



Top cited articles in urology from Turkey

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ABSTRACT

Objective: Citation is the name given for a scientific publication in order to be used as a reference by another publication. In this study, we reviewed the most frequently cited publications in urology from Turkey. Although the number of citations is not completely definitive on its own, it shows the importance and effect of the publication. Besides the number of citations directly determines the impact factor of the journals and this factor is generally used in the evaluation of the quality and importance of the journal.

Material and methods: On March 7-14, 2016, 51 studies with highest number of citations from Turkey are determined from Science Citation Index Expanded database index and the journals in which studies are published, the authors of the publications, their cities and departments, study types, publication date of the studies and the number of citations are recorded.

Results: The most frequently encountered subjects in the publications that are mostly cited from Turkey are urolithiasis (23.5%), infertility (15.6%), benign prostatic hyperplasia (11.7%), sexual dysfunction (11.7%) and bladder carcinoma/urothelial carcinoma (9.8%). Distribution of 51 publications is as follows: 18 case series, 11 randomized study, 7 non-randomized study, 6 study, 3 review, 3 cross-sectional studies and 3 survey studies. Of all the studies, 68.6% are from Ankara, İstanbul and İzmir and 72.5% of them have originated from the university hospitals.

Conclusion: It is important to show the most cited Turkish publications in order to show the contribution in the world literature regarding to urology. The most cited publications in Turkey belong to urolithiasis and andrology areas. When the citation analysis publications in urology and different areas both in Turkey and in the world, it is observed that the number of our qualified publications is at acceptable levels.

Keywords: Citation, urology, study

Introduction

Citation is the name given for a scientific publication in order to be used as a reference by another publication. Citation analysis is a bibliometric method, and explores the citation relationship between authors, and studies.^[1] Although the number of citations referring to a published study is not completely definitive on its own, it shows the importance and impact of the publications. Besides, the number of citations directly determines the impact factor of the journals which is generally used in the evaluation of the quality and importance of the journal.^[2]

Publications of studies, and their citations have been registered in the Database of The Institute for Scientific Information (ISI) since 1945. The most prevailing citation database is Science

Citation Index Expanded (SCI-E). SCI-E 150 registers citation analysis of more than 8500 journals from different disciplines.^[3]

Although previously the most frequently cited publications were investigated using SCI-E database in difference disciplines^[4-7] in our study firstly we specifically reviewed the most frequently cited publications in urology from Turkey so as to try to find the areas which we contributed mostly to the literature, observe the quality of our publications, and analyze the sources of our publications regarding the state and institution.

Material and methods

On March 7-14, 2016, 51 studies with the highest number of citations in the fields of nephrology,

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and urology subgroups in the Science Citation Index Expanded database were determined.

Multinational publications whose firstly cited author is not a Turkish citizen, and in national publications without any urologist among their authors were excluded from the study. Studies performed in the field of nephrology were excluded, and the most frequently cited 50 publications specific to the field were accessed. Since number of citations were equal, one citation was added, and a total of 51 publications were reviewed.

The journals which contained the most frequently cited studies, authors of these publications, their cities, and departments, types of studies, date of publications, and the number of citations these publications received from other authors, and their authors themselves were recorded.

Our article was written in compliance with the principles of Helsinki Declaration, since it is a review article ethics committee approval was not obtained.

Statistical analysis

For statistical analysis Statistical Package for Social Sciences (SPSS Inc.; Chicago, IL, USA) 16.0 program was used, and frequencies were determined using descriptive analysis.

Results

Forty-eight of the top cited 51 publications were written by the authors working in the medical faculties of Turkey, while the remaining 3 articles were written in the international medical faculties. When all publications were considered, in 3.3% the publications authors made citations from their works, in only 2 studies this citation rate was over 10 percent (Table 1). Most frequently encountered subjects were urolithiasis (23.5%) infertility (15.6%), benign prostatic hyperplasia (11.7%), sexual dysfunction (11.7%), and bladder cancer/urothelial cancer (9.8%) (Figure 1).

Distribution of publication types was as follows; 18 case series, 11 randomized controlled studies 7 non- randomized controlled studies, 6 experimental studies, 3 review articles, 3 cross-sectional studies, and 3 survey studies.

Most (88.1%) of the studies were published between the years 1999, and 2008, and the oldest article was published in the year 1996, and the latest one in the year 2010 (Figure 2).

