DOI: 10.4274/jarem.galenos.2021.42714
J Acad Res Med 2021;11(3):234-40

H-index and Bibliometric Analysis of Scientific Production Parameters of the Assistant Academic Anesthesiology and Reanimation Specialist in Educational Institutions in Turkey

Volkan Hancı[1], Gözde Altuntaş Uzun[2], Manolya Aksoy[2], Selin Bozkurt[2], Büşra Otlu[2], Murat Özçelik[2], Özlem Öner[1], Necati Gökmen[1]

[1]Dokuz Eylül University Faculty of Medicine, Department of Anaesthesiology and Reanimation, Division of Intensive Care, İzmir, Turkey
[2]Dokuz Eylül University Faculty of Medicine, Department of Anaesthesiology and Reanimation, İzmir, Turkey

Cite this article as: Hancı V, Altuntaş Uzun G, Aksoy M, Bozkurt S, Otlu B, Özçelik M, Öner Ö, Gökmen N. H-index and Bibliometric Analysis of Scientific Production Parameters of the Assistant Academic Anesthesiology and Reanimation Specialist in Educational Institutions in Turkey. J Acad Res Med 2021;11(3):234-40

ABSTRACT

Objective: Thanks to bibliomethric analysis; it is possible to learn more about productivity in science by evaluating parametres such as number of studies, citations and h-index. Purpose of our study is to evaluate the factors that affect the h-index of academician anesthesiologists. In our study, it was aimed to evaluate the effects of anesthesiology and reanimation specialists working in educational institutions in our country, the number of publications, citations, h-indexes, gender, institution and title determined using the Scopus database.

Methods: Academicians were chosen by TARD Education Institues and websites of different institues. Those academicians' number of articles, citations and h-index were determined by using Scopus.

Results: A total of 1,512 academicians working in the field of anaesthesiology and reanimation in educational institutions in our country were included in our study. The number of publications in the Scopus database of anaesthesiology and reanimation academicians was 20.27±23.90, the average number of citations was 148.32±270.41 and the mean h-index was 4.57±4.36. The number of publications, citation numbers and h-indexes of the professors were found to be higher than those of associate professors, doctor lecturers, faculty members, experts and experts. The number of publications, number of citations and h-indexes of male anesthesiology and reanimation specialists were found to be higher than their female colleagues.

Conclusion: Our study is the first study in which the number of publications, number of citations and h-indexes, which are important bibliographic parameters showing the scientific production of all anesthesiology and reanimation specialists working in educational institutions in our country, were evaluated. The h-index is an effective parameter in revealing academic strength, and in our study, it was determined that gender, institution and title were effective on bibliographic parameters.

Keywords: H-index, gender, title, anesthesiology and reanimation, academic

ORCID IDs of the authors: V.H. 0000-0002-2227-194X; G.A.U. 0000-0002-4963-9089; M.A. 0000-0001-5100-9206; S.B. 0000-0002-5382-907X; B.O. 0000-0002-0664-2560; M.Ö. 0000-0001-6906-7500; Ö.Ö. 0000-0001-6171-2114; N.G. 0000-0002-3225-7666.

Corresponding Author: Özlem Öner,
E-mail: namdaroner@gmail.com

Received Date: 20.04.2021 **Accepted Date:** 02.09.2021

J Acad Res Med 2021;11(3):234-40

INTRODUCTION

Bibliometric studies evaluate academic productivity with quantitative methods and provide information about the activities of scientific publications and science producers (1-3). The first bibliometric study was published by Garfield in 1987 in "The Journal of the American Medical Association (JAMA)" with the title of "100 Most Cited Articles Published in JAMA". Since then, many bibliometric studies have been conducted in different academic fields and bibliometric parameters have become an important part of the evaluation of academic productivity (4,5). Many parameters are used to evaluate authors and journals. These include measures and indices such as number of publications, number of citations, h-index, m-section, hc-index, e-index, g-index, i-10 [in] index, impact factor of the journal, Eigenfactor, article impact score, SCImago journal ranking, impact normalized by source per publication (1-3).

