



GLOBAL SCIENTIFIC PRODUCTION OF KERMAN UNIVERSITY OF MEDICAL SCIENCE IN WEB OF SCIENCE

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ABSTRACT

Background & Propose: The main objective of this study was to determine the status of the world's scientific production and the placement of Kerman University of Medical Science (KUMS) during 1990-2012 in Web of Science (WoS) in order to draw its scientific map. Methodology: This applied research was conducted by using scientometrics methods. All scientific products of KUMS during 1990-2012 indexed in WoS were studied in the autumn of 2013. Data was analyzed by using Excel software and scientific clusters of KUMS scientific production were formed by applying Histcite software. For determining the significant relationship between research variables Pearson correlation coefficient was applied. Findings: The placement of KUMS among Iran universities and scientific institutions and those under the supervision of the Ministries is low. The high cooperation of the researchers of this university is optimal and may result in more scientific production and citations to their works as well. Most proliferated researchers of the university belonged to "parasitology and pharmacology" fields. The amounts of scientific production of other fields were low as to the number of their faculty members. This needs some rapid remedy. The scientific clusters of the extracted scientific production map of the university showed this reality as well. Conclusion: The rate of global citation rate to the scientific production of KUMS is very low and the researchers of this university should take their work impacts into account.

Keywords: Scientific production; scientific map; Web of Science (WoS); Kerman University of Medical Science (KUMS).

INTRODUCTION

The production of scientific information is one of the most important dimensions of sustainable development in each country. Information is a power and those countries are powerful that are developed in terms of the production of scientific information. In fact, scientific development has affected other aspects of development, including economic, social, and cultural development. In other words, the production of science and its development as a driving force of the comprehensive and sustainable development of the countries play a major role. All countries are trying to achieve scientific self-sufficiency and scientific and research development. This undoubtedly has direct association with the capabilities, development and independence of the countries. Scientists and scholars do not consider any factor important as much as scientific activity in effective development. Abdus Salam states that "the level of a nation's life depends on its science and technology" (Talebi, 2002). It is clear that the publication of articles in the journals indexed in the Institute for Scientific Information (ISI) or

other credible institutes in the world is one way for presenting the research in the global arena. Another important point in publishing the scientific articles in international journals is indexing and ranking of these journals in the citation indexes of the Institute for Scientific Information and other credible global citation institutes. By recognizing these journals and having sufficient information in this regard, the researcher first evaluates his knowledge and then submits his article to the journal which is considered appropriate to his knowledge (Mousavi-Movahedi, Kiani-Bakhtyari and Khanchamani, 2003). Due to the diversity of the studies conducted by scientists, the number of journals in various disciplines has been also increased at the global level. Thus, monitoring the scientists, their scientific contributions, the journals publishing the results of their research, their organizations where they are working as well as the countries where they are living seem to be necessary in order to conduct large-scale studies and have basic information for policy makers and planners in the area of research and technology at the national and international level.

Given what was stated above, designing the structure of science in different disciplines and following up their latest changes is an issue attended by scientists, librarians, philosophers, statesmen and publishers, and the scientific texts and the number of citations to such texts play key role in this regard. Investigations suggest that three components are considered in designing the structure of science, including individual elements, interrelated elements that create a network, and interpretation of the relations among the elements (Chen and Paul, 2001). Various scientists have used various tools and methods to illustrate and design the structure of science in different disciplines, but none of these tools, except for HistCite, are able to design the map of science based on the time order (Garfield, Pudovkin and Istomin, 2003). Given the importance of scientific products in the world, the most important questions in this research are "How much is the contribution of the researchers of Kerman University of Medical Sciences in the production of science at the global level and in Iran in the sciences, social sciences, art and humanities citation index databases? Who are the core authors? What are different types of publishing templates? How is the status of citing their works at local and global level and the map of the historiography with regard to the scientific productions of this university in the mentioned databases and how is the status of the scientific contributions of this university? In this research, we aim to find answers to the above questions to review the scientific contributions and design a historiographical map of these works.

