INSTRUCTIONAL DESIGN AND ASSESSMENT

A Structured Approach for Teaching Students to Counsel Self-care Patients

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Objectives. To determine whether the use of a structured interviewing framework improved students' ability to treat self-care patients.

Design. First-professional year pharmacy students (P1) in their first quarter of *Pharmacy Practice Skills Development* were taught self-care through a series of 4 modules. In each module students' content knowledge and application were assessed using quizzes and role-play scenarios, respectively. During the second module, a structured interview model (QuEST process) was presented by the instructor and students were tested on the same content and role-play used in module 1.

Assessment. Sixty-four students completed the 4 self-care modules. Quiz scores improved from the first to the second module (75.8% vs. 88.4%, $p < 0.001$). Mean role-play scores also significantly improved after learning the QuEST process.

Conclusion. The QuEST process is an effective tool to teach students how to counsel patients with self-care issues.

Keywords: nonprescription medications, QuEST, self-care, active learning

INTRODUCTION

Assisting patients with self-care is an important component of pharmaceutical care and is an element of the practice standards of several professional pharmacy organizations.¹⁻³ Pharmacists are the most readily accessible health care providers to assist patients in nonprescription product selection and counseling. The use of nonprescription drug products by consumers is and will continue to be an essential component of the US health care system. More than 100,000 nonprescription drug products, containing approximately 1,000 active ingredients, are currently marketed in the United States.⁴ Almost 80% of Americans use a nonprescription product each year, which is twice the number of people who went to see their physician or who received a prescription medication⁴ underscoring the value and importance of the pharmacists' role in advising patients about their self-care choices.

Several US and European studies investigating the counseling effectiveness of pharmacists with self-care patients indicate that many pharmacists are not providing adequate self-care counseling for patients.⁵⁻¹¹ One

approach to address deficiencies in pharmacists' ability to effectively assist self-care patients is to ensure that pharmacy students receive adequate instruction on self-care during their pharmacy curriculum. Medication self-management counseling has been identified in the CAPE Outcomes that focus on pharmaceutical care and pharmacy practice.¹² Ninety-five percent of faculty members who responded to a survey about nonprescription curricula in US colleges of pharmacy indicated that nonprescription product therapeutics was included in their curriculum.¹³ In the same survey, over 80% of respondents indicated they teach students how to conduct a differential diagnosis by observation and an interviewing process.¹³ Students should be afforded the opportunity to practice self-care counseling and receive feedback on their performance. Therefore, faculty members may need to examine how they are teaching self-care counseling and evaluate the pedagogy that is being utilized.

At the University of Cincinnati College of Pharmacy (UCCOP), nonprescription product therapeutics is taught primarily in the *Pharmacy Practice Skill Development* (PPSD) course series. PPSD is a series of 4 performance-based courses for 4 quarters during the first-, second-, and third-professional years. In the *Skills Development* courses, the class is divided into small groups of 6-8 students who rotate through a different learning module each week. Self-care is one of the fundamental knowledge and skill areas taught in this course series.

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As initially constructed, students learned about nonprescription therapeutics in the first part of a nonprescription teaching module. However, faculty members teaching the module discovered that students had difficulty when asked to apply this knowledge in a counseling session with a faculty member posing as a self-care patient. Although they had been taught an informal nonprescription counseling approach, students' difficulty focused on remembering the questions to ask a patient to gain background information and analysis of the self-care issue. Students reported that they found interviewing methods previously taught based on the nonprescription textbooks cumbersome and overwhelming.

