RESEARCH

A 5-Year Analysis of Peer-Reviewed Journal Article Publications of Pharmacy Practice Faculty Members

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Objectives. To evaluate scholarship, as represented by peer-reviewed journal articles, among US pharmacy practice faculty members; contribute evidence that may better inform benchmarking by academic pharmacy practice departments; and examine factors that may be related to publication rates.

Methods. Journal articles published by all pharmacy practice faculty members between January 1, 2006, and December 31, 2010, were identified. College and school publication rates were compared based on public vs. private status, being part of a health science campus, having a graduate program, and having doctor of pharmacy (PharmD) faculty members funded by the National Institutes of Health (NIH).

Results. Pharmacy practice faculty members published 6,101 articles during the 5-year study period, and a pharmacy practice faculty member was the primary author on 2,698 of the articles. Pharmacy practice faculty members published an average of 0.51 articles per year. Pharmacy colleges and schools affiliated with health science campuses, at public institutions, with NIH-funded PharmD faculty members, and with graduate programs had significantly higher total publication rates compared with those that did not have these characteristics ($p < 0.006$).

Conclusion. Pharmacy practice faculty members contributed nearly 6,000 unique publications over the 5-year period studied. However, this reflects a rate of less than 1 publication per faculty member per year, suggesting that a limited number of faculty members produced the majority of publications.

Keywords: academia, pharmacy practice, faculty, publications, scholarship

INTRODUCTION

Scholarship, defined as the generation, advancement, or transformation of knowledge within a discipline, is primarily communicated through peer-reviewed publications and has been an expectation of faculty members.¹ In recent years, attention has been placed on full-time pharmacy practice faculty members having a sustained record of publishing, which is important not only for advancement of the profession and science but also for faculty promotion and tenure. Consequently, pharmacy practice faculty members are required to place a focus on scholarship while maintaining their teaching and service responsibilities. Many pharmacy practice faculty members find this

triad of demands challenging and rewarding, while others find it too demanding and somewhat unfair.²

The faculties of colleges and schools of pharmacy are made up of both pharmacy practice and nonpharmacy practice faculty members, with those in disciplines such as pharmacology, toxicology, medicinal chemistry, and pharmaceuticals typically having greater scholarship demands on them compared with those in pharmacy practice. Faculty members in pharmacy practice typically have a considerable workload involving competing demands, including generally large lecture-based and experiential teaching responsibilities as well as service and scholarship commitments.³ With respect to scholarship, Thompson and Segars in 1995 found that only 18% of pharmacy colleges and schools averaged 1 or more publications per faculty member annually, and 52% averaged less than 0.5.⁴ Examining all faculty members in US pharmacy colleges and schools in 2001, Thompson and colleagues found an average of 26 publications per institution per year.⁵

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Because these studies published aggregate data involving all faculty members, they did not address questions specific to pharmacy practice faculty members and their peer-reviewed publication rate. These studies are more than 10 years old, and many changes have occurred in pharmacy education, including growth in the number of pharmacy colleges and schools and an increase in the number of faculty members, especially those in pharmacy practice. Thus, further investigation into the scholarship of pharmacy practice faculty members is needed.

In 2007, Coleman and colleagues used the Web of Science database to examine the quantity of published literature produced by pharmacy practice faculty members for the years 2001 to 2003.⁶ Of the 2,374 pharmacy practice faculty members, 116 (4.9%) had published an average of 2 or more publications per year, 54 (2.3%) had published an average of 3 or more; and 25 (1.1%) had averaged 4 or more. The 50 most-published pharmacy practice faculty members accounted for nearly one third of all pharmacy practice publications.⁶

The aforementioned studies, which demonstrate the scholarly activity of pharmacy practice faculty members, typically involved a short timeframe (1 to 3 years) and only 1 database, such as Web of Science, Medline, PubMed, or Science Citation Index. Additionally, some of these studies may have captured faculty members other than those associated with pharmacy practice, as departments of pharmacy practice usually include members who are more closely aligned with social and administrative sciences, economics, and epidemiology. Moreover, because these studies did not report authorship data from a positional reference (ie, with consideration given to the relevant faculty member's position in a given article's author listing), they did not analyze primary authorship of an article any differently than coauthorship.

