

Original Research

Pharmacy students' perspectives on a PharmD/MPH dual degree program at a large metropolitan school of pharmacy

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ABSTRACT*

Objective: To determine doctor of pharmacy (PharmD) students' perceptions of a PharmD and master of public health (MPH) dual degree program.

Methods: A seven-item survey instrument was developed and distributed to students at a large metropolitan school of pharmacy during scheduled class time in April 2012.

Results: Among the 611 students enrolled in the PharmD program, 447 (73%) responded. Of those who responded, 72.3% were either "very likely" or "likely" to consider enrolling in such a PharmD/MPH dual degree program, and 77.4% believed that it would be attractive to future students. The most commonly identified potential limitations to pursuing the dual degree were time commitment (19.9%), increased workload and stress (11.2%), and tuition cost (10.3%). The most notable advantages documented were increased job opportunities for public health-related pharmacy positions (26.9%), increased ability to serve patients and the community (13.4%), and increased marketability for future jobs (8.7%).

Conclusions: PharmD student participants demonstrated overall positive attitudes and interest towards a PharmD/MPH dual degree program.

Keywords: Education, Pharmacy; Students, Pharmacy; Students, Public Health; Schools, Pharmacy; Program Development; Attitude; United States

INTRODUCTION

In recent years, there has been an increased emphasis on public health participation among pharmacists. Although the role of pharmacists in public health is still being developed, pharmacists provide a wealth of health information as well as services that can be public health related. For example, pharmacists can help develop disease prevention and control programs, collaborate with state and local authorities to address healthcare needs, and advocate for sound legislation, regulations, and public policy regarding disease prevention and management.¹⁻⁵

National accrediting bodies and organizations in pharmaceutical education have emphasized the importance of pharmacists being trained in public health.^{6,7} For example, the Accreditation Standards and Guidelines for the Professional Program in

Pharmacy leading to the Doctor of Pharmacy Degree across the United States stated that graduates should be competent to "solve public health problems and help develop public health policy".⁶ In addition, the American Association of Colleges of Pharmacy (AACCP) in 2004 included health promotion and disease prevention in its Center for Excellence in Pharmacy Education (CAPE) Educational Outcomes.⁷ Professional organizations such as the American Society of Health-System Pharmacists and the American Public Health Association have also supported a greater role of pharmacists in public health.^{8,9} In a policy statement in 2006, the American Public Health Association encouraged "greater inclusion of public health concepts in the curricula of schools of pharmacy as well as the development of more joint PharmD/MPH programs" in order to raise awareness of the role and increase the training of public health pharmacists.⁹

In response to this growing perspective, Temple University School of Pharmacy (TUSP), a large metropolitan pharmacy school in Philadelphia, investigated the feasibility of creating a PharmD/MPH dual degree program. Before doing so, the level of interest for the proposed dual degree program was explored among our PharmD students in order to evaluate potential enrollment.

METHODS

A short survey questionnaire consisting of seven questions was administered to all students enrolled in the Doctor of Pharmacy Degree (PharmD) program at Temple University School of Pharmacy during scheduled class time. Surveys were conducted during a required pharmacy course for which total attendance was expected. However, students who did not attend class during administration of this survey were excluded from the study. The same survey was administered to students in each enrolling class (pharmacy academic class years one through four) in April 2012 over a course of three weeks in order to accommodate varying instructors' schedules. A brief introduction of the PharmD/MPH dual degree program was provided to the students, including the proposed structure of the program (Online Appendix). The types of questions asked gathered information on the level of student interest in public health activities as well as interest in enrolling in a PharmD/MPH dual degree program.

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Table 1. Demographic characteristics of enrolled students, stratified by pharmacy year

	Total	PY1 ^a	PY2	PY3	PY4
Total Enrolled, n	611	148	154	154	155
Survey response, n (%)	447 (73.3)	90 (60.8)	95 (61.7)	136 (88.3)	126 (81.3)
Males, n (%)	262 (42.9)	78 (52.7)	49 (31.8)	80 (51.9)	55 (35.5)
Age, years: mean (range)	24 (19-53)	25 (20-46)	24 (20-53)	24 (19-39)	24 (19-45)
Previous degrees ^b , n (%)	389 (63.7)	98 (66.2)	108 (70.1)	89 (57.8)	94 (60.6)
In-state ^c , n (%)	333 (54.5)	98 (66.2)	85 (55.2)	78 (50.6)	72 (46.5)
Race/Ethnicity, n (%)					
White	235 (38.5)	74 (50.0)	57 (37.0)	52 (33.8)	52 (33.6)
Black/African-American	59 (9.7)	8 (5.4)	17 (11.0)	17 (11.0)	17 (11.0)
Asian	259 (42.4)	64 (43.2)	75 (48.7)	62 (40.3)	58 (37.4)
Hispanic	10 (1.6)	1 (0.7)	5 (3.3)	3 (2.0)	1 (0.7)
Other/unknown	48 (7.9)	1 (0.7)	0 (0)	20 (13.0)	27 (17.4)