In order to seek an improved methodology for teaching self-care, a search of the literature was performed. Several self-care counseling methods or strategies were identified in the literature or from professional meetings. The WWHAM method is highly popular in England and programs have been developed by the National Pharmacy Association to train pharmacists and pharmacy staff in this questioning method.⁹ WWHAM is a mnemonic for remembering the assessment questions of **W**ho is the patient? **W**hat are his/her symptoms? **H**ow long have the symptoms been present? **A**ction already taken by the patient? and **M**edication already taken by the patient.⁹ The AS METTHOD has also been suggested in the European pharmacy literature as an assessment process that can assist pharmacists in questioning patients and improve pharmacists' ability to give the appropriate advice about self-care.¹¹ AS METTHOD is a mnemonic for **A**ge, **S**elf or someone else, **M**edicines taking, **E**xact symptom, **T**ime or duration of symptoms, **T**aken anything, **H**istory of diseases, **O**ther symptoms, and **D**oing anything to alleviate or worsen condition. McCallian purports that before recommending a nonprescription product, the patient's chief complaint and concomitant conditions should be analyzed by the pharmacist.¹⁴ Two methods to assist with this analysis are CHAPS-FRAPS and the more common Basic 7.¹⁴ CHAPS-FRAPS helps one to remember **C**hief complaint, **H**istory of present illness, **A**llergies, **P**ast medical history, **S**ocial history, **F**amilial history, **R**evue of other symptoms, **A**ssessments, **P**lan, and **S**OAP. The Basic 7 are location (where? What?), quality (what's it like?), severity, timing, context (how/cause?), modifying factors (better/worse?), and associated symptoms.¹⁴ Boyce recommends using a similar iteration of the Basic 7 within the context of the SOAP system (ie, subjective, objective, assessment, and plan) to help the patient with self-care.¹⁵ Finally, PQRST is a popular mnemonic used to communicate information about a patient's condition.¹⁶ Each letter in PQRST represents a step in the assessment of a patient's condition (eg, **P**al-

lation and provocation, **Q**uality and quantity, **R**egion and radiation, **S**igns and symptoms, **T**emporal relationship).¹⁶ However, each of these methods is incomplete in some area. Many do not include an evaluation of the patient's current health conditions and medications which could include valuable information affecting nonprescription medication selection or physician referral. Nor do they outline a process for recommending a drug product, discussing general care measures and counseling patients on important points for the nonprescription product.

The QuEST/SCHOLAR process is the most comprehensive self-care counseling process that was identified in our search (Table 1). It was developed by Leibowitz and Ginsburg, presented at an APhA Self-Care Institute, and subsequently published as a continuing education module by APhA.¹⁷ This interviewing framework guides the clinician to ask a series of questions with subsequent analysis in order to assess the patient's problem, establish that the patient is a self-care candidate, select the most appropriate nonprescription product along with general care measures, and counsel the patient on 5 aspects of their nonprescription medication. Therefore, faculty members decided to teach students the QuEST/SCHOLAR process as a counseling tool to use in applying information learned about nonprescription therapeutics to specific patient situations.

The purpose of this study was to determine whether the use of a structured, interviewing framework improved students' ability to counsel self-care patients. Specific research questions included the following: Does learning a structured interviewing process (eg QuEST) improve students' ability to counsel self-care patients? What are students' perceptions of their knowledge and ability to counsel patients to provide self-care?

DESIGN

QuEST is an acronym in which each letter represents a sequential step in the counseling process (Table 1) that was developed to standardize and improve the manner in which patients with self-care issues are treated.¹⁷ In the first step, objective information is obtained by asking the patient about current medications, chronic health conditions, and drug allergies. Subjective information about the patient's current complaint is gathered using SCHOLAR (**S**ymptoms, **C**haracteristics, **H**istory, **O**nsset, **L**ocation, **A**ggravating factors, **R**emitting factors). The second step in the QuEST process outlines 3 criteria that must be met for a patient to be considered a self-care candidate. A patient who fails to meet all 3 of these criteria is referred for further medical evaluation. The third step includes recommending nonprescription drug therapy as well as nonpharmacologic measures. The final step in this