METHODOLOGY

The present study is applied type which is conducted through scientometrics method. The methodology regards an approach based on using bibliographic data and citation analysis of the articles indexed on the web of science in the considered time period. In other words, in this research, the name of the authors, title, publication status and the rate of the citations received for analysis of scientific products of researchers and designing of scientific maps of this university were used. Hence, using this approach, the scientific publications of Kerman University of Medical Sciences were examined and by using the citations and the group collaboration of these documents, various bibliographic components of this research area were analyzed and the scientific structure of these researchers was designed. In this research, all documents produced by the authors of Kerman University of Medical Sciences and indexed on



the web of science between the years 1990-2012 were reviewed. The time to collect the data was fall of 2013. The data were collected, sorted, and analyzed in three stages using three types of tools. In the first stage, the data were extracted with the help of the web of science using plain text files and stored in the computer. In the second stage, the data were identified web of science and analyzed using the ISI.exe software and entered into the Excel spreadsheet program. In the third stage, using the HistCite software, the citations were counted and they were prepared for mapping and the final analysis. The present study data were collected using citation indexes available on the web of science. These indexes include the sciences, social sciences, and the arts and humanities citation indexes. The data were electronic type and they were collected and extracted from the Institute for Scientific Information Database. Data extraction was also performed electronically. Using the Excel spreadsheet software, the icons created by ISI.exe software were identified, arranged and prepared for the final analysis. In fact, it was entered to the Excel spreadsheet software and after selecting the option "open" in the file window, the intended folder was opened and other operations were performed on the data using the Excel spreadsheet program. In this research, using HistCite software, scientific clusters consisting of scientific products of Kerman University of Medical Sciences were designed. After entering the information into this software, the images got limited to a number of highly-cited documents considered by the researcher. The number of highly-cited documents to design the scientific clusters of the documents was 12 documents at the global level and 10 documents at the local level. In addition, Pearson correlation coefficient was used in order to determine the significance relationship between the scientific collaboration of the researchers of Kerman University of Medical Sciences and the number of citations and also examine the relationship between the level of group collaboration of the scientists of this university and their scientific contributions.



RESULTS

In this section of the article, research data are analyzed. The data obtained through the search in the web of science guide are analyzed using statistical methods in order to answer the research questions:

How much is the contribution of the researchers of Kerman University of Medical Sciences in the production of science in the web of science in the years studied by using the Lotka law test?

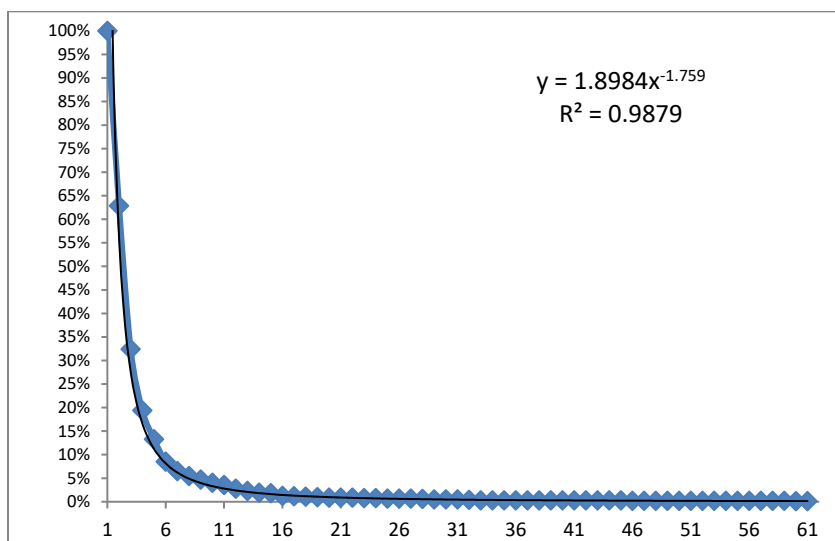
A total of 2165 authors collaborated in writing the studies published by the researchers in Kerman University of Medical Sciences. Table 1 presents the list of researchers who have published 10 or more studies. As seen, Haghdoost, Farhadi and Shafiei ranked the first, second, and third, respectively, with 61, 59, and 45 studies, respectively.

