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Short communication

Experience and evaluation of oral examinations in a therapeutics course for second-year pharmacy students

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Abstract

Objective: To develop, implement, and assess a patient case-based oral examination in a second-year therapeutics course.
Methods: During a two-year period, a patient case-based oral examination encompassing cumulative disease states was administered. The oral examination case encompassed up to five disease states which students had been previously tested on by written examination. Students' oral examination answers were evaluated by a standardized rubric and performance was compared to that on a written examination covering similar material. During year two, prior to the administration of corresponding written and oral examinations, students completed a perception of preparedness questionnaire rating themselves on a 4-point Likert scale. Data was evaluated to determine if relationships existed between performance on examination types, course grades, and perceptions of preparedness.
Results: Average performance on oral examinations was >90% in both the years and did not correlate to performance on the written examinations ($r = 0.12$, $r = 0.10$). Students felt "prepared" for both oral (3.00 ± 0.45) and written examinations (2.99 ± 0.14); however, performance on both oral ($r = 0.13$) and written ($r = 0.43$) examinations had minimal relationship to perception of preparedness. A relationship was seen between written examination scores and course grades. Benefits and limitations of the process are described.
Conclusion: While there was no relationship between performance on the oral and written examination, incorporation of a patient case-based oral examination in a therapeutics course offers an additional method of student assessment to reinforce students' clinical knowledge and skills. Utilizing an oral examination with additional focus on oral communication skills evaluation has been suggested for future research.

Keywords: Oral examinations; Second-year pharmacy students; Case-based learning

Introduction

Pharmacists must be able to contribute to the care of patients and to the profession by practicing with competence and confidence in collaboration with other healthcare providers. The practice of pharmacy requires the ability to perform an assessment of the patient's pharmacotherapy and high-level communication skills in order to implement the pharmacotherapeutic plan. The Center for the Advancement of Pharmaceutical Education (CAPE) Educational Outcomes highlights the need for strong patient-evaluation skills and effective communication in each section of the 2004 outcomes.[1] In order to achieve these outcomes, students must be given curricular opportunities to develop such skills. Although there are many opportunities for acquiring pharmacotherapy knowledge and communication skills in our Doctor of

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Pharmacy curriculum, a patient case-based oral examination in a therapeutics course had not been a component.

Standard 15 of the Accreditation Council for Pharmacy Education promotes using a variety of assessment techniques within the didactic coursework. The standard directly states that teaching and learning techniques should promote "knowledge base development, integration, application, and assessment of principles; critical thinking and problem solving."[2] Knowledge assessments in pharmacy schools have traditionally been either written or online examinations. Predictors of success have been based on written examinations in pre-pharmacy and basic science areas.[3,4] According to Abate et al., evaluative data can be acquired by a variety of means including oral or written examinations in coursework.[5] However, limited literature has been published to date on utilization of oral examinations in pharmacy schools.[6–9] The endpoints of oral examination research described in pharmacy education literature focus on students' opinion of the oral examination process with one study providing objective number examination scores and one utilizing a learning scale.[8,9] To our knowledge, nothing has been published to date on the use of an oral examination in a required, pharmacotherapy modular course or in regards to its relevance to other testing methods.

In other professional schools and training programs, especially in medicine and medical residency programs, multiple-choice questions have been supplemented by the use of oral examinations.[10,11] Medical professions have often utilized oral examinations in order to assess knowledge or skills in a particular area or the ability to think and respond quickly. It has been shown that preparedness for an examination is positively linked to an examinee's performance, and that assessment drives learning.[7,9,11]

We developed and implemented a patient case-based oral examination in a required therapeutics course in order to (1) encourage students to prepare for and reinforce the application of their cumulative pharmacotherapy knowledge to a multi-faceted patient case (2) to assess their ability to quickly construct an accurate verbal answer (3) provide an avenue of assessment other than the traditional written examination. It was our intent to evaluate the students' performance on an oral examination, how performance on an oral examination compared to a corresponding written examination, and the students' perception of preparedness for each type of examination corresponded to their performance.

Design

The Doctor of Pharmacy Program at the Mercer university College of Pharmacy and Health Sciences is a four-year program with approximately 140–150 students in each class. The first three years of the curriculum consist of didactic courses in a block scheduling structure with introductory pharmacy practice experiences scheduled throughout each semester coinciding with the students' Practice of Pharmacy courses (I through VI during the first six semesters). In addition to the Practice of Pharmacy courses, the first-year curriculum consists of basic science and social/administrative coursework and literature evaluation. The second and third years of the curriculum focus on the body-system and disease-based pharmacotherapeutic modules (13 modules). These pharmacotherapy modules focus on the pathophysiology of disease, medicinal chemistry of drugs, and therapeutics. During the fourth year, there are seven, six-week, advanced pharmacy practice experiences.

This oral examination process was designed and executed in a six-week Cardiovascular and Renal Disorders therapeutics course that was a required course in the second professional year of the curriculum. Course content included pharmacotherapy, patient assessment, clinical pharmacokinetics, social and behavioral aspects of medical management, and over-the-counter products related to the treatment of cardiovascular and renal disorders. The course format incorporated 80–90 hours of classroom time per week and comprised traditional classroom lecture (75%) and active learning (25%) including patient case discussions in a large classroom setting and weekly small group meetings (four to five students per group) for evaluation of a longitudinal case. Required course material included the textbook *Pharmacotherapy: A Pathophysiologic Approach*, class notes, and internet access for the online course management system (Blackboard® Campus Edition 6), and library resources.

By the second semester in the P2 year, students have had limited opportunity to be evaluated by means other than written examinations, student portfolio, or self-assessments. Therefore, we felt that by offering a unique method of evaluation, it would enhance their ability to perform. In addition, we felt such an oral examination would challenge the students' ability to think and respond quickly by verbally communicating their knowledge in a setting without multiple-choice questions or generous amounts of time to fabricate an answer. Therefore, in our course, students were assessed utilizing the following tools with the respective grade percentage listed: five written examinations (87%), individual oral examination (4%), unannounced quizzes and mini case assignments (5%), and a group presentation based on evaluation of a longitudinal patient case (4%).

The oral examination was scheduled approximately mid-course and covered material previously tested in written examinations via multiple-choice questions. This examination process was continued for two years, and during each year the students took both a written and an oral examination. The oral examination covered previously tested material in order to reinforce the student's application of cumulative knowledge and skill mid-course. The questions that composed the oral examination were generated from a course faculty-authored patient case. A blueprint for the development of this oral, case-based examination was developed each year and encompassed a maximum of five disease states and related pharmacotherapy. Course faculty carefully constructed the case and questions from the