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# Pharmacy students' motivational beliefs regarding pursuance of graduate school after completion of the PharmD program

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**Abstract**

*Objectives:* The primary objective of the study was to develop and validate an instrument, within an expectancy-value framework, to assess student motivational beliefs regarding pursuance of graduate school after obtaining a PharmD degree. A secondary objective of the study was to examine additional student perceptions regarding graduate school.
*Methods:* Using a web-based survey instrument, information was obtained from samples of 2nd and 3rd professional year pharmacy students regarding motivational beliefs, graduate school, and other post-PharmD options.
*Results:* The developed instrument demonstrated acceptable reliability and validity. Differences in motivational beliefs were discovered across student demographic variables. Furthermore, intrinsic value and attainment/utility value motivational beliefs were significant predictors of likelihood of students pursuing graduate school in a pharmacy-related area. Faculty encouragement was positively associated with increased likelihood of pursuing graduate school and increases in intrinsic value and attainment/utility value motivational beliefs.
*Conclusions:* Student value beliefs of graduate school influence the likelihood of pursuing graduate school. Student motivational beliefs should be considered when determining effective methods of recruiting students to post-PharmD graduate education.


*Keywords:* Motivation; Pharmacy students; Expectancy-value theory; Graduate school

## Introduction

Pharmacy school graduates are faced with many career and educational options once they earn a PharmD degree. An educational option chosen by very few pharmacy school graduates is graduate school. Specifically, only 8% of graduate students enrolled in pharmacy PhD programs have a United States (US) pharmacy background.[1] This percentage has steadily decreased from more than 50% 35 years ago.[2–4] Pharmacy educators have hypothesized that financial incentives, the transition to a more clinical focus in pharmacy curricula, and implementation of the six-year PharmD as the entry-level pharmacy degree have led to the downward trend in graduate school enrollment.[5–8]

Perceived consequences of the decrease in US pharmacy-trained faculty members were mentioned in the literature as early as the 1970s.[9,10] In 1976, Miya mentioned that increased numbers of faculty without a pharmacy background could lead to decreased sensitivity of academicians to the pharmacy profession (e.g., decreased knowledge of the profession, lack of displayed professionalism, inability to relate information to pharmacy practice, lack of understanding of current events in the profession) and decreased credibility with pharmacy students.[10] Commenting on the 1984 final report of the Task Force on Pharmaceutical Education, Gagnon and Cocolas stated, "The small growth in pharmacy graduate enrollments and the lack of interest of pharmacy students in graduate education could critically affect the availability of pharmaceutical research and development scientists and pharmacy school faculty with phar-

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macy training."[11] Despite the voiced concerns, enrollment of US pharmacy school graduates in pharmacy-related graduate programs continued to decline.

In recent years, the American Association of Colleges of Pharmacy (AACP) has examined issues surrounding faculty recruitment and retention and graduate education. The AACP Commission to Implement Change in Pharmaceutical Education evaluated the pharmacy graduate school environment and provided suggestions for recruitment of students into graduate programs.[5] Suggestions focused on previously successful interventions including an emphasis on scientific inquiry, opportunities for student mentoring, promoting flexibility within the pharmacy curriculum, and the provision of competitive stipends to graduate students. More recently, Victor Yanchick, in his 2008 AACP Incoming President's Address, mentioned pharmacy faculty shortages and faculty recruitment as areas of focus during his presidency.[12]

Many studies were conducted in the 1980s and early 1990s to examine pharmacy student and faculty perceptions of graduate school and other post-entry–level pharmacy degree options.[6,8,11,13–18] Results of these studies are difficult to summarize because students did not differentiate between the PharmD degree and MS or PhD degrees when defining graduate school. In studies that directly asked students to indicate why they would consider pursuing graduate school, the most cited reasons for students' consideration of graduate school were better job opportunities, enjoyment of a specialized area, and satisfaction and self-fulfillment associated with the position resulting from graduate study.[11,13,14,17] Presently, it is questionable whether students would consider there to be better job opportunities as a result of graduate school completion given the large array of opportunities available after PharmD degree completion. Considering that the PharmD was not the most commonly pursued pharmacy degree at the time the studies were conducted, generalizability of study results to current pharmacy students is questionable. Thus, the collection of current reliable, valid, theoretically sound information regarding student perceptions of graduate school is warranted.

One motivation theory particularly suited for examining task choice (e.g., choice to pursue graduate education) is expectancy-value theory. Expectancy-value theory posits that motivational beliefs regarding specific tasks are related to both expectancy and value beliefs.[19] Expectancy beliefs assess the extent to which an individual feels confident in his or her ability to successfully complete a task. In other words, expectancy beliefs focus on the question, "Can I do this task?" Value beliefs pertain to why an individual would perform the task in question. Eccles' research has indicated that value beliefs are composed of four subscales or constructs: intrinsic value, attainment value, utility value, and cost belief.[20] *Intrinsic value* is similar to intrinsic motivational beliefs and assesses value associated with interest and enjoyment in performing a task; *attainment value* encompasses beliefs about the importance of performing a task; *utility value* is similar to extrinsic motivational beliefs in that it assesses the usefulness of performing a task; and *cost belief* takes into consideration factors that must be sacrificed to perform a task.

Research has been conducted outside of the pharmacy profession that studied relationships between motivational beliefs and course enrollment, choice of college major, course goals, career choice, and perceptions of student abilities.[21–31] Additional research has also been conducted that has specifically examined reasons for pursuing graduate school; however, none of the studies was developed within a theoretical framework related to motivational beliefs.[32–34] Research that uses the expectancy-value framework to assess motivational beliefs regarding graduate school has not previously been conducted in the pharmacy profession. The primary purpose of this study was to examine student motivational beliefs and perceptions of graduate school using expectancy-value theory as a framework. The study also examined student perceptions of graduate school that were not assessed directly within expectancy-value theory.

Specifically, the objectives of the study were to: (1) develop a reliable and valid instrument to measure student motivational beliefs about pursuing graduate school after completion of a PharmD degree; (2) determine the relationships between student motivational beliefs about pursuing graduate school and the likelihood of pursuing graduate school; (3) determine the associations of pharmacy student demographic variables and pharmacy student perceptions with student motivational beliefs about pursuing graduate school and with the likelihood of pursuing graduate education; and (4) determine pharmacy student perceptions regarding potential methods of increasing pharmacy student interest in graduate education.

## Methods

A thorough review of the literature revealed one value belief instrument that complemented the objectives of this study. The Valuing of Education scale was developed to assess value beliefs of college women regarding graduate school.[35] A majority of the value items included in the present study were adapted from the Valuing of Education instrument. In an effort to more fully examine the expectancy-value constructs specific to the pharmacy profession, the investigators developed five additional value items and seven expectancy construct items that were included in the expectancy-value portion of the instrument. The items were developed by the investigators based on pre-pilot study focus groups.

Additional items that assess student perceptions of graduate school were developed and measured student likelihood of pursuing post-PharmD educational options; student perceptions of the curriculum, professors, and other external factors as they relate to student perceptions of graduate school; the quantity of encouragement received from faculty members to pursue graduate school; and positively influen-