
// Research Article //

Analysis of the PharmD-PA Dual Degree

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BEYOND THE PharmD

Students' Perceptions of the Pharmacy and Physician Assistant Dual Degree Program

Few pharmacy programs in the United States confer students a pharmacy and physician assistant (PharmD-PA) dual degree after graduation. The objective of this study is to determine students' perceptions of the PharmD-PA dual degree as an alternative method for career advancement.

ABSTRACT

A cross-sectional study was conducted at a 3-year pharmacy program in a Historically Black College and University (HBCU). Students were asked about their familiarity with the PharmD-PA dual degree and its associated benefits and limitations. Students' perceptions of the PharmD-PA dual degree on their career outlook, quality of life, salary, and its ramifications on the healthcare sector were assessed. Descriptive and chi-square analysis were conducted. Seventy-two students completed the survey from all 3 years of pharmacy school, and only 35 students (48.6%) were familiar with the PharmD-PA dual degree program. Students noted the benefits of pursuing the PharmD-PA dual degree to be acquiring prescriptive authority (44.4%),

improved clinical knowledge (29.2%), and better career opportunities (18.0%). The main limitations included the additional time in school (40.3%), financial barriers of the program (26.4%), and increased school workload (16.7%). Most students believed that the PharmD-PA dual degree had positive effects on their job prospects, salary, career satisfaction, and allowed for overall improvements in patient care. Overall, pharmacy students had positive perceptions of the PharmD-PA dual degree program. Schools of Pharmacy should look into the development of PharmD-PA dual degree programs as a unique marketing opportunity for admissions and as a nontraditional method of career advancement.

INTRO — DUCTION

Dual degree programs are offered to prepare students for academic and nontraditional or non-academic pharmacy-related careers

Dual degree programs are offered to prepare students for academic and nontraditional or non-academic pharmacy-related careers. A dual degree is defined as a PharmD combined with a graduate or professional degree in which the credits or time required to complete both degrees is decreased. These programs allow students to gain advanced knowledge and specialized skills beyond the traditional Doctor of Pharmacy (PharmD) degree and allow credentials that allow them to diversify in many practice settings. A study by Migliore et al. (2013) showed that 34% of pharmacy students were interested in pursuing an additional degree after graduation, and 79% of these respondents were willing to take summer classes to obtain these degrees. According to American Association of Colleges of Pharmacy (2021), there are 140 pharmacy schools with accredited professional degree programs and 2 schools with precandidate status. Currently, 101 schools offer dual degree programs with 35 (34.7%) schools offering only 1 dual degree programs while other 66 (65.3%) schools provide at least 2 or more (Pharmacy College Application Service, 2020). The most prevalent dual degree program is the Masters of Business

Administration, found in 79 (78.2%) of these schools. These upward trends in dual degree programs could be a result of methods to make the program more attractive to potential applicants given the decreased admissions pools nationwide (Vuernick et al., 2019).

Few pharmacy programs in the United States confer students a pharmacy and physician assistant (PharmD-PA) dual degree after graduation. There are currently 2 pharmacy schools with active PharmD-PA dual degree programs – the University of Rhode Island (University of Rhode Island College of Pharmacy, 2018) and the University of Washington (University of Washington School of Pharmacy, 2023) (Table 1). Both schools partner with PA programs (the Johnson & Wales University and MEDEX Northwest, respectively) to implement their dual curricula. While University of Kentucky had an established PharmD-PA dual degree program (Pharmacy College Application Service, 2020), the program closed due to low admissions. The University of the Pacific is also in the process of developing their PharmD-PA dual degree program.

TABLE 1.

Current PharmD-PA Dual Curriculumms in the United States.