Table 1. QuEST and SCHOLAR Process

Quickly and accurate assess the patient	Symptoms
Ask about current complaint (SCHOLAR)	What are the main and associated symptoms?
Ask about other medications and other products	Characteristics
Ask about coexisting conditions and allergies	What are the symptoms like?
Establish that the patient is an appropriate self-care candidate	History
No severe symptoms	What has been done so far?
No symptoms that persist or return repeatedly without an identifiable cause	Has this happened in the past?
No self-treating to avoid medical care	Onset
Suggest appropriate self-care strategies	When did it start?
Medication	Location
General care measures	Where is the problem?
Talk with the patient	Aggravating factors
About medication action	What makes it worse?
About administration	Remitting factors
About adverse effects and how to manage them	What makes it better?
About what to expect from treatment	
About appropriate follow-up	

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process includes counseling the patient about product selection and advice for follow up. Using this interviewing framework, the entire encounter with the patient typically takes 3 to 5 minutes.

First-year professional students in the first quarter of *PPSD I* completed 4 different nonprescription modules. Three instructors were involved in teaching these modules. Details of the focus of each module are listed in Table 2.

The prelaboratory assignment for OTC-1 was to read applicable chapters in the *Handbook of Nonprescription Drugs*¹⁸ and complete a series of handouts on their assigned reading. At the beginning of the module period, students were given a quiz to assess their knowledge of the self-care content contained within the prelaboratory assignment. Next, the instructor reviewed pertinent information from the reading assignment and other “clinical

pearls” using a lecture-based and interactive discussion format. Then, each student was engaged in a role-play scenario, which was videotaped. The instructor posed as a patient with a self-care issue related to OTC-1 topics. No feedback was provided to the learner at that time. The videotaped performance was evaluated post-hoc by one of the authors using a criteria-based checklist (see Figure 1). The evaluation was used for comparison only and was not part of the students’ final grade for the course.

Prior to the second *PPSD* module (OTC-2), students were instructed to review (1) a *PowerPoint* presentation on the QuEST process, (2) a written example of a pharmacist-patient nonprescription case scenario script using the QuEST process, and (3) readings and handouts from the OTC-1 therapeutics content. At the beginning of the module, students completed a different version of a quiz

Table 2. OTC Module Sequence in *Pharmacy Practice Skills Development I*

Module	Topics	Drug Classes
OTC-1	Headache, minor pain, dysmenorrhea, PMS, fever	Analgesics, anti-inflammatory agents
OTC-2	QuEST process	
OTC-3	Diarrhea, constipation, hemorrhoids, gastroesophageal reflux disease	Antacids, H-2 antagonists, proton pump inhibitors, local anesthetics, vasoconstrictors, protectants, astringents, corticosteroids, loperamide, bismuth subsalicylate, adsorbents, polycarbophil, bulk-forming agents, emollients, lubricants, saline laxatives, hyperosmotics, stimulants
OTC-4	Common cold, allergic rhinitis	Decongestants, antihistamines, antitussives, expectorants, local anesthetics, cromolyn

Student _____ Group _____

Self-Care/QuEST Evaluation	Rating			Possible
	Yes	No	N/A	Points
1. Did the student correctly characterize the patient's current problem using SCHOLAR? (Symptoms, Characteristics, History, Onset, Location, Aggravating/Remitting Factors)				10
2. Did the student ask about other medications the patient may be taking?				3
Prescription (1 pt)				
OTC (1 pt)				
Herbal (1 pt)				
3. Did the student ask about co-existing conditions?				3
4. Did the student ask about allergies?				3
5. Did the student establish that the patient is an appropriate self-care candidate?				
a. If determined not a self-care candidate, was pt referred to a physician for the correct reason?				10
Referred correctly (5 pt)				
Referred for right reason (5 pt)				
Referred correctly but also recommended product when shouldn't have (-5pt)				
b. If a self-care candidate, was an accurate self-care strategy recommended?				10
Medication (6 pts)				
General Care Measures (4 pt)				
6. Did the student counsel appropriately regarding the recommended product?				10
What Medicine is for (2 pt)				
Time to Therapeutic Effect / Relief (2 pt)				
Administration / Dosing (2 pt)				
Adverse Effects & How to Manage Them (2 pt)				
Follow-Up (2 pt)				

