

## RESEARCH ARTICLES

# Pharmacy Students' Perceptions of Pharmaceutical Care in Retail and Clinic Settings

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**Objectives.** To determine whether completion of a patient counseling course improved pharmacy students' perceptions of the importance of pharmaceutical care and whether there was a difference in students' perceptions of pharmaceutical care provided in retail settings compared to that provided in clinic settings.

**Methods.** A pre-course and post-course survey instrument was designed to measure students' perceptions of the importance of pharmacists' performing 20 items describing pharmaceutical care. Also, each student wrote a technical report describing a counseling encounter observed between a pharmacist and a patient. This report was subject to content analysis.

**Results.** After taking a patient counseling course, students perceived five out of 20 pharmaceutical care tasks performed by pharmacists to be most important. Also, student analyses of pharmacist/patient interactions indicated that barriers to communication were fewer, students' experiences were more educational, and privacy, monitoring and assessment were better in clinic settings. According to students' perceptions, the application of pharmaceutical care was different between clinic and retail settings.

**Conclusions.** Therefore, teaching the concept of pharmaceutical care and incorporating it into a patient counseling course is more educational when a clinic setting is used.

**Keywords:** pharmaceutical care, patient counseling, clinic, community pharmacy

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## INTRODUCTION

Pharmaceutical care has been described as a multifaceted process that results in positive outcomes for patients through identification, resolution, and prevention of drug-related problems.<sup>1</sup> For many years, pharmacists have been in transitional roles, moving toward a target of providing pharmaceutical care. Through strategic planning, pharmacy schools anticipated this transition and have begun preparing students for evolving professional roles with more patient-centered care and counseling, expanded drug use monitoring, appropriate drug selection, and responsibility for patient outcomes.

Pharmacy schools have a duty to provide pharmaceutical care education for students regardless of future practice settings since the fundamental elements exist in a variety of settings.<sup>1</sup> Teaching methods should be designed to instruct students how to provide pharmaceutical care with a process to evaluate students' ability to provide this care.<sup>2</sup> Projects implemented to evaluate the provision of pharma-

ceutical care in simulated settings have been described in the literature.<sup>3</sup>

Although pharmacy students are taught in the classroom, students should also be exposed to practice environments at an early stage in their curriculum. This will help empower them to practice in covenant relationships with patients. A national survey distributed to pharmacy school faculty who teach communication revealed that the most innovative programs teach communication skills early, with additional courses to integrate and reinforce communication throughout the curriculum.<sup>4</sup> Furthermore, the respondents in the survey valued the use of real patients and practitioners to assist in teaching communication skills. This allowed students to view their learning experience within the context of actual pharmacy practice.

While pharmacy school educators are preparing graduates for greater roles in patient care, students may develop frustration because of a possible mismatch between what is taught and how pharmacists practice.<sup>5</sup> Some students may not perceive the value of education centered on pharmaceutical care in different practice environments. The attitudes and skills of pharmacists themselves may serve as barriers to providing pharmaceutical care.<sup>6</sup> Phar-

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macy school educators are countering this perception of pharmaceutical care as an ideal and not a reality by exposing students to experienced practitioners who practice in a variety of settings and by using actual patients in the classroom.<sup>4,7</sup> It is important to consider whether students' perceptions and observations validate teaching of pharmaceutical care when students are introduced to different practice environments early in the pharmacy school curriculum.

Exposure of students to innovative practice models may foster development of those models.<sup>5</sup> This is a concept that is practiced in other health care professions, such as medicine and dentistry.<sup>8-10</sup> Learning patient care concepts by modeling preceptors prepares students to care for patients in a realistic practice environment. Students perform better and with increased productivity compared with their performance in a laboratory setting.<sup>10</sup>

This research was designed to examine how pharmacy students perceive the importance of pharmaceutical care and to compare these perceptions between retail and clinic practice settings. Also, students' perceptions concerning the importance of 20 aspects of pharmaceutical care were measured before and after a patient counseling course.

## **METHODS**

This study was designed to determine whether completion of a patient counseling course improved pharmacy students' perceptions of the importance of pharmaceutical care and to determine whether there was a difference in students' perceptions of pharmaceutical care provided in retail settings compared to that provided in clinic settings.

The first objective was addressed using a single-group, before-after study design. A pretest was administered to 81 second-year Doctor of Pharmacy students who were enrolled in the Patient Counseling and Communication course (PHAR 385). An outline of the topics covered in this course is included as Appendix 1. The objective of this course was for students to understand the principles and techniques of communication applicable to pharmacy practice. All pharmacy students enrolled at The University of Louisiana at Monroe are required to complete this course in their second year of professional school.