Year	University of Rhode Island (URI)	University of Washington (UW)
Year 1	URI Pharmacy program	UW Pharmacy program
Year 2	<p>Fall/Spring: URI Pharmacy program</p> <p>Summer after Year 2: Application directly to the JWU Physician Assistant Program before September 1st</p> <p>Start of Johnson & Wales University (JWU) PA program (didactic)</p>	<p>Fall/Spring: UW Pharmacy program</p> <p>Summer after Year 2: Application directly to the MEDEX Northwest Physician Assistant Program before September 1st</p>
Year 3	<p>Fall/Spring: URI pharmacy program</p> <p>Summer after Year 3: URI pharmacy clinicals</p>	<p>Fall/Spring: UW pharmacy program</p> <p>Summer after Year 3: Pharmacy rotations and start MEDEX Northwest</p>
Year 4	JWU PA program (didactic)	MEDEX Northwest PA program (clinicals)
Year 5	JWU PA program (clinicals) and URI pharmacy rotations	<p>MEDEX Northwest PA Program (clerkships) and pharmacy rotations (electives)</p> <p>Pharmacy degree in June of their fifth year, followed by their PA certificate in August.</p>

The concept of the existing programs was to create a licensed pharmacy practitioner with an additional year of schooling

(University of Rhode Island College of Pharmacy, 2018; University of Washington School of Pharmacy, 2023)

These cross-trained individuals will fulfill the requirement for provider status and prescription authority upon graduation with only 1 extra year of studies to replace the traditional 1-year pharmacy residency and fellowship route. Pharmacy students are allowed apply to the PA program in their first professional year of pharmacy school after completing PA pre-requisite courses. Additionally, they must take the Graduate Record Examinations (GRE), have direct patient care hours, and interview for program entry. The programs offer a mixture of pharmacy and PA didactic coursework year-round starting in the summer before or summer after entering their third year of pharmacy school. Both programs replace the last 1-2 years of traditional pharmacy school with PA training. Satisfactory grades in basic science and pharmacy courses taken within the PharmD program allow waivers for some PA courses. Rotations are scheduled for both pharmacy and physician assistant areas in the final 2 years of the program. Both degrees are conferred upon graduation of the pharmacy and PA program.

There has been no published literature about impact on pharmacy students' education and career trajectory. The purpose of this study is to assess students' attitudes of this dual-degree program compared to other avenues of career advancement. Additionally, the perceptions of the PharmD-PA dual degree are described in terms of salary, job responsibilities, public interest, and its ramifications on the profession. This manuscript also explores our own stipulations on the impact of the PharmD-PA dual degree on patient care and the healthcare sector.

We hypothesize that pharmacy students would be receptive to the PharmD-PA dual degree and possess positive conceptions of the degree on their job perspective, career outlook, and the medical community at-large. However, we believe that other avenues of career advancement, including residencies and fellowship, will remain more popular choices for professional growth than dual degree programs.

METHODS

A cross-sectional study was created at a 3-year pharmacy program at a Historically Black College and University (HBCU). The HBCU currently does not have a PharmD-PA dual degree track but has both professional programs offered separately.

The survey was distributed to all pharmacy students in the 3-year program with a voluntary participation policy. A brief description of the PharmD-PA dual degree program was provided to students before survey initiation to orient them to the study.

METHODS

The 30-item survey took approximately 20 minutes to complete and answers were submitted anonymously. The survey was emailed twice to the distribution list in Fall 2021.

Demographic information including year of pharmacy school, gender, race, age, education, dual degree interest, and plans after graduation were collected through multiple choice questions. Students were asked to rank their familiarity with PA responsibilities and the PharmD-PA dual degree program concept on a 7-point Likert scale. Additionally, participants compared the importance of dual degrees to alternative methods for career advancement including residency, fellowships, board certifications, scholarly activity, and professional organization involvement. Questions related to benefits, limitations, and options to further increase interest in this new dual educational track were written in short answers. Students rated their perceptions on a 5-point Likert scale of the implications of the PharmD-PA dual degree program on their career outlook, quality of life, salary, provider status and workforce development, and its ramifications on the healthcare sector. While the subject of the PharmD-PA dual degree is novel and there are no other surveys done in the literature to validate these survey questions, other dual degree questionnaires were analyzed and adjusted during survey construction to match

the purpose of this study (Dang & To-Lui, 2020; Gourley et al., 2006; Holtzman & Sifontis, 2014; Jacobs et al., 2017).

