Society of Medical Education & Research

2025, Volume 5, Issue 2, Page No: 55-62
ISSN: 3108-4850

Annals of Pharmacy Education, Safety, and Public Health Advocacy

Factors Influencing Scholarly Output of Pharmacy Practice Chairs: A Bibliometric Study

Diego A. Morales[1]*, Valentina S. Riquelme[1], Tomas J. Fuentes[1]

[1]Department of Pharmaceutical Policy and Patient Safety, Faculty of Pharmacy, University of Concepción, Concepción, Chile.

***E-mail** ✉ diego.morales@outlook.com

Abstract

This study aims to conduct a bibliometric analysis to identify factors influencing the scholarly productivity of pharmacy practice department chairs across U.S. pharmacy schools and colleges. Publications by pharmacy practice chairs from all U.S. pharmacy schools were retrieved from Scopus up to August 11, 2020. Key publication metrics—such as the total number of publications, citations, h-index, and the year of the first publication—were collected along with details on the chair's individual and institutional characteristics. Data were compared across groups, and a generalized linear model was applied to explore the relationship between school rankings (as per U.S. News & World Report) and total publications and h-index. A total of 141 pharmacy practice chairs were analyzed. Most were male professors, with a fairly balanced representation from public and private institutions. The median number of publications was 19, with 247 citations, and the median h-index was 8. Male chairs showed higher publication counts, citation totals, and h-index compared to their female counterparts. Chairs from public institutions exhibited significantly higher publication and citation rates, as well as better metrics in terms of h-index and m quotient. Furthermore, the school's ranking by U.S. News & World Report correlated strongly with both the total number of publications and h-index. Scholarly productivity among pharmacy practice chairs is quite variable, with those at institutions emphasizing research being more productive. The gender-based differences in publication metrics observed in this study warrant further exploration to understand their causes and potential impact on academic and professional outcomes.

Keywords: Bibliometrics, Publications, Pharmacy, Chair

Introduction

In the 144 pharmacy schools and colleges across the United States, scholarship is a crucial element of academic pharmacy. However, faculty expectations for scholarly activity can vary significantly based on several factors, such as whether the institution is public or private, its affiliation with a health sciences center, its Carnegie Classification, and the specific duties of the faculty member [1, 2]. Pharmacy schools generally consist of multiple departments, each contributing in its own way to the institution's mission. For example, departments such as pharmacology or medicinal chemistry are primarily research-driven, whereas pharmacy practice departments mainly focus on teaching [3]. Despite these departmental differences, faculty members are generally expected to engage in scholarly work, which could include publishing articles in peer-reviewed journals, contributing to textbook chapters, or producing non-peer-reviewed works. This scholarly productivity is an important factor when evaluating faculty for promotion and tenure, serving as one measure of academic success [4].

Faculty who achieve a certain level of academic success are often appointed to leadership positions such as department chair. These administrative roles are typically filled by faculty who have excelled in various areas of

Access this article online https://smerpub.com/

Received: 24 May 2025; **Accepted:** 11 September 2025

How to cite this article: Morales DA, Riquelme VS, Fuentes TJ. Factors Influencing Scholarly Output of Pharmacy Practice Chairs: A Bibliometric Study. Ann Pharm Educ Saf Public Health Advocacy. 2025;5(2):55-62. https://doi.org/10.51847/6hPPyFnRn5

academic life and who exhibit strong leadership abilities [5, 6]. While these individuals are often already established scholars before assuming such positions, they may continue to contribute to academic research as part of their duties. Pharmacy practice departments, which can be quite diverse, may have different expectations for scholarly productivity, especially between departments with more research-oriented faculty and those that focus on clinical training. The absence of standardized benchmarks for scholarly output and the lack of comprehensive comparative data can make it challenging to evaluate candidates for pharmacy practice chair positions effectively.

Evaluating an academic pharmacist's scholarly contributions is a complex issue, and this has been widely discussed in the literature [7-10]. Rather than relying on a single metric, most schools consider a range of indicators, including the total number of publications, citation counts, the Hirsch index (h-index), and the m quotient (the ratio of the h-index to the number of years since the author's first publication) [8]. Although total publications and citation counts provide useful insights into raw productivity, they don't fully capture the impact or quality of a faculty member's work. The h-index, which evaluates both publication quantity and impact, is a popular measure, but it can be difficult to interpret because it heavily favors senior faculty who have had more time to accumulate citations and is dependent on the discipline [11]. To address these issues, the m quotient is used, which adjusts the h-index by the number of years since the author's first publication [11]. More recently, attention has been directed toward the influence of scholarly work on social media platforms, although its relationship with traditional citation counts and bibliometric measures in pharmacy practice journals remains under exploration [12]. Nevertheless, there is a need for up-to-date benchmarks to assess the scholarly productivity of pharmacy practice chairs [13].

