

RESEARCH

Exploring the Career Engagement, Interests, and Goals of Students Identifying as Underrepresented Racial Minorities in Pharmacy

Faustina T. Hahn, PharmD,^a Antonio A. Bush, PhD, MS,^{a,b} Kate Zhang, PhD,^c Ami Patel, PharmD,^d Kimberly Lewis, PharmD,^{e,f} Anita Jackson, MD, MPH,^g Jacqueline E. McLaughlin, PhD, MS^a

^a University of North Carolina at Chapel Hill, UNC Eshelman School of Pharmacy, Chapel Hill, North Carolina

^b Association of American Medical Colleges, Washington, DC

^c Duke University, Office of the Dean of Students, Durham, North Carolina

^d eNOVA, New Providence, New Jersey

^e G. V. (Sonny) Montgomery VA Medical Center, Jackson, Mississippi

^f Student National Pharmaceutical Association (SNPhA), Buies Creek, North Carolina

^g Durham County Department of Public Health, Durham, North Carolina

Corresponding Author: Jacqueline E. McLaughlin, University of North Carolina at Chapel Hill, UNC Eshelman School of Pharmacy, 322 Beard Hall, Chapel Hill, NC. Tel: 919-966-4557. Email: Jacqui_mclaughlin@unc.edu

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Objective. To examine pharmacy career engagement, interest, and confidence in PharmD students identifying as underrepresented racial minorities (URM).

Methods. A 15-item survey about career engagement, confidence, and goals was administered at a business session of a national conference. The survey included demographic items and items about career exposure prior to and during school, career aspirations after graduation, frequency of engagement in various settings, career factors, and career confidence. Cronbach's alpha was used to examine survey reliability. Descriptive statistics and non-parametric statistical tests were used to analyze survey responses.

Results. Sixty-nine surveys were completed by URM students. Most indicated frequent engagement with community pharmacy prior to and during school; no engagement with hospital pharmacy prior to school yet occasional or frequent engagement during school; and no engagement with pharmaceutical industry prior to and during school. Most selected hospital pharmacy as their career aspiration, followed by community and industry. Half indicated interest in a post-graduate fellowship. Items selected as important to career choice included patient care, job security, and level of stress. Group differences were found by gender and year in school.

Conclusion. Despite calls for diversity in pharmacy, there is a paucity of research in this area. This study provides a first glimpse into the career engagement, confidence, and goals of students identifying as URM, raising a number of critical issues for pharmacy education. Moving forward, schools, employers, and researchers must work to better understand the career development of URM students, including barriers and facilitators to access and success.

Keywords: diversity, survey, career interest, pharmacy education

INTRODUCTION

The United States (US) population is becoming increasingly racially and ethnically diverse, with the population of underrepresented racial minorities (URM) (ie, Black and/or African American, Hispanics and/or Latino/a, American Indian/Alaska Native, and Native Hawaiian/Other Pacific Islander) projected to increase from 30% to 54% by 2050.¹⁻³ However, the current makeup of the US pharmacist workforce does not reflect the growing racial and ethnic diversity of the US. In 2019, approximately 64.5% of 341,000 pharmacists in the US self-identified as White, 22.1% as Asian, 10.5% as Black and/or African American, and 2.7% as Hispanic and/or Latino/a.^{4,5} Research suggests that due to structural racism, URM groups tend to have poorer quality of care and poorer health outcomes from preventable and treatable diseases than the general population.⁶⁻¹¹ URM patients are also more likely to trust health care professionals of similar racial or ethnic backgrounds.⁶⁻¹⁰ This may be a result of cultural and experiential similarities that promote mutual understanding and trust.¹⁰ Similarly, URM providers are more likely to practice in underserved communities and to treat other URM patients.¹² This was predicted to be in part reflective of the URM providers' decisions to practice in areas with higher proportions of members of their own race or ethnic group.¹³

Racial gaps between practitioners and patients have been emphasized by numerous calls to increase diversity within pharmacy schools and the profession.¹⁴⁻¹⁶ Hayes, for example, argued that rapid US diversification and lack of practitioners identifying as URMs in health care highlight the importance of URM recruitment and job placement in

pharmacy schools.¹⁷ Similarly, Bush identified social barriers created by a lack of racial diversity that potentially threaten the sense of belonging and retention of URM students.¹⁸ The American Association of Colleges of Pharmacy's (AACCP) Argus Commission eschewed the lack of empirical research about URM experiences of pharmacy school applicants, current pharmacy students, pharmacy faculty, and AACCP and its member institutions, and argued that more work must be done to demonstrate the profession's commitment to diversity.¹⁹