The objectives of this study were to evaluate the state of scholarship, as represented by the number of peer-reviewed journal articles published, among US pharmacy practice faculty members and to contribute evidence that may better inform benchmarking by pharmacy practice departments. To achieve these objectives, the study sought to: (1) measure primary author publication rates and total publication rates; (2) assess the influence of a health science center/campus on publication rate; (3) compare publication rates of public institutions to those of private institutions; (4) compare publication rates of pharmacy colleges and schools with and without graduate programs; (5) compare the publication rates of colleges and schools of pharmacy with and without NIH-funded PharmD faculty members; (6) determine the journals in which pharmacy practice faculty members most frequently published

and the impact factor of those journals; and (7) determine the highest-impact factor journals in which pharmacy practice faculty members published.

METHODS

Two bibliographic databases were searched to identify journal articles published by pharmacy practice faculty members between January 1, 2006, and December 31, 2010. A list of all full-time pharmacy practice faculty members, including department heads and deans of any faculty rank or tenure status, was obtained from the American Association of Colleges of Pharmacy (AACP) Roster for All Regular Institution Members in the United States for each year of the study. Emeritus and part-time faculty members were excluded from the study. A printed copy of the AACP roster was used for 2006-2009; however, because the print version was discontinued after 2009, the list of faculty members for 2010 was obtained directly from AACP. For any faculty members not identified by discipline in the AACP roster, an Internet search was conducted to determine if the faculty member in question was associated with pharmacy practice. This method was successful in verifying the discipline of all but a few (<1%) faculty members. To screen for authors with the same name but different disciplines, each record identified in the search was visually inspected and verified for faculty name and appropriate institutional affiliation. In conducting the search, names were checked for spelling. When inaccuracies were found, they were corrected and the search was done again. PubMed and Thomson Reuters' Web of Science, which consists of Science Citation Index Expanded, Social Sciences Citation Index, and Arts & Humanities Citation Index, were used to conduct this comprehensive search of peer-reviewed publications. Although there is considerable overlap in coverage of these 2 databases, some journals relevant to pharmacy practice may be covered by only 1 database. For example, the *Consultant Pharmacist* is indexed in PubMed but not in Web of Science, whereas *Annals of Pharmacotherapy* and the *American Journal of Health-Systems Pharmacy* are included in both.

For both databases, the advanced search feature was used with specific field codes for author, affiliation, and date of publication. The full names of all faculty members were used for the search, along with the date of publication and name of the institution. Because of lack of standardization within the databases, synonyms for institution names were used in certain cases. Both databases have advanced search features that allow for use of specific field codes. In Web of Science, the field code "AU=" was used to search the author name, the field code "OG=" was used to search the organization, and the field

code “PY=” was used to search year of publication. The search for this study was limited to articles available in English and publication type “Article” in order to eliminate commentaries, editorials, book chapters, and meeting abstracts. Advanced-search field codes were also used to search PubMed. In 2003, PubMed began to index full names of authors. The “AU” field code, which searches by full name and also automatically truncates names to search with initials, was used to search the names of all pharmacy practice faculty members.⁷ The author field was combined with the “AD” field code to identify affiliation. The final field code added to the search was “DP” (date of publication) to search by year. Every record identified in each search was visually inspected to verify author, institutional affiliation, and type of publication. Items that did not fit the search criteria were excluded, including authors with the same name but no affiliation with a college or school of pharmacy listed, and articles that were commentaries or editorials but not labeled as such in the database.

The study included articles that were original research, case studies, and literature reviews. After the results were reviewed and refined, the final list of citations was exported to Refworks, 2.0 (Refworks COS, Bethesda, MD), a Web-based bibliographic management tool. Because each study year was searched separately, an individual Refworks account was created for each study year from 2006 to 2010. Duplicate references were removed manually so that the final list contained only unique citations from each pharmacy college or school. This method was repeated for each institution by study year. To ensure that search strategies were consistent and reliable, quality checks were performed by randomly re-executing the search and determining if results were accurate and fulfilled inclusion criteria. Quality checks for accuracy were also conducted in the final database. Once the final results for each pharmacy college or school by study year were compiled, citations were exported into an Excel (Microsoft, Redmond, WA) spreadsheet for analysis. Data collected for each article included: (1) citation; (2) whether the primary author was a pharmacy practice faculty member and, if so, from which institution; (3) coauthorship by institution; (4) number of pharmacy practice faculty members at each pharmacy college or school by year; (5) journal impact factor; and (6) whether each institution had NIH-funded PharmD faculty members.⁸ Pharmacy colleges and schools were categorized according to whether they were part of a health science campus, were a public or private institution, and had a graduate program based on survey information provided to AACP by each institution.⁹

Data were housed and analyses performed using Excel 2007 and SPSS Statistics 19 (IBM, Armonk, NY).