This study aims to perform a bibliometric analysis of pharmacy practice department chairs at U.S. schools and colleges of pharmacy, using the Scopus database. The objective is to compare these chairs based on various publication metrics, including faculty rank, Carnegie Classification, institution type (public or private), NIH funding ranking, and the ranking of the school by US News & World Report (USNWR).

Materials and Methods

On May 1, 2020, a review of the American Association of Colleges of Pharmacy (AACP) online faculty directory identified current pharmacy practice department chairs from all registered schools and colleges of pharmacy, irrespective of accreditation status (n=144). These findings were subsequently verified against the faculty listings on each institution's individual website. Any outstanding inconsistencies were addressed by directly consulting the dean of the respective college or school. Institutions that did not have a listed active chair or an equivalent role were omitted from the study.

A comprehensive Scopus search was then performed using each department chair's name, covering records from the database's earliest entries up to August 11, 2020. No restrictions were applied based on language or document type. In cases of authors sharing the same name, current and historical institutional affiliations were examined to confirm the correct match. For each chair, the gathered bibliometric data included the overall count of publications, total citations received, h-index as recorded during the search period, and the year of their initial publication.

Further details on the chairs encompassed their present academic rank (assistant professor, associate professor, or full professor) and any history of securing funding from the National Institutes of Health (NIH), sourced via the NIH RePORTER tool. To assess potential differences between male and female chairs, sex was determined through various methods, such as reviewing faculty profiles on institutional websites when available and consulting the AACP Roster of Faculty and Professional Staff. An additional resource was an application programming interface from Gender API (www.gender-api.com), which infers sex from a database containing more than 3.2 million verified names across 191 countries and has demonstrated superior performance with the fewest errors and undetermined cases relative to comparable services [14]. Since this data was not collected directly from the chairs, the term "sex" is used here instead of "gender."

Institutional characteristics recorded included public versus private status, affiliation with a health sciences center (HSC)—described as "an educational institution that includes a medical school and at least one allied health professional school and either owns or is affiliated with a teaching hospital or health care system,"[15] Carnegie Classification (research 1 [R1], research 2 [R2], or Special Focus), NIH funding rank based on the 2018-2019 Blue Ridge Institute for Medical Research

(BRIMR) data, and US News & World Report (USNWR) ranking.

Before conducting statistical analyses, derived metrics were computed: years active in publishing (from first publication to 2020), annual publication rate (total publications divided by years active), citations per publication (total citations divided by total publications), and m-quotient (h-index divided by years active as of 2020).

Characteristics of pharmacy practice chairs were summarized using proportions for categorical variables or medians (with 25th and 75th percentiles) for continuous variables. Group comparisons employed chi-square tests for categorical data or Kruskal-Wallis tests for continuous data, depending on variable type. Key comparison categories were academic rank (assistant, associate, or full professor), Carnegie Classification, institution type (public versus private; HSC versus non-HSC), NIH funding rank by school (top 25, below 25, or unranked), and chair sex (male versus female). A generalized linear model was also applied to examine associations between total publications, h-index, and institutional USNWR ranking. To investigate the influence of chair sex on scholarly output further, post-hoc analyses compared institutional factors (academic rank, institution type, HSC status, Carnegie Classification, and NIH funding). All statistical procedures were carried out in SAS version 9.4 (SAS Institute), with statistical significance set at $p < .01$.

Results and Discussion

From the initial pool, 141 individuals serving as pharmacy practice department chairs (or in comparable roles) were successfully identified, and their bibliometric records were obtained via Scopus. Six institutions did not maintain such a position, while three others had multiple persons occupying equivalent roles. Detailed profiles of the chairs and their respective institutions are presented in **Table 1.**

Slightly more than half of the chairs were male (51.8%), and over half held the full professor rank (56.0%). The distribution across institutional control was almost equal, with 49.0% at public institutions and 51.0% at private ones. A substantial proportion (61.2%) worked at institutions linked to health sciences centers. According to Carnegie Classification, most institutions (56.5%) fell into the Special Focus category. A small minority of chairs (9.9%) had secured NIH funding as principal investigators on at least one project.

