



Research

Evolution and assessment of a service-learning nutrition pharmacy program[☆]

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Abstract

Introduction: A service-learning nutrition course was established for pharmacy students at the University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences in 1999. This program has been sustained and improved upon as an integral part of the curriculum over the last 13 years.

Methods: A partnership was established with Aurora Public Schools to allow first-year pharmacy students to deliver a series of nutrition and healthy lifestyle lessons to children in third, fourth, and fifth grade in 28 classrooms across four different elementary schools.

Results: Pharmacy students reported satisfaction with lesson delivery, team dynamics, and improved communication, listening, and leadership skills. Elementary school teachers reported satisfaction with the lessons and increased learning and enjoyment from their students. Teachers scored pharmacy students high (average of 95.4% and 94.3%) across two semesters for their performance.

Conclusions: A pharmacy student service-learning program has been maintained and improved upon, meeting goals for both the pharmacy students as well as elementary school children. This partnership is perceived as valuable from all parties involved.

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Introduction

The utilization of service-learning as a teaching and learning methodology within health professions education has been well described in the literature.^{1–5} The National Youth Leadership Council defines service-learning as a philosophy, pedagogy, and model for community development that is used as an instructional strategy to meet learning goals and/or content standards.⁶ It is defined by

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the Community Campus Partnerships for Health as a structured learning experience that combines community service with preparation and reflection. Students engaged in service-learning provide community service in response to community-identified concerns and learn about the context in which service is provided. Further learning from the experience includes students identifying the connection between their service and their academic coursework, and their roles as citizens.⁷ Within pharmacy education, the Accreditation Council for Pharmacy Education (ACPE), the national accrediting body for Doctor of Pharmacy (PharmD) degree programs, published Standards 2007.⁸ These standards recognize the use of appropriate and relevant service-learning activities as components of experiential coursework in the PharmD curriculum.⁸ Three necessary criteria

have been identified for a successful academic service-learning experience: relevant and meaningful service within the community, purposeful civic learning, and enhanced academic learning.⁹

Nutrition education is well suited for service-learning activities. National data continue to show an alarming increase in obesity across the United States, a condition that contributes to a myriad of chronic illnesses including the top three national causes of death: heart disease, cancer, and stroke. Research has established a strong link between poor childhood nutrition habits and adult obesity.^{10–14} The American Academy of Pediatrics 2011 guidelines for cardiovascular risk reduction in children identify that children's diet habits can be safely improved with teaching, and, while the evidence is mixed on the success of these interventions, nutrition and diet education should be part of a strategy for preventing cardiovascular disease in children at high risk.¹² Educating children about making positive, healthy nutrition choices early in life may lead to better eating behaviors and diminish the likelihood of obesity in adulthood.^{13,14}

The University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences (SSPPS) first implemented a service-learning nutrition course in 1999. The description and formation of this initial course has been previously described in the literature.¹⁵ Over the last 13 years, the service-learning course has evolved and been adapted based on changing resources and needs of both the SSPPS and the partnering elementary schools. This paper describes the expansion and evolution of a service-learning partnership between the SSPPS and four elementary schools.

Design

Program logistics

The original purpose for this service-learning course has been previously described in an evaluation of 173 first-year pharmacy students (P1s) who participated in seven visits to one of two elementary schools over a two-year period.¹⁵ The current iteration of the course has incorporated the service-learning activities into the required first-year experiential course, with the entire class of 160 P1s broken into teams of five to six students and each team being assigned to one of 28 classrooms of third, fourth, or fifth grade students in one of four public schools located close to the SSPPS campus (Fig. 1). Partnering elementary schools were selected based on proximity and need. Importantly, of the approximately 900 elementary school children engaged in this program annually an average of 92% qualify as low income. Each pharmacy student team is responsible for delivering lessons developed in advance by nutritional experts to their assigned classroom during both semesters of the P1 year. Lessons, held one afternoon per week during a dedicated 45-minute time block, usually conclude with a healthy snack that is prepared by and shared among the

pharmacy and elementary students. Each student team meets with its class on alternate weeks; hence, half of the P1 class is engaged in an elementary school classroom one week and the other half attends the following week. The lessons require various supplies, both consumables used for the healthy snack, as well as accompanying preparation tools (knives, napkins, cutting boards, etc.) and props that are used for specific lessons, such as laboratory supplies for the dissolution lesson. These supplies are organized into storage bins at the SSPPS. Each student team is responsible for checking-out supplies prior to the lesson and returning them after the lesson's completion. While one student is a designated team leader for each lesson, all members of the team are expected to actively engage and participate in teaching the class for every lesson.

Experiential education component

The initial service-learning nutrition education elective course established at the SSPPS occurred during one semester and encompassed six visits to elementary school classrooms, grades 1 through 5. It has evolved into a longitudinal experiential education activity spanning both semesters of the first year in the entry-level PharmD curriculum and focuses on grades 3 through 5. Despite its various iterations, it has been a required component of the P1 curriculum for every student since its inception. Although changes have occurred over time, the strong connection between the desired learning outcomes of the PharmD curriculum and the learning opportunities afforded via service-learning activities has contributed to it being maintained as a valuable required component. Starting with the initial design of the PharmD curriculum in the late 1990s, clear themes were identified that translated into fundamental skills that an entry-level pharmacist should possess. Communication skills, in particular, have continuously been identified as highly valued within the practice of pharmacy.^{16,17} Developing these communication skills may present challenges to novice pharmacy students for several reasons. First, there is a subset of students for whom English is not their primary spoken language. Second, students who tend toward introversion can be reluctant to engage in conversation, making the notion of having to routinely engage and counsel patients very intimidating. Third, students who lack confidence in recalling and providing salient information in a logical and understandable manner may represent an additional barrier. As such, allowing P1 students to communicate relatively low-complexity information to a more approachable, less intimidating population fosters the incremental development of tools, skills, and strategies that can be carried forward to higher levels of the curriculum. An additional beneficial educational theme within this service-learning course is the opportunity to take advanced concepts about health and nutrition and translate them into a lesson plan that can be delivered to and understood by elementary children at the

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