Despite these calls for diversity and diversity-related research, there is a scarcity of research in this area and a need to better understand the experiences and trajectories of URM populations in pharmacy education.²⁰ More specifically, there is a critical need to gain insight into career interests of URM pharmacy students.¹⁸ In fact, several studies describe pharmacy career goals among all students, disproportionality highlighting non-minoritized groups.^{21,22} A noticeable knowledge gap exists with respect to URM students. As such, the purpose of this study was to examine pharmacy career engagement, interest, and confidence in PharmD students identifying as URMs. This work was guided by the School's programmatic efforts and designed with the hope of expanding the small yet growing body of diversity literature in pharmacy education.^{18,20}

METHODS

PharmD students were invited to complete a 15-item paper-based survey about career engagement, confidence, and goals at the start of a business session of the 2017 national conference of a student organization. This conference was selected because it hosts one of the largest gatherings of URM pharmacists and student pharmacists annually and focuses on serving the underserved. The survey was developed by a team of faculty and staff at the UNC Eshelman School of Pharmacy using existing research, professional expertise, and personal experience. The team reviewed the survey via email and provided suggestions for revision to address face validity (ie, were items written to assess what we aimed to assess) and content validity (ie, was anything missing?). A pilot study was conducted with postdoctoral fellows and minor edits were made to the survey based on their feedback.

To explore career engagement, the survey included items about which career paths students had been exposed to during their training (select all that apply) and which career they aspire to obtain after graduation (select one). On a scale from 1-Never to 4-Frequently, students were also asked how often they engaged in professional activities (eg, community pharmacy, hospital pharmacy, academic research, academic teaching, pharmaceutical industry) prior to PharmD training and during PharmD training.

To explore career interests, students were asked to select all careers they aspired to pursue upon graduation (eg, community pharmacy, hospital pharmacy, academic research, academic teaching, pharmaceutical industry) and about the factors considered most important when considering a career on a scale from 1-Of Little Importance to 4-Very Important (eg, patient care, flexibility, research, level of stress, geographic location, self-actualization). To explore career confidence, students were asked to rate their confidence on a scale from 1-Not At All Confident to 10-Highly Confident in obtaining a job in various settings (eg, community pharmacy, hospital pharmacy, academic research, academic teaching, pharmaceutical industry, post graduate fellowship/residency). In addition, demographic items included age, year in school, gender, and race/ethnicity.

Before data were analyzed, Cronbach's alpha was tested to examine reliability of survey items, yielding a result of .7, which is considered acceptable for internal consistency.²³ Data were then analyzed using descriptive statistics and non-parametric statistical tests. Specifically, Mann-Whitney U was used to compare gender differences between PharmD students identifying as male or female while Kruskal Wallis was used to compare differences by school year (ie, PY2 vs PY3 vs PY4). Chi-square was used to compare career aspirations by gender and by school year. Continuous data are presented as mean \pm standard deviation (SD) and categorical data are presented as frequency (percentage) or median (interquartile range (IQR)). All analyses were conducted in SPSS v.26 (Armonk, New York). This study was determined to be exempt from full review by the University of North Carolina Institutional Review Board.

RESULTS

A total of 147 surveys were completed, with 69 identifying as URM (ie, African American, Hispanic/Latino, American Indian/Alaska Native, or Native Hawaiian/Pacific Islander). This group comprised 46.9% of all students who completed the survey (n=147), with responses from non-URMs (n=78) excluded since they fell outside the scope of the study. All URM students invited to participate completed the survey (100% response rate). Participants identified mostly as Black/African American (n=56, 81.2%), female (n=53, 76.8%), with a mean age of 26.1 \pm 3.2 years. Seventeen participants (24.6%) were PY2, 30 (43.5%) were PY3, and 22 (31.9%) were PY4 (Table 1).

