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Scientific Productivity of Pain Physicians in Turkey: A Bibliometric Analysis Using Citation and H-Index Statistic

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ABSTRACT

Objective: Bibliometric studies prepared by evaluating publication numbers, citation numbers and h-indexes are studies that show the production in the field of science. By conducting a study on pain medicine specialists in Türkiye, the study aimed to determine the Hirsch Index (h-index) ratings, number of citations, and number of publications ratings using the Scopus database and to assess the impact of the gender, institution, and title on these parameters.
Methods: Pain physicians were identified via the Health Care Provider App Physician search tool, Council of higher education academic search tool, and websites of the institutions. This was followed by the determination of the h-index ratings, number of citations, and number of publications using the Scopus database.
Results: Of the 274 pain physicians evaluated in the present study, 139 (50.7%) were female and 135 (49.3%) were male. The mean number of publications was 38.76 ± 32.53, the mean number of citations was 543.48 ± 987.16, and the mean h-index value was 9.51 ± 6.85. 173 (63.1%) of the algologists were working as professors, 16 (5.8%) as associate professors, 12 (4.4%) as assistant professors and 73 (26.6%) as specialist doctors. Of the total physicians, 173 (63.1%) were professors, 16 (5.8%) were associate professors. The mean of the number of publications and citations, and the mean h-index value of the professors were found to be significantly higher than those of other physicians ($p<0.05$). No significant difference was found between the male and female pain physicians with respect to these parameters ($p>0.05$).
Conclusion: Our study is the first in our country to evaluate the number of publications, number of citations and h-indexes, which are important bibliometric parameters that show the scientific production of algologists. It was determined that the number of female pain physicians was higher, whereas the publishing activities and mean h-index values of male academicians were higher. Nevertheless, there were no significant differences between the genders.

Keywords: Bibliometrics, Gender, H-index, Medical faculty, Pain

Türkiye'de Algoloji Doktorlarının Bilimsel Üretimlerinin Atıf ve H-İndeks Biyometrikleri ile Analizi

Araştırma Makalesi

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ÖZET

Amaç: Yayın sayıları, atıf sayıları ve h-index'ler değerlendirilerek hazırlanan bibliometrik çalışmalar bilim alanındaki üretimi gösteren çalışmalardır. Çalışmamızda Türkiye'de "Algoloji" alanındaki doktorların, Scopus veri tabanı kullanılarak belirlenen yayın, atıf sayıları, h-indeksleri ile cinsiyet, çalıştıkları kurum ve ünvanın bunlara etkilerinin değerlendirilmesi amaçlanmıştır.
Yöntem: Etik kurul onamının alınması ardından, Sağlık Hizmet Sunucu Uygulaması Doktor arama ekranı, Yükseköğretim akademik arama websitesi ve kurumların websiteleri aracılığı ile belirlenen "algologların" yayın sayıları, atıf sayıları ve h-indeksleri, Scopus veri tabanı kullanılarak belirlendi. Veriler SPSS paket programı kullanılarak analiz edildi.
Bulgular: Çalışmamızda değerlendirilen 274 algoloğun 139(50,7%)'unun kadın, 135(49,3%)'inin erkek olduğu belirlendi. Algologların scopus veri tabanındaki yayın sayısı ortalaması 38,76±32,53, atıf sayısı ortalaması 543,48±987,16 ve h-indeks ortalaması 9,51±6,85 olarak belirlendi. Algologların 173(63,1%)'i profesör, 16(5,8%)'ü doçent, 12(4,4%)'si doktor öğretim üyesi ve 73(26,6%)'i uzman doktor olarak görev yapmaktaydı. Profesörlerin yayın sayıları, atıf sayıları ve h-indeksleri ortalamaları, diğer ünvanlara sahip doktorlardan anlamlı olarak yüksek bulundu($p<0,05$). Erkek ve kadın doktorların yayın sayıları, atıf sayıları ve h-indeks ortalamaları arasında cinsiyete göre anlamlı farklılık tespit edilmedi($p>0,05$).
Sonuç: Çalışmamız ülkemizde algologların bilimsel üretimlerini gösteren önemli bibliyometrik parametreler olan yayın sayısı, atıf sayısı ve h-indekslerinin değerlendirildiği ilk çalışmadır. Çalışmamızda kadın doktorların daha fazla sayıda olduğu, erkek akademisyenlerin yayın aktiviteleri ve h-index ortalamalarının daha yüksek olduğu ancak cinsiyetler arasında anlamlı farklılık bulunmadığı tespit edilmiştir.