Distribution of publications among health institutes was as follows: Istanbul University (n=6), Hacettepe University (n=6), Mersin University (n=5), Haseki Training and Research Hospital (n=3 (Table 2). The articles were published in health insti-

tutes situated in Istanbul (n=15), Ankara (n=13) İzmir (n=7), and 68.6% of all articles were published in these metropolitan cities.

Besides, more than 30 authors had contributed to more than one article, and 9 authors had their names in the titles of more than 2 articles (Table 3).

None of the studies had been published in Turkish journals. Distribution of articles among journals was as follows: Journal of Urology (n=14), European Journal of Urology (n=10), Journal of Urology (n=10), Journal of Endourology (n=5), and British Journal of Urology (n=5) (Table 4).

Discussion

With technologic advancements in recent years important, and exciting innovations have been implemented in the field of urology. These advancements have been confirmed with studies published by experts. In our study by reviewing top cited 50 articles in the field of urology in Turkey, we indeed have demonstrated the changing trends in urology with time. The number of citations received by an article is used to assess impact factors of the journals, and the quality of the contribution made by independent authors to the scientific field. It has been demonstrated that scientific publications started to be cited 1-2 years after their publications, and they receive nearly maximum number of citations 7-19 years later. After 10 years publications still continue to receive citations though at a lower rate.^[8] Because of this normal turnover, newly published studies can be underestimated. Clustering of the articles between 1996, and 2008 in our list, and excluding those published after the year 2010 seem to support this information. Another problem is that milestone articles get out of date with time as a result of new developments, and/or reaching contrary evidence, with resultant cessation of receiving new citations, and underestimation of these citations.^[9]

In our list urolithiasis (23.5%) appears to be the leading subject among subjects of articles in our list. Especially in the pediatric age group endemicity of urolithiasis in Turkey seems to be the reason of this finding.^[10] In our list 16 (31.3%) publications are directly related to the field of andrology which demonstrates our serious contribution to andrology literature.

In our study mostly cited article (355 citations) was written by Kirkali et al. Ten articles of ours received more than 100 citations. These citation rates are higher than those found in similar studies performed in Turkey concerning other fields of medicine (orthopedics, general surgery, gynecology, and obstetrics, and cardiovascular surgery etc.).^[4-7] Besides in our articles total/self-citation rates were relatively lower which