The study results were evaluated through the use of descriptive analyses of the variables reporting differences of perceptions of the PharmD-PA dual degree among the study participants. Statistical analyses were performed for categorical data using the chi-square test with a 95% confidence interval. The chi-square test was used to determine if there was an association between 2 categorical variables. These subgroup analyses assessed factors that may have influenced questionnaire results including gender, race, year of pharmacy school, plans after graduation, ideal job setting, familiarity with PA roles, and familiarity with the PharmD-PA dual degree. Responses with p-value less than or equal to the significance level of 0.05 indicated that a relationship existed between the categorical variables. Data were analyzed using SPSS® and Minitab®. The study received approval from the HBCU's Institutional Review Board to be conducted for educational research.

RESULTS

Seventy-two students completed the survey including 32 (72.2%) first-year, 31 (77.5%) second-year, and 9 (30.0%) third-year students (Table 2). The overall response rate was 63.2%. The respondents were mostly female (61.1%) and African-American (54.2%). The average age of survey takers was 23 years and most had a Bachelor's of Science degree prior to starting pharmacy school (45.8%). After graduation, the majority of students wanted to either pursue residency training (47.2%), go into the workforce (27.8%), complete a fellowship (8.3%), or obtain another degree (8.3%).

Ideal pharmacy settings included hospital (70.8%), community (44.4%), ambulatory care clinic (33.3%), and industry (33.3%).

Most students were interested in direct patient care (80.6%), community service (41.7%), and administration (34.7%) as their primary responsibilities in their job. Students believed that dual degrees (34.7%), residency training (34.7%), and board certifications (15.3%) would be the most beneficial to their career advancement.

The leading dual degrees that students were interested in obtaining included PA (59.7%), Master of Business Administration (MBA, 40.3%), and Master of Public Health (MPH, 36.1%).

Students believed that the PA (51.4%), MBA (20.8%), and MPH (19.4%) degrees would complement the Doctorate of Pharmacy the best. While 64 students (88.9%) were familiar with PA responsibilities, only 35 students (48.6%) were familiar with the PharmD-PA dual degree program (Figures 1 and 2). The benefits of pursuing a PharmD-PA dual degree included being able to have prescriptive authority (44.4%), better clinical knowledge (29.2%), more career opportunities (18.0%), improved patient care aptitude (8.3%), and higher salaries (5.6%).

The limitations of the dual degree included the additional time in school (40.3%), financial barriers of the program (26.4%), and increased

school workload (16.7%). Students mentioned that scholarships (70.83%), shorter program duration (18.1%), and increased job prospects and demand (6.94%) to be top motivating factors for them to pursue the PharmD-PA dual degree.