Table 1- The core authors of Kerman University of Medical Sciences on the Web of science in the years studied

Number of documents	Researcher name	Row	Number of documents	Researcher name	Row
18	Sharififar F	11	61	Haghdoost AA	1
17	Mahmoodi M	12	59	Foroumadi A	2
16	Asadipour A	13	45	Shafiee A	3

15	Najafipour H, Nematollahi-Mahani SN, Khazaeli P, Faramarzi MA, Pariookh M, Rajabalian S,	14	32	Nakhaee N	4
14	Malakootian M	15	31	Sheibani V	5
13	Abdollahi M, Forootanfar H, Heidari MR, Mandegary A	16	28	Emami S	6
12	Gholamhoseinian A, Pardakhty A, Pournourmohammadi S, Shabani M, Zahedi MJ,	17	27	Harandi MF	7
11	Dabiri S, Esmaeili-Mahani S, Joukar S, Khaksari M, Mansouri S, Noudeh GD, Sepehri G, Shakibaie M	18	24	Sharifi I	8
10	Baneshi MR, Ghahremani MH, Khamesipour A, Mehrabani M, Shahverdi AR	19	22	Moshafi MH	9
		20	19	Mirzazadeh A	10

In the next stage, the Lotka law in relation to the researchers of Kerman University of Medical Sciences was examined. The analysis and distribution of the literature published by the researchers of Kerman University of Medical Sciences showed that their distribution follows the Lotka Law. This distribution is seen in Diagram 1. Investigating the figures in Diagram 1 shows that the Lotka law regarding scientific products of the Kerman University of Medical Sciences at the web of science and the studied time period is confirmed. Based on this law, the result of the division of the authors with n document by the number of the documents is equal to Lotka number. It means that a limited number of authors have published major part of the scientific documents and a large number of the authors have published a limited number of documents.



Graph 1. Lotte's distribution in relation to researchers of Kerman University of Medical Sciences

What is the annual growth rate of scientific products of Kerman University of Medical Sciences during the years studied?

In order to calculate the average growth rate of the publications of the research population in the studied years, the geometric mean was used based on the equation 1. In this equation, G is

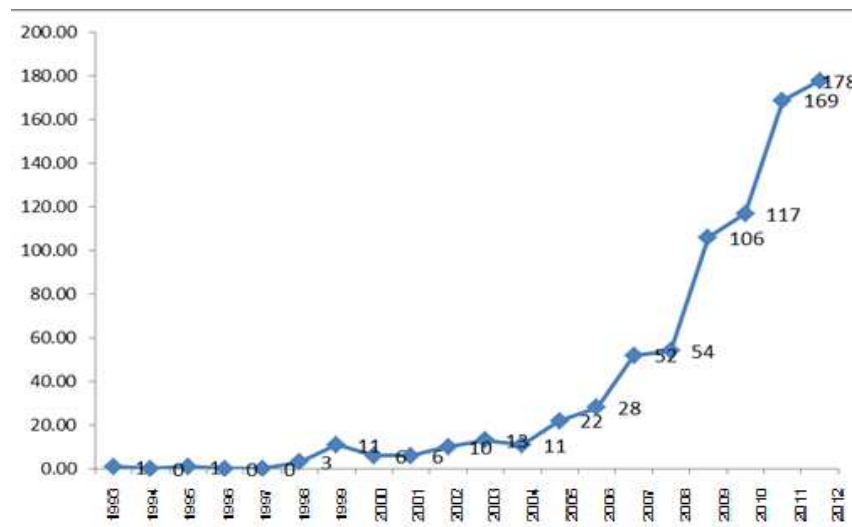
the total growth rate, G 'is the growth rate during each of the studied years that its value can be calculated according to equation 2. An important point in the geometric mean is that if the growth rate is negative during each of the studied years, the G ' value is calculated based on equation 3.

$$G = \sqrt[n]{G'_1 \times G'_2 \times G'_3 \dots G'_n} \quad (1)$$

$$G' = \frac{y_t - y_{t-1}}{y_{t-1}} \quad (2)$$

$$G' = \frac{y_t - y_{t-1}}{y_{t-1}} + 1 \quad (3)$$

In the above equations, y_t is the number of articles per year (Soheili and Osareh, 2009). The results showed that the scientific product of the university had an mean annual growth rate of 31.2%, indicating relatively high ups and downs in the university publications. To calculate the average growth rate of this university, the year 1998 was considered as the origin year. Diagram 2 shows the trend of growth in the scientific products of the university. The highest number of scientific products is related to year 2012 with 178 studies, and follows a moderate increasing trend.



Graph 2. The trend of scientific production of Kerman University of Medical Sciences during the years studied

What is the rate of the subject core documents produced by the research population on the web of science in the studied using the Bradford Law Test?