Table 1. Characteristics of pharmacy practice chairs at US schools and colleges of pharmacy

Characteristic	n (%)
Sex	
Female	68 (48.2)
Male	73 (51.8)
Academic Rank	
Associate Professor	51 (36.2)
Assistant Professor	11 (7.8)
Professor	79 (56.0)
Health Sciences Center Affiliation	
No	57 (38.8)
Yes	90 (61.2)
Institution Type	
Private	75 (51.0)
Public	72 (49.0)
Ever Received NIH Funding as Principal Investigator	
No	127 (90.1)
Yes	14 (9.9)
Carnegie Classification	
Special Focus	83 (56.5)
R1	40 (27.2)
R2	24 (16.3)

Abbreviations: NIH = National Institutes of Health, PI = principal investigator, R1 = research 1, R2 = research 2

Across all chairs, the median (25th to 75th percentile) values were as follows: 19 publications (7–36), 247 citations (90–958), h-index of 8 (3–13), and m-quotient of 0.5 (0.3–0.8). The typical annual output was 1.3 publications (0.7–2.0), with 14.1 citations per publication (7.7–26.7).

A breakdown of these scholarly productivity measures by various chair and institutional factors is provided in **Table 2.** Full professors substantially outperformed associate and assistant professors in median total publications, overall citations, and h-index ($p < .001$ across these metrics).

When stratified by sex, male chairs showed greater median outputs than their female counterparts in total publications (30 versus 16; $p < .003$), cumulative citations (404 versus 175; $p = .02$), and h-index (10 versus 6; $p = .01$). However, no notable differences emerged in yearly publication rates (p = .05), citations per article (p = .19), or m-quotient (p = .23).

To investigate whether institutional factors might explain the observed sex-based differences in productivity, we examined school attributes separately for male and female chairs. Results in **Table 3** indicate no significant variations by sex in academic rank distribution (p = .98), public versus private status (p = .36), affiliation with a health sciences center (p = .12), Carnegie Classification (p = .22), or prior NIH funding as principal investigator (p = .32).

Table 2. Scholarly productivity metrics among pharmacy practice department chairs in U.S. schools and colleges of pharmacy

Group	Total Citations Median (25th, 75th)	Citations per Publication Median (25th, 75th)	Total Publications Median (25th, 75th)	Publications per Year Median (25th, 75th)	m-Quotient Median (25th, 75th)	h-index Median (25th, 75th)
Overall	247 (90, 958)	14.1 (7.7, 26.7)	19 (7, 36)	1.3 (0.7, 2.0)	0.5 (0.3, 0.8)	8 (3, 13)
Academic Rank						
Associate Professor	127 (27, 301)	10.7 (5.5, 22.2)	11 (4, 21)	0.9 (0.6, 1.4)	0.4 (0.2, 0.5)	4 (2, 9)
Assistant Professor	4 (0, 99)	5.0 (1.0, 11.2)	4 (0, 12)	0.9 (0.3, 1.3)	0.3 (0.1, 0.5)	1 (0, 6)
Professor	567 (183, 1577)	19.4 (11.3, 31.2)	30 (17, 68)	1.6 (1.0, 2.6)	0.5 (0.4, 0.9)	11 (6, 20)
p-value	<.0001	.0003	<.0001	.0003	.002	<.0001
Sex						
Female	175 (46.5, 618.5)	12.0 (7.4, 23.0)	16 (5.5, 24)	1.1 (0.8, 1.6)	0.5 (0.3, 0.6)	6 (3, 10)
Male	404 (98, 1293)	18.0 (9.2, 30.2)	30 (11, 55)	1.4 (0.7, 2.6)	0.5 (0.3, 0.8)	10 (4, 19)
p-value	.017	.186	.003	.051	.27	.01
Health Sciences Center						
No	144 (26.5, 449)	12.1 (5.7, 23.1)	12.5 (4, 23.5)	0.9 (0.6, 1.4)	0.4 (0.3, 0.5)	5 (2, 9)
Yes	832 (183, 2332)	18.1 (10.4, 32.7)	35 (21, 79)	1.8 (1.2, 3.3)	0.7 (0.4, 1.0)	12 (8, 22)
p-value	<.0001	.016	<.0001	<.0001	<.0001	<.0001
Institution Type						
Private	169 (27, 439)	13.2 (7.7, 23.1)	13 (4, 22)	1.0 (0.6, 1.4)	0.4 (0.3, 0.5)	6 (2, 9)
Public	417.5 (130.5, 2104.5)	18.0 (8.6, 30.6)	32 (16.5, 74.5)	1.6 (0.9, 3.3)	0.6 (0.3, 1.0)	10.5 (6, 20)
p-value	<.0001	.23	<.0001	<.0001	.001	<.0001
NIH Funding Rank						
Below 25 (n=51)	204 (90, 970)	11.9 (5.3, 31.2)	21 (11, 35)	1.4 (0.8, 2.0)	0.4 (0.3, 0.7)	8 (4, 14)
Unranked (n=62)	133 (36, 404)	13.5 (8.3, 23.0)	12 (4, 19)	0.9 (0.6, 1.3)	0.4 (0.3, 0.5)	5 (2, 9)
Top 25 (n=25)	1373 (832, 3471)	23.0 (14.9, 30.9)	83 (31, 133)	3.0 (1.7, 6.0)	0.8 (0.6, 1.3)	20 (12, 30)
p-value	<.0001	.01	<.0001	<.0001	<.0001	<.0001