A survey instrument was designed to measure students' perceptions of the importance of pharmacists' performing 20 items describing pharmaceutical care. A pretest was administered during the first week of classes during the Fall 2001 semester. A Likert scale measuring the level of importance was used, with "1" equaling "unimportant" and "4" equaling "very important." A posttest using the same items was administered to students during the last week of classes in December 2001.

For the second objective, each student was assigned to write a technical report following a prescribed outline describing a counseling encounter observed between a phar-

macist and a patient. A counseling encounter was defined as one-to-one interpersonal communication between a pharmacist and a patient concerning the patients' medical condition and/or prescription for medication. Students were required to schedule an appointment with a pharmacist before observing the encounter. For the observation, each student selected either a retail or clinic pharmacy practice setting. Forty-seven students observed a pharmacist in a retail setting and 34 observed a pharmacist in a clinic setting. A retail setting was operationally defined as a chain or independent pharmacy where prescriptions for pharmaceuticals were filled and dispensed. Pharmacy students who already served as interns for a retail pharmacy were allowed to observe at the practice site where they worked. The alternate setting was an ambulatory care clinic. Students who self-selected a clinic pharmacy practice setting had a choice of observing a pharmacist in either the anticoagulation clinic or the diabetes-care clinic.

The pharmacists who conducted both clinics were independently responsible for providing primary care. They maintained care of patients between regularly scheduled physician appointments. This care included obtaining patient history information, conducting a physical assessment, ordering or performing laboratory tests, manipulating drug therapy, and scheduling follow-up visits. None of the pharmacy students who chose to observe either of the ambulatory care clinics had ever been exposed to this type of practice setting.

Students' technical reports were graded based on completeness of the assignment. The reports were later analyzed using content analysis methodology. Students were not aware of the methodology used in this study. Although content analysis has been used in the social sciences to identify trends within the discipline, it has also been used to assess literature that relates to controversial medical issues.<sup>11-14</sup> Specifically within the field of medicine, content analysis has been used to identify whether controversial scientific papers use language that is factual or emotional.<sup>11</sup> This methodology has also been used to analyze written messages to physicians from third year pharmacy students regarding alternative drug therapy recommendations.<sup>15</sup>

## **Pharmaceutical Care Variables**

Each pharmaceutical care variable was operationally defined as part of content analysis methodology. The following variables were considered components of counseling sessions between pharmacists and patients that would most likely occur in both types of practice settings. The variables were extracted from research literature on the core elements of pharmaceutical care, including the provision of drug information, education, and monitoring of drug therapy outcomes.<sup>1-4,16</sup>

Students were required to describe the following as-

pects of the counseling sessions between pharmacists and patients using a preset outline that related to these variables:

- Barriers to communication: physical and emotional barriers to communication, such as the check-out register, noise, hearing impairment, etc;
- Dosing and directions: pharmacist counseling on dosing and directions for medications, taking medications with or without food, and specific drug/food interactions, drug/drug interactions, and/or drug/disease state interactions;
- Educational experience: the educational value of observing the counseling session from a pharmacy student perspective and whether they learned anything from their observation;
- Monitoring and assessment: The pharmacists' monitoring of the disease condition of the patient and their assessment of any tests that had been conducted;
- Use of open-ended questions: The pharmacist's use of open-ended questions (those starting with words such as "What, How, or Why") to assess the patients' knowledge of their drug therapy.
- Privacy during the counseling session: the privacy of the counseling sessions (excluding any student observers) and whether designated counseling areas.

### **Content Analysis**

- Students' technical reports of the counseling sessions they observed between pharmacists and patients were evaluated by a graduate student using content analysis of the technical reports according to a prescribed content analysis methodology. A sample of 10 reports was analyzed again 30 days after the initial coding. Intra-rater reliability was 100%. The data were entered in Access 2000® and were analyzed using Statistix, Version 7.0® Wilcoxon Rank Sum Test with an alpha level of 0.05. Using the operational definition each variable, coding was as follows: Barriers to Communication: Coded (yes or no) for the presence or absence of barriers to communication, physical or emotional.
- Dosing and Directions: Coded (yes or no) whether or not there was counseling on dosing and directions for medications, on taking medications with or without food, and on specifics regarding drug/food interactions, drug/drug interactions, or drug/disease state interactions.
- Educational Experience: Each report was coded as containing one of the following patterns:
  - o The student stated that they were disappointed with the counseling session that

they observed.