Frequency counts were performed to determine the following per study year: (1) total number of primary authored publications; (2) total number of publications (including primary and/or coauthored publications; articles with coauthors at more than 1 pharmacy college or school were counted once for each institution, and thus, may have been counted more than once in the total publications figure); (3) number of *unique* publications (includes primary and/or coauthored publications; each individual article was counted only once regardless of number of coauthors at various institutions); (4) the 10 journals in which pharmacy practice faculty members most frequently published as primary authors; and (5) the 10 journals with the highest-impact factor in which pharmacy practice faculty members published as primary authors.

Rates determined for each study year and for the 5-year study period included primary-author publications per faculty member and total publications per faculty member. Descriptive statistics were calculated. Because of the non-normative distribution of the data, Mann-Whitney U tests were conducted to determine if: (1) pharmacy colleges and schools on a health science campus had a greater number of total and primary author publications per faculty member than did those not on a health science campus; (2) public institutions had a greater number of total and primary author publications per faculty member than did private institutions; (3) pharmacy colleges and schools with graduate programs had a greater number of total and primary author publications per faculty member than did institutions without graduate programs; and (4) institutions with NIH-funded PharmDs had a greater number of total and primary author publications per faculty member than did those that did not (2010 was used as the representative year in the analysis of institutions with NIH-funded PharmD faculty members). Because multiple Mann-Whitney U tests were conducted, a Bonferroni adjustment was made (0.05/8), and an *a priori* alpha level of 0.006 was used.

RESULTS

Although there were 113 colleges and schools of pharmacy in 2010 (the final year of this study), only the 90 in existence since 2006 were used in this study, as 5 years of complete data (2006-2010) could be compiled for them. From January 1, 2006, through December 31, 2010, there were 5,660 *unique* articles published by pharmacy practice faculty members, 6,101 total articles published by pharmacy practice faculty members, and 2,698 articles published by pharmacy practice faculty members as primary authors (Table 1). Over the 5-year study period, publications per pharmacy college or school ranged

Table 1. Total, Unique, and Primary Publications of Pharmacy Practice Faculty Members, by Year

	2006	2007	2008	2009	2010
Total publications	1,017	1,227	1,210	1,324	1,323
Unique publications	965	1,129	1,114	1,217	1,235
Primary author publications	531	555	499	552	561

from 1 to 214, with a mean of 67.8 ± 55.3 (SD) (median = 49, mode = 12) publications per institution. Table 2 presents the mean, standard deviation, median, mode, and range of total publications for each study year.

Pharmacy practice faculty members averaged 0.51 ± 0.4 (median = 0.41, mode = 0.1) total articles per faculty member per year. Only 33 colleges and schools had publication rates per faculty member in excess of the average, while 44 institutions had publication rates in excess of the median. Total publication rates per faculty member ranged from 0.01 to 1.89, pharmacy practice faculty members averaged 0.22 ± 0.14 (median = 0.20, mode = 0.22) primary-author articles per faculty member per year, and primary-author publication rates per faculty member ranged from 0 to 0.62. Table 3 presents the 10 journals in which pharmacy practice faculty members most frequently

Table 2. Descriptive Statistics of Total Peer-Reviewed Journal Articles Published by Faculty Members at Pharmacy Colleges and Schools, by Year and Type of Institution

