

RESEARCH

Educational and Career Goals of Pharmacy Students Upon Graduation

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Objective. To assess the doctor of pharmacy (PharmD) students' desire to obtain additional degrees after graduation.

Methods. During the spring 2011 semester, an anonymous 14-question survey instrument was administered to students across all 6 years of the PharmD program to evaluate their interest in obtaining an additional degree after graduation. Demographic data was also collected and analyzed from this convenience sample.

Results. Approximately 34% of the respondents (n=1,239) indicated a desire to seek an additional degree. Of the additional degrees offered in the survey instrument, more than one-third of the students expressed interest in the master of business administration (MBA). Also, 79% of those respondents were willing to take summer courses to achieve a dual or additional degree.

Conclusion. Pharmacy students are interested in obtaining an additional degree(s) after graduation and are willing to complete summer courses to achieve their career goals.

Keywords: doctor of pharmacy students, career goals, graduate degree, dual degree

INTRODUCTION

The demand for pharmacists has decreased in recent years because of an economic recession and the resulting cost-cutting measures by retail and hospital pharmacies.¹ This reduced demand, coupled with the proliferation of new pharmacy programs, has caused a surplus of pharmacists in certain regions of the country. The number of new pharmacy programs has increased from 82 programs in 2000 to 119 programs in 2012,² representing a 45% increase in the number of accredited pharmacy programs nationwide. Consequently, the number of pharmacy graduates has increased greatly from approximately 7,000 in the year 2000 to approximately 11,165 in the year 2011.³ Knapp and Cultice (2007) estimated that by 2020, there will be over 300,000 pharmacists in the workforce, or a 29% increase in the pharmacy workforce from 2007.¹

The surplus of pharmacists is further demonstrated by the Aggregate Demand Index (ADI) value for pharmacists, which is a metric that indicates the overall demand for pharmacists using a scale of 1 to 5, where 1 represents very low demand (or surplus), 5 represents a shortage, and 3 represents demand that is equivalent to supply. The national ADI for pharmacists dropped nearly 25%, from

4.18 in 2002 to 3.26 in 2012.⁴ For community pharmacy, the national ADI was only 2.73 in 2002.⁴ Regionally, one of the most affected areas was New England, where the ADI was 3.77 in 2002 and 2.71 in 2012.⁴

The downward trend in the ADI is forecasted to be short-lived because of increased healthcare needs of the baby boomer generation (those individuals who were born between 1946 and 1964), the limited availability of qualified faculty members and training sites, and the significant costs associated with starting new pharmacy programs. Pharmacists are assuming nontraditional clinical roles as well as prescribing responsibilities.⁵⁻¹⁰ This change in the scope of pharmacy practice has been fueled, in part, by healthcare reform (eg, the implementation of the "medical home").¹¹⁻¹⁵

Given the present workforce environment, full-time pharmacist employment postgraduation will continue to be more competitive. The study conducted at the School of Pharmacy-Boston at Massachusetts College of Pharmacy and Health Sciences (MCPHS) University attempted to ascertain to what extent PharmD students understood this challenge and were preparing to meet it. We hypothesized that the educational and career goals of students would change as they progressed through the PharmD program such that they would become interested in pursuing additional advanced degrees to complement or supplement their evolving career endeavors. To test our hypothesis, we developed a survey instrument to learn

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whether PharmD students at MCPHS University were considering additional advanced degrees or training upon graduation to become more marketable. Additionally, we attempted to learn what types of advanced degrees were most preferential to pursue and why. This information can be used to possibly develop different specialty degree tracks to meet the needs of students and help them become more competitive in the marketplace.

A comprehensive literature search revealed several other studies that have attempted to understand PharmD students' attitudes and level of comprehension regarding their future careers in pharmacy.¹⁶⁻¹⁸ While some aspects of these previous studies are similar to our study, what differentiates our results is that we included students from all years of the PharmD program (including the pre-PharmD years). The study by Hagemeyer and colleagues from Purdue University had a similar focus to that of our study but only included students in the second and third years of the PharmD program. Their objective was to identify the motivational beliefs that would influence recruitment in a post-PharmD graduate program. Our objective was to gain knowledge to aid the development of a modified pharmacy curriculum for those students seeking dual or additional postgraduate degrees, which has not been an option in the curriculum. They collected data via a Web-based survey of 318 students (of which 173 responded), while we distributed our study in classroom settings to query 1,833 students (of which 1,239 responded).¹⁸ Therefore, a valid comparison cannot be made.

