

Turkey's Evaluation in Kidney Transplantation Research

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Abstract

Objectives: The objective this study is to evaluate the trend of Turkey's contribution in terms of number of publications included in the Science Citation Index Expanded in kidney transplantation between 1980 and 2009.

Materials and Methods: All scientific papers published included in Science Citation Index Expanded in the English language between 1980 and 2009 were analyzed using the "Web of Science." A general search was conducted using key words of "kidney transplantation," "renal transplantation," "kidney transplant," and "renal transplant." We analyzed these results using the "analyze" function of the software in terms of countries, documentation types, number in years of publications, journals, and institutes. We also used the same function separately analyze papers from Turkey in last 3 decades between 1980 and 1989, 1990 and 1999, and 2000 and 2009 for statistical evaluation.

Results: In total, we found 46 983 papers related to kidney transplant were published included in the Science Citation Index Expanded in the English language between 1980 and 2009. Overall, 964 of those papers were from Turkey (2.05%). There were 12 papers from Turkey between 1980 and 1989, 200 papers between 1990 and 1999, and 752 papers between 2000 and 2009. The rank of Turkey among other countries, ranked by the number of papers published, was 33 between 1980 and 1989 and 11 between 2000 and 2009.

Conclusions: Turkey has shown a significant positive trend in publishing papers in the field of kidney transplantation—further evidence of the progress Turkey has made in its contributions to the field of kidney transplantation in recent decades.

Key words: *Bibliometric analysis, Renal failure, Kidney transplantation, Research activities, Turkey*

Introduction

Bibliometric research has an important effect on academic professionals. While publication of scientific results is an important reflection of scientific work, bibliometric studies (eg, the number of published papers) are used to analyze the scientific performance of a country.¹ The Science Citation Index was introduced in 1961 as a tool for bibliographic retrieval, and it provides a large database for the analysis of journals and publications.² The Web of Science is a software application that can be used for analyzing scientific papers by various parameters indexed in the Science Citation Index Expanded.³

This study sought to analyze the scientific papers in the field of kidney transplantation included in Science Citation Index, Expanded from Turkish institutions and authors, to evaluate the trend of their contributions to the literature in the last 3 decades. To the best of our knowledge, this is the first bibliometric study of kidney transplantation research from Turkey.

Materials and Methods

This research was conducted in January 2011 using the Web of Science software to analyze renal transplantation papers included in the Science Citation Index Expanded. We retrospectively

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searched all papers published in the field of kidney transplantation between 1980 and 2009 using key words “kidney transplantation,” “renal transplantation,” “kidney transplant” and “renal transplant” in general search section. We then refined all results in the English language by using the “analyze” function of the software by the contribution and the rank of countries in these years, and then further analyzed the data by the number of published items, types of papers, journals, institutions, and authors. We also separately analyzed the contribution and the rank of Turkey among other countries in last 3 decades (between 1980 and 1989, between 1990 and 1999, and between 2000 and 2009). Collected data from the comparison periods were statistically analyzed by the chi-square test.

Results

Overall, 46 983 papers were published in kidney transplantation and were included in Science Citation Index Expanded in English between 1980 and 2009. In this period, the biggest contribution was from the United States of America (34.1%), followed by Germany (7.7%), England (6.9%), France (5.7%), and Italy (5%). Other countries' percentages of contribution were under 5. Ninety-six percent of those papers were published from Turkey (2.1%) ranked 12 (Table 1).

Table 1. Distribution of top 15 countries by the papers published included in Science Citation Index Expanded, between 1980 and 2009, in the field of kidney transplantation.

Rank	Country	Number	Percentage (%)
1	USA	16033	34.1
2	Germany	3604	7.7
3	England	3263	6.9
4	France	2700	5.7
5	Italy	2318	4.9
6	Spain	2194	4.7
7	Japan	2015	4.3
8	Canada	1999	4.2
9	Netherlands	1760	3.7
10	Australia	1128	2.4
11	Switzerland	1084	2.3
12	Turkey	964	2.1
13	Sweden	855	1.8
14	Belgium	852	1.8
15	Brazil	772	1.6