- o The student was satisfied with the counseling session but stated that it needed improvement or listed some ways that the counseling session could be improved.
- o The student liked what they saw and did not mention any ways to improve the session.
- Monitoring and Assessment: Monitoring of the disease condition of the patient and assessment of any tests conducted (yes or no).
- Use of Open Ended Questions that started with "What, How, or Why" or if the student stated that open-ended questions were used (coded yes or no).
- Privacy During the Counseling Session: Each report was coded as containing one of the following patterns:
  - o The student did not mention privacy.
  - o The session was not private at all. The student either mentioned this as a fact or stated that the counseling session took place through a "drive-through-window" or near a cash register.
  - o The session was semi-private but still had the possibility of other persons observing or listening to the session.
  - o The counseling session took place in a private room.

## **RESULTS**

### **Objective 1**

Of the 20 pharmaceutical care activities listed, 5 were considered by students to be significantly more important at the end of a course on patient counseling. Table 1 shows the beginning and ending ranking of each of the items included in the study. Of these 20 items, 9 had a pretest mean score of 3.5 or greater on the 4-point Likert scale. Those items on which students placed significantly greater importance at the end of the semester were the following:

- providing follow-up services for drug therapy,
- performing limited physical examinations including obtaining vital signs in order to initiate, monitor, and adjust drug therapy,
- obtaining laboratory tests or other medical records in order to adequately counsel the patient regarding changes in drug therapy,
- accessing patient medical records to adequately document all patient care activities provided by the pharmacist, and
- detecting nonverbal cues in others.

Not all scores were higher at the end of the semester. The students ranked five of the items as having less

Table 1. Results of pretests (N=80) and posttests (N=71) measuring the importance of pharmaceutical care activities performed by pharmacists

<b>The pharmacists ability to:</b>	<b>Pretest Mean</b>	<b>Posttest Mean</b>	<b>P</b>
Identify expected outcomes of drug therapy	3.80	3.72	0.3041
Select parameters of patient care to monitor	3.46	3.42	0.6704
Provide follow-up services for drug therapy	3.31	3.61	0.0039*
Perform limited physical exams	2.86	3.17	0.0380*
Obtain lab records	3.11	3.49	0.0015*
Discuss patient with physician	3.75	3.63	0.1574
Interview patients	3.66	3.73	0.4924
Access to patient records	3.39	3.62	0.0475*
Make dose adjustments	3.20	3.32	0.3023
Provide complete drug therapy information	3.91	3.94	0.4601
Have accurate info on all meds currently taken by patient	3.78	3.83	0.4289
Have info on otc's	3.78	3.75	0.7201
Receive compensation for all activities related to patient care	2.99	3.18	0.0616
Communicate with other members of health care team	3.54	3.66	0.1705
Recognize patient personality traits	3.20	3.25	0.6631
Detect nonverbal cues	3.11	3.41	0.0052*
Listen to patients	3.83	3.86	0.6305
Manage conflict	3.43	3.59	0.1478
Use assertiveness effectively	3.45	3.58	0.1666
Communicate with special patients	3.81	3.77	0.0718

1=unimportant; 2 = somewhat important; 3 = important; 4 = very important

\* significant at alpha 0.05.

importance than at the beginning of the semester although this change was not statistically significant. Those items were:

- identifying expected outcomes of drug therapy,
- selecting parameters of patient care to monitor,
- communicating to the patient's physician changes in drug therapy,
- having an accurate and complete list of all medications taken by the patient, including over-the-counter and prescription medications, and
- communicating with special patients.

### Objective 2

The results of content analysis of the students' technical reports showed that 4 of the 6 pharmaceutical variables included in this part of the study were practiced in clinic settings more than in retail settings. Specifically, those items were:

- fewer barriers to communication,
- better educational experience,
- more privacy during the counseling session, and
- more monitoring and assessment of patients' condition.

The results of Wilcoxon Rank Sum Test using Statistix, Version 7.0® are included in Table 2.

Table 2. Comparison of retail and clinic pharmaceutical variables.

<b>Variable</b>	<b>Mean Rank</b>		<b>P</b>
	<b>Retail</b>	<b>Clinic</b>	
Barriers to communication	45.8	34.4	0.0110*
Dosing and directions	41.5	40.3	0.2498
Educational experience	33.9	50.9	0.0001*
Monitoring and assessment	26.9	60.5	0.0000*
Use of open-ended questions	37.9	45.4	0.0707
Privacy during counseling	31.5	54.1	0.0000*

\*significant at alpha 0.05.

Note: Mean rank values indicate the presence of the variable in the observed setting.

### DISCUSSION

The finding that only 5 of 20 pharmaceutical care variables were considered by students to be more important at the end of the semester may be explained by the fact that many of these activities already were rated as highly important by the students at the beginning of the semester; thus further raising the level of importance as perceived by the students was difficult to accomplish. In addition to the items included in the course outline, students learned the importance of follow up, performing physical assessments, using laboratory tests results, having access to patient records, and detecting nonverbal cues as an important part of pharmaceutical care.