Another similar study was conducted in 2007 by Capstick and colleagues at the University of Otago in New Zealand. They found that their students were motivated to pursue a career in pharmacy by the desire to help others, while our students listed "interest in medicine/science" as their primary motivator (38.2% of total responders). However, it is difficult to extrapolate comparable data from a non-US college or school of pharmacy and apply it to students in the New England region. Our study is particularly timely given it represents the attitudes of pharmacy students in the face of an evolving professional environment coupled with challenging economic times.

METHODS

The MCPHS University's Institutional Review Board approved the anonymous survey instrument. Each survey instrument was assigned a number to track individual responses without the use of student identifiers (ie, no names or student ID numbers were collected). The survey instrument consisted of 11 closed-ended (ie, check in the box), and 3 open-ended (ie, free form) questions. The first 5 questions addressed demographic information such as gender, age, cumulative GPA (grade point average), ethnicity,

and race. The remaining questions addressed student status in the curriculum (ie, program year 1 to 6), why the student chose the PharmD program, career/educational aspirations, and the reasons for these aspirations. An open-ended question was included to determine why some students did not wish to pursue another advanced degree. Students who indicated they wanted an advanced degree were asked to rank their interest from 1 (none) to 5 (high) from the following choices: MBA, master of public health (MPH), doctor of jurisprudence (JD), doctor of medicine (MD), master of healthcare administration (MHA), master of science or doctor of philosophy (MS/PHD), and other, please list.

The survey instrument was used to collect data from doctor of pharmacy students attending MCPHS University during the spring 2011 semester. To capture most of the 1,833 students enrolled in our program, 1 required course was identified for each year of the PharmD curriculum to administer the questionnaire. A fifth-year PharmD candidate (and investigator) distributed the instrument to eliminate any real or perceived influence on the study subjects by the presence of a faculty member. We obtained prior approval from each faculty member responsible for the selected courses, and the students were assured complete anonymity prior to the distribution of the survey instrument. The survey instrument was administered at the beginning of each selected class, on different dates for each graduating class, and students were given 10 minutes to complete the survey instrument. Course selection was as follows (in the order in which the class appears in the PharmD curriculum): Biology, Organic Chemistry, Human Physiology and Pathophysiology, Pharmacy Law, Therapeutics, and the Pharmacy Board Review.

This convenience sampling did not attempt to randomize each student based on cumulative GPA or any characteristic other than being enrolled in the PharmD curriculum. The only exclusion criterion was the submission of an incomplete survey instrument. Survey results were collected by year in the PharmD curriculum. Data were recorded in an Excel spreadsheet organized by a survey number for each of the 14 questions in the survey instrument. Incomplete survey instruments were excluded from the analysis and were counted among the nonresponders group. Survey instruments where the subject selected multiple answers were recorded as such.

RESULTS

There were 1,239 responses gathered from students across the pre-PharmD and PharmD years of the program (68% total response rate; ie, 594 nonrespondents). Nonrespondents included students who were absent during the administration of the survey, those that chose not to

participate, and those who met the exclusion criteria (ie, submission of an incomplete survey instrument).

Among the respondents (66% women, 31% men, and 3% did not disclose their gender) 78% were 24 years of age or younger. Approximately 10% of the respondents, or 123 students, had a previous degree. Although a cumulative GPA was not part of the inclusion criteria, approximately 33% of the participants reported GPAs above 3.5 based on a 4.0 scale. Additional demographic parameters such as ethnicity and race were also collected, but no significant differences among groups and their respective responses were noted.

Thirty-four percent of the respondents indicated an interest in pursuing an additional advanced degree after graduation from the PharmD program. Of the students who expressed an interest in an additional advanced degree, the MBA (36%) was the favored degree followed by MD (18%) and MS and/or PhD programs (14%). An estimated 38% of the students interested in an additional advance degree stated that a wish to improve their employment opportunities motivated their interest in further education. Other reasons given in this open-ended question included thirst for knowledge (25.3%), career advancement (19.9%), financial incentives (4.8%), and other (22.9%). To assess the level of motivation of respondents, students were asked if they would be willing to take additional summer courses to achieve their goals. An overwhelming 79% stated that they would.