When asked about career engagement, most participants indicated frequent engagement with community pharmacy prior to school (n=38, 55.1%) and during school (n=53, 76.8%) (Table 2). Most participants reported never

having engagement with hospital pharmacy prior to school (n=42, 60.9%) yet reported occasional (n=22, 31.9%) or frequent (n=21, 30.4%) engagement during school. Most participants reported never having engagement with pharmaceutical industry prior to school (n=59, 85.5%) and never during school (n=39, 56.5%). When asked about exposure to other types of careers within pharmacy, participants selected compounding pharmacy (n=36, 52.2%), clinical specialty (n=34, 49.3%), drug information (n=20, 29.0%), government (n=17, 24.6%), pharmacy law/public policy (n=16, 23.2%), nuclear pharmacy (n=12, 17.4%), and home health (n=7, 10.1%). Participants identifying as female were more likely to report frequent exposure to community pharmacy during school when compared to those identifying as males ($p=.02$). No differences in engagement to various careers were found by school year. Reliability of engagement items was $\alpha=0.7$.

When asked about which career they aspired to pursue, most participants selected hospital pharmacy (n=41, 59.4%), followed by community retail (n=15, 21.7%) and pharmaceutical industry (n=12, 17.4%). Fewer than half indicated they were interested in owning a business (n=29, 41.9%) and approximately half indicated that they interested in a post-graduate fellowship (n=35, 50.7%). There were no differences in career goal settings by gender or school year.

The items most commonly selected as very important or important to career choice included patient care (n=66, 95.7%), level of job security (n=66, 95.7%), and level of stress (n=65, 94.2%) (Table 3). Research (n=8, 11.6%) and geographic location (n=20, 29.0%) were most commonly selected as having little importance. PY2 students were less likely to indicate that flexibility was important for career selection when compared to PY3 and PY4 students ($p=.03$). No other differences were found by gender or school year. Reliability of career goal items was $\alpha = 0.7$.

Participants were most confident in their ability to obtain a job in community pharmacy (median 10, IQR 9-10), followed by hospital pharmacy (Median 8, IRQ 6-9), and post-graduate fellowship/residency (median 7, IQR 5-9). Lowest confidence was observed for academic teaching (median 5, IQR 3-7) and pharmaceutical industry (median 5, IQR 3-7). No differences in confidence were found by gender or school year. Reliability of confidence items was $\alpha = 0.8$.

DISCUSSION

Calls for diversity in pharmacy education coupled with the lack of racial and ethnic diversity among practitioners highlight the importance of better understanding pharmacy career engagement, interests, and goals among URM students.^{14-16,18,20} This study boasts one of the largest sample sizes of URM students from multiple institutions for a diversity-related study in pharmacy education. It also provides a critical first step towards understanding an essential yet unexplored topic.^{24,25}

Given historical workforce demands, it was not surprising that most participants had exposure to community pharmacy prior to and during their PharmD training, along with highest career confidence in this setting. According to the United States Bureau of Labor Statistics (BLS) 2018 data, 43% of pharmacists hold positions at local pharmacies/drug stores and 26% of all pharmacists hold positions at hospitals.²⁶ In pharmacy education, Siracuse and colleagues reported that 2 out of 3 pharmacy students had pharmacy work experience at a chain pharmacy, including traditional chains, mass merchandiser chains, and grocery store chains.²⁷ Additionally, community pharmacy has a lower barrier to entry compared to other pharmacy environments like health systems or hospital, with many positions not requiring any additional training.²⁸

Despite high levels of engagement in community pharmacy, most participants indicated an interest in health system/hospital pharmacy careers. The US Department of Labor predicts an increase in the number of hospital positions over the next decade due to the rapidly shifting health care landscape, in which more pharmacists are integrated into health care teams.^{29,30} While students in this study indicated interest in clinical pharmacy roles, there are also known barriers to these positions, such as obtaining pharmacy residencies.

Postgraduate Year 1 (PGY1) or 2 (PGY2) residencies are often a prerequisite for pharmacy jobs that extend beyond entry-level pharmacist positions.³¹ Furthermore, faculty and peers often encourage pharmacy students to consider postgraduate training.³¹ Most participants in this study indicated interest and confidence in postgraduate training; however, the number of URM PGY1 or PGY2 residents nor the match rates for URM is not publicly available,³² leaving some question about barriers to residencies and residency matching for these students. In other health care professions, such as orthopedic surgical residencies, URM applicants are enrolled at a lower rate than non-URM applicants, which may deter URM applicants, limit URM exposure to the field, and inhibit interaction with potential mentors.^{33,34} More research must be done, and data must be shared by professional organizations like American Society of Health-System Pharmacy, to better understand URM interests and matching to residencies.

