

International Rotations Role in Attracting Entry Level Pharmacy Students

Madison Taylor, Behailu N Ermias, B.S., Nnenna Agamegwa, Oluwaseun Ajayi, Okunade Olateru-Olagbegi, Bryan Mildort, Obianuju Okponyia, Adefemi Ige, Joseph Kalu, Pharmacy Students, Bisrat Hailemeskel, B. Pharm., MSc., Pharm.D., RPh* Professor of Pharmacy & Vice Chair

Department of Clinical and Administrative Pharmacy Sciences, College of Pharmacy, Howard University, Washington DC

*Corresponding author: Bisrat Hailemeskel Department of Clinical and Administrative Pharmacy Sciences, College of Pharmacy, Howard University, 2300 4th Street, N.W., Washington, DC 20059, Tel (202) 806-4214; Fax (202) 806-4478.

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Abstract

An online survey was administered to 78 PharmD students to determine the impact of the availability of international rotation as a factor to attract incoming students to Howard College of Pharmacy. The study variables were grouped by the range, average, standard deviation, variance, reasons for seeking information, and frequency. Responses were rated on a 5-point Likert scale (strongly agree to strongly disagree). After the survey was administered, the students' responses were collected and analyzed using SPSS. Based on the data analysis of 77 students, the availability of international rotations was favored by the majority of the students, even those who do not intend to participate in the program. A significant number of women found the program appealing than their male counterparts. Overall, having an international rotation in a pharmacy program has a positive outcome among entering PharmD students and should continue to be offered.

Introduction

International rotations in professional schools are becoming increasingly popular and have proved to be beneficial to students' matriculation. As more schools begin to offer the program, the availability of an international seems to have an impact on the decision making of incoming professional students. Standard 14.6 of the Accreditation Council for Pharmacy Education (ACPE) 2016 Standards recommends: "Schools or colleges of pharmacy may offer elective advanced pharmacy practice experiences outside the United States and its territories and possessions, provided that they support the development of the competencies required of the graduate, and the pharmacy programs implement policies and procedures to ensure the quality of the site(s) and preceptor(s)," [2]. In addition to enhancing clinical skills and cultural competence, these experiential education programs have shown to increase student's interest in their field and further develop their interest in public health.

Howard University College of Pharmacy (HUCOP) established HUCOP International for student pharmacists to have an opportunity to be trained to be global citizens who understand the value of diversity and culture in health care. The program provides a 5-week advanced pharmacy practice experiences (APPEs) rotation opportunity during the 4th professional year as an elective rotation. HUCOP

offers an international offers students in 14 countries across five continents.

The program is competitive and students with a good GPA and recommendation. The program includes mentoring and hands-on practice experience as a direct patient care and clinical outcomes. In addition to overseas rotations, many of our distinguished HUCOP faculty lead research in other countries and engage HUCOP student pharmacists in their global research. Our goal is that every single HUCOP graduate has had the opportunity to travel overseas to enhance their educational experience.

Entering professional students may seek international rotations for many reasons which include an interest in the knowledge of the healthcare system of other countries, personal or cultural affiliation to the specific country of interest, or a push from students who had a positive experience from their international rotations in the past. Studies have been conducted to assess the factors that make international advanced pharmacy practice experiences (APPE) more appealing to PharmD students. In a literature review conducted to provide guidance for continuous quality improvement of APPE programs, it was determined that important factors of an experience include safety, housing, transportation, cost, and health issues [1]. Other studies concluded that learning outcomes may differ between students who completed an APPE in a high-income

rather than a low- to middle-income country, although both types of locations provide valuable opportunities for growth.

As more students continue to have positive experiences with international rotations, professional programs that offer these opportunities may see an influx of incoming students attracted by these opportunities. This study seeks to determine the extent of interest in international rotations and how availability of international rotations impacted students' interest in Howard University College of Pharmacy.