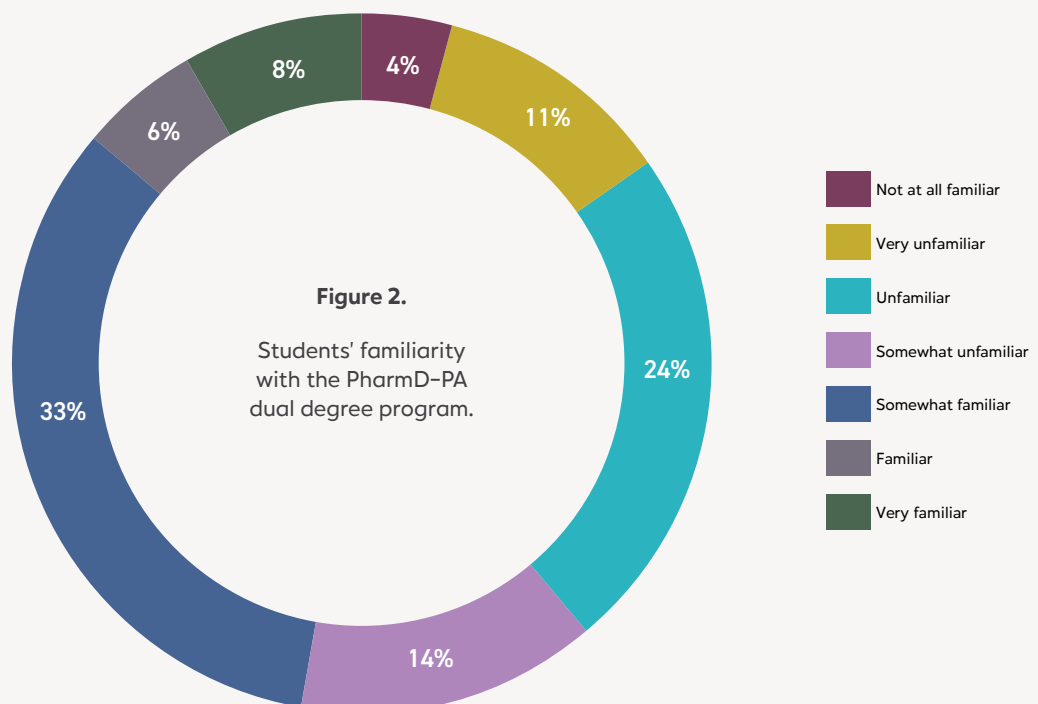
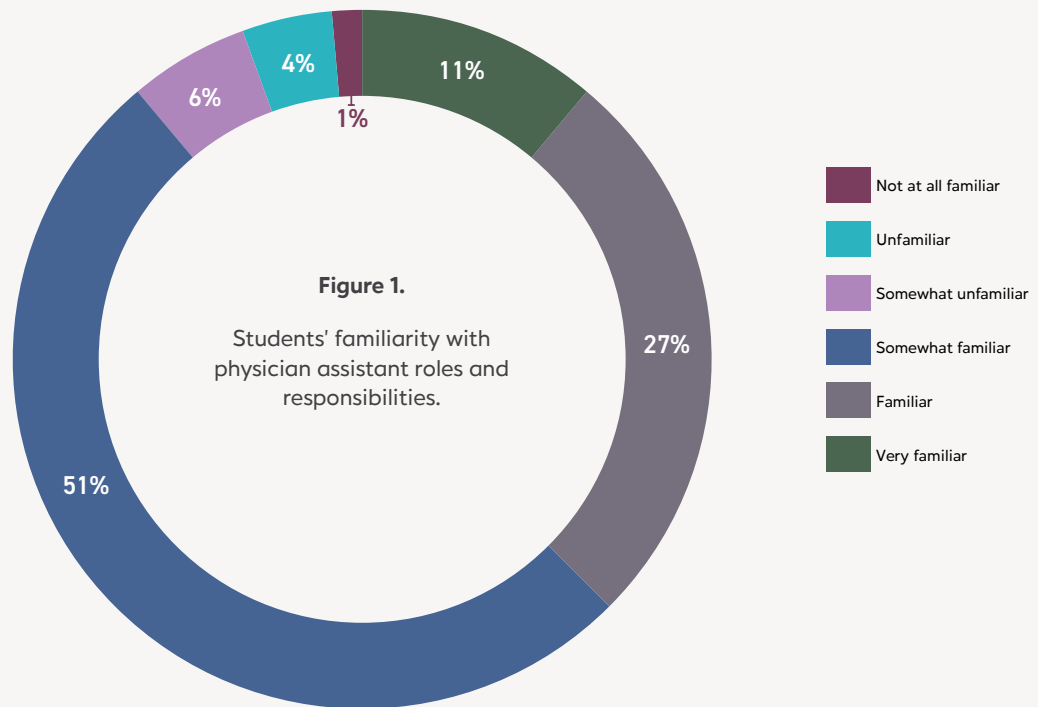
Perceptions of pharmacy students are provided in Table 3 and the following results are provided by comparing "strongly agree" and "agree" to "strongly disagree" and "disagree". In regards to job prospects, 54 students (75%) believed the PharmD-PA degree would allow them to have greater job satisfaction and quality of life. Additionally, 63 students (87.5%) stated that this degree would allow them to be more competitive when looking for jobs, with 61 students (84.7%) reporting more job security, job prospects, and job mobility.