As it relates to pharmaceutical industry, most participants reported very little pharmaceutical industry engagement prior to and during their PharmD training. However, the results suggest that those exposed to pharmaceutical industry during school had sustained interest in pursuing an industry career. Unfortunately, racial groups that are underrepresented

in pharmacy are also underrepresented within the high technology sector, which includes pharmaceutical and medicine manufacturing, with African Americans and Hispanics comprising 7.4% and 8.0%, respectively.^{35, 36} Although data about individuals identifying as URMs in pharmaceutical industry are scarce, research suggests that a lack of outreach towards URMs may inhibit recruitment and retention within science and engineering sectors.³⁷ Due to the lack of research and data concerning URMs in pharmaceutical industry, the best mechanisms for supporting schools and students interested in this career pathway remain unknown.

Few participants in this study indicated interest in pursuing academic careers in research or teaching. This deficit may be influenced by the lack of URM faculty in pharmacy education and the resulting race-match effect, in which a teacher of the same race can effectively boost students' confidence and enthusiasm for learning.³⁸⁻⁴⁰ Birdsall et al found that the race effect is stronger among non-white populations in legal education.³⁹ Increasing faculty diversity in pharmacy is critical for enabling the race-match effect, creating supportive communities, advocating for students, and enhancing interest in academic careers.^{41,42} While the race-match effect exists, the onus of supporting and mentoring URM students should not fall solely on URM faculty. Non-URM faculty can play a critical role in mentoring URM students. Reddick and Pritchett, for example, found that White faculty who leveraged their formative experiences in mentoring provided essential opportunities to better serve students, fairly distribute mentorship, and improve morale among URM faculty populations.⁴³ By creating an inclusive and welcoming environment, the mentoring relationship can thrive on common interest, social background, and simple mutual attraction rather than on race alone.⁴³

Career goals are thought to be influenced through the process of development and determined by two types of factors: 1) intrinsic factors, such as personal interest and 2) extrinsic factors, such as salary and cost of training.³³ Participants in this study selected job security as a key factor in career goals, which is related to both intrinsic and extrinsic motivators for work.⁴⁵ In addition, self-actualization was frequently selected as important career selection. Self-actualization, according to Maslow, represents growth of an individual toward fulfillment of "being valued", also known as the meaning in life.⁴⁶ Intrinsic factors identified among URMs interested in health-related careers include wanting to develop ways of improving health, help one's racial/ethnic group make valuable contributions to society, care for people, and analyze information about people's health.⁴⁷ Self-determination theory suggests that intrinsically motivated students are more likely to persist in health-science programs when faced with fiscal or temporal challenges.⁴⁷ Dewsbury and colleagues, for example, found that sociocultural contexts such as economic outcomes, financial sacrifices, first generation student status, location, immigration status, gender, and other factors, heavily influenced URM career paths and interests.⁴⁸

While providing one of the first glimpses into pharmacy career interests among students identifying as URMs, this study raises a number of critical issues for schools and the profession of pharmacy. First, schools should take steps to better understand the career development of students identifying as URM and how the educational environment influences career pathways.¹⁸ Schools should develop diversity and inclusion strategies for increasing the number of URM faculty and staff, focusing on recruitment and retention. Furthermore, increasing opportunities for URM student populations to explore different, perhaps non-traditional pharmacy careers, is critical for reducing barriers and empowering these students to understand and pursue pathways that align with their interests and abilities. Schools must create support programs that focus on aforementioned influences, such as postgraduate residency/fellowship seminar series geared to prepare URM PharmD students. Providing support for URM students can help them navigate their career paths, which in turn may help them reach out to future URM students.

