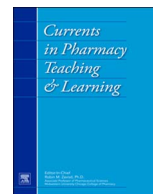




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Experiences in Teaching and Learning

The development and impact of active learning strategies on self-confidence in a newly designed first-year self-care pharmacy course – outcomes and experiences

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ABSTRACT

Background and purpose: The primary objective of this investigation was to determine the effectiveness of different active learning exercises in a newly-designed flipped-classroom self-care course in applying newly acquired knowledge of self-care and improving the confidence of first-year pharmacy students to recommend self-care treatments and counsel patients. The early development of these skills is essential for the subsequent Community Introductory Pharmacy Practice Experience (CIPPE).

Educational activity and setting: An unpaired anonymous survey was administered to students, pre- and post-course, to ascertain their opinions on the effectiveness of various teaching strategies and active learning exercises on learning and on their confidence in treatment-planning and patient counseling for self-care patients. Comparison between pre- and post-course Likert scores was conducted using a one-way ANOVA followed by a *post-hoc* Tukey's test with significance at $p = 0.05$. All other tests of significance were conducted using a student's *t*-test with significance at $p = 0.05$.

Findings: Students' self-confidence in developing treatment plans and in counseling for non-prescription drugs and dietary supplements significantly improved from the beginning to the end of this self-care course. The response rate was high in both the pre- (N = 208, 88.1%) and post- (N = 198, 83.9%) course surveys. The positive change in confidence was not reflected in increased performance on the final exam represented by a lower average score than the midterm exam.

Discussion and summary: Active learning sessions and the flipped classroom approach in this first-year pharmacy self-care course contributed to increased self-confidence in making recommendations and counseling patients on proper use of nonprescription medications and dietary supplements.

Background and purpose

Over-the-counter (OTC) medications are widely accessible and effective in treating minor health-related complaints, but can be

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dangerous if taken incorrectly. When considering the patient populations that are using OTC medications and dietary supplements, some of the most fragile patients, including elderly patients, are the most common users.¹ A population based study completed in 2005–2006 that included over 2300 patients who were between the ages of 57–85 years old demonstrated that 44.4% of these patients were taking an OTC agent and 51.8% were taking a dietary supplement.² Polypharmacy among these patients can also lead to increased risk of drug interactions. Another study based on the same population found that over 15% of patients would experience a major drug-drug interaction with OTC or dietary supplements they had selected for use.² Proper screening of concomitant disease states and medications, proper counseling on accurate dosing, and education on length of therapy and potential risks of long term use of these agents is imperative to increase the safety of using these agents in our elderly patients.³ To ensure pharmacy students are prepared to provide this comprehensive evaluation and counseling in the self-care environment, pharmacy educators should renew their focus on teaching knowledge and skills related to self-care counseling on non-prescription and dietary supplements in the core of the pharmacy curriculum.⁴

Early exposure to common clinical pharmacy practices such as assessing patients using SCHOLAR-MAC and counseling patients on self-care medication establishes a familiarity and routine in students that directly applies to practice. Early and repeated exposure can also facilitate the development of skills for screening, evaluation, and recommendations needed in the self-care environment.⁵ The application of newly acquired knowledge in working through realistic patient case scenarios facilitates the development of important cognitive skills, including clinical reasoning and problem solving skills which are key assessment elements in the 2016 Accreditation Council for Pharmacy Education (ACPE) Accreditation Standards.⁶ Furthermore, repeated practice and application to real-life cases can improve retention of newly acquired knowledge and develop confidence in counseling skills. A core aspect of Bandura's Social Cognitive Theory includes the importance of developing a sense of self-efficacy in given situations. As the self-efficacy strengthens, the confidence in completing the required task grows with continual practice.⁷ To provide this continual practice to improve self-efficacy and confidence, various active learning strategies have been developed in the last decade to improve oral communication skills in students, to establish a strong team mentality that strengthens essential peer networking skills, and to utilize newly acquired knowledge that is to be applied both during school and later in professional interactions.^{8,9} Providing a variety of activities helps develop our students' confidence in essential counseling skills, and repeated practice allows the student to gain confidence in these skills so students will be more willing to confidently counsel patients under preceptor guidance during the required Community Introductory Pharmacy Practice Experience (CIPPE) that directly follows this Patient Care 1 course.

The College of Pharmacy (COP) at the University of Florida (UF) has recently revised its doctor of pharmacy (PharmD) curriculum according to the 2016 ACPE Accreditation Standards. As part of this revision, first-year pharmacy students are now taught about self-care, non-prescription drugs, and dietary supplements in Patient Care 1 prior to their CIPPE. The course was team-taught by faculty from two college departments and utilized a flipped classroom approach. Students watched lectures and completed assigned readings prior to attending an active-learning session where they would have the opportunity to apply their new knowledge. This was the first entering class that followed the new curriculum consistently throughout most core classes. The flipped classroom approach with active learning sessions provides students with more practical skills and, in general, better academic performance and engagement.^{10,11} Various active learning techniques have been evaluated and described in the literature although their effectiveness and perceived satisfaction by students remains unclear or was not reported.^{9,12} Because the UF COP has three campuses located throughout the state, faculty on each campus led active-learning sessions for their students utilizing a detailed facilitator guide to ensure all students received the same learning experience.

The objective of this investigation was to evaluate changes in student self-confidence in providing counseling and applying newly acquired knowledge to develop treatment plans for self-care patients. A secondary objective was to evaluate students' perceptions of the various active learning strategies employed during the course.

Educational activity and setting

The mandated curricular restructure of the PharmD courses at the UF COP focused on interdisciplinary and collaborative approaches centered around disease states by integrating all departments from basic science to pharmacotherapy. Faculty worked together with instructional designers to streamline content in a meaningful manner to link course-level objectives to lecture-level objectives and learning outcomes. Assessments such as quizzes, exams, and active learning sessions were designed to address knowledge retention, application, and transition. Active learning strategies were intended to stimulate critical thinking skills, apply newly acquired knowledge, recognize limitations of use and expertise, and improve communication skills. The development of active learning strategies started during the fall term ahead of the course being offered in the second half of the spring semester. The core faculty met on a bi-weekly basis to discuss each active learning strategy incorporating specific case scenarios for each selected OTC drug and dietary supplement as needed. Initial adaptation required a significant time commitment with approximately two hours per week for each faculty to prepare the active learning strategies, prepare and record lectures, write and categorize quiz and exam questions, and, during the course itself, interact with students via the discussion board. In addition, faculty and facilitators met via conference calls ahead of each active learning session for approximately one hour to coordinate the activities for each campus. Each faculty member in charge of the learning activity provided a detailed facilitator guide allotting estimated times for each step of the activity, important points to address, and slides to present. When applicable, all campuses connected via video conferencing to discuss central topics and faculty asked teams or specific students questions related to the learning activity. However, campuses usually disconnected during individual team presentations to avoid replications and to utilize time efficiently.

The academic setting for this investigation was a first-year pharmacy student self-care course with a total enrollment of 236 students spread across three campuses. Students met with local campus faculty for a two-hour active learning session twice a week

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