

บทบาทของร้านยาของมหาวิทยาลัยในการให้บริการเภสัชกรรมและการฝึกประสบการณ์วิชาชีพเภสัชกรรม

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Roles of of University's Pharmacies in Pharmaceutical Services and Pharmaceutical Clerkships

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หลักการและวัตถุประสงค์: คณะเภสัชศาสตร์ในประเทศไทย 12 แห่ง จัดตั้งร้านยาของมหาวิทยาลัยเพื่อให้บริการเภสัชกรรมให้กับชุมชนและฝึกประสบการณ์วิชาชีพเภสัชกรรมให้นักศึกษาคณะเภสัชศาสตร์ การศึกษานี้จึงทำการสำรวจความพึงพอใจของนิสิตนักศึกษาที่เคยฝึกปฏิบัติงานในร้านยาของมหาวิทยาลัย และลูกค้าที่เคยรับบริการเพื่อหาข้อมูลสำหรับการปรับปรุงการบริการในรูปแบบเครือข่ายต่อไปในอนาคต

วิธีการศึกษา: เป็นการศึกษาเชิงพรรณนาด้วยการเก็บข้อมูลจากแบบสอบถามในช่วงเดือนมกราคมถึงเดือนมีนาคม 2554 ที่ร้านยาของมหาวิทยาลัยจำนวน 12 แห่ง ด้วยการเลือกกลุ่มตัวอย่างแบบสะดวกจากลูกค้าและนิสิตนักศึกษาเภสัชศาสตร์ชั้นปีที่ 4-5 ที่เคยมีประสบการณ์การฝึกปฏิบัติงานในร้านยาของมหาวิทยาลัย จากนั้นนำข้อมูลมารวมและวิเคราะห์ร่วมกัน

Background and objective: Twelve faculties of pharmacy in Thai universities have their own pharmacies with the primary focus to provide pharmaceutical practice to public and provide professional experience training for pharmaceutical students. This study aimed to evaluate satisfaction of pharmaceutical students and customers to improve services and missions of collaborative network in future.

Method: The descriptive survey from questionnaires collected during January to March 2010 at 12 university's pharmacies. Study participants were convenient selected from customers and pharmaceutical students either in the 4th - 5th year in pharmaceutical program. The results were pulled and analyzed by co-ordinated researchers.

Results: Two hundred and forty-four pharmaceutical students, majority were females with the average age

ผลการศึกษา: นิสิตนักศึกษาเภสัชศาสตร์ 244 ราย ส่วนใหญ่เป็นเพศหญิงอายุเฉลี่ย 23.7 ± 3.4 ปี รู้สึกพอใจมากกับการได้เลือกยาที่มีคุณภาพความปลอดภัยและเน้นการสร้างเสริมสุขภาพให้กับผู้ป่วย รวมทั้งรู้สึกพอใจกับความรู้และประสบการณ์อภิปรายกับอาจารย์ผู้สอนที่หลากหลายในร้านยาของมหาวิทยาลัยแต่ก็กังวลกับการประเมินผลการฝึกปฏิบัติงานด้วย การฝึกปฏิบัติงานที่รู้สึกพึงพอใจน้อยที่สุดเมื่อเปรียบเทียบกับข้ออื่น คือ การบันทึกประวัติผู้ป่วยโรคเรื้อรัง ถูกคำตอบแบบสอบถามทั้งหมด 397 ราย ทั้งหมดรู้สึกพึงพอใจมากกับการแต่งกายและบุคลิกภาพของเภสัชกรประจำร้าน แต่มีความรู้สึกพึงพอใจน้อยกับสิ่งสนับสนุนงานบริการเภสัชกรรม เช่น เครื่องวัดความดันโลหิต

สรุป: นิสิตนักศึกษาที่ฝึกปฏิบัติงานในร้านยาของมหาวิทยาลัยมีความพึงพอใจต่อการได้เลือกยาที่มีประสิทธิภาพและปลอดภัยให้กับผู้ป่วย แต่ยังคงกังวลกับการถูกประเมินผลจากอาจารย์เภสัชกรที่หลากหลายและอยากให้เพิ่มโอกาสในการฝึกปฏิบัติงานเยี่ยมบ้านผู้ป่วย ลูกค้าร้านยาของมหาวิทยาลัยมีความพึงพอใจมากต่อการบริการและการให้บริการของเภสัชกรแต่บางมหาวิทยาลัยอาจจะต้องเพิ่มอุปกรณ์ในการให้บริการทางเภสัชกรรม เช่น เครื่องวัดความดันโลหิตในอนาคตเครือข่ายร้านยาของมหาวิทยาลัยอาจจะวางแผนการทำแนวทางปฏิบัติที่สอดคล้องกันเพื่อเพิ่มมาตรฐานและทักษะการปฏิบัติงานให้กับนิสิตด้วย

of 23.7 ± 3.4 years old, showed strongly satisfaction on practice of selecting quality and safety medicines for customers and emphasized on health promotion. Students also satisfied expertises and discussion with various trainers but they concerned over their different practice of evaluation. Their least satisfaction on training is to complete chronic patient profile. Three hundreds and ninety seven customers were satisfied in all items, particularly dressing and manner of attending pharmacists. They showed least satisfaction in the special services provided such as blood pressure monitoring device.