Table 1. Top cited 50 articles in Turkey

Journal	Author	Number of citations	Number of self citations
Urology. 2005 Dec;66(6 Suppl 1):4-34.	Kirkali Z, Chan T, Manoharan M, Algaba F, Busch C, Cheng L, Kiemeny L, Kriegmair M, Montironi R, Murphy WM, Sesterhenn IA, Tachibana M, Weider J.	355	1
Eur Urol. 2008 Jan;53(1):184-90.	Tefekli A, Ali Karadağ M, Tepeler K, Sari E, Berberoglu Y, Baykal M, Sarilar O, Muslumanoglu AY.	162	5
Urology. 2005 Jun;65(6):1168-72.	Goktas S, Yilmaz MI, Caglar K, Sonmez A, Kilic S, Bedir S.	161	0
Eur Urol. 2007 Jan;51(1):199-203; discussion 204-6.	Ozden C, Ozdal OL, Urgancioglu G, Koyuncu H, Gokkaya S, Memis A.	149	1
J Urol. 2005 Jun;173(6):2010-2.	Yilmaz E, Batislam E, Basar MM, Tuglu D, Ferhat M, Basar H.	124	0
J Urol. 1996 Nov;156(5):1631-2.	Kara H, Aydin S, Yücel M, Agargün MY, Odabaş O, Yilmaz Y.	122	0
Urol Int. 2004;72(1):52-7.	Cayan S, Akbay E, Bozlu M, Canpolat B, Acar D, Ulusoy E.	116	2
Eur Urol. 2002 Mar;41(3):298-304.	Akkus E, Kadioglu A, Esen A, Doran S, Ergen A, Anafarta K, Hattat H;	109	0
J Urol. 2006 May;175(5):1641-4.	Divrik RT, Yildirim U, Zorlu F, Ozen H.	104	5
J Urol. 2002 Sep;168(3):1075-9.	Kadioglu A, Tefekli A, Erol B, Oktar T, Tunc M, Tellaloglu S.	104	4
Urology. 2008 Feb;71(2):247-51.	Horasanli K, Silay MS, Altay B, Tanriverdi O, Sarica K, Miroglu C.	99	2
J Urol. 2003 Apr;169(4):1308-11.	Saglam K, Aydur E, Yilmaz M, Gökaş S.	96	1
Eur Urol. 2004 Apr;45(4):444-8; discussion 448-9.	Eskicorapci SY, Baydar DE, Akbal C, Sofikerim M, Günay M, Ekici S, Ozen H.	94	7
Urology. 2004 Dec;64(6):1111-5.	Küpeli B, Irkilata L, Gürocak S, Tunç L, Kiraç M, Karaoğlan U, Bozkirli I.	93	0
Urology. 2000 May;55(5):750-4.	Cayan S, Kadioglu TC, Tefekli A, Kadioglu A, Tellaloglu S.	91	9
Eur Urol. 2010 Aug;58(2):185-90.	Divrik RT, Sahin AF, Yildirim U, Altok M, Zorlu F.	85	2
J Urol. 1997 Jan;157(1):140-3.	Alkan I, Simşek F, Haklar G, Kervancioğlu E, Ozveri H, Yalçin S, Akdaş A.	85	0
J Urol. 2003 Dec; 170(6 Pt 1):2405-8.	Muslumanoglu AY, Tefekli A, Sarilar O, Binbay M, Altunrende F, Ozkuvanci U.	83	0
Eur Urol. 2000 Feb;37(2):172-5.	Ozbek E, Turkoz Y, Gokdeniz R, Davarci M, Ozugurlu F.	83	1
Urology. 2007 Apr;69(4):603-7.	Turna B, Nazli O, Demiryoguran S, Mammadov R, Cal C.	82	0
J Urol. 1999 Apr;161(4):1359-63.	Ozdemir E, Kakehi Y, Okuno H, Yoshida O.	76	0
J Endourol. 2002 Apr;16(3):149-52.	Soygür T, Akbay A, Küpeli S.	74	0
J Urol. 2005 Oct; 174(4 Pt 1):1339-43.	Tefekli A, Muslumanoglu AY, Baykal M, Binbay M, Tas A, Altunrende F.	73	0
Br J Urol. 1996 Feb;77(2):279-81.	Karadeniz T, Topsakal M, Ariman A, Erton H, Basak D.	73	2
BJU Int. 2000 Sep;86(4):490-3.	Akbay E, Cayan S, Doruk E, Duce MN, Bozlu M.	70	0
Urol Res. 1999 Jun;27(3):219-23.	Dasdag S, Ketani MA, Akdağ Z, Ersay AR, Sari I, Demirtas OC, Celik MS.	70	4
Urology. 2007 Feb;69(2):356-60.	Bal K, Oder M, Sahin AS, Karataş CT, Demir O, Can E, Gümüş BH, Ozer K, Sahin O, Esen AA.	69	7
Urology. 2004 Aug;64(2):218-22.	Yeniyol CO, Suelozgen T, Arslan M, Ayder AR.	69	2
J Urol. 2006 Jul;176(1):48-52.	Akdogan B, Dogan HS, Eskicorapci SY, Sahin A, Erkan I, Ozen H.	68	0
J Sex Med. 2008 Sep;5(9):2044-52.	Aslan E, Beji NK, Gungor I, Kadioglu A, Dikencik BK.	67	0
J Endourol. 2010 Aug;24(8):1315-20.	Tugcu V, Ilbey YO, Mutlu B, Tasci AI.	64	2
Eur Urol. 2005 Oct;48(4):634-41.	Kocak I, Okyay P, Dundar M, Erol H, Beser E.	64	1
Urology. 2004 Aug;64(2):237-40.	Deveci S, Coşkun M, Tekin MI, Peşkiricioglu L, Tarhan NC, Ozkardeş H.	63	0
J Urol. 2007 May;177(5):1867-71.	Bilen CY, Koçak B, Kitirci G, Ozkaya O, Sarikaya S.	62	0

Table 1. Top cited 50 articles in Turkey (Continued)