As seen in Table 2, the number of documents in the first class is 31 journals. In the second class, the number of these journals is 92 and the number of journals in the third class is 266. These three figures are seen in the note column of Table 2. These numbers are similar with slight difference. In other words, the Bradford law has been confirmed in this research. It can be concluded that 31 journals of the first class are core journals, and most documents have been published in these journals.



Table 2: Distribution of the journals publishing the documents of the authors in Kerman University of Medical Sciences

row	Number of journals	Number of documents published	Coefficient (k)	Set note	
1	31	284	-	31	$1*a (a=31)=31$
2	92	261	2094	92	$1*a*k (k=2.94)=91.14$
3	266	280	2094	266	$1*a*k^2 = 267.95$
total	389	825	-		-

What is the rate of research population collaboration in the indexed documents on the web of science in the studied years?

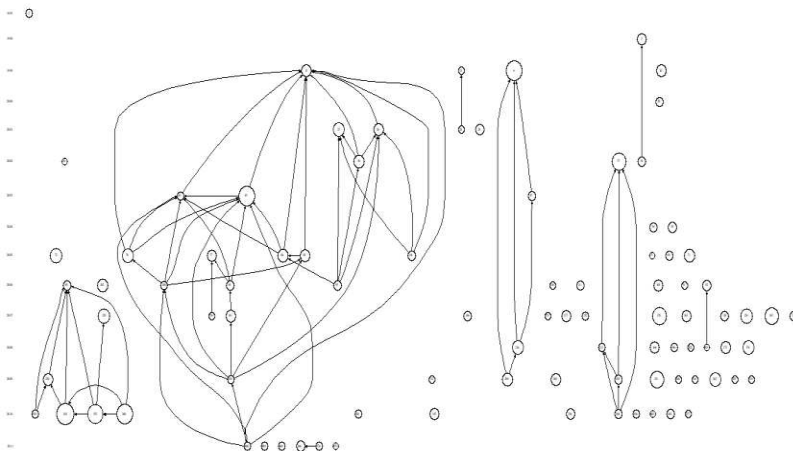
In this section of the article, the rate of group collaboration of the authors in the published documents was examined and the documents were ranked according to the number of their authors. In addition, the coefficient of the group collaboration of the authors was calculated as follows:

$$CC = 1 - \left\{ \sum_{j=1}^k \left(\frac{1}{j} \right) \right\} \approx \frac{Fj}{N}$$

In this formula: Fj= the number of articles authored by the author j; j = the written articles (1 author, 2 authors, 3 authors, etc.); N = total number of published articles; k = the highest number of authors in a article (Braun et al., 1992). Now, if the numbers are included in the formula, the group collaboration coefficient is calculated. The coefficient for all research literature is 0.95, which regards a very high coefficient of collaboration.

How is the scientific map of the scientific products of the research population on the web of science in the studied years and what is the most important scientific cluster composed of the scientific products of this university over the years studied in this research and to which subjects they are related?

In this section, using the Global Citation Score of the featured articles of the authors of Kerman University of Medical Sciences, the science history of this university has been depicted using the HistCite software.



Graph 3. Map of the overall map history of Kerman University of Medical Sciences during the years studied based on global citations

The results showed that there are a total of 471 links in this mapping history. To map the history of Kerman University of Medical Sciences, 90 top documents in terms of the number of citations received, that is, 1% of all documents published by researchers at Kerman University of Medical Sciences were examined. The results indicate that these documents are in four clusters in terms of global citations. The first cluster consists of 7 nodes. The first document has been published by Asghari et al. This document received 22 citations and 7 local citations. In addition, type of collaboration in this literature is international. Other literature of this cluster include: document 342 that has been authored by Parirokh and Torab Nejad, and 96 documents received global citations and 5 documents received local citations, and the document 353 was authored by collaboration of Torbat Nejad and Parirokh and it has received 77 global citations and 4 local citations. Moreover, the document 360 has received 86 global citations. The level of collaboration among the authors of this cluster is international and its subject is pharmacy-endodontics. The second cluster is a relatively large cluster and Forumandi plays a significant role in this cluster. One of the influential documents of this cluster is document 45 written by Forumandi et al. which has received 87 global citations and 6 local citations. Document 25 has been written with collaboration of Forumandi et al. and has received 44 citations and 6 local citations. Moreover, document 254 written by Jazayeri et al. and document 468 written by Khalaj et al. are among the influential documents of this cluster. The level of collaboration of this cluster is national and its subject is medicinal/pharmaceutical chemistry. The third cluster consists of four documents. Document 6 published by Momeni et al., has received 86 global citations and 6 local citations. Documents 216 and 289 were also published by Noazin et al and each of them has received 45 and 38 citations, respectively. The collaboration of this cluster is international, and its subject is parasitology. The fourth cluster also has 4 documents. Document 37 published by Hardani et al. has received 63 global citations and 6 local citations. Another important document of this cluster is document 293, which has received 21 global citations and 7 local citations. The level of collaboration of this cluster is international. The subject of this cluster is parasitology.