Conclusion: Pharmaceutical students highly satisfied with training experiences in selecting quality medicines, however, they concerned over evaluation of practice from different trainers. They need more opportunity to practice on home-health care service. Customers satisfied with overall pharmaceutical services in university's pharmacies except accessory equipments e.g. sphygmometer. Pharmaceutical practices from experience of each university should plan to enhance and co-operate teamwork expertises.

ศรีนครินทร์เวชสาร 2555; 27(4): 386-92 • Srinagarind Med J 2012; 27(4): 386-92

Introduction

There are 12 faculty of pharmacy in Thai universities where have their own pharmacies across all regions in Thailand. All of them primarily set goals of being the role model of a clear professional identity to public and good practice placements for pharmaceutical students.¹ Pharmaceutical practice for students has changed focus from product-oriented to patient care and expanded to variety of services e.g. screening of chronic diseases.²⁻⁸ According to the same vision and missions, all university's pharmacy joined a collaborative network named University Community Pharmacies Network in Health Promotion (UCPNHP) since 2007 under supervision of The Pharmacy Network in Health Promotion program (PNHP).⁶ UCPNHP has a plan to

strengthen pharmaceutical services and pharmaceutical clerkships by knowledge management. As the variety in contexts of setting and experiences, we aimed to evaluate our situations of being a role model in profession by examining the satisfaction of customers and pharmaceutical students among 12 university's pharmacies.

Methods

This study has been approved for ethical committee of Srinakharinwirot University. The survey research was undertaken at university's pharmacies in Thailand during January to March 2010. Sample size for each group in each university was estimated for at least 30 participants. Study participants were selected by

convenient sampling from customers and students either in the 4th - 5th year of pharmaceutical program who had been in the training at least 4 weeks in university's pharmacies. Two written questionnaires were developed and passed content validity test by 5 pharmaceutical professionals. Perception of participants were collected using items on a 5-point Likert scale with anchors ranging from 1 = strongly dissatisfied/agree to 5 = strongly satisfied/agree. Scale interpretations were 1-1.5 (strongly dissatisfied/disagree), 1.6- 2.5 (dissatisfied/disagree), 2.6-3.5 (fair), 3.6-4.5 (satisfied/agree) and > 4.6 (strongly satisfied/agree). The co-ordinators of each university managed to administer the questionnaires. The results were pulled and analyzed by one researcher. Statistical analysis was evaluated by mean and percentage of amount.

Result

Perception of pharmaceutical students on pharmaceutical clerkship training in university's pharmacies

According to the time of clerkships at the university's pharmacies, 244 pharmaceutical students were participated and completed the questionnaire. The majority of respondents were females with the average age of 23.7±3.4 years old. In their opinion, the university's pharmacies provided highly competency experiences as a health promotion place supporting for quality medicines (4.6±0.2) and provided standard pharmaceutical services (4.6±0.2). Less satisfied items were privacy area for a pharmacist's counseling (4.5±0.3), dispensing roles of pharmacist's assistants (4.5±0.3), dressing of pharmacist's assistants (4.3±0.3), counseling service for information and activities against toxic agent/illegal drugs (4.2±0.3), and documenting system for chronic patients (4.0±0.4). Students had high satisfaction on expertise of pharmaceutical staffs and offering opportunities to discuss training experience with various trainers. However, one student concerned about validation of training evaluation. In professional competencies, the highest score was the clear concept of health promotion in the pharmacies, while the lowest score was rated for fair in the skill of home health care

management (2.9±0.6) and collaborative work either health organization in community (3.3±0.5). Home-health care services had the lowest satisfaction score when compared to other services. Eleven students (4.5%) commented that university's pharmacies should provide more opportunities and time to practice in all activities, particularly in home-health care service. Nevertheless, the overall benefit and competencies from the pharmaceutical clerkships were highly satisfied (4.2±0.3). (Table 1)