Carnegie Classification						
Special Focus	141 (37, 477)	13.5 (7.7, 29.7)	13 (4, 24)	1.0 (0.5, 1.4)	0.4 (0.3, 0.6)	6 (2, 9)
R1	1230 (260, 3518.5)	20.1 (12.4, 30.6)	62 (26.5, 121)	2.8 (1.6, 4.9)	0.8 (0.5, 1.2)	18.5 (9, 29.5)
R2	162.5 (47.5, 498.5)	7.7 (4.6, 21.8)	19 (12.5, 24.5)	0.9 (0.7, 1.4)	0.4 (0.3, 0.5)	7 (4, 10.5)
p-value	<.0001	.008	<.0001	<.0001	<.0001	<.0001

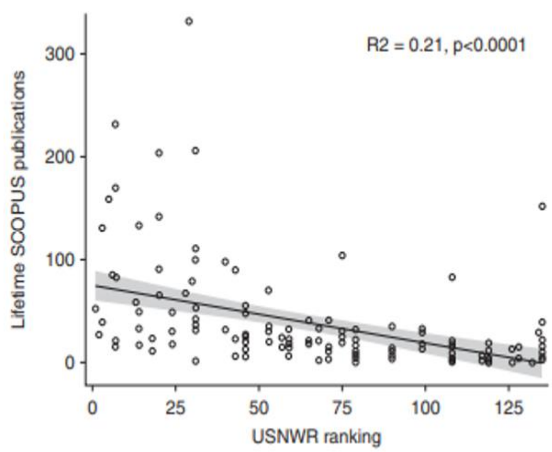
Abbreviations: NIH5National Institutes of Health, HSC5health science center, Pub5publication, PI5principal investigator, R25research 2, R15research 1, Yr5year.

Table 3. Sex-based characteristics of pharmacy practice department chairs

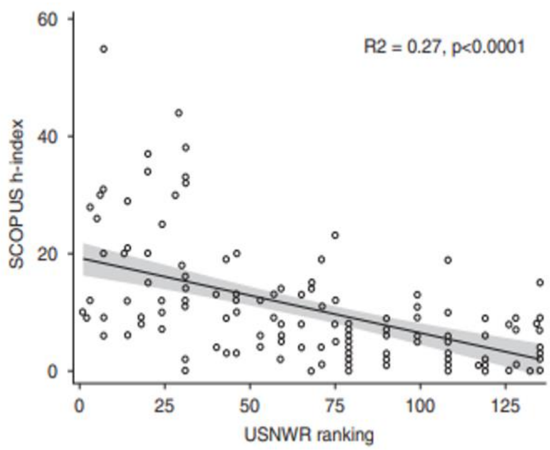
Characteristic	Female, n (%) (n=68)	Male, n (%) (n=73)	p value
Health Sciences Center			**0.12**
No	45 (66.2)	39 (53.4)	
Yes	23 (33.8)	34 (46.6)	
Institution Type			**0.36**
Private	36 (52.9)	33 (45.2)	
Public	32 (47.1)	40 (54.8)	
NIH Funding as PI			**0.32**
No	63 (92.7)	64 (87.7)	
Yes	5 (7.4)	9 (12.3)	
Carnegie Classification			**0.22**
Special Focus	39 (57.4)	38 (52.1)	
R1	15 (22.1)	25 (34.3)	
R2	14 (20.6)	10 (13.7)	
Academic Rank			**0.98**
Associate Professor	25 (36.8)	26 (35.6)	
Assistant Professor	5 (7.4)	6 (8.2)	
Professor	38 (55.9)	41 (56.2)	