The analysis of the scientific map of the research population based on local citations suggests that this map consists of 6 clusters. In general, the documents published by research population have not received significant local citations. The highest local citation in these documents is 14 citations and is not significant in terms of the number of citation received. The first cluster, as the largest cluster in terms of the number of nodes, includes 21 documents, and the most important document of this cluster is document 13, published by Forumandi et al. which has received 14 local citations and 36 global citations. The document 36 has been published by Forumandi et al. and received 7 local citations and 36 global citations. The level of collaboration is national and its subject is pharmacy.

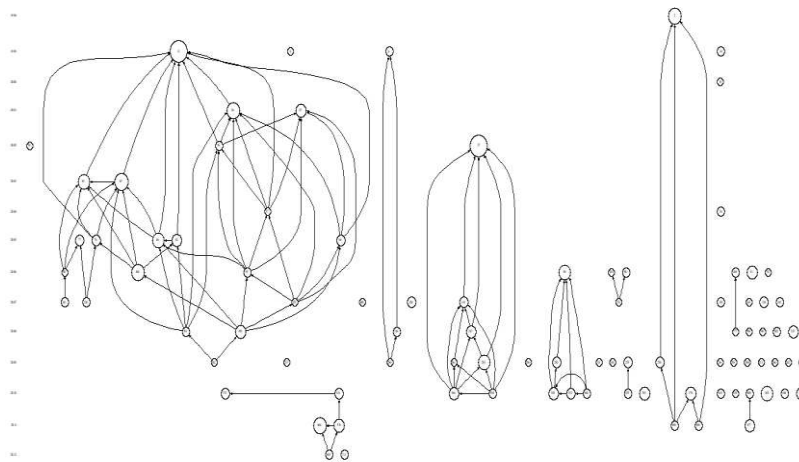
The second cluster consists of 5 documents. Documents 372 published by Shakibaei et al. received 4 local citations and 9 global citations. Document 466 was published by Froutanfar et al. and received 38 global citations and 8 local citations, and document 576 which was published by Faramarzi et al. received 6 local citations and 17 global citations. The level of collaboration is national, and its subject is pharmacy and biotechnology. The third cluster consists of 3 documents. It includes document 6, published by Momeni et al. with 3 local citations and 86 global citations. Document 216 and 289 were published by Novazin et al. and each of them received 45 and 38 global citations, respectively, and 3 and 2 local citations,



respectively. The level of collaboration in this cluster is the international and its subject is parasitology. The fourth cluster consists of 7 documents, and the document 37 published by Harandi et al. has 14 local citations and 69 global citations. Another important document of this cluster is document 293 authored by Sharbatkhorri et al. and has 21 global citations and 7 local citations. The level of collaboration is international and its subject is parasitology. The fifth cluster consists of 5 documents and its important documents are document 89 and document 342. Document 89 has been authored by Asghari et al. and has received 7 local citations and 22 global citations and the document 342 was published by Parirokh and Torabnezhad and it has 96 global citations and 5 local citations. The level of collaboration in this cluster is international and the subject of it is pharmacy-endodontics. The sixth cluster consists of 6 documents and Sharifi played a role in all of the documents. In this cluster, document 3 is considered as the most important document by receiving 8 local citations and 30 global citations. The level of collaboration in this cluster is national and its subject is parasitology.

There is a relationship between the level of collaboration among the authors and the level of scientific product.

The above hypothesis aims to examine the relationship between the level of authors' collaboration and the level of their scientific product. In other words, as the collaboration of the authors increases, their scientific product will also increase. The results of correlation between these two variables are shown in Table 3 and Diagram 5.



