Ovarian Cancer Research in Iran: A Scientometric Analysis of Publications Output During Two Decades (1996-2015) in Scopus

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ABSTRACT

Ovarian cancer is an important cause of mortality in women.The aim of this study was to analyze Iran research performance on ovarian cancer as reflected in indexed publications in Scopus, the abstract and citation database. The data was retrieved from the Scopus citation database. The search string used to retrieve the data was developed using "ovarian cancer", "ovarian neoplasm" and " ovarian tumors" keywords in title, abstract and keywords tags and Iran was our string in affiliation field. Iran's publication performance in ovarian cancer research comprised 386 papers during 1996-2015 (two decades) and average was 19.3 papers per year. The total publications output of Iran in ovarian cancer research increased from 25 papers during first decade (1996-2005) to 360 papers during the next decade (2006-2015). Iran ranks at 36th position with 386 papers among 151 countries and its international share was 0.52 %. The average citation per paper for Iran's publication output was 5.72 in total. The average citation per paper of publications of Iran in ovarian cancer research had increased from 1.96 during 1996-2005 to 5.98 during the next decade (2006-2015). Although the number of Iran publications in ovarian cancer research is low but they have good quality. Participation of other universities than 8 top universities which produced more than 80% of Iran scientific research in ovarian cancer research is suggested which led to publications growth in this field.

KEY WORDS: Scientometric analysis, ovarian cancer, publications output, Scopus, Iran.

1. INTRODUCTION

Ovarian cancer is one of the main causes of morbidity and mortality, especially in the middle aged women. It is the 8th cancer causing death worldwide (Taylor and Kirwan, 2009) and has the highest mortality of all the gynaecological malignancies. The number of ovarian cancer patients in the world is increasing accounting to 4% of all female cancers and ranking as the sixth prevalent female cancer (Pavlik and Van Nagell, 2012). The mortality of ovarian cancer in 2008 was about 140,000 that show a 50% case fatality rate for this disease (Ferlay, 2010). Survival of ovarian cancer is estimated to be about 45.9%. The high fatality of ovarian cancer made it as the fifth female cancer cause of death in USA (Siegel, 2011). Ovarian cancer is the leading cause of death from gynecological cancer in western countries and its prognosis is poor also its survival rates are five-years ranging from 26% to 51% in Europe (Sant, 2003). The disease is more common in industrialized countries (Ferlay, 2010; Brawley, 2015). Ovarian cancer is a stealthy disease therefore, most patients are diagnosed with advanced stages of the disease and their expected 5-year survival rate is under 40% (Siegel, 2014).

Ovarian cancer ranks as the 9th most common cancer among Iranian women (Yavari, 2008) and is known to be the 16th cause for the cancer burden. The incidence rate of ovarian cancer in Iran is lower than the USA and other industrialized countries, but with younger age (Arab, 2014). Previous studies indicated prodigious increasing trends in ovarian cancer incidence and mortality (Sharifian, 2015).

Given that over the past half-century the incidence of cancer has increased such that cancer becomes one of the most fatal diseases for human beings and there appears to remain a gap between the world of research and the world of health policy makers that has been frequently observed (Gold, 2009; Jansen, 2010), therefore this study analyzed Iran research performance on ovarian cancer in national and international context, as reflected in its publications indexed in Scopus database during two decades (1996-2015).

2. MATERIALS AND METHODS

This Scientometric study was based on the publications of ovarian cancer research from Iranian authors retrieved Oct 18, 2016 from Scopus abstract and citation database produced by Elsevier. The string used to retrieve the data was developed using "ovarian cancer", "ovarian neoplasm" and " ovarian tumors" keywords in "title, abstract and keywords" tag and Iran was our main string in affiliation field. We searched above mentioned terms in document search tab of Scopus. The date range was restricted for 1996-2015. We searched all total documents (386) indexed in Scopus for Iran from mentioned date range. We used searching and analyzing features of Scopus. First data were searched using searching system of Scopus and then results were analyzed using analyzing result system of Scopus. To retrieve the data of world on ovarian cancer research, the key words "ovarian cancer", "ovarian neoplasm" and " ovarian tumors" were searched in title, keyword and abstract filed in document search tab of Scopus. In addition, citations data were collected for total publication output during 1996–2015 from the date of publication till the end of December 2015.

