

RESEARCH

Multi-Institutional Study of Women and Underrepresented Minority Faculty Members in Academic Pharmacy

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Objectives. To examine trends in the numbers of women and underrepresented minority (URM) pharmacy faculty members over the last 20 years, and determine factors influencing women faculty members' pursuit and retention of an academic pharmacy career.

Methods. Twenty-year trends in women and URM pharmacy faculty representation were examined. Women faculty members from 9 public colleges and schools of pharmacy were surveyed regarding demographics, job satisfaction, and their academic pharmacy career, and relationships between demographics and satisfaction were analyzed.

Results. The number of women faculty members more than doubled between 1989 and 2009 (from 20.7% to 45.5%), while the number of URM pharmacy faculty members increased only slightly over the same time period. One hundred fifteen women faculty members completed the survey instrument and indicated they were generally satisfied with their jobs. The academic rank of professor, being a nonpharmacy practice faculty member, being tenured/tenure track, and having children were associated with significantly lower satisfaction with fringe benefits. Women faculty members who were tempted to leave academia for other pharmacy sectors had significantly lower salary satisfaction and overall job satisfaction, and were more likely to indicate their expectations of academia did not match their experiences ($p < 0.05$).

Conclusions. The significant increase in the number of women pharmacy faculty members over the last 20 years may be due to the increased number of female pharmacy graduates and to women faculty members' satisfaction with their careers. Lessons learned through this multi-institutional study and review may be applicable to initiatives to improve recruitment and retention of URM pharmacy faculty members.

Keywords: underrepresented minority faculty members, women faculty members, recruitment, retention, diversity

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INTRODUCTION

Pharmacy education in the United States is significantly different today than it was 20 years ago. Now, team course teaching is far more common, the doctor of pharmacy (PharmD) is the first professional degree, curricula

have been revised significantly, and several new colleges and schools of pharmacy have emerged. Additionally, the number of women in colleges and schools of pharmacy has more than doubled, although numbers of underrepresented minority (URM) faculty members (defined by the Health Resources and Services Administration and the American Association of Colleges of Pharmacy [AACP] as African American, Hispanic, and Native American groups) remain low.¹⁻⁶ The importance for increasing diversity in pharmacy and other healthcare professions cannot be overstated, as the Institute of Medicine (IOM) noted multiple benefits of diversity in the health professions including greater patient access to care, improved patient satisfaction, greater provider-patient communication, and better education experiences for health professions students.⁷ Thus, it is important to understand the influences that led to this increase in women faculty members, as well as the disparities that remain in the representation of URM faculty members in academic pharmacy. By developing a greater comprehension of factors driving both growth and ongoing disparities, it may be possible to improve efforts to recruit and retain URM pharmacy faculty members and reduce disparities among academic pharmacy faculty members.

The substantial increase in the number of women pharmacy faculty members compared to URM pharmacy faculty presents a unique opportunity to gather knowledge from a historically underrepresented faculty population (ie, women) that seems to have reached the critical mass necessary to produce sustainable change. This opportunity is important given the limited number of URM faculty members in academic pharmacy, particularly the low number of URM pharmacy faculty members in public non-historically black colleges or universities (HBCUs), and the virtually non-existent literature pertaining to barriers faced by and mechanisms to increase racial and ethnic diversity among pharmacy faculty members in non-HBCUs. Thus, assessment of growth in the number of women pharmacy faculty members may provide knowledge translatable to efforts to bolster recruitment and retention of URM faculty groups. The use of such knowledge translation is suggested by the work of Johnsrud who notes the “experience of minority faculty parallels in many respects the experiences of women” and proposes using some similar strategies of outreach to URM faculty members as were used for women.^{8(p7)}

There has been much speculation regarding reasons for the increase in women faculty members in colleges and schools of pharmacy. Some have hypothesized that the increase in women pharmacy faculty members is primarily the result of access to an expanded pipeline, as the percentage of women vs. men earning pharmacy degrees

(bachelor of science in pharmacy and PharmD) increased dramatically between 1971 and 1981 (from 18% in 1971 to 43% in 1981) and today hovers around 65%.^{9,10} Other possible contributing factors include: (1) increased number of female faculty members serving as role models and catalysts for women to enter academic pharmacy; (2) flexible work schedule; (3) availability of nontenured faculty positions (eg, clinical track in pharmacy practice department); (4) increased number of faculty positions because of numerous new colleges and schools of pharmacy and added faculty numbers at existing colleges; and (5) greater job satisfaction, which can serve as a key factor associated with both recruiting employees and minimizing attrition.^{9,11-13}

Strategies to promote recruitment and retention of women pharmacy faculty members have been discussed in the literature, eg, using formal and informal mentoring, having positive postdoctoral research experiences, adjusting workloads/time commitments, and providing more equitable pay and protected research time.^{2,9} However, few studies have explored the views that women pharmacy faculty members hold regarding the challenges and rewards of a career in academic pharmacy. A deeper understanding of these views may facilitate sustainment of levels of women pharmacy faculty members and aid in recruitment and retention of URM faculty groups. Thus, to develop a roadmap to help improve diversity in pharmacy faculty, the objectives of this study were to examine trends in numbers of US women and URM pharmacy faculty groups over the last 20 years and survey women pharmacy faculty members, as a historically underrepresented group, to better discern factors influencing pursuit and retention of an academic pharmacy career at public institutions. Recommendations to increase the number of URM faculty members in academic pharmacy at public non-HBCUs were developed.