Fifty-four students (75%) reported that the PharmD-PA degree would increase their likelihood of obtaining the ideal first job, and 42 students (58.3%) were willing to spend more time in school for the dual degree compared to on-the-job training. Higher starting salaries (70.8%) and a positive return on investment (75%) were perceived with the concurrent degrees.

TABLE 2. PARTICIPANT DEMOGRAPHICS.

Factor	Sub-Factor	n (%) (N = 72)
Gender	Female	44 (61.1)
	Male	28 (38.9)
Race	African-American/Black	9 (54.2)
	Asian or Pacific Islander	13 (18.1)
	Caucasian	15 (20.8)
	Other	5 (6.9)
Highest education level	High school graduate	5 (6.9)
	Associates degree	20 (27.8)
	Bachelor's degree	42 (58.3)
	Master's degree	5 (6.9)
Current pharmacy Year	First-year	32 (44.4)
	Second-year	31 (43.1)
	Third-year	9 (12.5)
Plans after graduation	Residency	34 (47.2)
	Fellowship	6 (8.3)
	Workforce	20 (27.8)
	Dual degree	6 (8.3)
	Other	6 (8.3)
Pharmacy setting preference	Community	32 (44.4)
	Hospital	51 (70.8)
	Ambulatory care clinic	24 (33.3)
	Industry	24 (33.3)
	Academia	8 (11.1)
	Other	1 (1.4)
Most beneficial for Career Advancement	Residency	25 (34.7)
	Fellowship	6 (8.3)
	Dual degree	27 (37.5)
	Board certification	11 (15.3)
	Other	3 (4.2)
Main responsibility after Graduation	Direct patient care	58 (80.6)
	Staffing	16 (22.2)
	Research	17 (23.6)
	Administration	25 (34.7)
	Teaching or precepting	17 (23.6)
	Community service	30 (41.7)
	Pharmacy organization	21 (29.2)
	Other	3 (4.2)
Dual degree interest	Doctor of Philosophy (PhD)	10 (13.9)
	Master of Public Health (MPH)	26 (36.1)
	Master of Business Administration (MBA)	29 (40.3)
	Master of Public Administration (MPA)	6 (8.3)
	Juris Doctor Degree (JD)	9 (12.5)
	Master of Sciences (MS)	11 (15.3)
	Physician Assistant (PA)	43 (59.7)
	Other	13 (18.1)
Dual degree complementing PharmD the most	Master of Public Health (MPH)	14 (19.4)
	Master of Business Administration (MBA)	15 (20.8)
	Juris Doctor Degree (JD)	2 (2.8)
	Master of Sciences (MS)	1 (1.4)
	Physician Assistant (PA)	37 (51.4)
	Other	3 (4.2)

FIGURES 1 AND 2



Respondents believed that the Accreditation Council for Pharmacy Education (ACPE) should push for the development and accreditation of more PharmD-PA programs and that the workforce was large enough to justify it (76.4%).

Additionally, 67 students (93.1%) perceive that it will have positive implications for the healthcare community at large and provide them competence in a patient care clinical position.

Participants stated that PharmD-PA degree holders are better equipped to work in medically underserved communities (83.3%) and primary care specialties (86.1%). Fifty-eight students (80.6%) believed that the PharmD-PA dual degree was the best pathway for pharmacists to obtain provider status and prescriptive authority.

First- and second-year pharmacy students believed the PharmD-PA degree will let them obtain their ideal first job compared to third-year students ($P = 0.0024$). First- and second-year pharmacy students believe the workforce is large enough to justify having a PharmD-PA degree compared to third-year students ($P = 0.0058$). First- and second-year stu-

dents believe that they will have a positive return on investment if they pursue the PharmD-PA degree compared to third-years ($P = 0.0024$). Additionally, the first- and second-year students believe that the PharmD-PA dual degree is the best way for them to obtain prescriptive authority ($P = 0.0408$). Females believe they have a positive return on investment if they pursue the PharmD-PA dual degree compared to males ($P = 0.0389$). Those interested in the PharmD-PA degree the most were willing to spend more time in school to gain the dual degree rather than training on the job compared to those interested in complementing dual degrees ($P = 0.03996$).