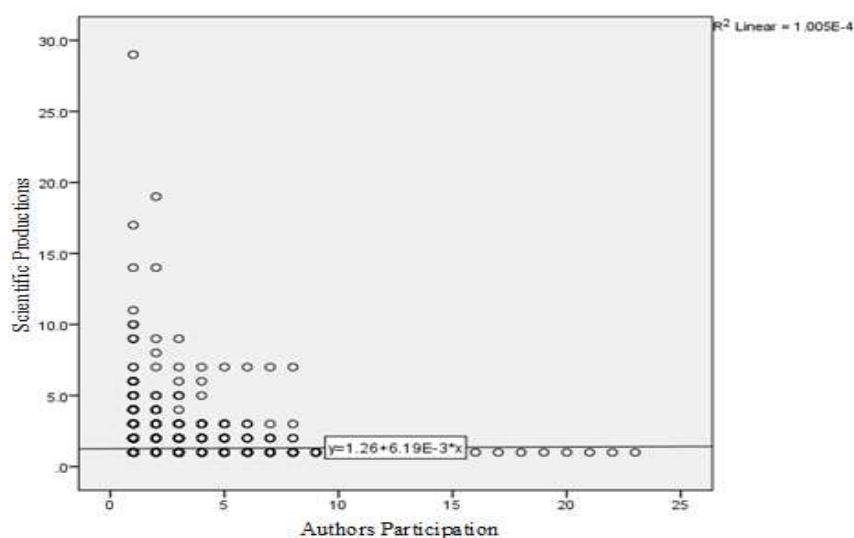
Graph 4: map of the overall map history of Kerman University of Medical Sciences during the years under review based on local citations

Table 3- The correlation between the level of collaboration and the level of their scientific product

Variables studied	Pearson correlation coefficient	Significance level
Collaboration of authors and their scientific product	0.491	0.001

Based on the above test, as the level of significance in the table is equal to 0.001 and this value is smaller than the significance level of 0.05, the above hypothesis is confirmed. The

correlation coefficient of these two variables is positive and is equal to 0.491, which shows that these two variables have a good correlation. In addition, given the slope of the regression line in the dispersion diagram, it can be concluded that the as the level of authors' collaboration increases, the level of their scientific product will also increase (graph 5).



Graph 5 - Participation rate of researchers in Kerman University of Medical Sciences and their scientific production



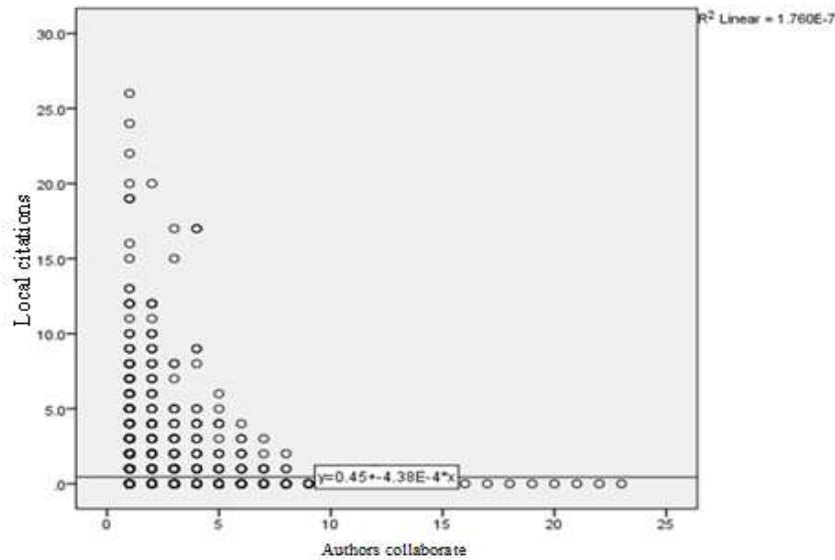
7- There is a relationship between the level of authors' collaboration and the rate of their citation.

The results of the data analysis confirm the research hypothesis that states there is a relationship between the level of researchers' collaboration and the rate of their citation. It means by increasing the number of authors of given document, their research will receive more citations. To investigate the relationship between the variables of this hypothesis, Pearson correlation coefficient test was used (Table 4 and graph 6).

Table 4- The correlation between the level of authors' collaboration and the number of citations received

Studied variables	Pearson Correlation Coefficient	Significance level
Authors' collaboration and the number of citations	0.63	0.0001

According to the above test, since the level of significance is equal to 0.0001 and this value is smaller than the significance level of 0.05, so the above hypothesis is confirmed. The correlation coefficient of these two variables is positive and equals to 0.63, indicating that these two variables have a relatively strong correlation (Table 4). Moreover, with regard to the regression line slope in the dispersion diagram, it can be concluded that as more authors collaborate in a document, that document will receive more citations (graph 6).