METHODS

Trends in women and URM faculty members in US colleges and schools of pharmacy by rank over time were assessed. To conduct this assessment, the following data were obtained from AACP for each year from 1989 through 2009: total number of pharmacy faculty members by gender, race, and rank, including administrative positions.^{3,4,14-32} To examine the pharmacy faculty pipeline, data on the number of professional pharmacy degrees awarded by gender and race for 1989-2009 were also acquired and used as a proxy.³³

As women pharmacy faculty members experienced the greatest increase in number over the last 20 years compared to URM groups, the investigators used women as the model group for the study. A within-stage mixed-model

design, defined as the use of both quantitative and qualitative research approaches within one stage of a study, was used.^{34,35} A survey of women pharmacy faculty members was designed, including a questionnaire that incorporated both closed-ended (quantitative) and open-ended (qualitative) questions to assess factors influencing women faculty members' pursuit of an academic pharmacy career. The questionnaire centered on the following 3 domains based on preliminary findings from the literature search: (1) choosing to pursue and retain a career in academic pharmacy; (2) influence of role models; and (3) advice to women on pursuing a career in academic pharmacy.

The survey instrument consisted of 3 sections: (1) demographics, more specifically, present academic rank, years in rank, academic discipline, tenure status, appointment status, age, salary, race/ethnicity, marital status, and number of children; (2) job satisfaction; and (3) questions pertaining to the faculty members' academic pharmacy career. The 7-item pharmacy faculty job satisfaction measure was adapted from a job satisfaction instrument developed and validated by Barnett and Kimberlin.^{36,37} Three items of the scale were *facet specific*, meaning that each of these items measured distinct, tangible characteristics of the faculty position; they were treated as individual measures of salary, fringe benefits, and opportunities to use skills and abilities.³⁷ The remaining 4 items were *facet free*, or not anchored to distinct, tangible characteristics of the faculty position, and a global job satisfaction score was determined based on the mean score of the responses to these 4 items. Likert scale responses to items ranged from 1 (strongly disagree) to 5 (strongly agree), with a neutral midpoint.

A public non-HBCU college or school of pharmacy in each of the 9 US Census-based divisions of the United States was included in the study: University of Arizona (Mountain); University of Arkansas for Medical Sciences (West South Central); University of Buffalo (Middle Atlantic); University of Connecticut (New England); University of Illinois at Chicago (East North Central); University of Iowa (West North Central); University of Mississippi (East South Central); University of Washington (Pacific); and South Carolina College of Pharmacy (Charleston campus; South Atlantic).³⁸ The 9 participating colleges and schools of pharmacy were selected (purposive sampling) because faculty members at each institution are part of an informal network of research-oriented, public colleges and schools of pharmacy in the United States. Women faculty members were asked to participate if they were full-time, salaried employees of their respective colleges or schools of pharmacy. Faculty members were excluded from the participant pool if they were less than full-time, unsalaried (eg, adjunct), and/or were on leave

from the institution (eg, sabbatical, parental leave) during the times of survey administration.

One hundred forty-nine female faculty members were invited to participate in the study. To enhance response rate, a mixed-mode survey design was used wherein the survey instruments were administered via a Web-based survey site (eg, SurveyMonkey) or via face-to-face group sessions (generally 2 or 3), organized by a facilitator at the college or school of pharmacy site. Mixed-mode survey design was used because it can improve response rates with minimal mode effects, defined as differences in outcome data based on mode of data collection.³⁹⁻⁴¹ Facilitators at each site were permitted to determine the best mode of delivery for their site. The survey and mode of distribution were approved by the institutional review board at each site prior to administration. To reduce the possibility of coercion, facilitators were selected who were not senior in rank to participants or in supervisory roles over participants. Survey instruments were completed independently by each faculty participant. During the face-to-face sessions, the role of the facilitator was limited to briefly explaining the purpose of the study and distributing and collecting survey instruments. This study was approved by the institutional review boards of all 9 participating universities.

To examine faculty trends over the last 20 years, data were entered into Microsoft Excel 2007 and SPSS, version 18 (SPSS, Chicago, IL). Proportions (number of women or URM faculty members in academic rank or administrative position divided by total faculty members in academic rank or administrative position, respectively) were plotted by gender, faculty rank, faculty administrative position, race, and year. Proportions (number of women or URM pharmacy graduates divided by total pharmacy graduates) were also plotted for pharmacy graduate trends by gender and race. Time series graphs based on proportions were constructed. Because faculty and graduate data provided by AACP represented the total population of interest, there was no probabilistic uncertainty associated with population sampling. Although there was some nonprobabilistic uncertainty from potential nonresponse, this was limited as response rates to AACP annual data collection efforts generally range from 98% to 100%.⁴ Thus, the use of hypothesis tests and confidence intervals of inferential statistics were not appropriate for this study.