Content analysis of technical reports was used to compare pharmaceutical care employed in different practice settings as perceived by pharmacy students. However, several limitations to the study may have resulted from using two different ambulatory care clinics for student observation. Differences in the clinic settings included patient population served, diseases monitored (ie, diabetes versus anticoagulation care), age of the patient population, and pharmacists' interactions with patients' physicians (ie, independent versus onsite physicians).

Also, ambulatory care clinics reflect a continuum of care, while patients in retail settings interact with pharmacists in a limited (ie, one-time) counseling and dispensing process. This inherent difference in practice sites may have also skewed the results of the study. For example, care for patients in the clinic setting may not require an extensive counseling session with open-ended questions if that particular patient had been seen by the pharmacist several times already. Furthermore, clinic settings require that pharmacists focus on each patient's unique problem instead of following the standard counseling and dispensing process that occurs in retail settings.

Further limitations may also be inherent in the study since a comparison among the different retail settings could not be made. Since the students were allowed to choose the retail setting in which to complete the project, variations in prescription volume, whether the pharmacy was adequately staffed, and customer demographics could have influenced the outcomes reported in the technical reports. All of these factors have the potential to increase barriers to communication. Furthermore, previous exposure to a particular retail setting could have introduced either a positive or negative bias.

Specifically, more students who observed the retail pharmacy environment identified a lack of privacy in this setting. Inadequate privacy has been identified in the literature as an impediment in the delivery of pharmaceutical care in the retail setting.<sup>17</sup> Indeed, several of the technical reports of retail settings explicitly stated that the common practice of conducting the patient interview through the drive-through window or to the side of the check-out counter was a barrier to patient care. Students recognized the importance of decreasing barriers in order to achieve good communication. Although communication is just one component in the provision of pharmaceutical care, it has been associated more frequently with patient satisfaction.<sup>18</sup>

The students' perceptions that clinics offered a better educational experience could be explained because these settings may allow for the creation of a learning climate where the teaching encounter is planned in advance.<sup>19</sup> Preceptors can create a learning environment within a

clinic setting by selecting patients that match the abilities of the student and by briefing the student on the patient's relevant history prior to the encounter. Preceptors can also model caring attitudes and behaviors, values, and patterns of thinking in addition to clinical practices.<sup>20,21</sup> Furthermore, students exposed to such a learning environment may begin to understand the relevance of the breadth of material taught in the curriculum. For example, one student stated in the technical report that the fast pace and structure of the clinic experience made her aware of the preparation that would be needed to take care of patients in the future.

## CONCLUSIONS

At the end of a semester course on patient counseling and communication, students rated only 5 of 20 pharmaceutical care activities performed by pharmacists as having higher importance than at the beginning of the semester. When comparing retail and clinic settings for observation of pharmaceutical care activities, students perceived the application of 4 of 6 pharmaceutical care variables as more significant in clinic practice settings. Specifically, the students noted fewer barriers to communication, more privacy during counseling, and greater monitoring and assessment in the clinic practice setting. Those students also reported having a better educational experience than students who conducted their observation in a retail pharmacy setting. The pharmaceutical care variables that did not appear to differ significantly between retail and clinic settings were pharmacist's explanation of dosing and provision of directions to the patient, and the pharmacist's use of open-ended questions.

Although the specific components of pharmaceutical care and pharmacy care standards and how they are applied may vary from setting to setting, the results of this study do not imply that pharmacists serving in retail environments lack the ability to provide quality pharmaceutical care. Pharmaceutical care can be practiced in a variety of settings including outpatient care, clinic and retail settings, and inpatient care.<sup>1</sup> In order to enhance clinical skills among pharmacists practicing in retail environments, a number of training programs and workshops have been developed.<sup>22-24</sup> The clinical skills targeted for improvement, such as analyzing drug and disease information, identifying drug-related problems, and collecting pertinent patient information, are the ones most often used in actual pharmaceutical practice.<sup>22</sup>

## REFERENCES

1. Hepler CD, Strand LM. Opportunities and responsibilities in pharmaceutical care. *Am J Hosp Pharm.* 1990;47:533-43.
2. Cipolle RJ, Strand LM, Morley PC. *Pharmaceutical Care Practice.* New York, NY: McGraw-Hill Companies; 1998.