^aPharmacy academic class year
^bMajority undergraduate degrees
^cIn-state students pay lower tuition fees

The premise of the questionnaire was to obtain pilot data to assist in determining the feasibility of developing a PharmD/MPH dual degree program. Therefore the questionnaire was intended to be simple and short so that it could be administered during class time in ten minutes or less. The survey was developed after careful review of the current published literature on dual degree programs. Subsequently, seven general questions were composed in order to provide preliminary data. The questionnaire was disseminated to other faculty for revision and comments before it was finalized. Answers to open-ended questions were reviewed and compiled into overarching categories by one person. Demographic information of students was obtained through self-reporting during enrollment. Demographic information was based on all students for each enrolling class and was not linked specifically to the students who responded to the surveys. Chi-square tests were used to determine if there were any statistical differences in responses between the various pharmacy academic class years.

RESULTS

Among the total cohort of 611 students enrolled in the PharmD program, 447 (73.3%) responded to the survey. Demographic characteristics of all enrolled

students show that 42.9% were male, 63.7% had a previous degree (majority undergraduate degrees), 54.5% were in-state residents, and 80.9% were of either white race or Asian ethnicity. The mean age for PharmD students was 24 years, with a range of 19-53 years (Table 1).

Among the 447 students who responded, 66.7% felt that they understood the role of the pharmacist in the public health arena "well" or "very well", 59.1% saw themselves playing a role in public health in the future as a pharmacist, 90.2% were either "somewhat interested" or "very interested" in being involved with public health activities as a pharmacist, 72.3% were either "very likely" or "likely" to consider enrolling in a PharmD/MPH dual degree program, and 77.4% believed that a PharmD/MPH would be attractive to future pharmacy students. Compared to students in the first, second, and fourth year of schooling, more third year pharmacy students indicated that they understood the role of the pharmacist in the public health arena well (75.7%, $p < 0.001$), saw themselves playing a role in public health in the future (69.1%, $p = 0.015$), interested in public health activities (94.1%, $p = 0.004$), and interested in the PharmD/MPH dual degree program (83.8%, $p < 0.001$) (Table 2).

Table 2. Student responses to survey, stratified by pharmacy year

Question	Response, n (%)					P-Value
	Total (n=447)	PY1 ^a (n=90)	PY2 (n=95)	PY3 (n=136)	PY4 (n=126)	
How well do you think you understand the role of the pharmacist in the public health arena						<0.001
Very Well	67 (15.0)	9 (10.0)	7 (7.4)	31 (22.8)	20 (15.9)	
Well	231 (51.7)	47 (52.2)	52 (54.7)	72 (52.9)	60 (47.6)	
Not well at all	149 (33.3)	34 (37.8)	36 (37.9)	33 (24.3)	46 (36.5)	
Do you see yourself playing a role in public health as a future pharmacist?						0.015
Yes	264 (59.1)	51 (56.7)	46 (48.4)	94 (69.1)	73 (57.9)	
No or not sure	183 (40.9)	39 (43.3)	49 (51.6)	42 (30.9)	53 (42.1)	
Please rate your level of interest in being involved with public health activities as a pharmacist						0.004
Very interested	154 (34.5)	35 (38.9)	25 (26.3)	59 (43.4)	35 (27.8)	
Somewhat interested	249 (55.7)	47 (52.2)	64 (67.4)	69 (50.7)	69 (54.8)	
Not interested or don't know	44 (9.8)	8 (8.9)	6 (6.3)	8 (5.9)	22 (17.5)	
If given the opportunity to obtain a dual PharmD/MPH degree, how likely would you consider enrolling in such a program?						<0.001
Very likely	135 (30.2)	14 (15.6)	24 (25.3)	65 (47.8)	32 (25.4)	
Likely	188 (42.1)	44 (48.9)	45 (47.4)	49 (36.0)	50 (39.7)	
Not likely	124 (27.7)	32 (35.6)	26 (27.4)	22 (16.2)	44 (34.9)	
Do you consider such a program attractive to future pharmacy students						0.133
Yes	346 (77.4)	67 (74.4)	78 (82.1)	111 (81.6)	90 (71.4)	
No or not sure	101 (22.6)	23 (25.6)	17 (17.9)	25 (18.4)	36 (28.6)	