Inductive content analysis and abstraction, as described by Joffe, Yardley, Elo, and Kyngäs, were used to assess qualitative data collected through open-ended questions on the academic pharmacy career survey of women faculty members.^{42,43} In the abstraction process, the main categories, or themes, were predetermined by

the open-ended questions. Responses to open-ended questions were then independently reviewed by 3 investigators to develop a preliminary coding scheme. The 3 investigators further refined codes collaboratively and identified emergent generic categories or subthemes under each main category. Subcategories of generic categories, defined as clusters of similar events or incidents, were also identified. To allow for quantitative descriptive analysis (ie, frequency count) of subcategories, the presence or absence of each subcategory in a faculty member's survey instrument was recorded. Descriptive statistics were calculated for the job satisfaction and demographics sections of the survey instrument, as well as the closed-ended items of the academic pharmacy career questionnaire. Chi-square analyses were conducted to examine independency between responses to the closed-ended questions on the academic pharmacy career questionnaire. Analysis of variance (ANOVA) or Pearson correlation were used to assess the relationships between categorical and continuous demographic factors, respectively, and the following variables: (1) global job satisfaction and (2) facet-specific satisfaction variables (salary, fringe benefits, skills/abilities). ANOVA was also used to test the satisfaction scores for mode effects based on method of survey tool distribution. Independent samples *t* tests were used to assess the relationships between the closed-ended question, "Are you tempted to leave academia for other pharmacy sectors such as retail, hospital, industry or elsewhere?" and the 4 job satisfaction variables. A significance level of 0.05 was used for testing, with Bonferroni correction for post hoc tests.

RESULTS

In 2009, there were 2,404 full-time women faculty members in US colleges and schools of pharmacy, and this group represented 45.5% of all US colleges and schools of pharmacy faculty members. As indicated in Figure 1, the proportion of women pharmacy faculty members in each rank steadily increased over the past 2 decades. In 2009, women pharmacy faculty members were the majority at the assistant professor level, a shift in representation which began in the late 1990s. The percentage of women pharmacy faculty members at the associate professor level more than doubled between 1989 and 2009, from approximately 16% to greater than 40% of total associate professors. Although women faculty members at the professor rank and in administrative positions (department chair, dean) also doubled during this time period, their numbers were below 30% (data for department chairs were not available prior to 1997). In terms of the pharmacy practice faculty pipeline, females represented the majority of pharmacy graduates

with degrees over the 20-year time period examined (Figure 1).

The number of URM pharmacy faculty members at each rank and administrative (ie, dean) position experienced little to modest growth since 1989 (Figure 2). At the assistant professor level, the number of minority faculty members increased from approximately 7% in 1989 to approximately 11% in 2009. The number of URM faculty members at the assistant professor rank experienced similar growth to that of URM pharmacy graduates, which increased from approximately 9% in 1989 to 11% in 2009. At the dean position, representation increased from approximately 6% in 1989 to 11% in 2009. However, URM pharmacy faculty representation in the associate professor and professor ranks remained below 10%.

One hundred fifteen of 149 women faculty members participated in the academic pharmacy career survey (77% response rate). The majority of participants were white (82.6%), at the assistant professor level (62.6%), and in pharmacy practice (74.8%). Mean years in present rank for the sample was 6.0 ± 5.1 . Characteristics of the women faculty sample are presented in Table 1.

Median and mean overall job satisfaction were 4.0 (mode 4) and 4.0 ± 0.6 , respectively, indicating women faculty members were moderately to highly satisfied with their jobs. Women faculty members were also moderately to highly satisfied with their fringe benefits (mean 3.7 ± 1.1 ; median=4.0, mode=4) and with opportunities to use their skills and abilities (mean 4.5 ± 0.7 ; median = 5.0, mode = 5). However, they were less satisfied with salary (mean 2.9 ± 1.1 ; median = 3.0, mode = 2); salary satisfaction had a bimodal distribution, with 44% dissatisfied or very dissatisfied and 38% satisfied or very satisfied. Significant differences in fringe benefits satisfaction were found on the following: academic rank, as professors had significantly lower satisfaction than assistant professors (2.93 ± 1.44 vs. 3.96 ± 0.94 , respectively; $p = 0.011$); academic discipline, as nonpharmacy practice faculty members had lower satisfaction than pharmacy practice faculty members (3.36 ± 1.28 vs 3.86 ± 1.05 , respectively; $p = 0.04$); tenured/tenure-track women faculty members had lower satisfaction than nontenured faculty members (3.31 ± 1.24 vs 3.97 ± 0.99 , respectively; $p = 0.002$); and women faculty members with children had lower job satisfaction than women faculty members who did not have children (3.55 ± 1.21 vs 4.0 ± 0.95 , respectively; $p = 0.038$). There were no significant correlations between years in academic rank and satisfaction with salary, fringe benefits, or skills and abilities, or with overall satisfaction. No other differences in satisfaction were found based on age, salary, appointment status, marital status, race/ethnicity, or number of children. In the test for