There are several limitations to this study. First, data were collected at a single session at one of the largest annual gatherings of URM pharmacists and pharmacy students in the United States and had a limited sample size. The demographic distribution also varied slightly from broader pharmacy education, in which females constituted 65% of all graduating students and African Americans constituted 58% of all graduating URMs in 2019.⁴⁹ For these reasons, this unique subset of pharmacy students may not be representative of the entire URM population within pharmacy and not all URM meeting participants attended the session, limiting generalizability of the findings. Second, the sample did not include first-year pharmacy students, limiting our understanding of engagement, confidence, and goals for early trainees. Third survey data from non-URM students were excluded since these data have been report elsewhere⁵⁰ and fell beyond the scope of this study. Fourth, the survey was developed by the researchers and was not previously published or validated; however, the survey development process and reliability of items promote trustworthiness of the findings.

Despite these limitations, this study provides critical insight into an understudied issue within pharmacy education. Additional research is needed, including exploring the intersection of the job market and career interests; examining why students are interested in various career options; exploring and evaluating the experience of URM students; and examining strategies to effectively recruit and retain URM students in pharmacy schools. Further, in depth interviews or focus groups should be considered to better understand the participants' responses. This study, and those to

come, will be critical to ensuring that pharmacy and pharmacy education are equipped with evidence-based strategies for promoting the recruitment, retention, and placement of URM students in the profession of pharmacy.

CONCLUSION

Despite numerous calls for research in diversity and inclusion, career interests and experience among URM student pharmacists are understudied. While many participants engaged in community pharmacy settings and indicated confidence in this career, most indicated an interest in working within hospital pharmacy. In contrast, very few participants overall had experience with or confidence in pharmacy industry or academia. These findings align with the changing landscape of health care towards clinical pharmacy and supports other research that emphasizes the evolving role of pharmacists within these health systems. This work contributes to a small yet growing body of diversity research in pharmacy education and provides a first step toward better understanding how to engage and instill career confidence in URM students.

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Table 1. Characteristics of Survey Participants Identifying as an Underrepresented Racial Minority (n=69)

Participant Characteristic	
Age in years, Mean (SD)	26.1 (3.2)
Gender, N (%)	
Male	16 (23.2)
Female	53 (76.8)
Race, N (%)*	
Black/African American	56 (81.2)
Hispanic/Latino	13 (18.8)
American Indian/Alaskan Native	2 (2.9)
Native Hawaiian/Pacific Islander	1 (1.4)
Year in program, N (%)	
Second year (PY2)	17 (24.6)
Third year (PY3)	30 (43.5)
Fourth year (PY4)	22 (31.9)

*3 participants identified as more than 1 Underrepresented Racial Minority race; therefore percentages may sum to more than 100%.
SD=standard deviation; PY=pharmacy year

Table 2. Career Engagement, Confidence, and Goals of Survey Participants, by Pharmacy Career Setting (n=69)

Career Setting	Career Engagement, Prior to PharmD Training ^a		Career Engagement, During PharmD Training ^a		Career Goals ^b		Career Confidence ^c	
	N	%	N	%	N	%	Median	IQR
	Community Practice Health System/ Hospital Practice	44	63.7	62	89.9	15	21.7	10
Academic - Research	17	23.6	45	65.2	41	59.4	8	6-9
Academic - Teaching	15	21.7	31	44.9	1	1.4	5	4-7
Pharmaceutical Industry	10	14.5	25	36.2	5	7.2	5	3-7
	1	1.4	13	18.8	12	17.4	5	3-7

^aN(%) who indicated “Occasional” and “Frequent” to “How often were you engaged in professional activities in each of the following settings [PRIOR TO or DURING] your PharmD training?”, measured from 1-Never to 4-Frequent

^bN(%) who selected “yes” in response to select all that apply for the item “Upon graduation which career as a PharmD do you aspire to obtain.”

^cmedian and interquartile range (IQR) of response to “On a scale of 1-10, how confident are you that you can obtain a job in each of the following settings?” measured from 1-Not at All Confident to 10 – Highly Confident

Table 3. Factors Considered Most Important When Considering a Pharmacy Career (n=69)

Career Factor	N^a	%^a
Patient Care	66	95.7
Level of job security	66	95.7
Level of stress	65	94.2
Flexibility of work	64	92.8
Self-actualization	64	92.8
Application of Knowledge	63	91.3
Dynamic work schedule	60	87.0
Managerial responsibility	51	73.9
Geographical Location	46	66.7
Research	28	40.6

^a Participants who responded “Important” or “Very Important” to the item “How important are the following areas when you consider your career choice?” measured on a scale from 1-Not at all Important to 4-Very Important

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