3. RESULTS

Total numbers of papers for ovarian cancer research indexed in Scopus from 1996 to the end of 2015 were 73384 papers. A total of 92 different countries with more than 10 papers contributed to the literature on ovarian cancer over the study period. From 2010 to the end of 2015 total of 94835 citations were received by 73384 publications in ovarian cancer research and the achieved H- index for ovarian cancer research was 88. The global publication share of top 20 most productive countries in ovarian cancer research varies from 1.37% to 32.45% during 1996–2015. United States was the 1st in rank with global publication share of 32.45% producing 28816 papers during 1996–2015, followed by China (7.34% share, 5392 papers), United Kingdom (7.25% share, 5326 papers), Japan (6.87% share, 5045 papers) and Italy (5.92% share, 4348 papers) at the 2nd, 3rd, 4th and 5th positions, respectively. Noticeably the distance between the first and second country in terms of the number of publications is more than 4 times.

Germany, France, Canada, Australia, Spain, Netherlands, South Korea, Turkey, India, Poland, Sweden, Israel, Belgium, Taiwan and Greece ranked from 6th to 20th positions with their global publication share ranging from 5.6% to 1.37%. Among 20 most productive countries in terms of continental share in ovarian cancer research there were 10 countries from Europe with global publication share of 32.85%, 8 Asian countries with global share of 26.24% and 2 countries from North America with global share of 36.73%. These 20 most productive countries produced 71399 papers in ovarian cancer research and their total share was 97.29 percent (Table.1).

Total publications of Iran during two decades (1996–2015) in ovarian cancer research in Scopus were 386 publications with an average of 19.3 papers per year. Iran publications in ovarian cancer research were received total of 2210 citations during two decades. The achieved h-index was 21. Hence; with 386 papers, Iran ranked 36th among 151 countries with a global share of 0.52 %.Over two decades from 1996 to 2015, Iran ovarian cancer research performance increased from 1 paper in 1996 to 62 papers in 2015 (Table.2).

Iran research papers on ovarian cancer (386) were published in 152 scientific journals. The most papers were published in "Asian Pacific Journal of Cancer Prevention" with 31 papers and the "Tehran University Medical Journal" ranks the second with 11 published papers. Among top 20 scientific journals which published Iran research papers on ovarian cancer there were 8 domestic journals.

Iran collaborated with 40 countries in ovarian cancer research among them United States and Canada together ranked 1th with 17 papers each followed by Germany with 10 papers, Sweden and United Kingdom with 7 papers each, Australia, France, Italy and Switzerland with 6 papers each and Japan with 4 papers. These ten countries totally published 86 (22.3%) papers in collaborating with Iran.

There are 8 top Iranian universities which produced 20 and more publications in ovarian cancer research. Tehran University of Medical Sciences ranked 1st with 137 publications followed by Shahid Beheshti University of Medical Sciences with 46 publications, Shiraz University of Medical Sciences with 34 publications, Tabriz University of Medical Sciences with 27 publications, Islamic Azad University with 27 publications, Iran University of Medical Sciences with 26 publications, Isfahan University of Medical Sciences with 22 publications and Shahid Sadoughi University of Medical Sciences with 20 publications. These 8 top Iranian universities produced 339 (88%) of Iranian ovarian cancer research.

The results showed that the most documents indexed in Scopus for Iran in ovarian cancer research were original articles (342) followed by review articles (23), conference papers (7), letter to editor (6) and short survey (3).