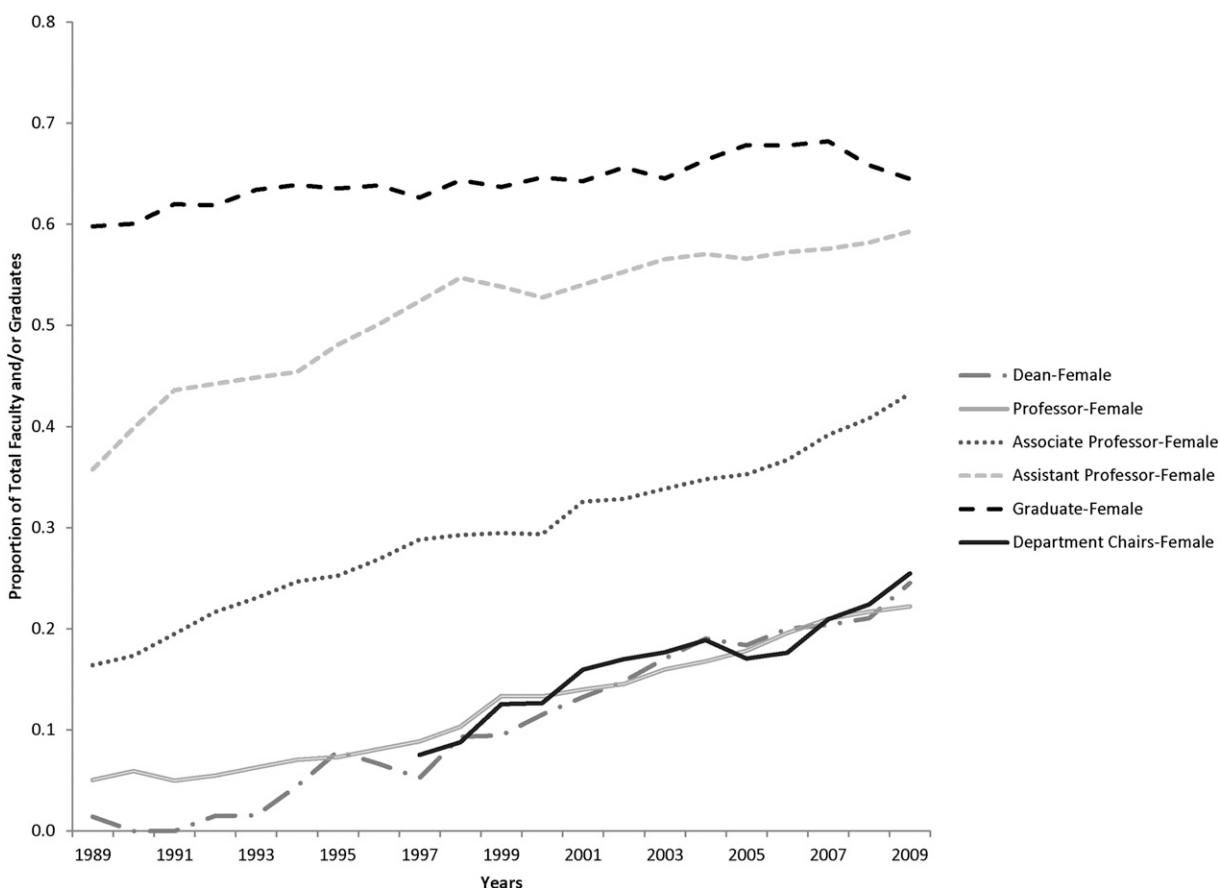


Figure 1. Female pharmacy graduates and academic positions held by women pharmacy faculty members, 1989-2009.

mode effects, no differences were found in satisfaction scores based on mode of survey distribution (in-person vs. Web-based completion).

Frequency counts for the closed-ended questions of the academic pharmacy career questionnaire are presented in Table 2. Less than 30% of women faculty members were tempted to leave academic pharmacy for another pharmacy sector, and less than 6% were likely or very likely to leave academia within the next 5 years. Women faculty members whose expectations of academia did not match their experiences were more likely to indicate they were tempted to leave academia for other pharmacy sectors ($\chi^2 = 9.9, p = 0.002$). No other associations between the closed-ended questions were indicated in the chi-square analyses. Compared to women faculty members who were not tempted to leave academia, women faculty members who were tempted to leave academia had significantly lower salary satisfaction (3.07 ± 1.01 vs. 2.48 ± 1.12 , respectively; $p = 0.007$) and lower overall job satisfaction (4.15 ± 0.60 vs. 3.86 ± 0.57 , respectively; $p = 0.02$). There were no differences between the 2 groups based on fringe benefits satisfaction and skills and abilities satisfaction.

Table 3 presents the 2 most frequently cited generic categories for each open-ended academic pharmacy career question (also referred to as main category) and the most frequently cited subcategory for each generic category. “Diverse nature of work” and “diverse work opportunities” were the most frequently cited responses to questions regarding factors attracting women faculty to academia, expectations they had of academia, and factors influencing decisions to remain in academic pharmacy. “Ability to impact pharmacy students and/or participate in pharmacy education” was the most frequently cited subcategory ($n = 82$), and was in response to the main category, “What attracted you to academic pharmacy?” “Increased salary” was the second most frequently cited subcategory ($n = 70$), and was in response to the main category, “What are the attractions of these other sectors (retail, hospital, industry, etc) compared to academia?”