3. Isetts BJ. Evaluation of pharmacy students' abilities to provide pharmaceutical care. *Am J Pharm Educ.* 1999;63:11-20.
4. Beardsley RS. Communication skills development in colleges of pharmacy. *Am J Pharm Educ.* 2001;65:307-14.
5. American College of Clinical Pharmacy Clinical Practice Affairs Subcommittee, MS Maddux (Chair) A vision of pharmacy's future roles, responsibilities, and manpower needs in the United States. *Pharmacotherapy.* 2000;20:991-1022.
6. Farris KB, Kirking DM. Predicting community pharmacists' intention to try to prevent and correct drug-therapy problems. *J Soc Admin Pharm.* 1995;2:64-79.
7. Chisholm MA, Wade WE. Using actual patients in the classroom to develop positive student attitudes toward pharmaceutical care. *Am J Pharm Educ.* 1999;63:296-9.
8. Hekelman FP, Blase JR. Excellence in clinical teaching: the core of the mission. *Acad Med.* 1996;71:738-42.
9. Usatine RP, Nguyen K, Randall J, Irby DM. Four exemplary preceptors' strategies for efficient teaching in managed care settings. *Acad Med.* 1997;72:766-9.
10. Green TG, Klausner LH. Clinic simulation and preclinical performance. *J Dent Educ.* 1983;47:666-70.
11. DeVilliers FPR. The use of content analysis in the assessment of medical controversies. *Medical Hypotheses.* 1991;36:351-5.
12. Dimitroff A, Davis WK. Content analysis of research in undergraduate medical education. *Acad Med.* 1996;71:60-7.
13. Berelson B. *Content Analysis in Communication Research.* New York, NY: Free Press;1952.
14. Budd RW, Thorp RK, Donohew L. *Content Analysis of Communications.* New York, NY: MacMillan; 1967.
15. Lambert BL. Directness and deference in pharmacy students' messages to physicians. *Soc Sci Med.* 1995;40:545-55.
16. Carmichael JM, O'Connell MB, Devine B, Kelly HW, Ereshefsky L, Linn WD, Stimmel GL. Collaborative drug therapy management by pharmacists. *Pharmacother.* 1997;17:1050-61.
17. Amsler MR, Murray MD, Tierney WM, Brewer N, Harris LE, Marrero DG, Weinberger M. Pharmaceutical care in chain pharmacies: beliefs and attitudes of pharmacists and patients. *J Am Pharm Assoc.* 2001;41:850-5.
18. Reid LD, Wang F, Young H, Awiphan R. Patients' satisfaction and their perception of the pharmacist. *J Am Pharm Assoc.* 1999;39:835-842.
19. Brady D, Schultz L, Spell N, Branch WT. Iterative method for learning skills as an efficient outpatient teacher. *Am J Med Sci.* 2002;323:124-9.
20. Bowen JL, Carline J. Learning in the social context of ambulatory care clinics. *Acad Med.* 1997;72:187-90.
21. Fjortoft NF, Zgarrick DP. Developing the care in pharmaceutical care. *Am J Pharm Educ.* 2001;65:335-9.
22. Farris KB, Kassam R, Cox CE, Volume CI, Cave A, Schopflocher DP, Tessier G. Evaluation of a practice enhancement program to implement pharmaceutical care. *Am J Pharm Educ.* 1999;63:277-84.
23. Curie JD, Chrischilles EA, Kuehl AK, Buser RA. Effect of a training program on community pharmacists' detection of and intervention in drug-related problems. *Am Pharm.* 1997;NS37:182-91.
24. Mehra IV, Wuller CA. Evaluation of a pilot clinical skills workshop series for community pharmacists. *Am J Pharm Educ.* 1998;62:136-41.

#### Appendix 1. Course Outline for Patient Counseling and Communication

- I.** Introduction to Counseling and Communication
  - A. Course Format
  - B. Objectives
  - C. Pharmaceutical Care
- II.** What is Communication?
  - A. The Interpersonal Communication Model
  - B. Terminology Associated with Communication
  - C. Interactive Patient Counseling Model
- III.** Forms of Communication
  - A. Perceptual Communication
  - B. Nonverbal Communication
  - C. Detecting Nonverbal Cues in Others
- IV.** Factors Affecting Communication
  - A. Literacy
  - B. Psychogeometrics
  - C. Transactional Analysis
- V.** Listening and Empathy
  - A. Styles of Listening
  - B. Summarizing and Paraphrasing
  - C. Reflection of Feelings
  - D. Facilitating
- VI.** Conflict and Confrontation Skills
  - A. Dealing with the Angry Patient
  - B. Assertiveness
- VII.** The Patient Interview
  - A. Counseling for Compliance
  - B. Communicating with Special Patients
  - C. Exercises in Patient Counseling