Participant race, educational degree, level of baseline dual degree interest, graduation plans, type of pharmacy setting after graduation, familiarity with PA roles, and familiarity with the PharmD-PA program had no correlation to their responses in the PharmD-PA survey questions ($P > 0.05$).

DISCUSSION & CONCLUSION

Program diversification and distinction by developing additional degree programs beyond the PharmD have increased in popularity in recent years as students are able to have experiences outside the profession of pharmacy. Our study shows that most pharmacy students are interested in pursuing a dual degree for PharmD-PA and have positive perceptions of the degree on their career aspects. Migliore et al. (2013) interviewed pharmacy students interested in pursuing an additional advanced degree after graduation from the PharmD program due to improved knowledge (25.3%), career advancement (19.9%), and financial incentives (4.8%).

DISCUSSION & CONCLUSION

In a similar study by Jacobs et al. (2017), students' perceptions who were enrolled in a PharmD and MBA dual degree program agreed that they would be more competitive in the job market (95%), earn a higher salary (96%), and have more opportunities for career advancement (95%). Like this study, participants also perceived that they would have a positive return on investment and have increased job satisfaction through the dual degree. Dual degrees including the PharmD-PA program offers participants opportunities to advance their pharmacy careers at the margins of other disciplines.

The American Society of Health System Pharmacists Foundation Pharmacy Forecast 2020: Strategic Planning Advice for Pharmacy Departments in Hospitals and Health Systems forecast panelists predicted that there was a 57% likelihood that colleges and schools of pharmacy will offer a PharmD-PA degree (Vermeulen et al., 2020). From an educational standpoint, the curriculum is shortened with summer sessions in school and some PA courses are waived for academic credit if students obtain a minimum satisfactory pharmacy grade. Overall, the benefit of obtaining the doctoral and masters degrees with only 1 extra year of schooling offers less time constraints than individuals who pursue these pathways individually after graduation. This dual degree is a unique marketing opportunity to benefit both schools as admission competition grows where incoming students who are accepted into the pharmacy program are guaranteed to

fill PA seats if they meet program requirements. Vuernick et al. (2019) suggested non-doctoral and dual degree offerings as a method to improve enrollment given the recruitment challenges in pharmacy schools as well as serve a new source of revenue streams. Dual degree programs are easier to begin than other programs as they are designed using existing curricula, courses, and faculty members that already exist in the institution.

Upon graduation, with a set of diverse skills and credentials, these dual degree holders are able to obtain jobs in both pharmacy and physician assistant fields to balance a dynamic job market. With the projected 2% decline in pharmacy employment compared to a 31% physician assistant growth over the next 10-years, the combination of credentials can allow pharmacy students to fall into another job market until pharmacy jobs become available again (U.S. Bureau of Labor Statistics, 2021a & b).

While residency, fellowship, and dual degrees allow students to be more competitive in a declining job market, one major advantage of the PharmD-PA dual degree over post-graduate training is that dual degree holders have prescription authority upon graduation. The PharmD-PA dual degree program can be an alternative pathway to students interested in provider status as physician assistants are already recognized as mid-level providers and have established themselves to practice with physicians in most patient care activities.

The benefit of the PharmD-PA dual degree on patient care outcomes could be immense. Most PA programs offer students 2-3 courses in pharmacology in their training before graduation.

With a specialized pharmacy background, these concurrent degree holders will be better equipped to prescribe pharmacological interventions and provide medication education for their patients, ultimately optimizing patient care. Students will obtain a holistic model of education where they focus on pathophysiology, diagnosis, and pharmacology and become experts in both the pharmacy and PA fields. With healthcare provider shortages especially in medically underserved or rural areas, this pipeline of PharmD-PA degree holders could be an innovative method to create more mid-level practitioners for a rapidly growing and aging population (Staton et al., 2007). Integration of the PharmD curriculum with the PA dual degree will create stronger learning experiences and potentially enhance clinical and economic outcomes for patients.