Student achieved ____ / ____ pts

Preceptor: _____ Date: _____

Figure 1. Self-Care/QuEST evaluation form.

covering the same material from OTC-1. Next, the instructor discussed the QuEST process and modeled another sample case, this time using the QuEST process. Each student was required to engage in a role-play scenario that dealt with an OTC-1 topic; however, this time they were instructed to use QuEST to guide their interviewing and decision-making process. Each student was given the same scenario they received in the OTC-1 module. The videotaped performances were reviewed with the student group (ie, 6-8 students) and verbal feedback was given on each role-play by the students' peers and the instructor. The instructors also completed a written evaluation of each role-play using the same criteria-based checklist as OTC-1. Students were assigned a grade for the module based upon their individual scores on the quiz and role-play. A score of 70% was considered a passing grade. During this first course (*PPSD I*), students completed 2 additional nonprescription drug modules on gastrointestinal topics and cough/cold/allergy issues. For each of these modules, students were presented new non-

prescription therapeutics information. Familiarity with the QuEST process was reinforced as students used QuEST when counseling patients with GI and cough/cold/allergy issues during the role-play scenarios of both modules.

At the beginning of the *Pharmacy Practice Skills Development* course series, students were given an orientation. During this orientation, students were surveyed to assess their confidence in identifying a self-care patient's problem, asking background questions, determining whether a patient needed physician referral, selecting a nonprescription product, and counseling on the selected product. During the last week of the course, an examination review was held for all students. During this time, the same questionnaire was administered a second time.

All quiz and role-play scores and survey data were entered into Microsoft *Excel* and then downloaded into *SPSS* (Version 12.0) for analyses. Pre- and postcourse survey means and standard deviations for each of the items were calculated. Student *t* tests were used to detect any differences between students' pre- and postcourse

scores for each of the 21-items on the survey instrument. Mean scores on quizzes and role-play exercises were compared using the student *t* test.

ASSESSMENT

Sixty-four students completed the 4 self-care modules. Mean scores on quizzes and role-play performances are listed in Table 3. There was an increase in content knowledge from self-care module 1 to self-care module 2 based on quiz scores (75.8% vs 88.4%, $p < 0.001$). Means scores on role-play are shown in Table 4. There was a significant difference in mean score between self-care module 1 (pre-QuEST) and self-care module 2 (post-QuEST) role-play performance (46.6% vs 81.6%, $p < 0.001$). There was a trend toward significant improvement in role-play performance between modules 2 and 4 (81.6% vs 85.4%, $p = 0.052$). However, there were no significant differences between role-play performances on self-care modules 2, 3, and 4. There was no correlation between improvement on quizzes and improvement on role-play from module 1 to module 2 ($p = 0.32$).

Table 5 lists pre- and postcourse mean scores of students' self-rating of confidence on self-care counseling issues. Before learning the QuEST process, students' confidence in their ability to identify a patient's drug allergy, medication, or disease states that could influence nonprescription product selection was low as demonstrated by their prescores on all domains. Students' perception of their ability to assist patients with self-care improved on all of the domains questioned. There was a significant improvement between pre- and postcourse scores for all statements in the self-confidence questionnaire.

DISCUSSION

Although a variety of self-care counseling strategies exist, the QuEST/SCHOLAR process has many advantages compared to the others. Although the WWHAM method guides a pharmacist to identify what symptoms are present and medications already taken, the QuEST process goes into much more detail with questions (eg, SCHOLAR) to identify what the problem is, the duration, any treatments already used, and any remitting or aggravating factors. Not only does this provide a more compre-

Table 4. First-Professional Year Pharmacy Students' Mean Role-Play Grades on Nonprescription Modules

