



Contents lists available at ScienceDirect

Currents in Pharmacy Teaching and Learning

journal homepage: www.elsevier.com/locate/cptl

Experiences in Teaching and Learning

Evaluation of first year student pharmacists' perceptions of the pharmaceutical industry

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ARTICLE INFO

Keywords:

Pharmaceutical industry
Prescription drugs
Student pharmacist
Perception

ABSTRACT

Background and purpose: There are a limited number of pedagogical studies evaluating student pharmacists' perceptions of the pharmaceutical industry. The objective of this two year prospective study was to evaluate changes in student pharmacists' perceptions of the pharmaceutical industry during the first year of enrollment in the doctor of pharmacy curriculum.

Educational activity and setting: An online survey was developed and offered to all first-year student pharmacists during the 2014 and 2015 Fall semesters prior to didactic instruction on the pharmaceutical industry and then again at the end of the respective academic years. Descriptive and inferential statistics were used to analyze the data.

Findings: A majority of students had a positive impression of the pharmaceutical industry in both the fall (75%) and spring semesters (78%). Over the course of the year, significantly greater numbers of student pharmacists reported favorable impressions of the pharmaceutical industry with respect to research innovation, drug safety, and the provision of drug information. On the other hand, findings suggest that many students remain skeptical regarding the benefits of prescription medications relative to cost and there were significant increases in the number of students who perceived pharmaceutical industry-based marketing practices to have a negative impact on patients and society.

Discussion and summary: Didactic education may influence student pharmacists' perceptions of the pharmaceutical industry. Further research is warranted to evaluate the role of pharmacy curricula and extra-curricular activities in influencing changes in student pharmacists' perceptions and the potential implications of these changes to pharmacy practice.

Background and purpose

The pharmacy profession and the pharmaceutical industry share common public health interests in that both are involved in improving the health of individual patients and the general public by promoting the effective use of prescription medications. In 2016, drug development activities by pharmaceutical manufacturers led to 21 novel prescription drug approvals by the United States (US) Food and Drug Administration (FDA).¹ Health policy discussions continue to place emphasis on evaluating the value of prescription medications in order to promote clinically beneficial, cost-effective health outcomes. Pharmacists will continue to have opportunities to contribute toward these clinical and economic improvements. While pharmacists may have limited direct contact with pharmaceutical manufacturers, they do spend considerable time discussing prescription medications with patients and fellow health care providers, and the profession depends on the pharmaceutical industry to provide products that have demonstrated efficacy, safety, and value. Educational outcomes in pharmacy emphasize the need to develop pharmacists who are able to critically

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<https://doi.org/10.1016/j.cptl.2018.01.005>

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evaluate data regarding the benefits and risks associated with these newly marketed prescription medications and to effectively communicate these findings for the purpose of positively influencing health outcomes for individuals and health systems.² Pharmacy curricular content addresses various aspects of the pharmacist's relationship with the pharmaceutical industry.

Several studies have evaluated medical students' perceptions of the pharmaceutical industry with most being focused on marketing practices.³⁻⁷ A search of the pharmacy pedagogical literature revealed that only a limited number of prospective studies have evaluated student pharmacists' perceptions of the pharmaceutical industry.^{8,9} Of these, none have evaluated changes in student perceptions that occur during the course of enrollment in the doctor of pharmacy (PharmD) curriculum. Monaghan et al.⁸ conducted a cross-sectional survey that included 53 student pharmacists and found low knowledge scores regarding pharmaceutical industry marketing techniques and professional statements on ethical interactions with the pharmaceutical industry. In a separate study at a single college of pharmacy, Naik et al.⁹ conducted a cross-sectional assessment regarding direct-to-consumer (DTC) advertising involving 120 student pharmacists from the first, second, and third year. Students expressed an overall negative impression of DTC advertising and the authors noted significant deficiencies in students' knowledge regarding DTC advertising. Two published studies have described the design and implementation of elective courses for student pharmacists related to the pharmaceutical industry, but neither evaluated student pharmacists' perceptions of the pharmaceutical industry.^{10,11}

Many student pharmacists receive their first exposure to the role of the pharmaceutical industry in health care delivery during first-year introductory courses in the PharmD program. Most, if not all, required didactic instruction specifically regarding the pharmaceutical industry is provided during these courses. From a pharmacy educator perspective, this period of time is significant in order to characterize early changes in students' perceptions that may result from required curricular content and other factors. The objective of this study was to evaluate changes in student pharmacists' perceptions regarding a broad range of topics associated with the pharmaceutical industry during enrollment in the first year of the PharmD program.