Graph. 6: The extent of participation of the research community and their citations on t;he web of science

DISCUSSION AND CONCLUSION

In this research, the scientific publications of Kerman University of Medical Sciences, indexed in the Institute for Scientific Information Database in 1990-2012, were studied. Using citation analysis techniques, the key authors and institutes and the level of group collaboration between them, core journals, and the growth rate was determined. Using the HistCite software, the scientific map of the university was designed. Finally, a significant relationship was found between the scientific product of the researchers of the university and the level of scientific collaborations and number of citations studied. In this section, the results of analyses and interpretations will be compared with the results of similar studies and a general conclusion of the research will be provided. The results of the data analysis showed that Kerman University of Medical Sciences with 844 documents does not have a good status among the universities and research institutes. It seems that the officials of the university should take necessary steps to employ more faculty members. Moreover, they should encourage the faculty members, especially in fields in which there are little scientific product to enhance the rate and the improvement of scientific product of the university so that they can promote their university rank and status among other universities. However, the process of scientific product of this university suggests the fast growth in the number of scientific products of this university in the last years of the study, indicating a kind of movement in this direction and the relative evolution in the Kerman University of Medical Sciences.

It should be noted that no researcher was found at the Kerman University of Medical Sciences to have more than one hundred scientific documents indexed on the web of science. This is an important point and it seems that the university officials should provide necessary incentives to increase the scientific output of faculty members to improve their status among other universities. With regard to the level of collaboration among the researchers of Kerman University of Medical Sciences with researchers of other countries, studies have shown that England, Australia, the USA, the Netherlands and Canada have had the highest collaboration

with researchers of this university in the field of science production and the results of this research confirm the results of the previous studies (Talebi, 2002; Osareh and Wilson, 2002; Saboori and Poorsasan, 2005; Soheili, 2011; Soheili and Osareh, 2009; Keshvari, 2009). The main reasons for the high level of collaboration with these countries might be due to the use of the English language as the standard language in those countries, the graduation place of the students or provision of study opportunities for students by these countries, and the publication of more journals indexed on the web of science in these countries. All of these factors may affect the selection of researchers in these countries. In addition, investigations indicated that the authors of Kerman University of Medical Sciences had the highest scientific collaboration with the researchers of Tehran University of Medical Sciences, Islamic Azad University and Shahid Beheshti University of Medical Sciences. The results of this study also suggest that the distribution of articles by the authors of this university follows the Lotka law (Soheili and Osareh, 2009; Soheili, 2011; Keshvari, 2009). It is in line with the result of the research conducted by Akakandelwa (2009). His research results showed that pattern of collaboration between the researchers of University of Zambia and foreign researchers follows the Lotka law. The results of Borracci et al (2009) on the cardiology subject in Argentina also showed that the productivity index follows the Lotka law (Osareh and McCain, 2008). By reviewing the above-mentioned studies, it can be stated that one of the most important reasons for this issue is "struggle for survival" in academic environments and also the nature of some scopes of study, such as pharmacy and chemistry, making them to follow the Lotka law in these types of studies. In Iran, the policies for evaluation and monitoring of ministries of science, research and technology and health and medical education, as well as the regulations for promotion of the faculty members are based on the quantity and number of articles. In other words, the number of articles published plays a key role in the ranking of universities, so the scientists at the universities have understood this important issue and have increased the quality and quantity of their articles to promote the status of the university in internal and international rankings. The results also showed that the average growth rate of this university has a fairly good curve, and this growth rate is in line with scientific progress in Iran. The results suggest that the average growth rate of this university is higher than that of chemistry (26%) (Osareh and McCain, 2008), physics (26.16%) (Osareh and Khademi, 2013) and engineering (24%) studies (Osareh and Wilson, 2002) and lower than that of Tehran University of Medical Sciences (34.16) (Soheili, 2011). By comparing the results and reviewing the similar studies, it is predicted that this growth continue with a high slope for at least a few years, while the growth trend in most Iranian universities has almost reached a steady state and it is considered a threat. Thus, it is predicted that this growth trend to continue over the next few years.