Type of Institution	2006	2007	2008	2009	2010
All pharmacy colleges and schools					
Mean number per institution (SD)	11.3 (10.0)	13.6 (12.3)	13.4 (12.0)	14.7 (13.3)	14.7 (11.1)
Median	7	10.5	9	11.5	13
Mode	4	1 ^a	2	4	2
Range	0-39	0-57	0-52	0-49	0-47
Public pharmacy colleges and schools					
Mean number per institution (SD)	14.6 (11.0)	17.2 (13.4)	17.3 (13.1)	18.8 (14.7)	18.4 (12.0)
Median	13.5	14	16	17	16.5
Mode	5	21	4 ^a	4 ^a	21
Range	0-44	0-57	1-52	0-49	1-47
Private pharmacy colleges and schools					
Mean number per institution (SD)	5.9 (4.8)	7.7 (7.3)	7.1 (5.9)	8 (6.4)	8.5 (5.4)
Median	4	5	7	7	8.5
Mode	4	1	2	1	2
Range	0-19	0-32	0-20	0-24	0-19
Health science campus pharmacy colleges and schools					
Mean number per institution (SD)	16.2 (11.3)	19.4 (14.2)	19.5 (13.9)	21.2 (15.1)	19.5 (11.7)
Median	14.5	16	18.5	18.0	18.5
Mode	14 ^a	6 ^a	2	17 ^a	6 ^a
Range	0-44	1-57	1-52	1-49	1-41
Non-health science campus pharmacy colleges and schools					
Mean number per institution (SD)	7 (6.3)	8.6 (7.6)	8.2 (6.7)	9 (8.0)	10.5 (8.7)
Median	5	6	6.5	7	10
Mode	3 ^a	2 ^a	9	4	2 ^a
Range	0-27	0-32	0-29	0-33	0-47
Pharmacy colleges and schools with graduate program					
Mean number per institution (SD)	13.4 (10.0)	16.4 (12.5)	16 (11.8)	17.3 (13.2)	17.1 (11.2)
Median	13	14	15	15	15
Mode	4 ^a	14	16 ^a	1 ^a	13
Range	0-44	0-57	1-52	0-46	1-47
Pharmacy colleges and schools without graduate program					
Mean number per institution (SD)	5.3 (7.7)	5.7 (7.6)	5.9 (9.1)	7.2 (10.4)	7.9 (7.7)
Median	4	4	4	4	6
Mode	3	1	2	4	2 ^a
Range	0-39	0-37	0-45	0-49	0-34

Abbreviations: SD = standard deviation

^a Multiple modes exist. The smallest value is shown.

Table 3. Ten Journals Most Frequently Published in by Pharmacy Practice Faculty Members as Primary Authors, 2006-2010

5-Year Journal Impact Factor	Number of Primary Author Articles per Journal	Journal
2.16	293	<i>Annals of Pharmacotherapy</i>
1.97	270	<i>American Journal of Health-System Pharmacy</i>
2.26	253	<i>Pharmacotherapy</i>
1.28	235	<i>American Journal of Pharmaceutical Education</i>
1.26	142	<i>Journal of the American Pharmacists Association</i>
3.06	72	<i>Clinical Therapeutics</i>
NIFR	64	<i>The Consultant Pharmacist</i>
4.68	40	<i>Antimicrobial Agents and Chemotherapy</i>
NIFR	32	<i>South Dakota Medicine</i>
NIFR	24	<i>Journal of Psychiatric Practice</i>

NIFR = no impact factor reported

published as primary authors between 2006 and 2010 as well as those journals' 5-year impact factors. Table 4 displays the 10 journals with the highest-impact factor in which pharmacy practice faculty members published as primary authors.

The mean, standard deviation, median, and mode of total publication rates and primary-authored publication rates for the 5-year study period for colleges and schools with certain characteristics (ie, private or public, health science campus or no health science campus, graduate program or no graduate program) are presented in Tables 5 and 6, respectively. Institutions that were part of a health science campus had significantly more total publications per pharmacy practice faculty member ($p<0.001$) and more primary author publications per faculty member than did those that were not part of a health science campus ($p<0.001$). Public pharmacy colleges and schools had more total publications as well as more primary author publications per faculty member than did private institutions ($p<0.001$ and $p=0.001$, respectively). Pharmacy

colleges and schools with graduate programs had a greater number of both total publications and primary authored publications per faculty member than did institutions without graduate programs ($p<0.001$ and $p=0.002$, respectively). Additionally, colleges and schools with NIH-funded PharmD faculty members in 2010 had a greater number of total publications per faculty member (0.81 ± 0.56 vs 0.43 ± 0.33 ; median/mode $0.62/0.59$ vs $0.35/0.35$; $p<0.001$) but did not have a greater number of primary author publications per faculty member (0.29 ± 0.12 vs 0.20 ± 0.14 ; median/mode $0.23/0.22$ vs $0.16/0.24$; $p=0.036$) in 2010 than those who did not have NIH-funded PharmD faculty members.

DISCUSSION

In academia, there is a general expectation that faculty members will contribute to the literature/knowledge base in their field. The current study examined the quantity of peer-reviewed journal articles contributed to the knowledge base by pharmacy practice faculty members.