Currently, the existing programs offering PharmD-PA dual degrees have few applicants. This economic variance for institutions pursuing the PharmD-PA dual degree is compounded by many schools of pharmacy offering a variety of other dual degree programs (e.g. PharmD-MBA, PharmD-MPH) that have higher popularity among applicants. Additionally, schools will need to provide either full-time equivalents or workload redistribution for a dual degree program coordinator or director that oversees students' entry and progress in the track. Both the school of pharmacy and PA program will need to ensure that the program complies with the accreditation standards from both Accreditation Council for Pharmacy Education and Accreditation Review Commission on Ed-

ucation for the Physician Assistant. Faculty in both programs will have to work together to monitor the progression of students in their didactic and experiential activities for accreditation compliance. Another limitation to the dual degree holder is the exponential growth of PA educational programs themselves that could lead to new graduates saturating the growth market in a similar fashion to pharmacy. There have been 112 new ARC-PA accredited PA programs since 2015, representing a 67.8% increase in new educational programs, which could affect supply and demand of graduates in the future (Accreditation Review Commission on Education for the Physician Assistant, Inc., 2021).

It is important to note that in this study while the majority of students indicated that the dual degree would be most beneficial for career advancement, only 8.3% of respondents had plans to pursue it. In a cross-sectional study of student perceptions of a PharmD-MPH dual degree program by Holtzman et al. (2014), many students believed that time commitment (19.9%), increased workload and stress (11.2%), and tuition cost (10.3%) were the notable disadvantages of pursuing the dual degree. Students entering the PharmD-PA dual degree program will need to maintain the minimum grade point average needed to advance in each program as failure of a course will delay and complicate the dual degree pathway. While students benefit from having some academic credit waived, this is offset by having less time off in a condensed program as classes are mostly year round.

“Students will also have to pass both the pharmacy and PA board exams in order to obtain licensure as well as comply with state requirements in both fields for continuing education for license maintenance.”

This could be burdensome on students who are licensed in more than one state or pursue advanced certification or specialties. Finally, there are financial burdens for students to consider as their schooling will be longer compared to those who do not pursue dual degree programs. However, despite these limitations, the results of this study support modifying the pharmacy curriculum to accommodate students seeking the PharmD-PA dual degree.

This was the first study of its kind about the perceptions of a PharmD-PA dual degree program, and the first study about dual degrees among HBCU students. Additionally, the survey questions assessed both personal and professional consequences of the dual degree career path including changes in responsibilities, practice setting, salary, and job satisfaction. Limitations include the cross-sectional nature of the study that prevents making causal inferences on the findings.

The response rate was low at a single-center, 3-year HBCU program so the generalizability of the study could be affected. Finally, the students' exposure to PA responsibilities from interprofessional development and experiential education coursework may bias the results. Students may relay a more positive attitude towards the PharmD-PA dual degree based on their current experiences and the value of the survey may only be limited to these settings.

The interest from students with implementation of the PharmD-PA dual degree as well as the rise of other dual degrees programs in the profession provides preliminary data for program proposal and development. The PharmD-PA dual degree could have important ramifications for the profession in its ability to change education tracks, healthcare practitioner roles and shortages, job satisfaction, and financial outlook. While better job satisfaction and competition were beneficial factors, the ultimate benefit would allow these dual degree holders to have prescribing power and improve patient outcomes. This could ultimately reverse physician shortages especially in the primary care sector and in medically underserved areas. However, the popularity of the program in existing schools of pharmacy remains low and it is unknown if students will select this avenue for career placement compared to other dual degree programs or postgraduate training. Further analysis of programs currently offering the PharmD-PA dual degree including outcomes data are warranted to provide additional support and assist new programs in the decision-making process.

Despite these uncertainties, schools of pharmacy should look into the development of PharmD-PA dual degree programs as a unique marketing opportunity for admissions and create opportunities for students to pursue the dual degree as a non-traditional method of career advancement.



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