Anahtar Kelimeler: Ağrı, Bibliyometri, Cinsiyet, H-indeks, Tıp Fakültesi

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Introduction

Pain Medicine (Algology) is a rapidly advancing field, which attracts the attention of clinicians, and the patients' need for specialists in this field is constantly increasing. There are several pain medicine training programs accredited by the American Board of Medical Specialties (ABMS) and Accreditation Council for Graduate Medical (ACGME) that provide fellowship in Pain Management (Algology). In the field of pain medicine that requires a multidisciplinary environment, 92 of the 103 pain medicine fellowship programs in the United States (US) consist of 92 core Anesthesia programs, nine core Physical Medicine and Rehabilitation (PM&R) programs, and two core Neurology programs according to the 2018 data.[1] In addition to these three fields, physicians of Family Medicine and Emergency are entitled to enroll in pain medicine fellowship programs in the US.[1] The first pain unit was introduced in Türkiye during the mid-1980s, followed by the introduction of fellowship programs in the early 2010s; thus, pain medicine is strongly represented in our country.[2] According to the 2022 data, it was determined that there are currently 33 pain medicine training fellowship programs in Türkiye.[3]

Hippocrates said in the 5th century B.C. that "Divinum est opus sedare dolorem," which translates to "Divine is the work to subdue pain".[4] Currently, physicians have an increasing interest in this divine act. Belgrade et al.[1] stated that female physicians mostly preferred the field of pain medicine for research purposes, whereas male physicians preferred it to gain experience in monitoring patients who suffer from pain and due to their interest in multidisciplinary care. The gender-neutral evaluation showed that the interest in procedural skills and the desire to improve the patient's quality of life were the most prominent reasons for them to choose pain medicine as their preferred branch.

Gender inequality in the field of academic medicine is a deep-rooted problem since the past and continues to exist in the present. Despite the increase in the number of women in medical faculties, inequalities are observed in promotion and leadership positions.[5] According to the 2020 data, in the US, 25.3% (n = 176) of 696 academic pain physicians were female and 74.7% (n = 520) were male.[6] Further, this report revealed that among full-time professors, 84 (82.4%) were male and only 18 (17.7%) were female. Doshi et al.[7] stated that pain medicine ranks in the lower quartile range among the medical specialties that are preferred by women in the US, which is immediately above the male-dominant orthopedic surgery and neurosurgery fields. They reported that one of every 10 physicians specialized in anesthesiology and that 25% of anesthetists and 18% of pain physicians were female. According to the ACGME data, women representation was the least in the pain medicine (22%) field among the Anesthesia fellowship programs. In "hospice and palliative medicine" and pediatric anesthesiology, which are among the other fellowship programs of anesthesia, the rates were 63% and 57%, respectively.[7] The fact that it is a less preferred field chosen by women may be due to reasons similar to the branches underrepresented by women, such as interventional cardiology and interventional radiology, which have radiation exposure and subsequent infertility risks. Further, women may hesitate in choosing the male-dominant medical specialties. [7] The situation may be different in Türkiye since a fellowship program is preferred after a central clinical fellowship exam, and different cultural and strategic factors play a role in each country in the selection of branches of medicine.

The h-index, defined as the number of publications of a researcher cited at least h time, is a key bibliometric criterion to characterize the scientific output of a researcher in terms of both quality and quantity.[6] The bibliometric parameters used in the bibliometric analysis are indicators of academic productivity and efficiency. These bibliometric parameters include impact factor, h-, m-, e-, indices, Eigenfactor score, number of publications, and number of citations.[7]

In the previous studies of few countries, it has been reported that gender and academic title have an effect on bibliometric parameters and h-index and that there is gender inequality in academia.[9,10] Our literature analysis showed that the studies investigating the h-index ratings of Pain Medicine physicians who work as academicians in different countries using the Scopus database and examining the bibliometric data are very limited, and no such study has been conducted in Türkiye.[5]

This study on "Pain medicine" physicians in Türkiye aimed to evaluate the relationship among the institutions, titles, and genders as well as h-index ratings, number of citations, and number of publications obtained from the Scopus database.