Table 4. Ten Highest Impact Factor Journals in Which Pharmacy Practice Faculty Members Publish as Primary Authors, 2006-2010

5-Year Journal Impact Factor	Number of Primary Author Articles per Journal	Journal
52.36	5	<i>New England Journal of Medicine</i>
16.43	1	<i>Journal of Clinical Oncology</i>
16.08	1	<i>Lancet Oncology</i>
15.62	1	<i>Archives of General Psychiatry</i>
15.47	1	<i>Lancet Infectious Diseases</i>
14.97	2	<i>PLoS Medicine</i>
14.93	2	<i>Circulation</i>
13.89	1	<i>Genes & Development</i>
13.09	2	<i>Journal of the American College of Cardiology</i>
10.59	1	<i>Proceedings of the National Academy of Sciences of the United States of America</i>

Table 5. Descriptive Statistics of Total Publication Rates by Pharmacy Practice Faculty Members at Colleges and Schools of Pharmacy for 2006-2010, by Type of Institution

Type of Institution	Total Publication Rates 2006-2010
Public pharmacy colleges and schools	
Mean number per institution (SD)	0.64 (0.44)
Median	0.58
Mode	0.06 ^a
Private pharmacy colleges and schools	
Mean number per institution (SD)	0.29 (0.17)
Median	0.28
Mode	0.01 ^a
Health science campus pharmacy colleges and schools	
Mean number per institution (SD)	0.71 (0.45)
Median	0.66
Mode	0.06 ^a
Non-health science campus pharmacy colleges and schools	
Mean number per institution (SD)	0.33 (0.24)
Median	0.28
Mode	0.01 ^a
Pharmacy colleges and schools with graduate program	
Mean number per institution (SD)	0.59 (0.41)
Median	0.48
Mode	0.06 ^a
Pharmacy colleges and schools without graduate program	
Mean number per institution (SD)	0.27 (0.24)
Median	0.24
Mode	0.01 ^a

Abbreviation: SD = standard deviation

^a Multiple modes exist. The smallest value is shown

The findings may be used as a benchmark with which to examine future scholarly productivity, both at a national level and within individual academic pharmacy practice departments. This study demonstrates that, overall, pharmacy practice faculty members consistently contribute to the literature but at a rate of less than 1 publication per faculty member per year. This study also found that in more than 40% of publications, a pharmacy practice faculty member served as primary author, thus demonstrating an emerging leadership effort in the areas of research and manuscript development. The majority of these primary author publications are in pharmacy-related journals with impact factors near 2; only a small number of pharmacy practice primary author publications are in journals with impact factors greater than 2.

Table 6. Descriptive Statistics of Primary Author Publication Rates by Pharmacy Practice Faculty Members at Colleges and Schools of Pharmacy for 2006-2010, by Type of Institution

Type of Institution	Primary Author Publication Rates, 2006-2010
Public pharmacy colleges and schools	
Mean number per institution (SD)	0.26 (0.14)
Median	0.23
Mode	0.22
Private pharmacy colleges and schools	
Mean number per institution (SD)	0.17 (0.12)
Median	0.15
Mode	0 ^a
Health science campus pharmacy colleges and schools	
Mean number per institution (SD)	0.27 (0.14)
Median	0.27
Mode	0.22
Non-health science campus pharmacy colleges and schools	
Mean number per institution (SD)	0.19 (0.13)
Median	0.15
Mode	0.02 ^a
Pharmacy colleges and schools with graduate program	
Mean number per institution (SD)	0.25 (0.14)
Median	0.23
Mode	0.22
Pharmacy colleges and schools without graduate program	
Mean number per institution (SD)	0.15 (0.10)
Median	0.15
Mode	0 ^a

Abbreviation: SD = standard deviation

^a Multiple modes exist. The smallest value is shown.

In contrast to previous studies, the current study also evaluated characteristics of colleges and schools of pharmacy with increased publication rates. We found higher publication rates at public institutions, at institutions with graduate programs and NIH-funded PharmD faculty members, and at institutions located on health science center campuses. Given the differing missions and expectations across colleges and schools, these findings are not surprising. The increased publication rates at these institutions may represent a cultural influence, as many of these programs are Carnegie rated as research-intensive. As such, they likely place a greater emphasis on research in their programs' missions and have heightened publishing expectations of their pharmacy faculty members,

whereas institutions that are more teaching- and/or service-intensive may place less emphasis on research and/or publishing by faculty members. In addition to cultural expectations of scholarship, we speculate that pharmacy practice faculty members who work at health science center campuses and have campus-based practice sites may have increased opportunities for clinical and translational research collaboration involving patient populations.