The h-index has been widely accepted as an important measure of evaluating academic productivity (6). It is a metric that measures both the productivity and citation impact of scientists (7). It is simply based on the citations of the scientist's articles, the most cited articles, and the number of publications (8). The index can also be used to measure the productivity and impact of academic journals, departments, and a group of scientists such as universities or countries (9).

The Scopus database is the largest online bibliometric database, launched by Elsevier in 2004. It includes journal articles published from all major disciplines since 1966, including articles from the social and physical sciences not included in PubMed (10). A key advantage of the Scopus database is individual author identity, including the author's place of work, which groups articles by author based on affiliation and co-authors. Authors with similar names can report errors or omissions to preserve the accuracy of their lists and can be distinguished by these features (11). In contrary to this, PubMed, Google Scholar, and Web of Science search for specific text strings to group authors so that authors with similar names are not separated. In addition, Google Scholar has a subscription and registration system, and therefore, unregistered or unsubscribed academicians cannot be found in Google Scholar searches (12).

Studies related to the h-index have been conducted in many fields of medicine (13-15). In previous studies conducted in different countries, it was emphasized that gender and academic title were effective on h-index and bibliometric parameters, and there was gender inequality in academia (13-15). In our literature analysis, although there are studies that search the h-indexes of anesthesiology specialists working in different countries in the Scopus database and use bibliometric data, there is no such study in our country where the Scopus database is used.

Our aim in this study is to analyze the number of publications, citations and h-index determined in the Scopus database of all anesthesiology and reanimation specialists working in academic staff in our country, and to evaluate the effects of gender, institution and title on bibliometric parameters.

METHODS

After receiving the approval from the Non-Interventional Researches Ethics Committee of Dokuz Eylül University (decision no: 2020/16-05, date: 13.07.2020), a training program was conducted on the TARD Educational Institutions directory and the corporate websites of the TR Ministry of Health, state and private universities, Training and Research hospitals, which are open for anonymous use. The list of anesthesiology and reanimation specialists still working in the institution was scanned until 15.07.2020 and a list of anesthesiology and reanimation specialists working in universities and training and research hospitals in our country was created. Academic titles as professor, associate professor, assistant professor, doctor lecturer, faculty member, specialist or specialist doctor, genders, and whether they were the head of the department or not of the anesthesiology and reanimation specialists included in the data analysis were recorded at the time of the screening. Missing gender data was identified through Google and LinkedIn. Faculty members and retired faculty members whose academic staff could not be determined exactly were excluded from the study. The number of publications, h-index and citation numbers of each faculty member were recorded as bibliometric data from the Scopus database.

Statistical Analysis

SPSS 24.0 statistical package program was used for statistical analysis. Frequent data were presented as number and percentage (n, %), continuous variables as mean ± standard deviation, and median (minimum-maximum). Chi-square test was used in the analysis of frequency data. The Kolmogorov-Smirnov test was used to determine whether the data showed a normal distribution in the analysis of continuous values. As a result of the test, it was determined that the data did not show normal distribution. Kruskal-Wallis test was used in case of more than two groups in the data, and Mann-Whitney U test was used in case of two groups. A p value less than 0.05 was accepted as a significant difference.

RESULTS

The average number of publications in the scopus database of 1,512 anesthesiology and reanimation specialists included in the analysis was 20.27±23.90, the median value was 12 (0-233), the average number of citations was 148.32±270.41, the median value was 44 (0-2,906) and the mean h-index was 4.57±4.36, and the median value was 3 (0-25).

Of the anesthesiology and reanimation specialists included in our study, 306 (20.2%) were professors, 218 (14.4%) associate professors, 157 (10.4%) faculty members, 22 (4.8%) faculty members, 759 (50.2%) of them were working as experts.