DISCUSSION

The general population of the United States is becoming increasingly diverse. In 2010, minority racial and ethnic groups accounted for approximately 36% of the population, and by 2050, those today considered to be

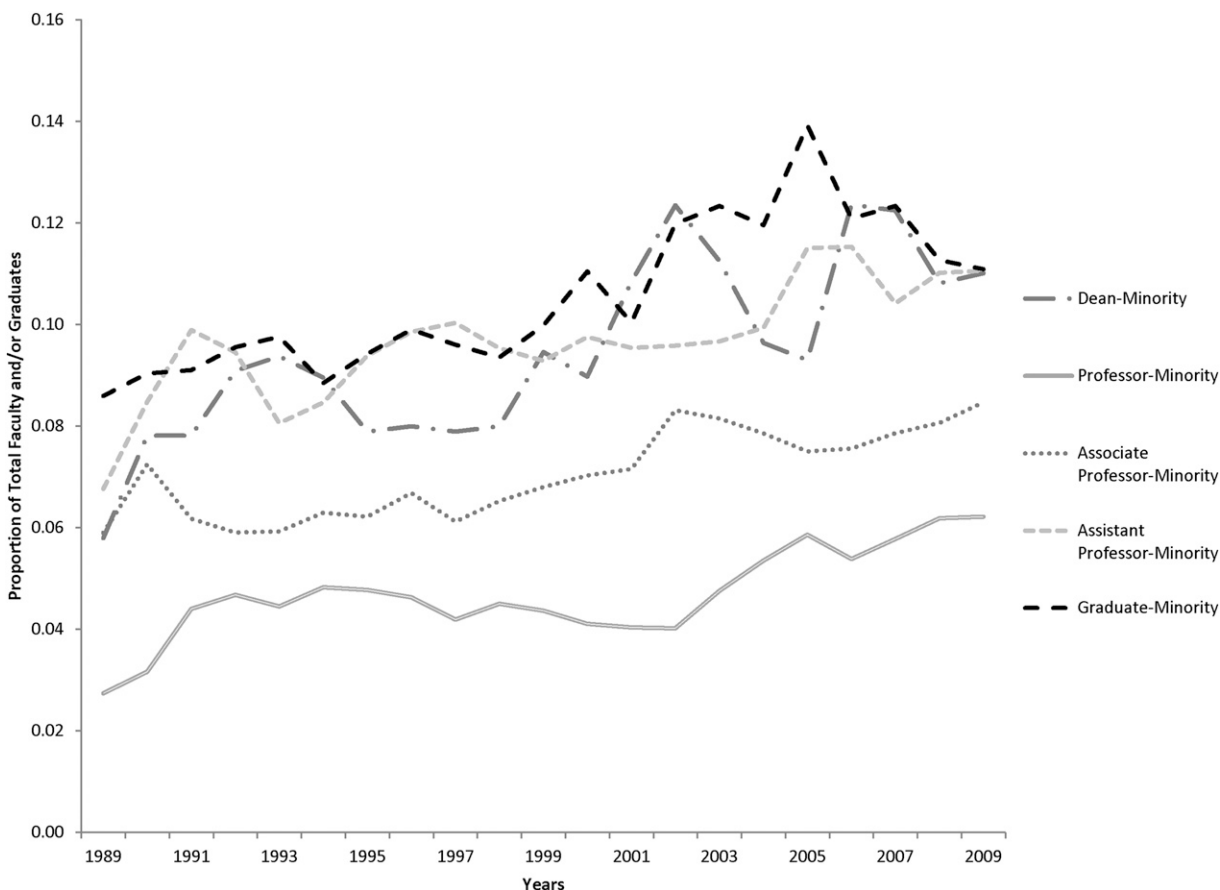


Figure 2. Minority pharmacy graduates and academic positions held by pharmacy faculty members, 1989-2009.

minorities are expected to be the majority.^{44,45} Recognizing the significance of the growing diversity of the United States, the IOM issued a policy report encouraging diversification of the health professions.⁷ In our trends assessment, we noted considerable growth in the number of women pharmacy faculty members between 1989 and 2009, and female graduates were the majority of total pharmacy graduates for the study period. The consistently large number of female graduates over the last 20 years has created a strong pipeline for women pharmacy faculty members. In contrast, we found there was little increase in the number of URM pharmacy faculty members and graduates between 1989 and 2009, and representation of URM faculty members in 2009 remained well below minority representation in the general US population.