Abbreviations: PI5principal investigator, NIH5National Institutes of Health, R25research 2, R15research 1

Publication output differed across institution types. Chairs at public universities showed significantly higher totals for publications ($p < .001$) and citations ($p < .001$), along with greater annual publication rates ($p < .001$) and better h-index ($p < .001$) and m-quotient scores ($p = .0014$). Similar trends appeared among chairs at schools with dedicated health sciences campuses and at institutions in the top 25 for NIH funding. All metrics varied significantly by Carnegie Classification ($p < .01$ across the board), with R1 universities achieving the strongest results and R2 universities performing comparably to Special Focus institutions. Institutional rankings from U.S. News & World Report were positively associated with both total publications ($R^2 = 0.21$, $p < .001$) and h-index ($R^2 = 0.27$, $p < .001$) **(Figure 1).**



a)



b)

Figure 1. Relationship between total publications of pharmacy practice department chairs and U.S. news & world report institutional ranking

The scholarly output of pharmacy practice department chairs has not been systematically assessed since 2009, a time when the American Association of Colleges of Pharmacy (AACP) directory listed only 89 schools and colleges of pharmacy [16]. Since then, the number of such institutions has grown by roughly 60% [17]. Consequently, a fresh examination of chairs' research productivity is warranted, as these metrics can help establish realistic faculty expectations within pharmacy practice departments, guide recruitment processes, and provide benchmarks for inter-institutional comparisons. In the present investigation, we performed an extensive analysis of the publication records of all current pharmacy practice chairs.

Our findings revealed substantial differences in research productivity among these chairs. Greater scholarly output was associated with higher academic ranks, public universities, health science campuses (HSCs), institutions classified as R1 under the Carnegie system, those ranked in the top 25 for NIH funding, and schools with stronger U.S. News & World Report (USNWR) rankings. These patterns align with prior studies, as such characteristics typically reflect research-focused environments where scholarship forms a more prominent part of faculty responsibilities [1, 2, 16, 18-20]. The small proportion of chairs who had secured NIH grants was expected, since obtaining NIH funding is seldom a formal requirement for pharmacy practice faculty or department leaders. Notably, 44% of pharmacy practice chairs held the rank of assistant or associate professor, a pattern more frequently seen at private institutions without an HSC designation or R1/R2 Carnegie classification.

Surprisingly, male chairs exhibited markedly greater total publication counts than female chairs, along with higher median citation totals and h-index values, though no differences emerged in annual publication rates or citations per publication. These disparities persisted even after accounting for faculty rank and institutional features, and may stem from ongoing gender inequities in science, technology, engineering, and mathematics (STEM) fields [21, 22]. On a positive note, women have made notable strides toward parity in leadership roles [23]. We observed that female chairs now occupy just under half of pharmacy practice chair positions—a substantial advance from 2003, when only 27% of such roles were held by women [23]. Nonetheless, women remain underrepresented in these leadership posts relative to their numbers among pharmacy practice faculty overall, where AACP data indicate nearly twice as many female as male members. The underlying causes of the observed productivity gap between male and female chairs remain unclear and merit additional investigation.

Burghardt and colleagues [20] recently published a bibliometric analysis of faculty at the 50 highest NIH-funded pharmacy schools and reported a median h-index of 6 for clinical faculty (using both Scopus and Web of Science). In contrast, basic science faculty displayed much higher medians of 22 and 21, respectively—a predictable difference given their greater allocation of time to research and publishing. In our cohort, the overall median h-index for pharmacy practice chairs was 8, matching the value reported by Burghardt *et al*. for clinical faculty at the associate professor level, a rank held by more than one-third of chairs in our sample. This relatively modest h-index may partly reflect the fact that h-index values rise gradually with accumulating citations and tend to favor longer-serving faculty. Moreover, assuming a chair role often reduces available time for research, leading to lower ongoing productivity [24].