Materials and Methods

After obtaining the approval from the university ethics committee (Decision no:2021/31-12, 6756-GOA,03.11.2021), physicians with a Ministry of Health-approved certificate in the field of pain medicine were searched using the Republic of Türkiye Social Security Institution Health Care Provider App Physician Search Tool (https://gss.sgk.gov.tr/SaglikHizmetSunuculari/pages/doktorArama.faces), Council of higher education academic search tool (https://akademik.yok.gov.tr/AkademikArama/), and websites of public and private universities on January 10, 2022.[11] Academic titles, including professor, associate professor, assistant professor and attending physician; gender; whether they were the head of the department or not; and their main medicine branches (Anesthesiology, PM&R, Neurology) at the time of the search were recorded based on the other studies in the literature.[6,12,13] Missing gender data were identified via Google and LinkedIn.[14] Faculty members, retired faculty members, research assistants, and fellows whose

academic title could not be completely determined were excluded from study. The number of publications, h-index, and total citations of each faculty member were recorded using the Scopus database, which was referenced in similar studies (http://www.scopus.com) .[5,14] The Scopus database was used due to the MEDLINE coverage and authorship differentiation tools.[6] These tools ensure that publications are attributed to the correct authors. Compared to other databases, Scopus showed the least inconsistency in content validation and quality.[15] If there are two or more entries for authors in the Scopus database, h-index values were calculated by analyzing both entries in common.[16]

Clinics where academics work were classified as clinics located in the west and east of the capital Ankara, according to the provinces.[6] The types of institutions where physicians are employed were classified as "University of Health Sciences (UHS)", "other public universities," and "private institutions and clinics."

To limit the fluctuations in time-varying data (i.e., number of publications, h-index), data collection was completed within a 5-day period from January 10, 2022 to January 14, 2022. Two authors (EO and VH) performed simultaneous data collection, and another author (YE) evaluated the inconsistencies.[16] This study was conducted in accordance with the principles of the Declaration of Helsinki, 2008.

Statistical analysis

The SPSS 24.0 statistical package was used. Continuous variables expressed as mean ± SD, median (minimum–maximum). Frequency data expressed as number and percentage (n, %). The Chi-square test was used in the analysis of frequency data. The Kolmogorov–Smirnov test was used to determine in the analysis of continuous data, whether the data were normally distributed. The test showed that the data were not normally distributed. For data analysis the Kruskal–Wallis, Chi square test and the Mann–Whitney U test were used. $P < 0.05$ was accepted as a significant difference.

Results

A total of 10041 publications belonging to 274 pain doctors were identified. The mean number of publications in the Scopus database of 274 pain medicine specialists who were included in the analysis was 38.76 ± 32.53, whereas the median value was 34 (1–155); the mean number of citations was 543.48 ± 987.16, whereas the median value was 303 (0–10085); and the mean h-index was 9.51 ± 6.85, whereas the median value was 9 (0–45).

Of the Pain physicians included in our study, 173 (63.1%) were professors, 16 (5.8%) were associate professors, 12 (4.4%) were asisstant professors, and 73 (26.6%) were attending physicians (Figure 1).