Generally, the scientific products of the Kerman University of Medical Sciences have been increased since 2005. The officials of this university should increase the material and spiritual support of the active authors and encourage and take measures for the production of science by all faculty members of this university to promote the rank of Kerman University of Medical Sciences. It also seems that holding educational workshops at the university by scientist experts and teaching the way of publishing articles in valid international journals can be very effective. The findings also suggest that the highest level of published scientific is related to year 2012. It seems that a part of this growth is due to the development of high education studies in recent years at the university and the other part of this growth is due to an increase



in the activities of the faculty members. In this area, the change in the pyramid of faculty members (from educator to assistant professor) in recent years cannot be ignored. The results also revealed that distribution of the frequency of the subjects of core documents produced by the authors of the university follows the Bradford's law. It means that few number of journals publish the largest number of scientific products of this university. These results are in line with the results of the research conducted by Danesh, Soheili and Mesri Nejad (2009) regarding the scientific products of Isfahan, Nokarizi, Soheili, and Danesh (2010) regarding the scientific products of researchers at Birjand University of Medical Sciences and Osareh, Norouzi, and Keshvari (2009) regarding the scientific products of Iran from 2000 to 2006. The results of the data analysis showed that there is a positive correlation between the authors' collaboration rate and the number of documents published by them. These results are in line with the results of the research conducted by Jacobs (2008). He examined the status of group collaboration of five South African universities. The results indicated a sharp decline in scientific outputs since 1995 to end of 1998 and again since 2003 onwards. The main reason for this decline is the lack of research collaboration by South African scientists. The results of this study are consistent with the results of the article conducted by Akakandelwa (2009). His research results showed that there is a positive relationship between the author productivity and the author's collaboration and with authors' collaboration increase, the productivity will also increase. In addition, these results are in line with the results of the research conducted by Fatahi, Danesh and Soheili (2011) in Ferdowsi University of Mashhad.

The collaboration between the researchers of Kerman University of Medical Sciences was more than that between professor and student and between colleague with colleague and it is geographically both at the regional and international level. The results of this article are in line with those of the research conducted by Gomez et al. (2009). In their article, they studied the international and intra-university collaboration in Spanish universities. Their research suggests that intra-university collaboration patterns in Spain are influenced by geographical vicinity, administrative factors, and political dependencies. In this regard, Rahimi and Fatahi (2009) also investigated the factors affecting scientific collaboration at Ferdowsi University of Mashhad and their results showed that factors such as the culture of collaboration in society, the budget for collaborative activities, mutual trust between individuals as well as common goals and attitudes among individuals have a greater impact on the level of scientific collaboration are among other influential factors. Thus, the factors stated above can increase the level of collaboration at the national and international level among the researchers of Kerman University of Medical Sciences. The results also revealed a significant relationship between the number of authors of a document and the number of citations received by that document. These results are in line with those of the research conducted by Pearson et al (2004), Fatahi, Danesh and Soheili (2011). They found that the articles authored with a high collaboration of authors received more citations than the articles written by single author. In addition, the number of citations grows with increasing the number of articles authored by group collaboration. In other words, the number of citations each article receives has a significant and direct relationship with the number of authors of that article. It should be noted that the main role of the scientific articles is the production of new ideas and knowledge. Due to specialization of science and the establishment of interdisciplinary sciences in Kerman University of Medical Sciences and the necessity of the presence and collaboration of various



specialties to author articles, the researchers of Kerman University of Medical Sciences should collaborate with the researchers of other universities and countries to publish highly-cited articles.

The studies have shown that there is no global model for scientific product that can be applied to all scientific domains and different scientific domains produce the knowledge in different ways (Jansen, Gortz and Heidler, 2010). It is suggested that the micro and macro policies of this university vary according to different disciplines and pay special attention to interdisciplinary sciences given the rapid growth in these sciences. As Braun *et al.* (1992) stated with regard to the scientific domain of physics and sub-domains, the interdisciplinary aspect could be a relative indicator for providing collaborative research activities in various domains of that science. The articles resulting from the international collaboration have received more global citations. The analysis of the rate of received citations by Kerman University of Medical Sciences showed that these documents consisted of 4 clusters, which were in the domain of pharmacy and parasitology (Azami, Sadatmoosavi and Izadifar, 2019; Aazami, yousefzadeh and Namdar, 2010). Many of the university academic disciplines have failed to produce influential articles to be included among the highly-cited articles. It seems that all research and technology officials of the university should make their efforts to encourage people with less or without scientific work in various ways to publish articles, especially in valid journals.

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