The first 3 papers published from Turkey were in 1981 as meeting abstracts, and the first article included in Science Citation Index Expanded published was in 1984. The number of publications

increased in years from 1981 (n=3) to 2009 (n=67) (Figure 1A and 1B). While only 12 papers (0.23%) were published between 1980 and 1989, the number of papers published increased to 200 (1.45%) between 1990 and 1999, and then to 752 (2.69%) between 2000 and 2009. Most of the publications from Turkey were an article (46.5%), followed by proceeding paper (30.9%), and meeting abstract (14.3%) (Table 2). Mehmet Haberal, a Turkish author, was ranked first among all authors by the number of publications included in Science Citation Index Expanded in the field of kidney transplantation between 1980 and 2009 (Table 3). Of 964 papers from Turkey, the total citations during this time (including year 2010) was 5345, and the citation:paper ratio was 5:54. The first citation was in 1986 and increased consistently by year (Figure 2). The top 8 journals publishing papers from Turkish authors are shown in Table 4A. Other journals' numbers of papers from Turkey were under 20. *Transplantation Proceedings* also published the most papers during this time, as shown in Table 4B. Institutions which made up the highest percentages of all publications from Turkey can be seen in Table 5. The rank of Turkey in terms of published items is shown in Figure 3, ranked 33 (0.23%), 15 (1.45%), and 11 (2.69%) ($P < .05$).

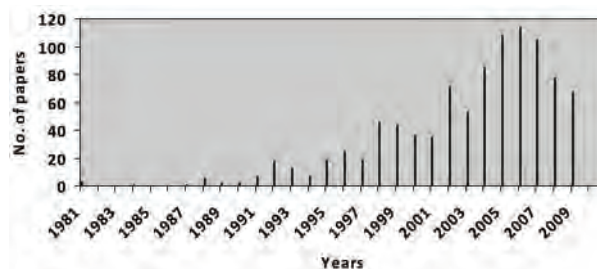


Figure 1A. Number of papers published in journals included in Science Citation Index Expanded from Turkey, between 1980 and 2009, in the field of kidney transplantation.

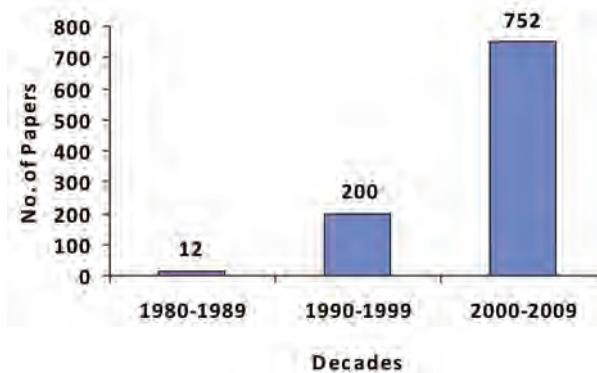


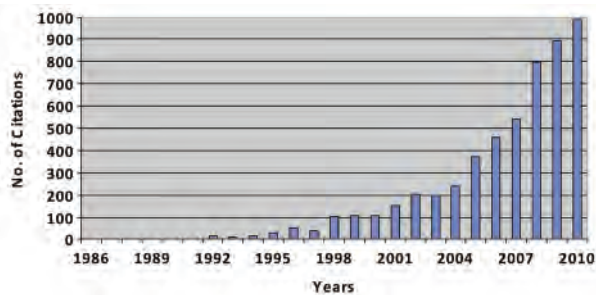
Figure 1B. Distribution by decades of papers published included in Science Citation Index Expanded, from Turkey, between 1980 and 2009, in the field of kidney transplantation.

Table 2. Distribution in the types of papers published included in Science Citation Index Expanded from Turkey, between 1980 and 2009, in the field of kidney transplantation.

Document type	Number	Percentage (%)
Article	449	46.5
Proceeding paper	298	30.9
Meeting abstract	138	14.3
Letter	52	5.4
Review	11	1.1
Others	5	0.5

Table 3. Distribution of top 10 authors ranked by the number of papers published included in Science Citation Index Expanded, between 1980 and 2009, in the field of kidney transplantation.

Author	Number
1. Haberal, M	283
2. Kahan, BD	260
3. Weimar, W	249
4. Matas, AJ	240
5. Tanabe, K	239
6. Shapiro, R	234
7. Rostaing, L	233
8. Morales, JM	226
9. Legendre, C	224
10. Najarian, JS	205

**Figure 2.** The chart of the number of cited papers of Turkish authors from 1986 until 2010.**Table 4A.** Distribution of journals publishing over 20 papers included in Science Citation Index Expanded, from Turkey, between 1980 and 2009, in the field of kidney transplantation.