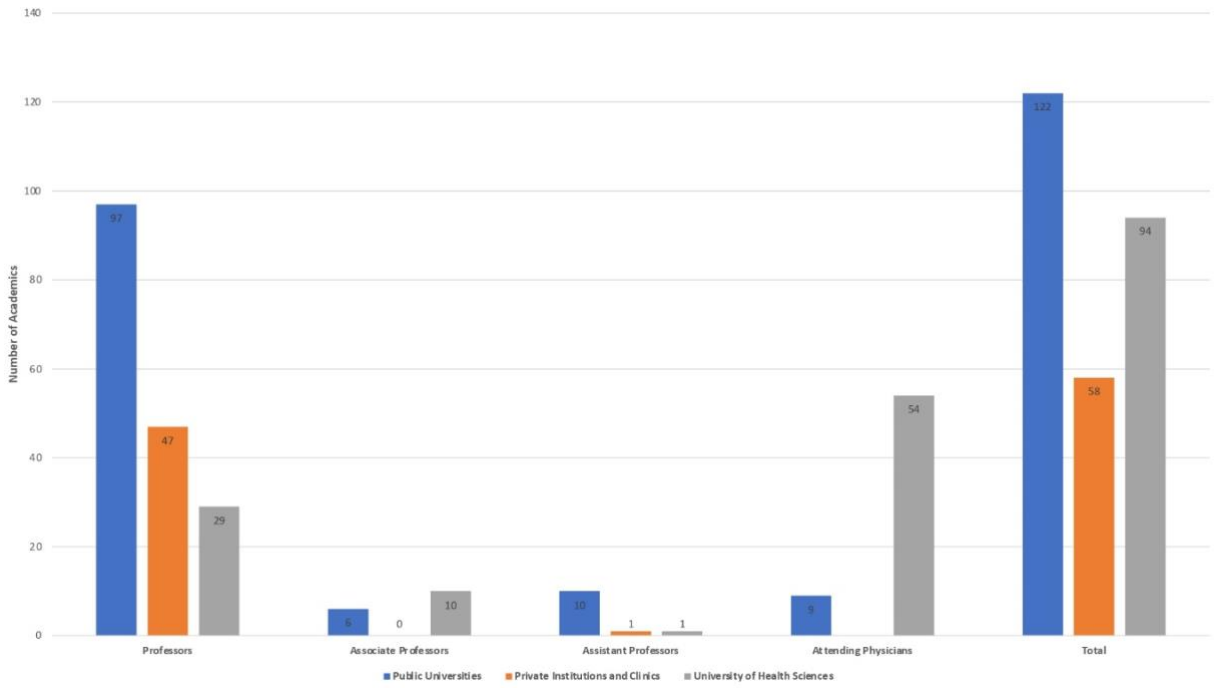

Figure 1: Institutions where doctors work by academic titles

Among those who met the inclusion criteria for this study, 139 (50.7%) were female and 135 (49.3%) were male. On the one hand, when the titles of female physicians were studied, it was observed that 88 (63.3%) were professors, 9 (6.5%) associate professors, 7 (5%) assistant professors, and 35 (25.2%) attending physicians. On the other hand, when the titles of male physicians were considered, 85 (63%) were professors, 7 (5.2%) associate professors, 5 (3.7%) assistant professors, and 38 (28.1%) attending physicians.

Although the number of female professors, associate professors, assistant professors, and attending physicians was higher than that of males, no statistically significant difference was found ($p = 0.873$) (Table 1). It was determined that 18 (12.9%) of the female physicians and 18 (13.3%) of the male physicians were the heads of the department ($p = 0.925$). When the relationship between being the head of the department and their title was evaluated, it was determined that there were statistically and significantly greater number of professors in this position ($p < 0.001$). However, no statistically significant difference was observed in the number of publications, number of citations, and h-index ratings between physicians with the title of the head of the department and other physicians without the title ($p > 0.05$).

When physicians were evaluated based on their main specialties, anesthetists constituted the largest majority (141 anesthetists; 51.5%) (Table 1). In our study, no statistically significant differences were found when the main specialties were evaluated according to the academic title. The superiority of anesthesiologists in the number in all academic titles is notable ($p > 0.05$).

No significant difference was found between those working in the west and east of the capital Ankara, geographically in terms of gender and title ($p > 0.05$). A significant difference was found in the evaluation according to the employing institutions, and it was noteworthy that all institution types were mostly localized in the west ($p = 0.024$) (Table 2).

A statistically significant difference was found when the institutions were evaluated by title ($p < 0.001$). This statistical difference can be explained by the fact that associate professors and specialists are mostly employed in UHSs, whereas professors are mostly employed in other public universities, private institutions, and clinics (Table 2).

A comparison between the publication activities of physicians by institutions showed that the number of publications, number of citations, and h-index parameters of the physicians in the state universities were significantly higher ($p < 0.001$). No significant difference was found between male and female pain medicine specialists in terms of the mean number of publications, mean number of citations, and mean h-index values ($p > 0.05$) (Table 3).