The lack of significant overall growth in URM graduate groups is particularly troubling, as pharmacy colleges and schools are the primary pipeline through which new pharmacy faculty members, especially pharmacy practice faculty members, are produced. Consideration should be given to earlier phases of the education process, such as attracting the interest of URM groups at

the pre-college and college levels, as well as to the later phases, including promoting careers in academia to pre-pharmacy and pharmacy students and postdoctoral students. For nonpharmacy practice departments in pharmacy colleges and schools, particular attention should be given to developing URM faculty pipelines within the science, technology, engineering, and mathematics fields. Additionally, we recognize the need to develop URM representation in graduate programs within non-pharmacy departments of colleges and schools. Recommendations to bolster the supply of candidates from pharmacy colleges and schools and foster greater access to academic career opportunities among pharmacy and postgraduate students include: (1) explaining the expectations of and paths to success in academic positions; (2) fostering interest in academic careers through interactions with faculty role models/mentors; (3) providing opportunities to experience academic duties in the areas of teaching, research, and service (as exposure to diverse work opportunities within academia); (4) encouraging passion for teaching, research, and service; and (5) providing/teaching career mapping, defined as planning short- and long-term career development, with consideration given

Table 1. Characteristics of Women Pharmacy Faculty Members at Nine US Colleges and Schools of Pharmacy^a

Faculty Characteristics	No. (%)
Academic Rank	
Professor	14 (12.2)
Associate Professor	27 (23.5)
Assistant Professor	72 (62.6)
Lecturer	2 (1.7)
Academic Discipline	
Biological Sciences	3 (2.6)
Liberal Arts	1 (0.9)
Medicinal/Pharmaceutical	5 (4.3)
Chemistry/Pharmacognosy	
Pharmacology	2 (1.7)
Pharmaceutics	9 (7.8)
Pharmacy Practice	86 (74.8)
Social and Administrative Sciences	6 (5.2)
Toxicology	2 (1.7)
Missing	1 (0.9)
Tenured/Tenure Track?	
Yes	42 (36.5)
No	73 (63.5)
Appointment Status	
Academic Year (9 months)	21 (18.3)
Calendar Years (12 months)	94 (81.7)
Age	
25-34 years	36 (31.3)
35-44 years	42 (36.5)
45-54 years	20 (17.4)
55-64 years	13 (11.3)
65 years and older	2 (1.7)
Missing	2 (1.7)
Marital Status	
Married	86 (74.8)
Unmarried	28 (24.3)
Missing	1 (0.9)
Children?	
Yes	69 (60.0)
No	45 (39.1)
Missing	1 (0.9)
Number of Children	
None	45 (39.1)
One	15 (13.0)
More than one	54 (47.0)
Missing	1 (0.9)
Race/Ethnicity	
African American	2 (1.7)
American Indian/Alaska Native	0
Asian/Native Hawaiian/Other Pacific	16 (13.9)
Islander	
Hispanic	0

(Continued)

Table 1. (Continued)

Faculty Characteristics	No. (%)
White	95 (82.6)
Multi-racial	2 (1.7)
Salary	
<\$80,000	8 (7.0)
\$80,000-89,999	19 (16.5)
\$90,000-99,999	32 (27.8)
\$100,000-114,999	38 (33.0)
\$115,000-135,000	10 (8.7)
\$135,001-155,000	1 (0.9)
\$155,001-175,000	0
>\$175,000	2 (1.7)
Missing	5 (4.3)

^a Colleges and schools located in 9 US Census-based divisions of the United States were included in the study: University of Arizona (Mountain); University of Arkansas for Medical Sciences (West South Central); University of Buffalo (Middle Atlantic); University of Connecticut (New England); University of Illinois at Chicago (East North Central); University of Iowa (West North Central); University of Mississippi (East South Central); University of Washington (Pacific); and South Carolina College of Pharmacy (Charleston campus; South Atlantic).

to personal skills and values as they pertain to career objectives.^{46,47}

One thing is certain: as long as the number of new URM pharmacy faculty members provided through the pipeline remains low, limited progress can be expected in increasing the racial and ethnic diversity of pharmacy faculties. Therefore, it is important to develop a comprehensive understanding of factors that influence pursuit of academic pharmacy careers by URM pharmacy graduates and retention of these faculty members by colleges and schools, and to implement programs to address the factors identified. Knowledge acquired from women pharmacy faculty members, a historically underrepresented group that is now approaching “critical mass,” may provide insight into patterns and factors affecting recruitment and retention that may be translated to URM groups. The data collected underscored useful recommendations that could likely improve the success of *all* faculty members, and these proposed strategies should not be viewed as limited to only one particular subgroup of faculty members. Previous studies such as that by Daley and colleagues also noted commonalities in strategies and resources used to promote recruitment and retention across faculty groups.^{8,48,49} Thus, we are not promoting separate and/or *exclusionary* programming for URM faculty members, but rather the need to recognize, expand, and emphasize *access* programming for URM faculty members given that lack of access may stunt recruitment and retention efforts.⁸ Diminished access may

Table 2. Women Faculty Members' Responses to Questions Regarding Their Academic Pharmacy Career

