

Scientific publications in pediatrics over the last ten years in Turkey and worldwide

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In keeping with the large area of interest comprised within the field of pediatrics, the number and diversity of publications in this field has gradually increased over the last ten years in our country as well as worldwide. The objective of this paper is to offer an analysis of the status of pediatrics publications during those ten years. The publications analyzed were listed in the Thomson Reuters Web of Science and/or published in journals included in the Science Citation Index, the Science Citation Index Expanded and the Social Sciences Citation Index. All of these publications appeared in journals in which at least one pediatrics specialist published between the years 2004 and 2013. It may be seen that Turkey is in fifth place worldwide in terms of the number of studies published in these journals, with 6,134 such publications. The conclusion is that it is necessary for more Turkish studies to be multicenter, to involve international participation and to receive more citations; importance must be attached to the objective of transforming of the knowledge produced by Turkish researchers into a greater number of publications of increased quality.

Key words: pediatrics publications, Turkey, world, last ten years.

Pediatrics is a multidisciplinary branch of expertise that has a very wide scope and encompasses multiple areas and subspecialties. Pediatrics involves very broad research, application and service areas, which cover all health problems affecting an individual from the newborn stage to the completion of puberty, as well as the social and environmental factors that play an important part in this process of growth¹⁻². In our country, as in all countries where the ratio of youth and children in the population is high, problems with regard to child health and studies aimed at solving these problems have grave importance at all levels of the health system. The number and diversity of publications in the field of pediatrics have gradually been increasing for the last ten years in concert with this large area of interest in our country and worldwide¹⁻³. In this paper, we aimed to study the state of publications in the field of pediatrics for the last ten years, both in our country and worldwide.

Material and Methods

The National Academic Network and Information Center (ULAKBİM) web page lists scientific journals with addresses in Turkey, indexed as of October 21, 2013, in the Thomson Reuters Web of Science (WoS). Publications in these databases were scanned for the period between 2004 and 2013. Publications in journals included in the Science Citation Index (SCI), the SCI Expanded (SCI-E) and the Social Sciences Citation Index (SSCI), in which at least one pediatrics specialist published, were listed and analyzed⁴. These journals were scrutinized, and their areas of coverage were evaluated⁵. The *h*-index values for countries were analyzed via the **SCImago Journal & Country Rank**⁶. Evaluation of the data obtained was conducted independently by the researchers, and the results were found to be in harmony with each other.

Results

Number of publications worldwide and in Turkey in the last ten years

According to the analysis conducted, there has been a gradual increase in the number of articles published in the field of pediatrics in recent years. In the journals registered in the SCI, SCI-E and SSCI indexes, there were 10,220 studies published in the entire world in 2004, and this number increased to 16,103 in 2013 (Table I).

It was calculated that the total number of publications in the decade studied was 135,599. When examined with respect to country of publication, it can be seen that the United States of America (USA) is in first place with 49,172 publications, and Turkey is fifth, with 6,134 publications (Table II).

The number of publications from the top five

Table I. Number of Pediatrics Publications Worldwide in the Last 10 Years

2004	10,220	2009	14,205
2005	10,400	2010	15,971
2006	11,328	2011	15,866
2007	12,745	2012	15,661
2008	13,100	2013	16,103

Table II. 10 Leading Countries in Terms of the Number of Published Works in the Last 10 Years

USA	49,172	Italy	5775
England	10,070	France	5202
Canada	7513	Australia	5179
Germany	7245	India	4906
Turkey	6134	Japan	4655

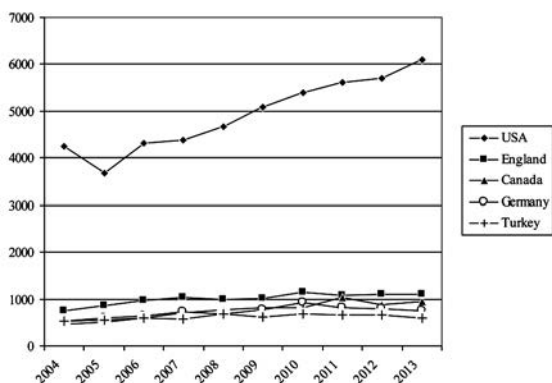


Fig. 1. Publication rates by country over ten years

countries for each year is presented in Table III. The USA, which steadily increased the number of its publications over this period, was first in terms of the number of publications every year, with England coming second. Turkey, which was in fifth place until 2009, was replaced by Italy in 2010 and fell to sixth place and subsequently to eighth place in 2012 and 2013, coming after Australia and India.