The mean values of number of publications ($p = 0.227$, Mann–Whitney U test), number of citations ($p = 0.962$, Mann–Whitney U test), and h-index ($p = 0.231$, Mann–Whitney U test) based on Scopus database did not significantly differ between the female professors and male professors in the field of pain medicine (Table 3).

There was no significant difference between male and female associate professors and assistant professors of pain medicine when the mean values of number of publications, number of citations, and h-index ($p > 0.05$) (Table 3) were calculated from the Scopus database.

When the number of publications, citiations and h-index data were evaluated according to the main specialties, statistically significant differences ($p < 0.001$, $p < 0.001$, $p < 0.001$, respectively) were found between PM&R and Anesthesia. Significant difference was found between "Neurology and PM&R" when the publication numbers were evaluated based on the main specialties ($p = 0.012$). (Table 4).

Discussion

Since a long time, gender inequality is a major issue in academic medicine. Although the number of female academicians has increased compared to the previous years, it was determined that their articles have a lower publication rate and that their academic career progresses slower than their male colleagues.[17] The gap between the ratio of males and females during admission to medical schools in Japan is known worldwide.[18]

Recently, a study showed that 50% of medical faculty graduates are female and that they comprise one-third of the US physician work-force on average.[6] The female physicians are underrepresented in the Pain Medicine department, and according to the 2017 Association of American Medical Colleges data, it was the sixth branch with the highest rate of male physicians in the non-surgical field.[19] Further, differences in the number of publications, citation rates, and h-index parameters between male and female authors have been addressed in the previous studies.[6,16] In this study, gender, institutions, publication activity, and leadership positions among pain physicians in Türkiye were investigated.

The bibliographic data of the physicians in the field of Pain Medicine in Türkiye and the analysis of the affecting factors revealed that there were 274 Pain medicine physicians and that the number of female professors, associate professors, and asisstant professors is higher than that of male academicians. There is no significant difference in terms of the distribution of academic titles of Pain Medicine physicians based on gender. No significant difference was observed between male and female Pain Medicine physicians in terms of the mean values of number of publications, number of citations, and h-index ratings.

Research productivity in academic medicine still plays a key role in the professional success. The parameters frequently used for academic advancement are the number of publications, number of citations, and h-index ratings. In the US, Orhurhu et al.[6] who conducted their study with faculty members in the pain medicine field stated that full-time professors are more likely to have higher h-index values with a statistically significant relationship between these two

parameters. It is stated that the increase in the number of publications, the h-index values and total citations was correlated with an increase in the academic title.[10] Our statistical analysis demonstrated that as the academic title increased, the number of publications, number of citations, and h-index values increased significantly.

In our study, the publication activities of male and female pain physicians were analyzed and although it was determined that the mean values of number of publications, number of citations, and h-index was lower among women than men, no statistically significant difference was found. Similarly, women showed lower productivity metrics, but no significant differences in h-index values were found between the males and females in a study, which evaluated 696 pain medicine faculties in the US.[6] Bastian et al.[20] and Chauvain et al.[21] found that there was no significant difference between the h-index values of males and females in the field of orthopedics and psychiatry. Our findings are consistent with the literature. Considering the shorter career length of female physicians due to increased work-life imbalances and domestic roles, it can be concluded that they can achieve this equality by spending more time on academic activities than male academics during their working period.

Table 1: Distribution of Academic Titles and Major Specialties by Gender, n (%)

	Female	Male	Total
Academic Title			
Professor	88 (63.3%)	85 (63%)	173 (63.1%)
Associate professors	9 (6.5%)	7 (5.2%)	16 (5.8%)
Assistant professors	7 (5%)	5 (3.7%)	12 (4.4%)
Attending Physician	35(25.2%)	38(28.1%)	73 (26.6%)
Major specialties			
Anesthesiology and Reanimation	66(47.5%)	75(55.6%)	141(51.5%)
Physical Medicine and Rehabilitation (PM&R)	41(29.5%)	40(29.6%)	81(29.6%)
Neurology	32(23%)	20(14.8%)	52(19%)
Total	139(50.7%)	135(49.3%)	274 (100%)

n: number

Table 2: Types and Locations of Institutions Where Physicians are Working n(%)