Table.1. World publication output, share and rank of top 20 most productive countries in ovarian cancer research from 1996to 2015

Country	No. of Papers	Share of papers	Rank
United States	23816	32.45	1
China	5392	7.34	2
United Kingdom	5326	7.25	3
Japan	5045	6.87	4
Italy	4348	5.92	5
Germany	4115	5.60	6
France	3214	4.37	7
Canada	3140	4.27	8
Australia	2048	2.79	9
Spain	1887	2.57	10
Netherlands	1819	2.47	11
South Korea	1712	2.33	12
Turkey	1481	2.01	13
India	1448	1.97	14

Poland	1294	1.76	15
Sweden	1104	1.50	16
Israel	1087	1.48	17
Belgium	1068	1.45	18
Taiwan	1048	1.42	19
Greece	1007	1.37	20
Total	71399	97.29	-

Table.2. Iranian research papers in ovarian cancer research according to number of papers, citations and average citations per paper by year

Year	Papers	Citations	Average citations per paper
2015	62	532	8.58
2014	75	438	5.84
2013	42	314	7.47
2012	37	262	7.08
2011	37	229	6.18
2010	30	179	5.96
2009	26	127	4.88
2008	25	45	1.8
2007	19	33	1.73
2006	8	27	3.37
1996-2005	25	24	0.96
Total	**386**	**2210**	5.72

DISCUSSION

The results of this study showed that total publications of Iran during two decades (1996–2015) in ovarian cancer research which indexed in Scopus were 386 publications with an average of 19.3 papers per year. Simply Iran produced 19 papers on ovarian cancer research each year. It seems that growth in this field is not sufficient. Iran is among developing countries, its population is to be estimated more than 80,000,000 and more than 73% of population is living in urban areas. In a study by Dey which conducted in Egypt they concluded that the incidence of uterine, ovarian and cervical cancers was higher in urban areas compared with rural areas (Dey, 2009). Sometimes in medical literature the "silent killer" metaphor used to indicate the risk of ovarian cancer, because the symptoms of this disease are more likely hidden (Jasen, 2009), therefore it seems that the place of a systematic screening program for ovarian cancer is missed in Iran.

The results also showed that Iran publications in ovarian cancer research were received total of 2210 citations during two decades and the h-index was 21.Although the number of Iran publications in ovarian cancer research is low, but the number of citations are dramatically high and the average citation per paper for Iran's publication output was 5.72 in total. It means that each paper received almost 6 citations. The attention that scientific publications get can be assessed using citation analysis (Nieminen, 2006) in other word the quality of a research paper could be measured through citation analysis. Smith defined citation analysis as "the evaluation and interpretation of the citations received by articles, scientists, universities, countries, and other aggregates of scientific activity, used as a measure of scientific influence and productivity" (Smith, 1981). It means that more citations indicate more quality. The increasing citations to Iranian research papers show the growing quality of Iranian Publications (Rasolabadi, 2015). Therefore, although the number of Iran publications in ovarian cancer research is low but they have good quality.

The results showed that among top 20 scientific journals which published Iran research papers on ovarian cancer there were 8 domestic journals. The journal in which a study is published is as important as the statistical reporting quality in ensuring dissemination of published medical science (Nieminen, 2006). It seems that Iranian researcher published their scientific papers on ovarian cancer in international than domestic journals.

Fourteen countries had scientific collaboration with Iran in ovarian cancer research among them United States and Canada together ranked 1st with 17 papers each followed by Germany with 10 papers, Sweden and United Kingdom with 7 papers each, Australia, France, Italy and Switzerland with 6 papers each and Japan with 4 papers. Iran totally published 86 (22.3%) papers in collaborating with these ten countries which are among top 20 most productive countries in ovarian cancer research. It seems that Iran international collaboration is low. In a study by Rasolabadi (2015), they suggested that conditions should be prepared for Iranian researchers to collaborate more with international scientific societies in order to produce more and high quality papers.

The results of present study showed that there were 8 top Iranian universities which produced 339 (88%) of Iran ovarian cancer research. These 8 top Iranian universities are located in big Iranian cities including; Tehran, Shiraz, Tabriz and Mashhad. This finding indicated that scientific justice is not considered in Iran and big universities

have more facilities .It seems that the participation of other Iranian universities in scientific research in ovarian cancer research is required which led to publications growth in this field.

4. CONCLUSION

Although the number of Iran publications in ovarian cancer research is low but they have good quality. Participation of other universities than 8 top universities which produced more than 80% of Iran scientific research in ovarian cancer research is suggested which led to publications growth in this field.

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