The rate of increase in the number of publications per country per year was also evaluated (Fig. 1).

h-index

The *h-index* is an index that attempts to measure both the productivity and citation impact of the published body of work of a scientist or scholar. The index is based on the set of the scientist’s most cited papers and the number of citations that they have received in other publications. The index can also be applied to the productivity and impact of a scholarly journal as well as a group of scientists, such as a department or university or country. The index was suggested in 2005 by Jorge E. Hirsch, a professor of physics at the University of California, San Diego⁷. Among the countries listed, the highest *h-index* value is that of the USA (211), while Turkey is in 23rd place with an *h-index* value of 44 (Table IV)⁶.

Journals originating in Turkey included in the WoS, and journals where Turkish papers were published

As of October 21, 2013, the number of journals originating in Turkey included in the WoS was 69. As of the same date, 52 of the scientific journals published in Turkey were included in the SCI-E, 12 in the SSCI and 5 in the Arts and Humanities Citation Index, for a total of 69. No Turkish journals were included in the SCI.

Our attention was attracted by the fact that in the field of pediatrics, the main publications by specialists in pediatrics were published in *The Turkish Journal of Pediatrics*, the official journal of the Turkish National Pediatric Society. This journal has been scanned by the SCI-E since 1985, and in 1989, it became the first Turkish-based journal whose impact factor (IF) value was published in the Thomson Reuters Journal Citation Reports (JCR).

In addition to *The Turkish Journal of Pediatrics*, it is possible to encounter the papers of

Table III. Annual Number of Publications from the Top 5 Countries

	USA	England	Canada	Germany	Turkey
2004	4243	756	465	537	528
2005	3673	863	506	601	556
2006	4306	965	602	630	590
2007	4378	1027	695	724	566
2008	4666	990	760	677	690
2009	5082	1012	808	772	609
2010	5400	1151	818	923	685
2011	5616	1088	1028	819	658
2012	5701	1107	881	799	655
2013	6107	1103	938	756	586

pediatric physicians in other Turkish journals indexed in the SCI-E, such as *The Turkish Journal of Gastroenterology*, the *Turkish Journal of Hematology*, the *Turkish Journal of Rheumatology*, *Turkish Neurosurgery* and the *Turkish Journal of Trauma and Emergency Surgery*.

The journals where the greatest numbers of Turkish papers have been published in the past ten years are presented in Table V.

When classified according to publication type, 90% of the papers published in the last ten years were original articles. The total figure does not include clinical research papers or case reports (Table VI).

Publication topics worldwide and in Turkey

Among the publications in our analysis, the top ten categories of publication by medical specialty worldwide and in Turkey during the last ten years are presented in Table VII. The leading categories worldwide were pediatrics, surgery and oncology, while in terms of Turkish publications, the fields of pediatrics, surgery and neurology were foremost⁴.

When the number of publications per institution is considered, it may be seen that Hacettepe University, Istanbul University and Ankara University were the leading institutions in

Table IV. *h*-index Values of the Top 5 Countries

USA	211
England	117
Canada	102
Germany	85
Turkey	44

Turkey. Hacettepe University was in 26th place worldwide in terms of pediatric publications, and it was the only university in Turkey that ranked within the top 50 institutions worldwide. Table VIII shows the number of the publications per institution during the last ten years.

Discussion

Number of publications worldwide and in Turkey in the last 10 years and h-index values: Where are we and where are we going?