J Acad Res Med 2021;11(3):234-40

It was determined that 872 (57.7%) of the anesthesiology and reanimation specialists who met the inclusion criteria and worked in educational institutions were female and 640 (42.3%) were male. Among female academicians, 159 (18.2%) are professors, 117 (13.4%) associate professors, 67 (7.7%) assistant professors, 46 (5.3%) faculty members, 483 (55.4%) had specialist titles. Among male academicians, 147 (23%) are professors, 101 (15.8%) associate professors, 90 (14.1%) assistant professors, 26 (4.1%) faculty members, 276 (43.1%) specialists. The number of female academicians who are professors, associate professors, lecturers, faculty members and specialists was found to be higher than male academicians (p<0.001, chi-square test) (Table 1). It was determined that 54 (6.2%) of the female academicians and 57 (8.9%) of the male academicians were the head of the department (p=0.046, chi-square test).

Number of publications, citation counts and average h-indexes of the professors were found to be higher than associate professor (p<0.001, p<0.001, p<0.001, Mann-Whitney U test, respectively), assistant professor (p<0.001, p<0.001, p<0.001, Mann-Whitney U test, respectively), faculty member specialist (p<0.001, p<0.001, p<0.001, Mann-Whitney U test, respectively) and experts (p<0.001, p<0.001, p<0.001, Mann-Whitney U test, respectively) (Table 2).

The number of publications, citations and h-index averages of associate professors were found to be significantly lower than professors (p<0.001, p<0.001, p<0.001, Mann-Whitney U test, respectively) and were significantly higher than assistant professor (p<0.001, p<0.001, p<0.001 respectively) , Mann-Whitney U test), faculty member specialist (p<0.001, p<0.001, p<0.001, Mann-Whitney U test, respectively) and specialist (p<0.001, p<0.001, p<0.001, respectively, Mann-Whitney U test)) (Table 2).

The number of publications, citations and h-index averages of the assistant professors were found to be significantly lower than professors (p<0.001, p<0.001, p<0.001, Mann-Whitney U test, respectively) and associate professors (p<0.001, p<0.001, p<0.001, Mann-Whitney U test, respectively) and significantly higher than faculty member specialist (p=0.001, p=0.045, p=0.005, Mann-Whitney U test, respectively) and specialist (p<0.001, p<0.001, p<0.001, Mann-Whitney U test, respectively) (Table 2).

The number of publications, citations and h-index averages of the faculty member specialists were found to be significantly lower than the professors (p<0.001, p<0.001, p<0.001, Mann-Whitney U test, respectively), associate professors (p<0.001, p<0.001, p<0.001, respectively) Mann-Whitney U test) and assistant professors (p=0.001, p=0.045, p=0.005, Mann-Whitney U test, respectively) and specialists (p=0.004, p=0.035, p=0.010, Mann-Whitney U test, respectively) (Table 2).

The mean number of publications in the Scopus database of female anesthesiology and reanimation specialists was 17.74±22.72, the median 9 (0-233), the mean number of citations 120.43±222.65, the median 34 (0-2,296) and the mean number of h-index 4.03±3.99 and the median 3 (0-25). The mean number of publications of male anesthesiology and reanimation specialists is 23.51±24.98, the median 18 (0-153), the mean number of citations 183.19±32.81, the median 73.5 (0-2906), and the mean of h-index 5.27±4.71, the median 4 (0-24) in the Scopus database. The mean number of publications, citations and h-indexes of male anesthesiology and reanimation specialists were found to be significantly higher than those of female anesthesiology and reanimation specialists (p<0.001, p<0.001, p<0.001 Mann-Whitney U test, respectively) (Table 2).

The mean number of publications (p=0.020, Mann-Whitney U test), the mean number of citations (p=0.005, Mann-Whitney U test) and the mean h-index (p=0.002, Mann-Whitney U test) in the scopus database of male anesthesiology and reanimation professors was found to be significantly higher than female anesthesiology and reanimation specialists with the professor title (Table 2).