Nonprescription Module	Quiz, Mean % (SD)
1	46.6 (16.7)
2	81.6 (13.5)
3	83.9 (13.0)
4	84.8 (11.7)

hensive picture of the chief complaint, but the SCHOLAR process is constructed with guiding questions to help elicit the information from the patient. Unlike the WWHAM method, the QuEST process also includes questions about the patient's individual medical history (eg, concomitant meds, disease, allergies) so that the pharmacist can use this information to guide product selection or physician referral. Additionally, the QuEST includes a structure for counseling the patient on important aspects of the nonprescription medication (eg, administration, adverse effects, follow up) as well as reminding the student to discuss general care measures that can be used in conjunction with pharmacological treatment. Although the CHAPS-FRAPS and Basic 7 are self-care counseling techniques that include analysis of patient-specific factors, they do not address when a patient should be referred nor counseling points for the product selected.

In our assessment of student learning in self-care, the mean quiz score for each of the 3 nonprescription modules was above 70%, indicating that students had sufficient content knowledge of each of the nonprescription therapeutic areas. Before learning the QuEST process, students showed that they were ineffective at counseling as demonstrated by an average score of less than 50% on role-playing exercises. Learning the QuEST process improved students' ability to elicit important patient information in a consistent manner. On average, students' ability to counsel improved 35 percentage points after learning and utilizing the QuEST process during role-playing, demonstrating that knowledge of nonprescription therapeutic content, plus a structured approach to interviewing, results in effective counseling.

We anticipated that as students had opportunities to continue to practice using the QuEST process with feedback, their role-playing performance in the modules on treatment of gastrointestinal (GI) complaints and cold symptoms (OTC-3 and OTC-4) would continue to improve, resulting in higher scores than for OTC-2. However, we did not account for the difficulty students encountered with learning the therapeutic content for the GI module. This difficulty may be due to the quantity of information (ie, 15 classes of medications for 4 syndromes) or the first-year students' limited background in pathophysiology and

Table 3. First-Professional Year Pharmacy Students' Mean Quiz Grades on Nonprescription Modules

Nonprescription Module	Quiz, Mean % (SD)
1	75.8 (12.7)
2	88.4 (11.1)
3	75.0 (15.5)
4	87.7 (9.9)

Table 5. First-Professional Year Pharmacy Students' Pre- and Postcourse Mean Scores on Questionnaire of Self-Confidence Regarding Nonprescription Counseling Issues

	Precourse Score	Postcourse Score	P
1. I can accurately identify a patient's problem.	2.6 (0.9)	3.8 (0.6)	<0.001
2. I can consistently ask about a patient's medical conditions, allergies, and concurrent medications.	3.4 (0.9)	4.6 (0.5)	<0.001
3. I can correctly determine whether a patient can self-treat with an OTC product or should be referred to their physician.	2.5 (1.3)	3.9 (0.6)	<0.001
4. I can recommend product(s) that will address all of a patient's symptom(s).	2.2 (1.0)	3.9 (1.0)	<0.001
5. I can accurately counsel a patient on an OTC product.	2.2 (.9)	3.7 (0.8)	<0.001
6. I can accurately counsel a patient on what a specific OTC medication is for.	2.8 (1.3)	4.1 (0.7)	<0.001
7. I can accurately counsel a patient on how to take a specific OTC medication.	2.8 (1.0)	4.0 (1.0)	<0.001
8. I can accurately counsel a patient on when they should start seeing a benefit from a specific OTC medication.	2.2 (.8)	3.6 (1.0)	<0.001
9. I can accurately counsel a patient on adverse effects that may occur with a specific OTC medication.	2.2 (.9)	3.5 (.7)	<0.001
10. I can accurately counsel a patient on when to follow up with their physician after recommending an OTC medication.	2.3 (1.2)	3.9 (.7)	<0.001
11. I can identify drug allergies that affect product selection for a self-care patient.	2.1 (1.3)	3.6 (1.0)	<0.001
12. I can identify medications a patient may be taking that affect product selection for a self-care patient.	2.0 (.9)	3.4 (0.8)	<0.001
13. I can identify concomitant disease states that affect product selection for a self-care patient.	2.0 (.9)	3.5 (0.8)	<0.001
14. I can describe patient specific factors that influence the selection of an OTC product and the dosage form.	2.2 (.9)	3.7 (0.6)	<0.001
15. I can recommend the appropriate product for any patient with cold symptoms.	2.6 (1.0)	4.1 (0.5)	<0.001
16. I can recommend the appropriate product for any patient with constipation.	2.7 (1.0)	4.1 (0.7)	<0.001
17. I can recommend the appropriate product for any patient with pain.	2.9 (1.2)	4.3 (0.5)	<0.001
18. I can recommend the appropriate product for any patient with diarrhea.	2.7 (1.0)	4.1 (0.6)	<0.001
19. I can recommend the appropriate product for any patient with dysmenorrhea.	2.1 (1.1)	4.0 (0.6)	<0.001
20. I can recommend the appropriate product for any patient with fever.	2.9 (1.0)	4.2 (0.6)	<0.001
21. I can recommend the appropriate product for any patient with inflammation.	2.7 (1.0)	4.2 (0.5)	<0.001