There has been a gradual increase in the number of articles published in the field of pediatrics over the years. When the total 135,599 publications over the last ten years are scrutinized, it may be observed that the USA alone published almost half of the total number, while Turkey was in fifth place, with 6,134 papers (Table II). In Turkey, researchers began to publish in journals covered by citation indexes in the mid-1980s; therefore, with the increasing number of publications, Turkey gained a place among the top five countries in the worldwide ranking of publications⁴.

Looking at the number of publications on an annual basis, the USA was again in first place every year (Table III). As can be seen in Fig. 1, the figures for both the USA and England are noteworthy. It may be further noted that there was a decrease in the number of papers published by Turkey and Germany after 2010, in contrast to a generally steady increase in the number of publications by England and Canada. We also note that this drop in the number of Turkish papers took place despite the increase

Table V. The 10 Journals in Which the Most Turkish Papers Were Published

The Turkish Journal of Pediatrics	704
Pediatric Nephrology	308
International Journal of Pediatric Otorhinolaryngology	300
Pediatrics International	282
Pediatric Hematology and Oncology	251
Journal of Pediatric Surgery	250
Journal of Pediatric Endocrinology and Metabolism	243
Turkish Archives of Pediatrics	230
Acta Paediatrica	196
European Journal of Pediatrics	185

Table VI. Classification of Publications in Turkey by Type for the Last 10 Years

Article	5315
Abstract	303
Letter	232
Review	146
Meeting	129
Editorial	112

in the number of Turkey-based journals that became part of the international citation index system during recent years.

This decrease may suggest that Turkey's rate of academic research is low or that there are delays in the transfer of information from actual studies into written papers. A decrease in the rate of academic research might be due to new health care policies and regulations, problems in getting ethics committee approvals, delays at various stages in research, less academic willingness, problems in manuscript writing and editing, problems in advanced statistical analysis and many other factors. Taking into consideration the increase in the number of publications compared to ten years ago, it may be that the recent decrease is but a temporary phenomenon and that the overall trend of increase will continue in the coming years. It is to be hoped that Turkey will return to a place near the top of the lists, as befits our endeavors in the field of medicine.

Another parameter that is as important as the number of papers is the extent to which such papers are tracked and evaluated. We analyzed *h*-index values, important performance evaluation indicators for scientific publications, by country for recent years. Tracking the SCI

h-index value over these years, Turkey's *h*-index value may be observed to have increased⁶. But despite this increase, our country's index still has a value lower than that of many other countries-even countries that one would expect to be in a less advantageous position than Turkey on the basis of various parameters of comparison such as population and number of researchers. The highest *h*-index is possessed by the USA, while Turkey is in 23rd place. Turkey has succeeded in increasing its number of publications; we should in addition focus on producing papers that will find a place in widely respected publications with high citation rates.

Turkey-based journals and the WoS impact factor

The decrease in Turkish papers seen in 2013 was accompanied by a decline in the number of Turkey-based journals that entered the international citation indexes for that year. According to the ULAKBİM web page, as of October 21, 2013, 69 scientific journals with an address in Turkey were indexed in the Thomson Reuters WoS⁵. There had been a rapid increase in the number of such journals accepted into the WoS after 2007, such that the total figure had risen to 76 as of February 2, 2013. However, the number of Turkey-based journals covered by the WoS declined after that date, decreasing to 69 on October 21, 2013; that is to say, seven Turkish journals were excluded from the index between February 2013 and September 2013⁸.

Table V lists the ten journals that published the most Turkish papers in the field of pediatrics. Among them, *Türkiye Klinikleri Tıp Bilimleri Dergisi* was included in the SCI-E in February

Table VII. Leading Publication Categories by Medical Specialty Worldwide and in Turkey

Leading publication categories worldwide		Leading publication categories in Turkey	
Surgery	12,039	Surgery	750
Neurology	11,366	Oncology	577
Obstetrics-Gynecology	7954	Neurology	577
Oncology	7927	Hematology	576
Hematology	7897	Urology-Nephrology	340
Psychology	6464	Otorhinolaryngology	300
Urology-Nephrology	4584	Endocrinology-Metabolism	278
Immunology	3918	Obstetrics-Gynecology	175
Psychiatry	3559	Cardiology	170
Cardiology	3043	Immunology	79