Several limitations should be acknowledged. First, we relied primarily on the AACP faculty directory to compile our list of chairs, which could contain inaccuracies or outdated entries (e.g., recent appointments might not yet be reflected). We mitigated this by cross-checking school websites and contacting deans when discrepancies arose. Second, scholarly impact can be measured using various platforms, including Google Scholar, Scopus, and Web of Science;

we chose Scopus for its extensive journal coverage and superior consistency in content validation and quality control [25-28]. Third, the cross-sectional design provided only a single-point assessment of productivity. Additionally, certain chair-specific variables—such as tenure status, years in the chair position, non-NIH funding sources, assigned duties, and prior training—were unavailable for all individuals and thus could not be incorporated, potentially influencing result interpretation. Fourth, sex was assigned using a validated external database (Gender-API), which reports a median accuracy of 98%, rather than direct self-identification by chairs. Finally, the diverse structure of pharmacy practice departments and varying institutional expectations for chair scholarship should be considered when applying these findings.

Conclusion

Scholarly productivity among pharmacy practice department chairs shows considerable variation influenced by both institutional and personal factors. Chairs affiliated with public universities, health sciences campus-based institutions, those in the top 25 for NIH funding, R1 Carnegie-classified schools, and programs with stronger U.S. News & World Report rankings consistently demonstrated superior publication metrics. Additionally, male chairs and those holding full professor rank exhibited higher publication metrics than their female counterparts and chairs at lower academic ranks. The underlying causes of the productivity differences linked to chair sex remain undetermined. Furthermore, women hold just under half of all pharmacy practice chair positions, even though they comprise approximately two-thirds of pharmacy practice faculty overall. Future studies should investigate the persistent underrepresentation of women in these leadership roles and identify potential contributors to their comparatively lower scholarly output.

Acknowledgments: None

Conflict of Interest: None

Financial Support: None

Ethics Statement: None

References

1. Thompson DF, Nahata MC. Pharmaceutical science faculty publica- tion records at research-intensive pharmacy colleges and schools. Am J Pharm Educ. 2012;76(9):173. Doi:https://doi.org/10.5688/ajpe769173
2. Weathers T, Unni E. Publication rates of social and administrative sciences pharmacy faculty in non-research intensive pharmacy schools. Am J Pharm Educ. 2018;82(3):6229. Doi:https://doi.org/10.5688/ajpe6229
3. Nutescu EA, Engle JP, Bathija S, et al. Balance of academic responsibilities of clinical track pharmacy faculty in the United States: A survey of select American College of Clinical Pharmacy Practice and Research Network Members. Pharmacotherapy. 2014; 34(12):1239–1249. Doi:https://doi.org/10.1002/phar.1521
4. Schimanski LA, Alperin JP. The evaluation of scholarship in aca- demic promotion and tenure processes: past, present, and future. F1000Res. 2018;7. Doi:https://doi.org/10.12688/f1000research.16493.1
5. Schwinghammer TL, Rodriguez TE, Weinstein G, et al. AACP Strategy for addressing the professional development needs of department chairs. Am J Pharm Educ. 2012;76(6):S7. Doi:https://doi.org/10.5688/ajpe766S7
6. DeLander GE. Lessons from a recovering department chair. Am J Pharm Educ. 2017;81(3):43. Doi:https://doi.org/10.5688/ajpe81343
7. Dixon DL, Baker WL. Measuring research impact in the 21st cen- tury: are alternative metrics the answer? Minerva Cardioangiol. 2020;68(4):279–281. Doi:https://doi.org/10.23736/S0026-4725.20.05241-X
8. Medina MS, Draugalis JR. Exploring impact metrics beyond indi- ces and citations for SOTL and applied educational research. Am J Pharm Educ. 2019;83(3):7211. Doi:https://doi.org/10.5688/ajpe7211
9. Hicks D, Wouters P, Waltman L, de Rijcke S, Rafols I. Bibliomet- rics: the Leiden Manifesto for research metrics. Nature News. 2015; 520(7548):429. Doi:https://doi.org/10.1038/520429a
10. Thompson DF, Walker CK. A descriptive and historical review of bibliometrics with applications