The mean number of publications (p=0.030, Mann-Whitney U test), the mean number of citations (p=0.008, Mann-Whitney U test) and the mean h-index (p=0.010, Mann-Whitney U test) in the Scopus database of male anesthesiology and reanimation specialists with the title of associate professor was significantly higher than that of female anesthesiology and reanimation specialists with the title of associate professor (Table 2).

There was no significant difference between the number of publications, the number of citations, and the mean h-index in the Scopus database of male and female anesthesiology and reanimation specialists who were assistant professors, faculty member specialists and specialists (p>0.05, Mann-Whitney U test) (Table 2).

Table 1. Distribution of academic titles by gender

	Female	Male	Total
Professor	159 (18.2%)	147 (23.0%)	306 (20.2%)
Associate professor	117 (13.4%)	101 (15.8%)	218 (14.4%)
Assistant professor	67 (7.7%)	90 (14.1%)	157 (10.4%)
Faculty member specialist	46 (5.3%)	26 (4.1%)	72 (4.8%)
Specialist	483 (55.4%)	276 (43.1%)	759 (50.2%)
Total	872 (100%)	640 (100%)	1512 (100%)

chi-square test, p<0.001

Table 2. Median (minimum-maximum) values (mean ± standard deviation) of the number of publications, citation numbers and h-indexes determined from the Scopus database according to academic title and gender in the field of anesthesiology and reanimation

	Female			Male			Total		
	Number of publications	Number of citations	H-index	Number of publications	Number of citations	H-index	Number of publications	Number of citations	H-index
Professor doctor	41.60±31.89* 36.5 (1-233)	330.55±342.72* 256 (1-2.296)	8.64±4.65* 8 (1-25)	48.15±28.40 40 (12-153)	448.80±471.43 293.5 (57-2.906)	10.39±4.63 9 (3-24)	44.76±30.38$^{\dagger\ddagger\epsilon\pounds}$ 38.5 (1-233)	387.88±413.75$^{\dagger\ddagger\epsilon\pounds}$ 273 (1-2.906)	9.48±4.71$^{\dagger\ddagger\epsilon\pounds}$ 9 (1-25)
Associate professor doctor	23.31±13.56** 22 (1-65)	117.21±104.90** 92 (0-518)	5.00±2.49** 5 (0-11)	28.72±17.03 25 (1-114)	162.01±144.16 135.5 (1-905)	6.02±2.63 6 (1-14)	25.76±15.43$^{¥\alpha\beta}$ 24 (1-114)	137.41±125.82$^{¥\alpha\beta}$ 111 (0-905)	5.46±2.60$^{¥\alpha\beta}$ 5 (0-14)
Assistant professor	12.13±10.58 8 (1-57)	35.67±41.39 19.5 (0-195)	2.58±1.64 2 (0-8)	14.54±12.02 11 (1-51)	52.11±75.80 28 (0-418)	3.24±2.26 3 (0-10)	13.52±11.46$^{\phi\Psi}$ 9 (1-57)	45.15±63.87$^{\phi\Psi}$ 24 (0-418)	2.96±2.04$^{\phi\Psi}$ 3 (0-10)
Faculty member specialist doctor	7.34±7.08 4.5 (0-27)	22.18±35.06 13 (1-187)	1.90±1.07 2 (1-4)	9.68±8.98 6 (2-29)	39.36±51.26 20 (0-203)	2.26±1.52 2 (0-6)	8.21±7.84$^{\theta}$ 5 (0-29)	28.58±42.17$^{\theta}$ 15 (0-203)	2.04±1.26$^{\theta}$ 2 (0-6)
Specialist doctor	5.49±6.26 3 (0-37)	25.52±63.34 8 (0-710)	1.65±1.54 1 (0-11)	6.12±7.72 3 (0-55)	28.44±64.49 6 (0-423)	1.81±1.97 1 (0-12)	5.72±6.84 3 (0-55)	26.62±63.71 7 (0-710)	1.71±1.71 1 (0-12)
Total	17.74±22.72 9 (0-233)	120.43±222.65 34 (0-2.296)	4.03±3.99 3 (0-25)	23.51±24.98 18 (0-153)	183.19±322.81 73.5 (0-2.906)	5.27±4.71 4 (0-24)	20.27±23.90 12 (0-233)	148.32±273.41 44 (0-2.906)	4.57±4.36 3 (0-25)