Questions and Responses	No. (%)
Does your experience match up with what you expected when you started as an assistant professor?	
Yes	73 (63.5)
No	42 (36.5)
How satisfied are you with this workplace and your choice to stay in academia?	
Very satisfied	30 (26.1)
Satisfied	70 (60.9)
Neither satisfied nor dissatisfied	9 (7.8)
Dissatisfied	5 (4.3)
Very dissatisfied	0
Missing	1 (0.9)
Are you tempted to leave academia for other pharmacy sectors such as retail, hospital, industry, or elsewhere?	
Yes	33 (28.7)
No	81 (70.4)
Missing	1 (0.9)
What is the likelihood you would leave academia for another pharmacy sector within the next five years?	
Very likely	3 (2.6)
Likely	3 (2.6)
Undecided	26 (22.6)
Unlikely	37 (32.2)
Very unlikely	46 (40.0)
Did you have role models in the sciences or health professions?	
Yes	99 (86.1)
No	16 (13.9)

occur for multiple reasons, ranging from having few available role models to being hesitant to request help because of concern over appearing unprepared or inadequate for the duties and responsibilities of the faculty position.^{50,51} Therefore, strategic initiatives should be taken to address the unique experiences of URM faculty members and expose prospective and current URM faculty members to methods that enhance academic success and reduce access barriers.^{48,52}

As a foundational element in developing recommendations, the first section of the academic pharmacy career survey instrument assessed job satisfaction. Consistent with previous studies, data revealed that women faculty members were generally satisfied with their academic pharmacy jobs, as well as their fringe benefits and opportunities to use skills and abilities.^{11,37} However, women faculty members, particularly those tempted to

leave academia for other pharmacy sectors, were generally less satisfied with their salaries, suggesting that salary level should be considered when attempting to attract and retain faculty members. Further supporting the importance of salary, in the survey tool's open-ended questions, increased salary was frequently cited as a factor that could improve workplace satisfaction. Other factors named that could enhance job satisfaction included improved fringe benefits, adjusted workload expectations, and increased support systems. Notably, these factors generally correspond to the following challenges to job satisfaction faced by women faculty members, as identified in the literature: (1) family roles and mobility barriers; (2) conflicting work values and activities, such as emphasis on research efforts versus teaching/service efforts in the promotion and tenure process; (3) unconscious bias; and (4) lack of support within the academic department, including salary inequities.^{9,53-56} Such challenges are likely faced by other faculty members including URM faculty members; therefore, we recommend universities address these issues to improve overall recruitment and retention.

The results of the academic pharmacy career questionnaire section of the survey, in combination with a literature search (Web of Science, PubMed, Google Scholar, and ERIC databases, years unlimited), were used to develop multi-faceted recommendations to improve the recruitment and retention of URM faculty members. Three factors were noted to impact both recruitment and retention: personal, environment, and climate/culture. An individual must have a personal desire to have a career in an academic environment and possess an adequate skill set. In turn, the environment (ie, the institution and community) must sustain a high level of commitment to the success of URM faculty members, as the literature search indicated that those institutions with the greatest increases in the number of URM faculty members made an explicit link between diversity initiatives and educational mission.⁵⁷ For example, when recruiting faculty members, a wide net should be cast to gain a more diverse applicant pool and any unconscious bias on the part of hiring committee members should be identified and eliminated from the search process. Thus, development and maintenance of a supportive institutional climate and culture are essential, and strong leadership is needed to foster efforts to promote a climate and culture of equal opportunity, diversity, and institutional change.⁵⁸⁻⁶²

This questionnaire also asked women faculty members to reflect on the impact of role models on their academic careers, as previous studies have recognized the importance of mentors and role models in career choices.^{63,64} Women faculty members noted that role

Table 3. Women Faculty Members' Responses to Open-Ended Questions Regarding Their Academic Pharmacy Career

Main Category	Generic Category ^a	Subcategory ^b
What attracted you to academic pharmacy?	Diverse Nature of Work Malleable Structure	Ability to impact pharmacy students and/or participate in pharmacy education Flexibility of work
What did you expect academia to be like?	Diverse Work Opportunities Challenging Climate	Combination of teaching, service, and research Rigorous, demanding, and time consuming
Please explain what factors have contributed to the dissonance between your expectations [of academia] and your experiences.	Dissatisfaction With Duties Barriers to Accomplishing Work	Imbalances in teaching, service, and research time commitments Inability to accomplish tasks in each area (teaching, service, and research)
What factors influence your decision to remain in academia?	Diverse Nature of Work Positive Climate	Teaching responsibilities and interactions with/influence on students Flexibility
What changes could increase your satisfaction [with workplace and choice to stay in academia]?	Technical Aspects Workload Expectations and Support	Increased salary Teaching: more support, more flexibility, adjustments in time commitment
What are the attractions of these other sectors [retail, hospital, industry, etc.] compared to academia?	Beneficial Technical Aspects Climate of Other Sectors	Increased salary Practice opportunities (increased patient care and contact and/or clinical practice)
What are the drawbacks of these other sectors [retail, hospital, industry, etc.] compared to academia?	Climate of Other Sectors Nature of Work	Less flexibility and scheduling concerns Lack of variety, creativity, and intellectual stimulation in work
How did your role models help shape your career decisions?	Encouraged Interest/Commitment Provided Academia 'Blueprint'	Offered encouragement, support, and/or mentoring Set an example for life as an academic
To young women considering careers in academic pharmacy, what guidance/advice would you provide?	Self-care Get Connected	Have a plan for work-life balance, including considerations of when to start a family and availability of family support Find mentors/role models

^a The generic category column lists only the two most frequently cited generic categories for each main category.