1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

pharmacology. This increased difficulty resulted in a reduction in mean nonprescription therapeutic knowledge for GI content (eg, 75% mean quiz score). Despite this, the average score on role-playing for this module increased.

Students' confidence in their knowledge and ability to counsel self-care patients increased on all domains after learning nonprescription product therapeutics

and the QuEST process. The largest increases in students' confidence were in their ability to counsel on a specific nonprescription medication and selecting an appropriate product for a patient with a cold, constipation, or dysmenorrhea. Even before learning anything about nonprescription medications and self-care, students were most confident in their ability to ask a patient

about their medical conditions, allergies, and concurrent medications.

A few challenges were encountered when designing the methodology of this study. When comparing the role-play performance of students before and after learning the QuEST process, we felt it was important to control the nonprescription therapeutic knowledge as a confounding factor. Our approach was to have the students role-play cases dealing with similar therapeutic issues (eg, analgesia, inflammation) in order to focus on their ability to apply the counseling structure to a patient counseling session. We also tested their nonprescription therapeutic knowledge before these role-playing performances to examine whether nonprescription knowledge was correlated with their role-playing performance. Although quiz scores representing students' nonprescription therapeutics knowledge did improve from the OTC-1 module (pre-QuEST) to the OTC-2 module (post-QuEST), the large increase in role-playing performance scores cannot be entirely explained by the small increase in nonprescription therapeutic knowledge. In fact, a significant correlation was not found between the increase in quiz scores and the increase in role-playing performance from the OTC-1 module to OTC-2 module. Another issue to address was that multiple faculty members were involved in teaching and grading these 4 nonprescription modules. Although the QuEST evaluation form is quite structured and well-defined, there was a possibility that interrater variability could have been an issue. To address this, 2 instructors (SB, JK) evaluated a sample of the videotaped student role-play performances in order to establish consistent evaluation practices. Any discrepancies in grading were discussed until consensus was reached.

CONCLUSION

This study demonstrated that the use of a structured interview framework can improve students' ability to provide self-care counseling to patients. Students who learned the QuEST process improved their abilities to elicit important patient information in a consistent manner and to include all major elements of counseling self-care patients in 3 role-play scenarios. Students' self-confidence regarding their ability to counsel patients to provide self-care improved in 21 out of 21 parameters evaluated.

Further study is needed to determinate whether QuEST is more effective than other counseling strategies when studied in a controlled, systematic manner. Additionally, it would be beneficial to look at individual components of the QuEST process to determine whether students consistently perform or underperform on specific steps (eg, self-treat or referral) or if deficiencies in performance vary from role-play to role-play. The ultimate test for the QuEST process would be whether

students maintain their ability to effectively counsel self-care patients 2 or more years later when they begin their advanced practice experiences and subsequently/ultimately enter community pharmacy practice.

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