*p<0.05 Mann-Whitney U test between female and male academics with the title of professor, **p<0.05 Mann-Whitney U test between female and male academics holding the title of associate professor, †p<0.05 Mann-Whitney U test between professors and associate professors, Mann-Whitney U test, ‡p<0.05 Mann-Whitney U test between professors and assistant professors, $^{\epsilon}$p<0.05 Mann-Whitney U test between professors and faculty member specialists, $^{£}$p<0.05 Mann-Whitney U test between professors and faculty member specialists, $^{¥}$p<0.05 Mann-Whitney U test between associate professors and assistant professors, $^{\alpha}$p<0.05 Mann-Whitney U test between associate professors and faculty member specialists, $^{\beta}$p<0.05 Mann-Whitney U test between associate professors and specialists, $^{\phi}$p<0.05 Mann-Whitney U test between assistant professors and faculty member specialists, $^{\Psi}$p<0.05 Mann-Whitney U test between assistant professors and specialists, $^{\theta}$p<0.05 Mann-Whitney U test between faculty member specialists and specialists

When the number of publications, the number of citations and the h-indexes of the Academic Anesthesiology and Reanimation specialists included in the study were examined according to their workplaces as universities or training and research hospitals, the average number of publications of a total of 802 (54.4%) academicians working in university hospitals was 27.06±26.45, median 22 (0-233), mean number of citations 199.27±319.87, median 97 (0-2,906), mean h-index 5.91±4.66, median 5 (0-25); the average number of publications of 690 (45.6%) academicians working in training and research hospitals was 10.11±14.41, the median 4 (0-94), the mean value of citations 58.81±117.70, the median 13 (0-877), mean of h index was 2.51±2.79, and the median was 1 (0-18). In our study, the number of publications, the number of citations and the average values of h-index of the academicians working in the training and research hospital were found to be significantly lower than the academicians working in the universities ($p<0.001$, $p<0.001$, $p<0.001$ Mann-Whitney U test, respectively).

DISCUSSION

In this study, we aimed to analyze the bibliographic data of anesthesiology and reanimation specialists working in academic institutions in our country and the factors affecting it; there are 1,512 anesthesiology and reanimation specialists working in academic institutions in our country, the number of female professors, associate professors, faculty members, specialists and experts is higher than male academicians, and there is a significant difference in terms of the distribution of academic titles of anesthesiology and reanimation specialists according to their gender, and it was found that the number of male department heads was significantly higher than the number of female department heads while the number of publications, citation numbers and h-index averages of male anesthesiology and reanimation specialists were significantly higher than that of female anesthesiology and reanimation specialists; gender difference and academic title were effective on bibliographic parameters. In many fields of medicine, although the absolute value varies according to the specialty, an increase in the h-index is observed with the advancement of the academic title (14). Pagel and Hudetz (15) examined the bibliographic data of faculty members in 24 academic anesthesiology departments in the USA and they found that increases in the h-index, number of publications, and total citations correlated with the increase in academic title. Moppett and Hardman (16) examined the total number of publications, total number of citations, h-index and g-index value of 104 academicians working in 23 academic departments in the field of anesthesiology in UK, and when they compared nonprofessionals and professors, they determined that all bibliographic parameters were significantly higher in professors. Pagel and Hudetz (17), who analyzed the bibliographic data of academic cardiothoracic anesthesiologists working in the USA, determined that an increase in academic title increased the number of h-index, total publication and total citation. In another study in which 268 academic anesthesiologists working at the University of Toronto were evaluated, it was emphasized that the h-index increased with the increase in the academic title (18). Spearman et al. (19) found that the increase in the academic title and the increase in the h-index were significant in their study among academic neurosurgeons. In another study conducted with pediatric neurosurgeons in North America, the increase in h-index was found to be significant with an increase in academic title (20). In our study, it was determined that as the academic title increased, the number of publications, the number of citations and the h-index increased significantly.