	Locations of the Institutes		p
	Clinics located in the west of Ankara	Clinics located in the east of Ankara	
Professors	138(65.7%)	35(54.7%)	0.146
Assoc. Professors	14(6.7%)	2(3.1%)	
Asst. Professors	8(3.8%)	4(6.3%)	
Attending Physicians	50(23.8%)	23(35.9%)	
Total	210(76.6%)	64(23.4%)	

	Institution Type			p
	Public Universities	Private Institutions and Clinics	University of Health Sciences	
Professors	97(56.1%)	47(27.2%)	29(16.8%)	<0.001
Assoc. Professors	6(37.5%)	0(0%)	10(62.5%)	
Asst. Professors	10(83.3%)	1(8.3%)	1(8.3%)	
Attending Physicians	9(12.3%)	10(13.7%)	54(74%)	
Total	122(44.5%)	58(21.2%)	94(34.3%)	

P<0,05, n:number, chi-squared test. Assoc. Professors: Associate Professors, Asst. Professors: Assistant Professors

Table 3: The Number of Publications, Citations and H-Index Averages (Mean ± Standard Deviation) and Median (Minimum-Maximum) Values Determined from the Scopus Database According to Academic Title and Gender in the Field of Pain Medicine in Türkiye

	Gender						Total		
	Female			Male					
	Number of Publication	Number of Citations	h-index	Number of Publication	Number of Citations	h-index	Number of Publication	Number of Citations	h-index
Professor n:173 (f:88, m:85)	50.56±27.72 47 (1-133)	775.66±1297.15 476 (0-10085)	12.22±5.30 12 (0-30)	56.02±30.81 52 (4-155)	783.92±955.28 634 (9-7485)	13.32±6.47 13 (1-45)	53.22±29.31 49,50 (1-155)	779.70±1139.75 547 (0-10085)	12.76±5.91 12 (0-45)
Assoc. Prof. n:16 (f:9, m:7)	25.55±11.22 25 (9-40)	349.33±366.40 195 (71-989)	7.77±2.58 7 (4-12)	43.42±40.06 22 (14-124)	288±311.78 119 (49-768)	8.42±4.64 7 (4-16)	33.37±28.16 23,50 (9-124)	322.50±333.87 152,50 (49-989)	8.06±3.51 7 (4-16)
Asst. Prof. n:12 (f:7, m:5)	12.37±10.86 7 (4-22)	118.50±152.40 39 (2-449)	4.75±3.45 3 (1-10)	6.37±2.26 7 (4-8)	19.75±16.03 9 (1-44)	2.25±1.28 2 (1-4)	8±5.47 7 (4-22)	70.16±128.27 30 (1-449)	3.33±2.70 2.50 (1-10)
Attending Physicians n:73 (f:35, m:38)	4.73±5.80 3 (1-14)	20.36±35.29 10.5 (0-63)	1.70±1.56 2 (0-3)	8.39±8.34 6 (1-31)	42.53±67.84 14 (0-301)	2.71±2.73 2 (0-11)	5.93±6.35 4 (1-31)	27.80±49.42 12 (0-301)	2.04±2.04 2 (0-11)
Total n:274 (f:139, m:135)	35.44±30.56 32 (1-133)	532.27±1096.89 292 (0-10085)	8.91±6.39 9 (0-30)	42.43±34.32 39 (1-155)	555.78±855 314 (0-7485)	10.17±7.29 9 (0-45)	38.76±32.53 34 (1-155)	543.48±987.16 303 (0-10085)	9.51±6.85 9 (0-45)

n:number, f:female gender, m:male gender, Mann–Whitney U test. Assoc. Professors: Associate Professors, Asst. Professors: Assistant Professors

Table 4: The Number of Publications, Citations and h-index Averages (Mean ± Standard Deviation) and Median (Minimum-Maximum) Values Determined from the Scopus Database according to the Major Departments of Physicians in the Field of Pain Medicine in Türkiye

	Anesthesiology and Reanimation	PM&R	Neurology	p Values		
				Difference Between Anesthesiology and PM&R	Difference Between Anesthesiology and Neurology	Difference Between Neurology and PM&R
Number of Publication	31.54±27.34 26 (1-124)	50.27±31.29 49 (1-148)	39.53±41.35 26 (2-155)	**< 0.001**	0.696	**0.012**
Number of Citations	302.30±350.43 196,50 (0-1664)	673.75±562.42 656 (0-2877)	973.32±1999.87 195 (0-10085)	**< 0.001**	0.188	0.058
h-index	7.45±5.09 8 (0-22)	12.21±6.17 13 (0-29)	10.67±9.76 9 (0-45)	**< 0.001**	0.145	0.084