Of the 1,062 students who answered the open-ended question attempting to ascertain career goals, responses included residency (11%), industry (2.7%), retail pharmacy (22.3%), to pay off debt (1.7%), clinical pharmacy (7.4%), owning a business (3.9%), getting a job/making money (22.8%), hospital pharmacy (9.8%), management (1.8%), academia (1.8%), other (9.9%), and don't know/not sure (4.9%).

For respondents who indicated a lack of interest in pursuing an additional advanced degree, an open-ended

question attempted to determine their reasons. Most respondents (54%) either failed to indicate their reason or had a specific reason(s) that could not be generalized. The remaining respondents indicated the following reasons for their lack of interest: this degree is enough (18%), need a break from school (15%), too much debt (5%), already have an additional degree (3%), want to make money (3%), and I'm too old (2%).

Finally, in order to better understand respondents and their answers, we asked an open-ended question to describe why they chose pharmacy as a profession. Most respondents (38%) indicated an interest in medicine and the sciences as the primary motivator behind their career choice. Other motivators included pay (16.5%), job security/diversity (15%), altruism (11%), family/peer influence (7%), and life experience (2%).

DISCUSSION

The results of this study, coupled with the current demand for pharmacists, support modifying the pharmacy curriculum to accommodate students seeking dual or additional degrees. Thirty-four percent of the students polled expressed an interest in pursuing an additional degree. This polled interest appeared bimodal in its distribution across the years of study (our institution is a "0-6" program) with the students in their pre-PharmD years and in their fifth and sixth year demonstrating the greatest interest. Students in the third and fourth years (the first and second PharmD years) expressed the least interest (Table 1), which could be attributed to their transition to the rigors of the PharmD curriculum, rendering them too overwhelmed to consider additional studies. Approximately 80% of students seeking dual degrees demonstrated their commitment by indicating their willingness to complete additional courses in the summer to achieve their ultimate career endeavor.

The selection of the participants represents a limitation to our study as the group tested was part of a convenience

Table 1. Doctor of Pharmacy Students Who Completed a Questionnaire Regarding Their Interest in Obtaining Advanced Degrees Upon Graduation

| Program Year | Responders, No. (%) | Responded Yes, No. (%) | Degree(s) Students Were Interested in Obtaining | | | | | | |
|--------------|---------------------|------------------------|---|-----|----|----|-----|--------|-------|
| | | | MBA | MPH | JD | MD | MHA | MS/PhD | Other |
| First | 236 (19.0) | 97 (41.1) | 36 | 3 | 18 | 23 | 2 | 8 | 7 |
| Second | 180 (14.5) | 70 (38.9) | 30 | 2 | 7 | 15 | 1 | 12 | 3 |
| Third | 214 (17.3) | 109 (50.9) | 29 | 10 | 16 | 23 | 5 | 18 | 8 |
| Fourth | 207 (16.7) | 99 (47.8) | 26 | 17 | 7 | 18 | 5 | 14 | 12 |
| Fifth | 195 (15.7) | 97 (49.7) | 36 | 3 | 18 | 23 | 2 | 8 | 7 |
| Sixth | 207 (16.7) | 85 (41.1) | 36 | 14 | 3 | 10 | 4 | 10 | 8 |

Abbreviations: MBA = master of business administration; MPH = master of public health; JD = juris doctorate; MD = doctor of medicine; MHA = master of healthcare administration; MS = master of science; PhD = doctor of philosophy.

sampling of students at 1 school of pharmacy in Massachusetts and does not represent a true cross section of all PharmD students or colleges and schools of pharmacy in the country. Another potential limitation is the use of open-ended questions which may be open to investigator interpretation. Much care was taken to standardize all responses to major categories and to assign a category of “other” when the responses were unique or irrelevant.