Methods

Participants of the study were first year professional pharmacy students enrolled in a drug informatics course. An online survey was developed using Qualtrics and administered to 78 first year Doctor of Pharmacy (Pharm.D.) students to determine the impact of the school offering an international rotation and student's respective interest in the program. The survey was conducted as part of a drug informatics course which is a two-credit hour mandatory course for incoming pharmacy students. The survey consisted of 8 Likert-scale questions and additional demographic questions. Students' interest in the program was measured by Likert-scale ratings from 1 to 5; a rating of 1 for strongly disagree and 5 for strongly agree. Data analysis was performed with SPSS version 26.0 (IBM,

Armonk, NY). Two-tailed p-values less than 0.05 were considered statistically significant. Analysis of the data used crosstabs to assess the relationship between variables. The study variables were grouped by the range, average, standard deviation, variance, reasons for seeking information, and frequency.

Results

A total of 78 students participated in the survey with 98.7% response rate. Students responded to questions on how the offering of an international APPE rotation program affected their interest in Howard University College of Pharmacy. All student participants were asked to provide demographic information, including age, gender, location, and prior work experience (Table 1).

The student demographic data provides a summary of the participants information and a consensus of who is being analyzed. The majority of responders were females ($n=55$, 71.4%), have a bachelor's degree ($n=48$, 62.3%), and had a healthcare related job before enrollment in pharmacy school ($n =49$, 63.6%). There was a large difference observed in the number of men and women in the class. Many of the students lived in Maryland and other states prior to moving to pharmacy school ($n=63$, 81.9%). The majority of responders made less than \$30,000 annual before enrollment in pharmacy school ($n =69$, 66.3%).

Characteristic	Frequency (%)
Age	
• <20	1 (1.3%)
• 21-25	48 (62.3%)
• 26-30	18 (23.4%)
• 31-35	5 (6.5%)
• >35	5 (6.5%)
Gender	
• Male	22 (28.6%)
• Female	55 (71.4%)
Education before pharmacy school	
• Prerequisite courses only	7 (9.1%)
• Associate degree	14 (18.2%)
• BA/Bsc	48 (62.3%)
• MSc	6 (7.8%)
• Doctorate	2 (2.6%)
Have you worked or had a job before coming to Howard University pharmacy program?	
• No	3 (2.9%)
• Yes	74 (96.1%)
If you worked prior to coming to HU, how many years have you worked (in years)?	
• 1-3	37 (48.1%)
• 4-5	12 (25.6%)
• >5 years	25 (32.5%)
If you worked prior to coming to HU, what kind of work have you had?	

<ul style="list-style-type: none"> Healthcare job Non-healthcare job 	49 (63.6%) 28 (36.4%)
State lived in before enrollment. <ul style="list-style-type: none"> Washington, DC Maryland Virginia Other 	6 (7.8%) 29 (37.7%) 8 (10.4%) 34 (44.2%)
Annual income before enrollment <ul style="list-style-type: none"> \$1,000< \$1,001-\$15,000 \$15,001-30,000 \$30,001-45,000 >\$45,000 	1 (1.3%) 27 (35.1%) 23 (29.9%) 10 (13.0%) 7 (9.1%)

Table 1: Demographics of PharmD students who completed survey.

Based on the data, 64 (83%) participants agreed with the notion that students learn a lot more from other countries and thus would recommend keeping the international rotation program. A majority 57 (74%) of participants agreed that they support the international rotation program because of their future to work and engage in international pharmacy work upon graduating. Although students believe the benefit of having an international rotation in attracting students, a significant number of participants (n=54; 70%; $p=0.0323$) of participants disagreed that they will not be signing up for international rotations.

Only about one-third of students (n=23; 29.8%) agreed when asked if they would not have accepted admission to Howard University if no international rotation programs were offered. Over half (n=56; 72.7%) of participants believe that not all international rotation sites will have the same impact on each student and that some countries may be more appealing than others. About half (n=40; 52%) of the participants said that the cost of living internationally could create unnecessary bias among incoming students. When asked if cultural affiliation would be a determining factor when choosing an international rotation, about two-third (n=52; 68%) agreed. Over half (n=47; 61%) of the students agreed that international rotations seemed to be more appealing for incoming students than local students.