^b The subcategory column lists only the most frequently cited subcategory for each generic category.

models influenced career decisions primarily through encouraging interest in a career in academia, providing an example of work-life as a faculty member, encouraging preparation and training, and providing practical guidance and support, such as discussing career options and assisting with career mapping and advocacy. Role models and mentors also likely contribute to the professional socialization process, wherein new faculty members “learn the ropes” of academia and develop collegial networks. The valuable impression made by role models is evident among our women faculty participants. When asked what guidance they would offer to women considering a career in academia, the most frequently given advice was to find mentors and role models. Additionally, prior research conducted in academic medicine suggests that increased access to high quality mentoring programs contributes to improved retention and advancement of women faculty members. As a result, Wesson and colleagues theorized that mentoring also plays a critical role in the success of URM faculty members.^{50,65} We recommend that existing faculty members, who recognize and understand the unique experiences of URM faculty members and are able to assist these individuals in navigating academia, be used as role models in the recruitment process and as mentors in the retention process.

Other recommendations regarding recruitment and retention are derived from advice provided by women faculty participants to women considering careers in academic pharmacy, which focused on the following topics: self-care, getting connected, being prepared, and knowing academia. More specifically, current women faculty members recommended future generations have a plan for work-life balance, explore academic career opportunities, become familiar with the demands/expectations of an academic position and the institution’s environment/climate, and be willing to ask for help and guidance. Although framed as advice and guidance to potential future women faculty members, these words of wisdom and experience may well have greater application, particularly to those URM groups struggling for increased representation in academic pharmacy. Noteworthy among these recommendations is ensuring that candidates know the expectations of the academic position. Retention of faculty members may be adversely affected when expectations regarding an academic position diverge greatly from actual experiences. Almost 40% of women faculty members noted dissonance between expectations and experiences, and in turn, were more likely to indicate they were tempted to leave academia. The foremost factors contributing to this dissonance were: (1) dissatisfaction with duties, for example, imbalances among teaching, service, and research commitments; (2)

barriers to accomplishing work, such as a need for greater mentoring; and (3) other sources of frustration such as lack of support and collegiality. These factors are consistent with barriers faced by both URM and non-URM faculty members in pharmacy and other academic fields including the health sciences.^{8,48,66-68} To improve retention, institutions should clearly define the duties, demands, and expectations of the academic position, work with faculty members to achieve a mutually beneficial workload balance, and facilitate a supportive and collegial work environment. Other factors that may be critical to retention, as suggested by the findings of this study, include: professional growth and development; career advancement opportunities; passion for teaching, service, and research; work-life balance; and opportunities to participate in teaching, service, and research. Career mapping should be done early, refined as necessary, and continued throughout an individual’s career.⁴⁶ Ultimately, URM faculty members who successfully sustain and advance within their institutions ideally should become role models for PharmD and PhD students who are future pharmacy faculty members, and thereby buttress the URM faculty pipeline.^{58,69}

Our study has limitations. The academic pharmacy survey was targeted to women faculty members; therefore, efforts to apply knowledge gained through this survey to URM faculty members may not completely capture aspects of academic life unique to these individuals. We acknowledge this limitation and offer our findings as one step toward developing a better understanding of the experiences of URM pharmacy faculty members. Additionally, our survey sample only included women faculty members from public non-HBCUs. Because the missions of public institutions tend to be similar, we did not want to introduce confounding factors by also including private universities as their missions may vary significantly from public institutions; however, this may have reduced the reliability of our findings. Further, as the purpose of our study was to develop recommendations to increase diversity in public non-HBCUs (because these institutions have fewer URM faculty members, and therefore, are in great need of diversification), HBCU colleges and schools of pharmacy were also not included in the study to prevent confounders, as the mission and environment of these schools may substantially differ from non-HBCU colleges and schools of pharmacy. As a result, the generalizability of our survey results is largely limited to public non-HBCUs. When we compared our surveyed study population to the general population of women faculty members in US colleges and schools of pharmacy, we found that white faculty members were overrepresented (82.6% study vs. 70.9% general), and African American

and Hispanic faculty members (1.7% study vs. 8.6% general) were underrepresented.⁴ Excluding private colleges and schools and HBCUs limited participation of many URM faculty members; however, the focus of the survey was to gather data from women faculty members in public non-HBCUs. The survey sample and the general population of women pharmacy faculty members were generally comparable based on academic rank and discipline.⁴

CONCLUSIONS

This study examines trends in women and URM pharmacy faculty members and graduates over a 20-year period, and academic pharmacy career paths of current women pharmacy faculty members. Academic pharmacy has become a viable and satisfactory career choice for women. To foster academic pharmacy as a sustainable career option for URM groups, institutions must seize opportunities to develop, implement, emphasize, and assess models theorized to improve recruitment and retention of diverse faculty populations. Recommendations for promoting recruitment and retention of URM faculty members in academic pharmacy in public non-HBCUs were developed. With strong institutional commitment to sustained diversification and tools such as the proposed recommendations, greater numbers of URM faculty members will enter and achieve success in academia.

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