^aPharmacy academic class year

Table 3. Perceived advantages and limitations to a dual degree PharmD/MPH		Response, n (%) (n=447)
Perceived Advantages to a Dual Degree PharmD/MPH		
	Increased job opportunities	120 (26.9)
	Increased ability to serve patients and community	60 (13.4)
	More marketable	39 (8.7)
	Increased knowledge and understanding of public health concepts	37 (8.3)
	Savings on cost and time	26 (5.8)
Perceived Limitations to a Dual Degree PharmD/MPH		
	Time commitment	89 (19.9)
	Increased workload and stress	50 (11.2)
	Cost	46 (10.3)
	Uncertainty of additional job opportunities	18 (4.0)
	Taking time from pharmacy-related courses, electives, and activities	14 (3.1)
	Traveling between campuses	12 (2.7)

In open-ended questions, the most commonly identified advantages were increased job opportunities for public health-related pharmacy positions (26.9%), increased ability to serve patients and the community (13.4%), and increased marketability for future pharmacy jobs (8.7%). The most commonly identified limitations to the PharmD/MPH dual degree program were time commitment (19.9%), increased workload and stress (11.2%), and tuition cost (10.3%) (Table 3).

DISCUSSION

With the impending changes in healthcare reform and the emphasis on preventative healthcare services and outcomes, pharmacists are in an ideal position to participate in health education and disease prevention programs that are population based and impact public health concerns. The importance of training and preparing students for these opportunities have been outlined by national pharmacy accrediting bodies and public health associations.⁶⁻⁹ The overarching goal of Healthy People 2020 also emphasize “providing preventative healthcare”, “eliminating health disparities” and “promoting healthy behaviors across all stages of life” which are areas that pharmacists can contribute to with proper training.¹⁰ In addition to advanced practice experiences and residency and fellowship opportunities, dual degree programs such as the PharmD/MPH program can offer students the opportunity to gain knowledge and competencies in public health principles.

Dual degree programs involving the PharmD degree is not a new phenomenon. In fact, Shannon et al. reported that among the 120 accredited colleges and schools of pharmacy in 2011, forty-three percent offered dual degree programs including the PharmD/MPH degree.¹¹ A recent analysis of the prevalence and characteristics of PharmD/MPH dual degree programs in the United States conducted by Gortney et al. revealed that twenty-one percent of the 110 schools of pharmacy responding to the survey reported having a combined PharmD/MPH dual degree program.¹² Fourteen of the twenty three schools offering PharmD/MPH dual degrees reported having one to ten pharmacy students enrolled, four reported having eleven to twenty students enrolled.¹² Of note, approximately seventy percent of the colleges and schools offering dual degrees had been in

existence for less than six years and one third were in their first year of existence.¹² These data highlight the fact that PharmD/MPH dual degree programs at schools and colleges of pharmacy in the United States are a relatively new and evolving field of study, whose value is still being explored in the current healthcare environment. Published data documenting outcomes of these programs specifically relating to broader career opportunities, increased marketability, and salary differentials post-graduation are limited. However, data describing the curricula in these programs suggest that students will likely participate in inter-professional education and training and gain exposure in non-traditional areas of pharmacy practice relating to health policy, systems management, preventive care and outcomes research.^{11,13,14} Pharmacists are already being employed in agencies such as Centers for Medicare and Medicaid Services, Food and Drug Administration, United States Public Health Service, and Department of Veteran Affairs.¹ Pharmacists can also be involved with state boards of health and pharmacy as well as national associations that have an impact on legislation.¹ One would expect that successful completion of a PharmD/MPH program with such a curricular structure may enhance opportunities for pharmacists to advance in public health positions at the local, state and federal level.¹⁻³ In fact, the USPHS considers the MPH a benchmark for advancement and promotion in rank for pharmacists.¹⁵

In any feasibility analysis it is important to evaluate the attitudes and perceptions from the target audience. While there are some data to suggest pharmacy students have positive attitudes towards public health courses and public health programs as part of their required curriculum there are limited published studies about students' perception regarding dual degree programs at schools and colleges of pharmacy.^{14,16-18} From a pharmacy education perspective, the findings of this study, which suggest that students exhibited a positive attitude towards developing a dual degree program, are encouraging. While this study did not include a validated student perception survey and may not be generalizable, these data suggest that the majority of students understood the role of the pharmacist in public health, were interested in being involved in public health activities as a pharmacist, and saw themselves playing a role in public health as a future pharmacist. These are important reflections

to consider as one develops and implements a dual degree program. Moreover, these data may provide some insight into courses within the current PharmD curriculum. While the PharmD program at TUSP has always incorporated public health principles in the curriculum, these principles were often linked to pathophysiology and therapeutics courses and were rarely addressed as stand-alone topics. Recently, there has been more of an effort to highlight these public health principles as separate topics throughout the curriculum, albeit micro-level topics such as health screenings, immunizations, and needle exchange programs. The fact that only a minority of students stated that they did not understand the role of the pharmacist in the public health arena may imply that the current curriculum is adequately addressing public health content areas at least from the students' perspective and provides a good foundation to build upon.