Journal	Author	Number of citations	Number of self citations
J Endourol. 2002 Mar;16(2):75-8.	Zeren S, Satar N, Bayazit Y, Bayazit AK, Payasli K, Ozkeçeli R.	62	1
Asian J Androl. 2003 Jun;5(2):95-9.	Köksal IT, Usta M, Orhan I, Abbasoglu S, Kadioglu A.	61	0
J Urol. 2002 Apr;167(4):1749-52.	Cayan S, Erdemir F, Ozbey I, Turek PJ, Kadioglu A, Tellaloglu S.	1	3
J Endourol. 2005 Dec;19(10): 1199-202.	Sarica K, Alkan E, Lüleci H, Taşci AI.	59	0
J Urol. 2005 Mar;173(3):969-73.	Akbal C, Genc Y, Burgu B, Ozden E, Tekgul S.	59	2
Urology. 2010 Jul;76(1):247-52.	Unsal A, Resorlu B, Kara C, Bozkurt OF, Ozyuvalei.	58	15
J Endourol. 2002 Nov;16(9):649-53.	Doğan HS, Sahin A, Cetinkaya Y, Akdoğan B, Ozden E, Kendi S.	58	2
J Urol. 2000 Jul;164(1):162-5.	Tekin A, Tekgul S, Atsu N, Sahin A, Ozen H, Bakkaloglu M.	58	2
NeuroUrol Urodyn. 2007; 26(6):814-9.	Kebapci N, Yenilmez A, Efe B, Entok E, Demirustu C.	56	1
Urol Int. 2006;76(2):139-43.	Seckiner I, Yesilli C, Akduman B, Altan K, Mungan NA.	56	1
Eur Urol. 2005 Oct;48(4):608-13.	Volkan T, Ihsan TA, Yilmaz O, Emin O, Selcuk S, Koray K, Bedi O.	56	5
Nephrol Dial Transplant. 2001 Sep;16(9):1818-22.	Türk S, Karalezli G, Tonbul HZ, Yildiz M, Altintepe L, Yildiz A, Yeksan M.	55	1
BJU Int. 2000 Sep;86(4):549-52.	Köksal IT, Tefekli A, Usta M, Erol H, Abbasoglu S, Kadioglu A.	55	4
Eur Urol. 2007 Sep;52(3):658-62.	Kirkali Z, Van Poppel H.	54	2
Eur Urol. 2006 Aug;50(2):235-48.	Kadioglu A, Akman T, Sanli O, Gurkan L, Cakan M, Celtik M.	54	4
BJU Int. 2000 Apr;85(6):742-6.	Ozbek E, Turkoz Y, Sahna E, Ozugurlu F, Mizrak B, Ozbek M.	54	4
BJU Int. 1999 Dec;84(9):1046-9.	Cayan S, Kadioglu A, Orhan I, Kandirali E, Tefekli A, Tellaloglu S.	54	4

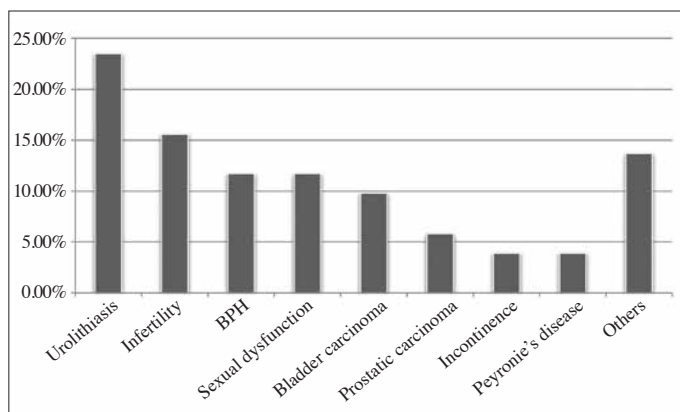


Figure 1. Most frequently encountered subjects in the studies

provided evidence for our higher quality citations. In addition, as demonstrated in a study by Nason et al.^[9] in the year 2013 where mostly cited 100 articles in urology were analyzed, more than 2000 citation numbers could be achieved. Unfortunately, none of our articles published in Turkey was included in their list of top cited articles. When the publications in their list are analyzed, the articles on urolithiasis which is endemic in Turkey were not included in their list. This phenomenon