Journal	Number	Percentage (%)
1. <i>Transplantation Proceedings</i>	384	39.8
2. <i>Nephrology Dialysis Transplantation</i>	72	7.5
3. <i>Nephron</i>	32	3.3
4. <i>Transplant International</i>	30	3.1
5. <i>Renal Failure</i>	29	3.0
6. <i>Pediatric Nephrology</i>	25	2.6
7. <i>Clinical Transplantation</i>	24	2.5
8. <i>Transplantation</i>	21	2.2

Discussion

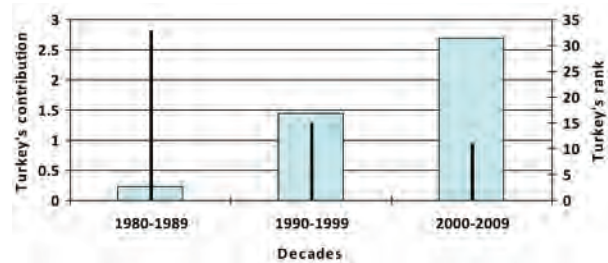
Evaluations of scientific studies of a country could show that country's development and performance in their health system.¹ These studies can lead professionals in their research activities. In Turkey, the first kidney transplantation was performed by Haberal and associates in 1975.⁴ The first article in kidney transplantation included in Science Citation

Table 4B. Distribution of top 15 journals ranked by the number of papers published included in the Science Citation Index Expanded, between 1980 and 2009, in the field of kidney transplantation.

Journal	Number	Percentage (%)
1. <i>Transplantation Proceedings</i>	7466	15.9
2. <i>Transplantation</i>	4515	9.6
3. <i>American Journal of Transplantation</i>	3155	6.7
4. <i>Nephrology Dialysis Transplantation</i>	1976	4.2
5. <i>Kidney International</i>	1879	3.9
6. <i>Transplant International</i>	1626	3.5
7. <i>Journal of The American Society of Nephrology</i>	1497	3.2
8. <i>Clinical Transplantation</i>	1254	2.7
9. <i>American Journal of Kidney Diseases</i>	937	1.9
10. <i>Pediatric Nephrology</i>	779	1.6
11. <i>Journal of Urology</i>	731	1.5
12. <i>Pediatric Transplantation</i>	661	1.4
13. <i>Nephron</i>	434	0.9
14. <i>Clinical Nephrology</i>	428	0.9
15. <i>Human Immunology</i>	319	0.7

Table 5. Distribution of top 5 institutions ranked by the number of papers published included in Science Citation Index Expanded, from Turkey, between 1980 and 2009, in the field of kidney transplantation.

Institutions	Number
Başkent University	339
Istanbul University	131
Hacettepe University	101
Ege University	72
Akdeniz University	71

**Figure 3.** Chart showing increasing of contribution of Turkey to the literature (bars) and the rank of Turkey among other countries (lines) by papers published included in Science Citation Index Expanded, from Turkey, between 1980 and 2009, in the field of kidney transplantation.

Index Expanded was also published by Haberal and associates in 1984.⁵ While there were only 12 publications (0.23%) included in Science Citation Index Expanded between 1980 and 1990, 200 publications (1.45%) between 1990 and 1999, which was raised to 752 (2.69%) between 2000 and 2009. Turkey's rank also has improved from 33 to 11 during this time.

Nourbala and associates found that Turkey is the only country have an uplifting trend (in terms of publications in the transplantation field) among other Muslim countries.⁶ This agrees with progress in this field regarding the number of centers and the number of transplant patients in Turkey.

In last 2 decades, there was a significant increase of kidney transplants in Turkey. According to annual registry reports between 1990 and 2009 of the Turkish Society of Nephrology,⁷ in Turkey there were 2427 kidney transplants done between 1990 and 1999, and 8481 done between 2000 and 2009. The ratios of transplants to the mean population of these decades were 39:100 000 and 120:100 000. However, the number of transplant centers increased in this time. While there were 13 transplant centers in Turkey in 1990, this number increased to 41 in 2009.

For journals, *Transplantation Proceedings* was the most preferred journal by authors from Turkey as well as from other countries. There are also 6 other common journals in the top lists with authors from Turkey and authors from other countries. Turkish authors seem to prefer mostly the same journals for publishing as do their colleagues from other countries. This evaluation shows an upward trend in

kidney transplants in Turkey among other countries in the last decades.

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