CONCLUSION

A growing number of PharmD students are interested in obtaining an additional degree with the most desired degree being an MBA. Students are willing to take summer courses to earn another advanced degree so that their graduation date is not significantly extended. While this study represents a sample of PharmD students from only 1 New England institution, the results can be extrapolated to other areas of the country given the large sample size and the similarities in the economic climate, and subsequent impact on the field of pharmacy. As pharmacy educators, we should strive for constant self-examination and make sure that we are evolving with the profession and the needs of our students. Only then can we help students remain competitive in a challenging and evolving professional landscape.

REFERENCES

1. Knapp KK, Cultice JM. New pharmacist supply projections: lower separation rates and increased graduates boost supply estimates. *J Amer Pharm Assoc.* 2007;47(4):463-470.
2. American Association of Colleges of Pharmacy. Academic pharmacy's vital statistics. <http://www.aacp.org/about/Pages/Vitalstats.aspx>. Accessed May 24, 2012.
3. American Association of Colleges of Pharmacy. Pharmacy Graduating Student Survey Summary Report –2011. http://www.aacp.org/resources/research/institutionalresearch/Documents/2011_GSS_final%20summary%20report_all%20schools_96_with%20graphs.pdf. Accessed October 28, 2013.
4. Aggregate Demand Index. Time-based trends in aggregate demand index. <http://www.pharmacymanpower.com/trends.jsp>. Accessed May 24, 2012.
5. Gerard K, Tinelli M, Latter S, Blenkinsopp A, Smith A. Valuing the extended role of prescribing pharmacist in general practice: results from a discrete choice experiment. *J Int Soc Pharmacoecon Out Res.* 2012;15(5):699-707.
6. Craig DS. The pharmacists' role in patient-provider pain management treatment agreements. *J Pharm Pract.* 2012;25(5):510-516.
7. Freeman CR, Cottrell NN, Kyle G, Williams ID, Nissen L. Integrating a pharmacist into the general practice environment: opinions of pharmacist inverted question marks, general practitioner inverted question marks, health care consumer inverted question marks, and practice manager inverted question marks. *BMC Health Serv Res.* 2012;12(1):229.
8. Patanwala AE, Thomas MC, Casanova TJ, Thomas R. Pharmacists' role in procedural sedation and analgesia in the emergency department. *Am J Health-Syst Pharm.* 2012;69(15):1336-1342.
9. Sterrett J, Croom M, Phillips CM, Shrader S. Incorporating a diabetes certificate program in a pharmacy curriculum. *Am J Pharm Educ.* 2012;76(5):Article 89.
10. Spinewine A, Fialova D, Byrne S. The role of the pharmacist in optimizing pharmacotherapy in older people. *Drugs Aging.* 2012;29(6):495-510.
11. Choe HM, Farris KB, Stevenson JG, et al. Patient-centered medical home: developing, expanding, and sustaining a role for pharmacists. *Am J Health-Syst Pharm.* 2012;69(12):1063-1071.
12. Matzke GR. Health care reform 2011: opportunities for pharmacists. *Ann Pharmacother.* 2012;46(4):S27-S32.
13. Isets BJ. Pharmaceutical care, MTM, & payment: the past, present, & future. *Ann Pharmacother.* 2012;46(4):S47-S56.
14. Francoeur RB. Ensuring safe access to medication for palliative care while preventing prescription drug abuse: innovations for American inner cities, rural areas, and communities overwhelmed by addiction. *Risk Manag Healthc Pol.* 2011;4:97-105.
15. Benavides S, Kohler LA, Souffrant G. A clinical pharmacist's role in screening for metabolic syndrome in a rural pediatric ambulatory clinic. *J Rural Health.* 2011;27(2):184-189.
16. Capstick S, Green JA, Beresford R. Choosing a course of study and career in pharmacy-student attitudes and intentions across three years at a New Zealand school of pharmacy. *Pharm Educ.* 2007;7(4):359-373.
17. Savage LM, Beall JW, Woolley TW. Factors that influence the career goals of pharmacy students. *Am J Pharm Educ.* 2009;73(2): Article 28.
18. Hagemeyer NE, Newton GD. Pharmacy students' motivational beliefs regarding pursuance of graduate school after completion of the PharmD program. *Curr Pharm Teach Learn.* 2010;2(2):79-93.