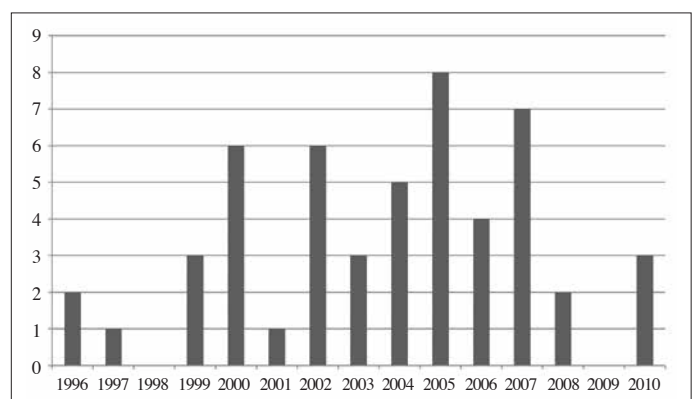


Figure 2. Dates of publications

suggest that our citation numbers related to the field of urolithiasis are adequate, and even have an impact on literature more than meets the eye.

Because of more cherished scientific environment, and encouragement provided for researches, it is not surprising that greater number of articles (72.5%) came from university hospitals. Although great majority of articles came from three metropoli-

Table 2. Health institutions which contributed 2 or more than 2 studies to the most frequently cited publications in Turkey

Health Institutions	Number of publications
Istanbul University School of Medicine	6
Ankara Hacettepe University School of Medicine	6
Mersin University School of Medicine	5
Istanbul Haseki Training and Research Hospital	3
İzmir Dokuz Eylül University School of Medicine	2
İstanbul Bakırköy Training and Research Hospital	2
İzmir Tepecik Training and Research Hospital	2
Diyarbakır Dicle University School of Medicine	2
Malatya İnönü University School of Medicine	2
Gülhane Military Medical Academy	2
Others	21

Table 3. Authors of most frequently cited articles

Name of the authors	Number of publications
Ateş Kadioğlu	8
Ahmet Tefekli	7
Selahittin Çayan	5
Haluk Özen	4
Sedat Tellaloğlu	4
Ali İhsan Taşcı	3
Ahmet Şahin	3
Emin Özbek	3
Ahmet Yaser Müslümanoğlu	3

tan cities, especially Istanbul University, Hacettepe University, and Mersin University appear to be leading institutes in the field of urology.

In our study most frequently case series were seen. Nowadays, most valuable types of publications are accepted to be review articles, articles on randomized controlled studies, and meta-analyses. Our list contains 2 review articles, and 11 articles on randomized controlled studies. When international citation analyses in various scientific fields, including urology are reviewed, our list appears to include adequate number of articles on randomized controlled studies.^[8,9,11-13] The greatest obstacles hindering increase in publications on randomized controlled time-consuming studies include their higher cost, and difficulty in reaching higher number of patients.^[8]

Table 4. Journals containing the most frequently cited articles

Title of the Journal	5-year impact factor	Number of publications
Journal of Urology	4.10	14
Urology	2.20	10
European Urology	11.26	10
British Journal of Urology	3.11	5
Journal of Endourology	1.72	5
Urologia Internationalis	1.21	2
Others	2.58 (1.41-3.46)	5

Science Citation Index Expanded database does not contain data accrued before 1975 which may appear to be one of the limitations of our study Besides, we might not include articles which did not reach maximum number of citations in our list because of time constraints. Further updating of this list may overcome this problem.

In conclusion, it is important to reveal the mostly cited articles from Turkey in order to display the contribution to urologic literature. Mostly cited publications from Turkey are related to the fields of urolithiasis, and andrology.

Ethics Committee Approval: Authors declared that the research was conducted according to the principles of the World Medical Association Declaration of Helsinki “Ethical Principles for Medical Research Involving Human Subjects”, (amended in October 2013).

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – T.İ., M.Y., A.T.; Design – T.İ., M.Y., A.T.; Supervision – T.İ., M.Y., A.T.; Resources – T.İ., M.Y., A.T.; Materials – T.İ.; Data Collection and/or Processing – T.İ., M.Y., A.T.; Analysis and/or Interpretation – T.İ., M.Y., A.T.; Literature Search – T.İ., M.Y., A.T.; Writing Manuscript – T.İ., M.Y., A.T.; Critical Review – T.İ., M.Y., A.T.

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