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Neither Agree nor Disagree	Strongly Disagree	p-Values
If there is no international rotation option, I probably would have not accepted admission at Howard	13 (16.9%)	10 (13.0%)	12 (15.6%)	16 (20.8%)	26 (33.7%)	0.7924
Although it is a good option, I do not have any plans to sign up.	3 (3.9%)	7 (9.1%)	13 (16.9%)	17 (22.1%)	37 (48.1%)	0.0323*
I believe students learn a lot more from other countries and thus I recommend having the school to keep the program.	52 (67.5%)	12 (15.6%)	10 (13.0%)	2 (2.6%)	1 (1.3%)	0.1083
I support the international program because I have a plan to work or engage in international pharmacy work immediately or within a few years of graduation.	40 (52.0%)	17 (22.1%)	15 (19.5%)	2 (2.6%)	3 (3.9%)	0.6377
I believe International rotations seem to be more appealing for incoming students than local students	35 (45.5)	12 (15.6%)	16 (20.8%)	5 (6.5%)	9 (11.7%)	0.506
I think cultural affiliation would be a determining factor when choosing an international rotation.	29 (37.7%)	23 (29.9)	12 (15.6%)	3 (3.9%)	9 (11.7%)	0.3311
I believe the cost of living internationally could create unnecessary bias among incoming students.	21 (27.3%)	19 (24.7%)	23 (29.9%)	10 (13.0%)	4 (5.2%)	0.2123
I believe not all international rotations have an equal impact on incoming students. Some countries may be more appealing than others.	24 (31.2%)	32 (41.6%)	13 (16.9%)	3 (3.9%)	5 (6.5%)	0.451

Table 2: Response rate in number using Likert scale (N=77)

Discussion

General interest in the international rotation program in P1 students was determined by 16 survey questions related to general interest, location, cost, demographics, and other determining factors. The goal of this study was to assess how a pharmacy school offering an international program impacts students' attraction to a school. Results from the survey indicate that first-year professional students overall opinion showed a significant interest in the international rotation program. They agreed that the international rotation program should continue to be offered, but the lack of an international program would not have impacted their decision to enroll.

Based on the data, gender seemed to be a factor that influenced the appeal of international rotations for incoming students. There were 55 women and 22 men who were surveyed. A significant number of women in the class found international rotations to be more appealing for incoming students than local students (43.4% vs 17.1%; $p=0.023$ respectively). The largest number of participants (64 students, 83%) agreed with the notion that students learn a lot more from other countries and thus would recommend keeping the international rotation program. A majority 57 (74%) of participants agreed that they support the international rotation program because of their future plan to work and engage in international pharmacy work upon graduating. Only 10 (13%) of students agreed that they would not have attended Howard University College of Pharmacy if an international rotation program was not offered. This shows that although the students think highly of the program, it would not have changed the decision to enroll. Although still interested in the program, students agreed that certain determining factors may make some locations more appealing than others.

A literature review revealed that although participation in global health didactic courses was more than twice that of international APPE rotations, demand was significantly greater for international APPE rotations. The studies indicated that financial and technical barriers may disqualify students from participating in such opportunities. Overall, there was higher student demand international APPE rotations at schools that offered at least one international rotation, indicating that awareness of such opportunities could facilitate interest in specific pharmacy schools [6].

A limitation of this study is that findings gathered from this survey cannot be applied to every pharmacy student since the study was done at one school and among first professional year students. While these findings are accurate, results might have bias due to the demographic differences of the class. Due to the ratio of men to women in the class, additional studies may render different results. More research will need to be done at other universities to truly assess the impact of offering an international rotation on student attraction to professional pharmacy programs to apply generalizations to a more heterogeneous group of students. There are also other student demographics that contribute to desire to participate in an international rotation program. To reduce confounding factors and

selection bias, a randomized study and follow-up survey could be used. Further research may also aim to assess the effects of international rotation programs on students' post-graduate plans.

Conclusion

Colleges of pharmacy in the United States are continuing to provide experiential opportunities. Overall, majority survey participants supported the availability of an international rotation during their senior year as a pharmacy student, a significant number of women found international rotations more to be appealing when compared to their male peers. Although students agreed they would still attend the school, having an international rotation in a pharmacy program has a positive outcome among entering pharmacy students.

Future studies will need to assess all pharmacy students involved, while also adjusting for confounding factors and any potential bias. Schools also need to identify any barriers that they may face in order to further develop international opportunities for students. Other factors that may impact students' interests in international rotation such as location safety, survey participants population, and program curriculum should also be investigated in order to apply any findings to other groups of students. As the role of the pharmacist in international healthcare continues to advance, pharmacy schools will have more opportunities to use these experiences to the benefit of their students.

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