired level and according to the Nature Index, 70 articles constituted 1.16 per 1000 of the total 60473 articles in 2018.⁶ When otolaryngology is considered in particular, in an evaluation by Saunders et al, Turkey was in 10th place in the classification of the number of articles, and in 18th place in the classification of the impact factor of the publications.⁵ In the new criteria for associate professorship, the mandatory teaching of lessons for at least one semester requires doctors who plan an academic career to work in universities or training and research hospitals. The decrease in articles from state hospitals and private hospitals/practices after 2016 can be attributed to these conditions.

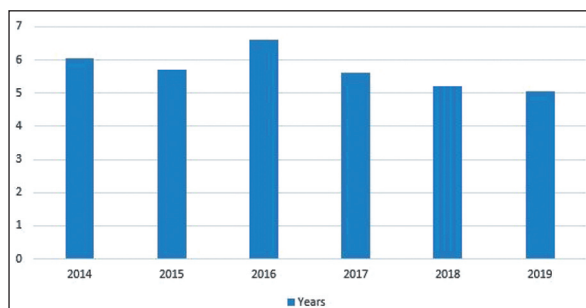


FIGURE 1: The mean number of authors according to year.

In the classification made according to subjects both pediatrics and adults, the field of otology was at the forefront.⁷⁻¹⁰ Otology publications showing a tendency to genetic, microbiological, and pathological studies were of areas which have not yet been fully resolved and are open to innovations such as hearing loss, tinnitus and dizziness, developments, especially endoscopic, in surgery, developments and widespread use of surgery in the approaches to hearing loss, and the provision of opportunities for animal studies. When diseases encountered in daily practice are evaluated, otolaryngology practice is generally formed of otological and rhinological diseases.¹¹⁻¹⁵ In the publications from Turkey in the field of otolaryngology, the articles which were most cited were seen to be mostly otology and rhinology.^{2,3} The reason for the highest number of pediatric studies was considered as the most widely accepted journal in this study was the International Journal of Pediatric Otorhinolaryngology. With the increased importance of gaining citation points in the new criteria for associate professorship, authors have tended towards areas where more articles have been published and where they will be able to be cited.

The number of authors continued to decrease after 2016 because of the change in the criteria for associate professorship. Before 2016 the number of authors was not important in the academic scoring, but as this became important in the changed criteria, authors are now driven to conduct studies with fewer authors. In the development and progression of medicine, team work and discussion of different ideas within the team lead to articles of higher quality. The number of authors in articles originating from universities and training and research hospitals has increased because research articles are seen as a clinical product, whereas the number of authors has fallen in articles originating from private hospitals and state hospitals in particular. When the length of time is considered in the processes of the stages of planning and preparation of an article, journal evaluation and publication, the effect on the number of authors of the change in criteria in 2016 is more clearly revealed in the following period. The reasons for the decrease in the number of publications compared to after the change of criteria were data collection, evaluation,

interpretation and writing with especially fewer authors and it was thought to prolong the writing process.

Animal studies have intensified in the field of otology in particular and the majority have been studies evaluating the ototoxic effects of drugs and the determination of protective mechanisms. Experimental animal studies form a part of thesis studies and have an important role in the development of the research culture in Turkey. With an increase in animal study courses and more experimental animal laboratories, especially in universities, these types of publications will increase. As these studies are conducted with the collaboration of several separate branches, the mean number of authors is higher. No decrease in the number of authors of animal studies has been seen following the change in the criteria for associate professorship.

CONCLUSION

With the change in the criteria for associate professorship, it has been observed that articles have been written with fewer researchers and there has been a decrease in the number of publications in the last 3 years. Good science requires teamwork and different ideas, and different points of view will raise the quality of publications. With the effect of the new associate professorship criteria, the number of authors decreases and 'scientific loneliness' occurs at the academic level. Scientific research and the writing of articles should not be restricted to only those working in universities and training and research hospitals, and for this to spread to the state hospitals, improvements should be made to the criteria.

Source of Finance

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Mert Cemal Gökgöz, Hamdi Taşlı, Ömer Karakoç;
Design: Mert Cemal Gökgöz, Ömer Karakoç; **Control/Supervision:** Mert Cemal Gökgöz, Hamdi Taşlı; **Data Collection and/or**

Processing: Mert Cemal Gökgöz; **Analysis and/or Interpretation:** Mert Cemal Gökgöz, Hamdi Taşlı, Ömer Karakoç; **Literature Review:** Mert Cemal Gökgöz; **Writing the Article:** Mert Cemal Gökgöz, Hamdi Taşlı; **Critical Review:** Ömer Karakoç.

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