Mann–Whitney U test, PM&R: Physical Medicine and Rehabilitation

It has been reported that women are promoted at a slower rate in academia and also have a lower publication rate than men.[22] Patel et al.[23] listed the career barriers of female doctors in the field of medicine as ineffective mentoring, implicit biases and a preference for working part-time. D'Souza et al.[16] evaluated 111 chronic pain programs and 35 acute pain programs in the USA and reported that female program directors were employed in 35 (31.5%) of all the programs, and the male representation rate was higher than women. In addition, they stated that female pain program directors have lower peer-reviewed publications than their male counterparts. They also reported that pain fellowship programs with female directors have higher number of female fellow trainees than those with male directors. In our study, however, no significant relationship was found between gender and clinical leadership (head of the department). Physicians who serve as the department heads are mostly professors with a statistically significant difference. In our country, the participation of physicians in the pain medicine fellowship programs with a central exam and the interest of both the genders in a popular branch ensured a more homogeneous distribution of the genders in pain medicine, resulting in an equal representation of males and females in leadership positions. It is necessary for the clinics to create an environment where women and men have equal opportunities in leadership positions for the equal representation to be sustainable.

When the publication activities based on institutions were examined in our study, it was determined that the number of publications and h-index ratings of physicians working at private institutions and other public universities were significantly higher than those employed in the UHSs. Similarly, the number of citations of physicians employed in other public universities was higher than those employed in UHSs. This may be due to the fact that after the Ministry of Health started to issue the pain medicine fellowship certificate to physicians who were working in this field in 2011, the physicians who have advanced academic titles, they continued to work at private institutions or other public universities, whereas new pain physicians are preferred to work at UHSs. We believe that this gap between the institutions will be narrowed as new pain physicians contribute to the literature with robust publications over time.

Evaluation of publication activity by the main specialties showed remarkable consequences. It was observed that the pain physicians from PM&R had greater number of publications than those from anesthesia. Pain physicians from PM&R also have significantly higher citation numbers and h-index values than pain physicians from anesthesia. The fact that anesthesiologists who work in a surgical branch cannot demonstrate sufficient publication activities unless they enroll in a fellowship program, which could be due to their busy schedules and shifts in our country, may lead to this significant difference. A study has been reported in the literature that examines the publication activities of anesthesiologists in Türkiye.[11] We anticipate that such bibliometric studies in other branches can enlighten the significant differences among the branches in terms of the publication activities.

Limitations

The websites from which we obtained the data may contain inaccurate or incomplete information. Although the information in the Scopus database is more accurate than in other databases, there is still a possibility that an author's publication was mistakenly attributed to someone else with the same name. In addition, the surnames of female physicians may have changed after their marriage. Therefore, physician information was checked from the public websites of the institutions in addition to the Scopus database to determine

the number of publications, h-index, or academic parameters before and after the surname change.

Secondly, h-index may not be a dynamic measure of increased scientific productivity over time. Physicians who had received many citations at the beginning of their careers and who had written articles will continue to collect citations and increase their h-index ratings, even if there is no more scientific activity. Therefore, m-index, which indicates the ratio of career length to the h-index, can be used in future studies.

Conclusion

Our study is the first to evaluate the number, gender distribution, academic title distribution, leadership positions, and Scopus database-based number of publications, number of citations, and h-index ratings of academicians working in pain medicine departments in various medical faculties. In our study, it was determined that there are 274 pain medicine physicians in our country and that the number of female professors, associate professors, asisstant professors, and attending physicians were higher than those of male physicians, but there was no significant difference between the genders. It was determined that the number of publications, number of citations, and h-index values of male academicians were higher than that of females, but there was no significant difference between the genders. It was shown that the publishing activity of physicians employed in private institutions and clinics and other public universities was higher than those in UHSs. It was concluded that pain physicians with PM&R and Neurology specialty had higher publication activity than pain physicians with anesthesia specialty.

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