to medical sciences. Pharmaco- therapy. 2015;35(6):551–559. Doi:https://doi.org/10.1002/phar.1586
11. Hirsch JE. An index to quantify an individual's scientific research output. PNAS. 2005;102(46):16569–16572. Doi:https://doi.org/10.1073/pnas.0507655102
12. Dixon DL, Baker WL. Short-term impact of Altmetric Attention Scores on citation counts in selected major pharmacy journals. J Am Coll Clin Pharm. 2020;3:10–14. Doi:https://doi.org/10.1002/jac5. 1141
13. Bosso JA, Chisholm-Burns M, Nappi J, Gubbins PO, Ross LA. Benchmarking in academic pharmacy departments. Am J Pharm Educ. 2010;74(8):140. Doi:https://doi.org/10.5688/aj7408140
14. Santamar´ıa L, Mihaljevi´c H. Comparison and benchmark of name-to-gender inference services. PeerJ Computer Science. 2018;4: e156 https://doi.org/10.7717/peerj-cs.156
15. Wartman SA. The Transformation of academic health centers: meeting the challenges of healthcare's changing landscape. Amster- dam: Elsevier/Academic Press; 2015.
16. Thompson DF, Callen EC, Nahata MC. Publication metrics and record of pharmacy practice chairs. Ann Pharmacother. 2009;43(2): 268–275. Doi:https://doi.org/10.1345/aph.1L400
17. Brown DL. Years of rampant expansion have imposed Darwinian survival-of-the-fittest conditions on US pharmacy schools. Am J Pharm Educ. 2020;84(10):8136. Doi:https://doi.org/10.5688/ajpe8136
18. Lee KC, El-Ibiary SY, Hudmon KS. Evaluation of research training and productivity among junior pharmacy practice faculty in the United States. J Pharm Pract. 2010;23(6):553–559. Doi:https://doi.org/10.1177/0897190010373657
19. Chisholm-Burns MA, Spivey C, Martin JR, Wyles C, Ehrman C, Schlesselman LS. A 5-year analysis of peer-reviewed journal article publications of pharmacy practice faculty members. Am J Pharm Educ. 2012;76(7):127. Doi:https://doi.org/10.5688/ajpe767127
20. Burghardt KJ, Howlett BH, Fern SM, Burghardt PR. A biblio- metric analysis of the top 50 NIH-Funded colleges of pharmacy using two databases. Res Social Adm Pharm. 2020;16(7):941–948. Doi: https://doi.org/10.1016/j.sapharm.2019.10.006
21. Roper RL. Does gender bias still affect women in science? Microbiol Mol Biol Rev. 2019;83(3). Doi:10.1128/MMBR.00018-19
22. Casad BJ, Franks JE, Garasky CE, et al. Gender inequality in aca- demia: problems and solutions for women faculty in STEM. J Neurosci Res. October 25, 2020. Doi:https://doi.org/10.1002/jnr.24631
23. Draugalis JR, Plaza CM, Taylor DA, Meyer SM. The status of women in US academic pharmacy. Am J Pharm Educ. 2014;78(10):178. Doi:https://doi.org/10.5688/ajpe7810178
24. Desselle SP, Peirce GL, Crabtree BL, et al. Pharmacy faculty workplace issues: findings from the 2009-2010 COD-COF Joint Task Force on Faculty Workforce. Am J Pharm Educ. 2011;75(4):63. Doi:https://doi.org/10.5688/ajpe75463
25. Bakkalbasi N, Bauer K, Glover J, Wang L. Three options for citation tracking: Google Scholar, Scopus and Web of Science. Biomed Digit Libr. 2006;3(1):7. Doi:https://doi.org/10.1186/1742-5581-3-7
26. Falagas ME, Pitsouni EI, Malietzis GA, Pappas G. Comparison of PubMed, Scopus, Web of Science, and Google Scholar: strengths and weaknesses. FASEB j. 2008;22(2):338–342. Doi:https://doi.org/10.1096/fj.07-9492LSF
27. S. Adriaanse L, Rensleigh C. Web of Science, Scopus and Google Scholar: a content comprehensiveness comparison. The Elec- tronic Library. 2013;31(6):727–744. Doi:https://doi.org/10.1108/EL- 12-2011-0174
28. Mart´ın-Mart´ın A, Orduna-Malea E, Thelwall M, Delgado L´opez- C´ozar E. Google Scholar, Web of Science, and Scopus: a systematic comparison of citations in 252 subject categories. J Informetr. 2018;12 (4):1160–1177. Doi:https://doi.org/10.1016/j.joi.2018.09.002