Educational activity and setting

This was a two year, prospective study of student perceptions on the pharmaceutical industry using an online survey. The setting for the study was the college of pharmacy at a private university located in the southeastern US. First-year student pharmacists were selected for this study since all required didactic instruction related to the pharmaceutical industry at the study institution was provided during first-year introductory courses. The investigators wanted to specifically evaluate changes that occur during the first-year of the program, given the concentration of required didactic curricular content. Specific didactic classroom sessions relevant to pharmaceutical industry practices during the first-year of the program included discussions regarding the pharmacists' role in interpreting pharmaceutical industry based DTC advertising, phases of pre-clinical and clinical prescription drug development, roles for pharmacists in the pharmaceutical industry, and evaluation of cost analysis models for prescription drug utilization. These didactic lectures were offered during a required fall semester course on introduction to pharmacy and a required spring semester course which discussed various elements of the US health care system including the role of pharmaceutical manufacturers, health care providers, payers, and policy makers. The college offers elective didactic courses and advanced pharmacy practice experiences related to the pharmaceutical industry; however, only second-, third-, and fourth-year student pharmacists are eligible for enrollment in these courses. A number of factors can influence student pharmacists' perceptions regarding the pharmaceutical industry. The premise of this study was to look specifically at changes that occur among first-year student pharmacists as they experience the required didactic components of the curriculum that directly address the pharmaceutical industry. Future studies are planned to evaluate changes that occur over the entire course of enrollment in the PharmD program from admission to graduation.

The design for evaluation of student perceptions was based on a publically available 33-item survey developed by the Kaiser Family Foundation and Harvard University School of Public Health to assess the general public's perceptions regarding the pharmaceutical industry and prescription drugs.¹² Faculty members modified several questions from this survey and developed several additional questions to form a new five-point Likert scale survey instrument (strongly agree, agree, neither agree or disagree, disagree, strongly disagree). There were a total of 85 items in the modified survey instrument. Positively and negatively worded statements were included in the survey to minimize the risk of acquiescent response bias (tendency to agree with statements regardless of the content). Questions were categorized into specific topical sections pertaining to student pharmacists' perceptions regarding the favorability and trustworthiness of the pharmaceutical industry, safety and costs associated with prescription drugs, promotional advertising for prescription drugs, research and drug development, and governmental regulation of the pharmaceutical industry. Additional questions were included to assess students' understanding of specific roles and responsibilities of pharmacists within the pharmaceutical industry, as well as types of drug information provided by the pharmaceutical industry. Furthermore, the survey also included questions on student demographics, work history, and future career plans in the pharmaceutical industry. The goal in developing this survey instrument was to create an assessment tool that allowed faculty to stimulate students' thinking regarding the pharmaceutical industry and to evaluate students' perceptions regarding a broad range of topics related to pharmaceutical industry practices and prescription drug development and commercialization.

The survey was offered to two different cohorts of first-year student pharmacists at the beginning of the 2014 and 2015 Fall semesters prior to students receiving any didactic curricular instruction related to the pharmaceutical industry. All first-year student pharmacists were eligible to participate. The survey was prepared using a data collection and analysis software program designed by Qualtrics® (Qualtrics® Lab, Provo, UT). Students received an electronic link to the survey and were given the first 20 min of class to complete the survey during a class session on the drug development process (pre-survey). Twenty minutes was provided for completion of the survey based on previous experiences administering surveys related to the pharmaceutical industry. Students had an additional 10 min to submit answers before the survey was closed out. The same survey was offered to these student pharmacists

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