The current study found that pharmacy practice faculty members produced a greater average number of publications per year during 2006-2010 than was found in a similar study conducted by Coleman and colleagues in the early 2000s (1,220 vs 632, respectively).⁶ There are several possible explanations for this difference: (1) an increase in the number of faculty members contributing to the knowledge base occurring since the publication of the Coleman and colleagues study; (2) the difference in study methodology used to identify publications by pharmacy practice faculty members (ie, use of the Web of Science database in the Coleman and colleagues study vs Web of Science and PubMed in the current study); or (3) some combination of the aforementioned possible reasons. Despite the volume of publications, pharmacy practice faculty members publish less than 1 article per faculty member per year, a rate that is below that among pharmacy practice chairs, who publish approximately 1.5 articles annually.¹⁰ This finding suggests that a few pharmacy practice faculty members may be producing the bulk of the publications and is consistent with a trend noted by Coleman and colleagues.⁶ This low publication rate per faculty member is somewhat surprising, given that Standard 25 in the Accreditation Council of Pharmacy Education's (ACPE) accreditation standards clearly defines a requirement for faculty members to be "committed to the advancement of the profession and the pursuit of research and other scholarly activities" and to "show evidence of scholarship and publication."¹¹ However, scholarly activity may also include publication of items not considered in this study, such as books, book chapters, and professional meeting abstracts.

As noted in the comparison between the current study and the Coleman study, pharmacy practice faculty members continue to publish in many of the same journals as they did between 2001 and 2003.⁶ Only 3 journals have been added to the list of top 10 journals in which pharmacy practice faculty members publish: *The Consultant Pharmacist*, *South Dakota Medicine*, and *Journal of Psychiatric Practice*. Some differences in the top 10 lists may be attributable to the 2 studies' methodological differences; more specifically, while *Journal of Psychiatric Practice* and *The Consultant Pharmacist* are both indexed in Web of Science, *South Dakota Medicine* is not and

would not have been included in the Coleman and colleagues study. The exact cause of increased publications in these journals is unknown. Also noted between the studies was that 2 journals that dropped off the most frequently published list, *Journal of Clinical Pharmacology* and *Journal of Antimicrobial Chemotherapy*, had higher-than-average impact factors (3.59 and 4.66, respectively) than did most pharmacy journals. The loss of these journals from the most frequently published list has contributed to a decline in the average impact factor of this list between the 2 studies. Despite this change in the journals in which pharmacy practice faculty members most frequently publish, some faculty members continued to publish as primary authors in journals with high-impact factors.

This study has limitations. Pharmacy practice faculty members were identified using data provided by AACP; while the data are generally reliable, there is the possibility of inaccuracies. Additionally, the AACP roster follows the academic year, while the database searches were performed by calendar year, opening the possibility that faculty changes may have been missed. As a result, certain publication data, such as journal articles published by new faculty hires who were not listed in the AACP roster for a particular year, may not have been captured. Another limitation is that, as only 2 bibliographic databases were used, any publications not included in these databases would likewise not have been captured in this study's data collection. Nevertheless, ours is one of the few studies of this kind to use more than 1 database, which broadened the scope of data collection. A further limitation is that our study would not have captured faculty members who listed an affiliation other than their pharmacy college or school affiliation when publishing. Additionally, because of methodological feasibility, we did not compare the publication rates of tenured/tenure-track vs. nontenure-track faculty members, which may be an informative indicator of scholarly productivity. Despite these limitations, this study provides a much-needed overview of the scholarly productivity of pharmacy practice faculty members that may be used as a benchmark to assess future productivity levels and encourage increased scholarship among faculty members.

CONCLUSIONS

Pharmacy practice faculty members consistently contributed to the literature over the 5 years evaluated, with nearly 6,000 unique publications. In approximately half of these publications, pharmacy practice faculty members served as primary authors, demonstrating the important role that faculty members are playing in these scholarly pursuits. Publications were generally in pharmacy-related

journals, although faculty members also published in other journals including some with high impact factors. Despite the increase in number of publications, this contribution was at a rate of less than 1 publication per faculty member per year, suggesting that a limited number of faculty members produced the majority of publications.

Faculty members at public institutions, institutions with NIH-funded PharmD faculty members, institutions that are part of health science centers, and/or institutions with graduate programs account for a higher number of publications. Using the findings of the current study as a benchmark and continuing to update the findings periodically may facilitate the development, implementation, and assessment of strategies to strengthen and increase the number and quality of peer-reviewed journal article publications and engage more pharmacy practice faculty members in the publication process.

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