According to the 'Manpower Report' published by the Public Hospitals Institution of Turkey in 2014, there are a total of 32,888 specialist physicians, of whom 13,759 (41.84%) are female and 19,129 (58.16%) are male specialists (21). In the same report, ten branches in which the most female specialist physicians work are given. In the field of anesthesiology and reanimation, there are a total of 2,538 specialist physicians, of which 1,562 (61.54%) are female and 976 (38.46%) are male. In our study, when universities and training and research hospitals of Ministry of Health, which have academic working environments in our country were examined, the number of female academicians among professors, associate professors, lecturers and specialists in the field of anesthesiology and reanimation was found to be significantly higher than male academicians. This data was evaluated in accordance with the 'Manpower Report' published by the Public Hospitals Institution of Turkey in 2014.

In our study, it was determined that the average number of publications, h-index and citation counts of female anesthesiology and reanimation specialists were significantly lower than that of male anesthesiology and reanimation specialists. Pagel and Hudetz (15) also found that the h-index, number of publications, and total citation averages of male academics working in 24 academic anesthesiology departments in the USA were significantly higher than female academicians. In a study conducted in Canada, it was determined that male anesthesiologists had higher h-index, number of publications, and citation numbers compared to female anesthesiologists (22). Pagel and Hudetz (23) examined the bibliographic data of 397 academic anesthesiologists and determined that the h-indexes of female anesthesiologists were lower than male anaesthesiologists. Myers et al. (24) found that female surgeons had lower h-indexes than men. Hill et al. (25) found that the h-indexes of gynecological oncologists increased with male gender and with increasing academic rank. In a study conducted with pediatric neurosurgeons in North America, the h-index increase was found to be significant with male gender (20).

According to the results obtained from various studies, women progress more slowly in academic ranks and have lower publication rates (25,26). Studies have emphasized that women are less likely to be in leadership positions and are more likely to leave academic medicine (26). Lack of mentors, unfavorable work culture, barriers to research, and women's social roles are cited as contributing factors to female academics' withdrawal (25, 26). The reasons why gender inequality in medicine continues

J Acad Res Med 2021;11(3):234-40

today are multifaceted. Individually, female academics are torn between family and cultural expectations and their academic roles. In the institutional field, it is possible to explain the reasons for gender discrimination best with the climate of that institution. Institutional climates for female academics are defined as "cold" (27). Considering that institutions are the extension of the cultural codes of the societies they are in, changing the established social practices and creating an organizational climate that leadership roles are suitable for women can help solve the problem. Institutions should work to eliminate gender inequality (27-29).

In our study, when the number of publications, citation count and h-indexes of the were examined according to the working places of the academicians, it was determined that the number of publications and citations and the h-index values of the academicians working at universities were significantly higher than the academicians working in training and research hospitals. We think that this result is caused by the higher service load of education and research hospitals in our country, the fact that universities have more multidisciplinary structures and the rate of research orientation is higher. We think that the arrangements made after our study in our country and the gathering of some of the training and research hospitals under the roof of the health sciences university will make it difficult to evaluate the studies to be done on this subject in the future. In our literature analysis, no scientific data in this direction was found in our country or in the world literature. We think that this issue should be investigated in future studies in different branches.