Table VIII. 10 Institutions Publishing the Most Papers in the Last 10 Years

Hacettepe University	864	Baskent University	277
Istanbul University	478	Dokuz Eylul University	276
Ankara University	336	Erciyes University	207
Gazi University	327	Marmara University	175
Ege University	310	Kocaeli University	149

2007 but was excluded as of December 2012. The *Turkish Archives of Pediatrics* was included in March 2009 but also excluded as of December 2012. Clearly, a journal included in the SCI at a given point in time can subsequently be excluded, based on the number of publications and the power of their citation index ratios. There are various reasons for the suspension of the scanning of some of our journals by the WoS. The primary reason is that the papers published in such journals received fewer citations in the other WoS journals, while an excess number of self-citations were seen. The three Turkish journals that received the most citations were the *Turkish Journal of Chemistry*, *The Turkish Journal of Pediatrics* and the *Turkish Journal of Veterinary and Animal Sciences*⁵. In the statistical analysis conducted, it was observed that the ratio of self-citation for multidisciplinary journals was low. The three journals with the lowest self-citation ratios were *The Turkish Journal of Pediatrics* (4.61), *The Turkish Journal of Gastroenterology* (5.42) and the *Turkish Journal of Chemistry* (5.49)⁵.

Taking first place among the ten journals where the most Turkish papers in the field of pediatrics are published, *The Turkish Journal of Pediatrics* has been indexed by the SCI-E since

1985; in 1989 it became the first Turkey-based journal whose IF was published in the Thomson Reuters JCR. For this journal, the self-citation ratio in the WoS as of 2013 was 4.66%. This value is fairly good. In addition, *The Turkish Journal of Pediatrics*, with an *h*-index value of 20, is one of the three Turkish journals with the highest *h*-index values. The *Turkish Journal of Pediatrics* is also the only journal from our country in the SCI-E whose IF has been published since 1989⁴.

The three journals where the most Turkish pediatric papers were published in 2013, listed here in order to demonstrate the trends of recent years, were *Cardiology in the Young*, the *Kuwait Medical Journal* and *Pediatric Hematology & Oncology*⁵.

As there are at present not enough Turkish journals in the WoS to cover the fields of endeavor of all Turkish academicians, the latter are obliged to utilize opportunities for publication in other WoS-indexed journals in order to progress in their academic careers. It would be desirable to encourage more utilization of Turkish journals when it comes to academic promotion and the submission of Turkey-based scientific studies. If we fail to attach sufficient importance to the scientific journals of our

own country, they may encounter difficulty in finding articles to publish and thus face the danger of being discontinued.

Publication type

When classified according to publication type, 90% of the papers published in the last ten years were original articles. The total figure does not include clinical research papers and case reports (Table IV).

Publication categories by medical specialty

The lists of medical specialty categories having the most publications worldwide and in Turkey exhibit similarities (Table VII). The leading categories in this respect are pediatrics, surgery, neurology, oncology and hematology. Papers in the fields of obstetrics-gynecology are in fourth place worldwide but are lower on the list in Turkey. We observe that papers in the field of pharmacology do not place in the top ten, either worldwide or in Turkey⁴. The primary reason for this may be that physicians are hesitant to do research in this field of study, as children belong to the category of patients in which restrictions are required, and it can be difficult to gain approval from an ethics committee to use some medications for patients in this category, given the fact that such medications are already difficult to use.

In conclusion, our country is among the world's leaders with respect to the number of its trained specialists, the solidity of its established traditions and the stature of its training institutions in worldwide rankings. However, for this status to be reflected in the arena of international publication, it is necessary that studies conducted by Turkish researchers be multicenter, involve international participation and receive a greater number of citations; importance must be attached to the objective of transforming the knowledge produced by Turkish scientists into an increasing number of publications of greater quality.

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