The responses of the third pharmacy academic class compared to the other three classes suggested that they were more likely to see themselves playing a role in public health in the future, interested in public health activities, interested in the dual degree program and understood the role of the pharmacist in public health. Since this is a single center survey-based questionnaire we cannot make broad conclusions from this data. At the time this survey was conducted the third pharmacy academic class was preparing for their advanced pharmacy practice experiences. Therefore, their perception of what they know and what they would likely be doing in the real world in the coming weeks may have generated more enthusiasm than the other groups that were surveyed, thus resulting in statistically significant findings when compared to the other groups.

As documented here, the perceived advantages and limitations to the PharmD/MPH dual degree program are not striking and could be shared by students in any profession seeking dual degrees. Since this information appears to be general from an academic standpoint, potential enrollment rates for the PharmD/MPH dual degree program may be extrapolated from non-PharmD dual degree programs.

The major limitation of this study is the fact that it was conducted at a single center at an urban public school of pharmacy, and therefore the results may not be generalizable. In addition, generalizations on the types of students who participated in this study are limited since the demographic information was not linked specifically to the students who participated in the study. It is likely that the current coursework at TUSP and students' exposure to public health activities in an urban public school environment may bias the results. Students may relay a more positive attitude towards a dual degree program of this magnitude based on their current experiences, and the value of the survey may only be limited to these settings. While most students showed interest in the implementation of a PharmD/MPH dual degree program, it is difficult to determine how many students would actually enroll

in such a program if the perceived major limitation included "time commitment" and "tuition cost". Therefore, the use of a validated student participation survey may be useful in a future analysis of these data.

Overall this article describes a consistent interest and enthusiasm among students across the curriculum enrolled in the PharmD program at TUSP towards implementation of a PharmD/MPH program. These positive attitudes offer support for formal consideration for the development of such a program at the institution as well as strong interest in participation in public health activities in general.

CONCLUSIONS

Considering the potential increased need for healthcare services by the general population in the near future with the introduction of healthcare reform, pharmacists have the opportunity to expand their public health roles and clinical practices to address society's healthcare needs on many levels. The addition of a PharmD/MPH dual degree program at accredited schools and colleges of pharmacy is one avenue through which these institutions can prepare students for this important healthcare role. The overall positive attitudes and interest from students at TUSP with regard to implementation of such a program at this institution provides much needed preliminary data to begin a formal discussion and program proposal. Further analyses and outcomes data from programs currently offering the PharmD/MPH dual degree are warranted to provide additional support and assist new programs in the decision-making process and needs assessment aspects of this specialty area as the profession of pharmacy practice evolves.

CONFLICT OF INTEREST

All authors have no potential conflicts of interest to disclose.

PERSPECTIVAS DE LOS ESTUDIANTES DE FARMACIA SOBRE UN PROGRAMA DE GRADO DOBLE PHARM D/MPH EN UNA GRAN FACULTAD DE FARMACIA METROPOLITANA

RESUMEN

Objetivo: Determinar las percepciones de los estudiantes de un programa de grado doble PharmD y Master en Salud Pública (MPH).

Métodos: Se desarrolló un cuestionario de 7 preguntas y se distribuyó entre los estudiantes de una gran facultad de farmacia metropolitana durante el periodo de clases de abril 2012.

Resultados: De los 611 estudiantes inscritos en el programa de PharmD, respondieron 447 (73%). De los que respondieron, el 72,3% estaban considerando "muy probablemente" o "probablemente" inscribirse en el programa de grado doble PharmD/MPH, y el 77,4% creía que sería atractivo para futuros estudiantes. Las posibles limitaciones más frecuentemente identificadas para seguir el grado doble eran el tiempo requerido (19,9%), el incremento de trabajo y estrés (11,2%), y los costos de matrícula (10,3%). Las mayores ventajas documentadas fueron el aumento de oportunidades de trabajo en puestos de farmacia relacionados con la salud pública (26,9%), la

mayor capacidad de servir a los pacientes y a la comunidad (13,4%) y la mayor facilidad de mercado para futuros puestos de trabajo (8,7%).

Conclusiones: Los estudiantes de PharmD que participaron demostraron actitudes generales positivas e interés hacia un programa de grado doble PharmD/MPH.

Palabras clave: Educación, Farmacia; Estudiantes, Farmacia; Estudiantes, Salud Pública; Facultades, Farmacia; Desarrollo de Programas; Actitud; Estados Unidos

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