Study Limitations

There are also some limitations of our study. There may be information inaccuracies in the lists on the websites used to obtain data in our study. In addition, female academics may have changed their surnames after marriage. Therefore, the websites of the institutions were checked to correlate and change the number of publications, h-index or academic parameters before and after the surname change.

CONCLUSION

Our study is the first study in Turkey to evaluate the number of anesthesiology and reanimation specialists in academic staff, gender distribution, academic title distribution, administrative task distribution, number of publications in the scopus database, number of citations and h-indexes. In our study, it was found that there are 1,512 anesthesiology and reanimation specialists in our country, that the number of female academicians in professors, associate professors, faculty members and specialists is higher than the number of male academics; and it has been determined that the number of publications, the number of citations and the h-index value have a statistically significant relationship with the academic titles, workplace and gender of the anesthesiology and reanimation specialists.

Ethics Committee Approval: Approval was obtained from the Non-Interventional Research Ethics Committee of Dokuz Eylül University (decision no: 2020/16-05, date: 13.07.2020).

Informed Consent: This study does not require patient consent.

Peer-review: Internally peer-reviewed.

Author Contributions: Concept - V.H., G.A.U., N.G.; Design - V.H., M.A., S.B., B.O., M.Ö., Ö.Ö., N.G.; Data Collection and/or Processing - V.H., G.A.U., M.A., S.B., B.O., M.Ö., Ö.Ö., N.G.; Analysis and/or Interpretation - V.H., G.A.U., M.A., S.B., B.O., M.Ö., Ö.Ö., N.G.; Literature Search - V.H., G.A.U., M.A., S.B., B.O., M.Ö., Ö.Ö., N.G.; Writing - V.H., Ö.Ö., N.G.

Conflict of Interest: The authors have no conflict of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

1. Choudhri AF, Siddiqui A, Khan NR, Cohen HL. Understanding bibliometric parameters and analysis. Radiographics 2015; 35: 736-46.
2. Lou J, Tian SJ, Niu SM, Kang XQ, Lian HX, Zhang LX, et al. Coronavirus disease 2019: a bibliometric analysis and review. Eur Rev Med Pharmacol Sci 2020; 24: 3411-21.
3. Buyukcoban S, Oner O, Hancı V. A bibliometric analysis of the most cited articles in geriatric anaesthesia. Turk J Geriatr 2020; 23: 410-8.
4. Garfield E. 100 citation classics from the Journal of the American Medical Association. JAMA 1987; 257: 52-9.
5. Lou J, Tian SJ, Niu SM, Kang XQ, Lian HX, Zhang LX, et al. Coronavirus disease 2019: a bibliometric analysis and review. Eur Rev Med Pharmacol Sci 2020; 24: 3411-21.
6. Hirsch JE. Does the h index have predictive power? Proc Natl Acad Sci U S A 2007; 104: 19193-8.
7. Hirsch JE. An index to quantify an individual's scientific research output. Proc Natl Acad Sci U S A 2005; 102: 16569-72.
8. Rad AE, Brinjikji W, Cloft HJ, Kallmes DF. The H-index in academic radiology. Acad Radiol 2010; 17: 817-21.
9. Svider PF, Mauro KM, Sanghvi S, Setzen M, Baredes S, Eloy JA. Is NIH funding predictive of greater research productivity and impact among academic otolaryngologists? Laryngoscope 2013; 123: 118-22.
10. Scopus. ElsevierWebsite. Available from: http://www.scopus.com.
11. Vieira ES, Gomes JA. A comparison of Scopus and Web of Science for a typical university. Scientometrics 2009; 81: 587-600.
12. Yadava SM, Patrick HS, Ananth CV, Rosen T, Brandt JS. Top-cited articles in the Journal: a bibliometric analysis. Am J Obstet Gynecol 2019; 220: 12-25.
13. Castillo M. Measuring academic output: the H-index. AJNR Am J Neuroradiol 2010; 31: 783-4.
14. Khan N, Thompson CJ, Choudhri AF, Boop FA, Klimo P Jr. Part I: the application of the h-index to groups of individuals and departments in academic neurosurgery. World Neurosurg 2013; 80: 759-65.e3.
15. Pagel PS, Hudetz JA. An analysis of scholary productivity in United States academic anaesthesiologists by citation bibliometrics. Anaesthesia 2011; 66: 873-8.
16. Moppett IK, Hardman JG. Bibliometrics of anaesthesia researchers in the UK. Br J Anaesth 2011; 107: 351-6.
17. Pagel PS, Hudetz JA. Scholarly productivity of united states academic cardiothoracic anesthesiologists: influence of fellowship accreditation and transesophageal echocardiographic credentials on h-index and other citation bibliometrics. J Cardiothorac Vasc Anesth 2011; 25: 761-5.
18. Bould MD, Boet S, Sharma B, Shin E, Barrowman NJ, Grantcharov T. h-Indices in a university department of anaesthesia: an evaluation of their feasibility, reliability, and validity as an assessment of academic performance. Br J Anaesth 2011; 106: 325-30.
19. Spearman CM, Quigley MJ, Quigley MR, Wilberger JE. Survey of the h index for all of academic neurosurgery: an- other power-law phenomenon? J Neurosurg 2010; 113: 929-33.
20. Klimo P Jr, Venable GT, Khan NR, Taylor DR, Shepherd BA, Thompson CJ, et al. Bibliometric evaluation of pediatric neurosurgery in North America. J Neurosurg Pediatr 2014; 14: 695-703.

J Acad Res Med 2021;11(3):234-40

21. Tkhk.istatistik@saglık.gov.tr/ Sağlık Eğitimi ve Sağlık İnsan gücü Durum Raporu-2104. Son Erişim Tarihi: 16.11.2020. Erişim Adresi: https://www.saglik.gov.tr/TR,11659/saglik-bakanligi-turkiyede-saglik-egitimi-ve-saglik-insangucu-durum-raporu-2014.html.
22. Esslinger EN, Van der Westhuizen M, Jalal S, Masud S, Khosa F. Gender-based disparity in academic ranking and research productivity among Canadian Anesthesiology Faculty. Cureus 2020; 12: e11443. doi: 10.7759/cureus.11443.
23. Pagel PS, Hudetz JA. Scholarly productivity and national institutes of health funding of foundation for anesthesia education and research grant recipients: insights from a bibliometric analysis. Anesthesiology 2015; 123: 683-91.
24. Myers SP, Reitz KM, Wessel CB, Neal MD, Corbelli JA, Hausmann LRM, et al. A systematic review of gender-based differences in hirsch ındex among academic surgeons. J Surg Res 2019; 236: 22-9.
25. Hill EK, Blake RA, Emerson JB, Svider P, Eloy JA, Raker C, et al. Gender differences in scholarly productivity within academic gynecologic oncology departments. Obstet Gynecol 2015; 126: 1279-84.
26. Levine RB, Lin F, Kern DE, Wright SM, Carrese J. Stories from early-career women physicians who have left academic medicine: a qualitative study at a single institution. Acad Med 2011; 86: 752-8.
27. Carapinha R, McCracken CM, Warner ET, Hill EV, Reede JY. Organizational context and female faculty's perception of the climate for women in academic medicine. J Womens Health (Larchmt) 2017; 26: 549-59.
28. Cropsey KL, Masho SW, Shiang R, Sikka V, Kornstein SG, Hampton CL. Why do faculty leave? Reasons for attrition of women and minority faculty from a medical school: four-year results. J Womens Health 2008; 17: 1111-8.
29. Dyrbye LN, Shanafelt TD. Physician burnout: a potential threat to successful health care reform. JAMA 2011; 305: 2009-10.