Perception of customers on pharmacy service in university's pharmacies

All of the 397 customers were satisfied in all items of the place and facilities; the score is highest in pharmacist's dressing (4.6±0.2) and pharmacist's personality (4.6±0.1). The next satisfied items were cleanliness and well-organised of drugstores (4.5±0.2) and expertise of pharmacists (4.5±0.1). Customers rated low satisfaction in the special services provided such as pills cutting, blood pressure monitoring device (4.1±0.3) and health promotion resources providing (4.1±0.3). In products aspect, the customers rated highest satisfaction in the good quality of medication (4.5±0.1) and lowest in the variety of items (4.1±0.1). The difference in the location of each university's pharmacies influence to customers' satisfaction on pharmaceutical services, as a result, three university's pharmacies had most of their scores under the mean scores, compare of with other pharmacies. (Table 2)

Discussion

The actual pharmaceutical care activities in a Thai context consist of seven domains, which are patient assessment, therapeutic planning, counseling, medication monitoring, documentation, referral, disease preventive and health promotion activities. Barriers within the pharmacies to provide such a service were price competition, lack of instruments to assist the practice services, workload, pharmacist's attitude.^{2,10} The university's pharmacies primary focus on demonstrating model of these pharmaceutical practices to public

on providing professional experience training for pharmaceutical students. The management of the university's pharmacies was under a regulation of each administrative committee, however, vision and missions were mainly aimed to be a good practice site for pharmaceutical students. Commonly, pharmaceutical services in university's pharmacies were satisfied by customers. Most of the UCPNHP offered extra clinical and educational services to customers in community residents including blood pressure monitoring, health screening and counseling for diabetes, osteoporosis, and smoking cessation programs. These important clinical services might not be often provided in general pharmacies. It was particularly valuable in areas where primary care could monitor efficacy and safety of repeated medications and residents may otherwise have to travel long distances for simple screening procedures at the hospital. Pharmaceutical clerkships were also satisfied by pharmaceutical students, nonetheless, home- health care services showed lowest score when compared to other services. This may be due to the limited number of pharmacies' staffs. Interestingly, available of facilitated equipments for pharmaceutical service e.g. sphygmometer were provided differently in each university's pharmacy, then customers' satisfaction rate was varied between 3.6 to 4.7. As mentioned in the previous studies in the United States, survival of pharmacies was not only ensures retail access to pharmaceuticals and patient counseling but also access to other important health care services

that are particularly needed in communities. However, pharmaceutical students had only few practice activities on providing drug information, providing direct patient care/pharmaceutical care, and consulting with other health care professionals.¹¹⁻¹³ Since pharmaceutical students are taught about the significance and importance of patient care services, it is likely that the proportion of time they spend doing patient care activities is much less than their expectation. Even rational drug use management in university's pharmacies are needed to optimize the efficiency and appropriateness of drug therapy, it must be weighed against the potentially dissatisfaction of customers whom asked for particular items. Finance balance of the drugstore should be concerned as well. However, pharmaceutical clerkships should provide more opportunities for students to participate with patients, this including home-health care experience. This study was aimed to collect basic data of each university community pharmacy, so a limitation of the study was statistic comparison between universities. Sampling technique which collected data from the convenient respondents may limit the generalization. Further suggestion for next studies should focus on The UCPNHP improvement service gaps of overall plausible norms among the network to satisfy customers. Pharmaceutical practices from experience of each university should plan to enhance and co-operate teamwork expertises.

Table 1 Comparison of mean perception by customers on place, facilitated equipments, and pharmacy service in university's pharmacies (N=397)

Evaluation items	Mean (range 0 to 5, extremely non-satisfied to extremely satisfied)											Mean (SD) of all shop
	University's Pharmacy											
	1	2	3	4	5	6	7	8	9	10	11	
1. Cleanliness and well-organized of pharmacy	4.8	4.6	4.5	4.5	4.5	4.2	4.3	4.5	4.4	4.1	4.7	4.5 (0.2)
2. Reasonable privacy for discussion or counselling	4.5	4.4	4.0	4.3	4.3	4.2	4.1	4.3	4.4	3.8	4.5	4.3 (0.2)
3. Appropriate indoor lights	5.0	4.5	4.1	4.5	4.5	4.0	4.2	4.5	4.4	4.2	4.6	4.4 (0.3)
4. Appropriate temperature and ventilation	4.9	4.5	4.4	4.5	4.4	4.1	4.1	4.4	4.2	4.0	4.5	4.4 (0.2)
5. Convenience of location to communication	4.9	4.3	4.2	4.4	4.4	3.6	4.1	4.1	4.4	3.6	4.3	4.2 (0.4)
6. Health promotion advocacy and information resources	4.7	4.3	4.3	4.5	4.1	3.9	3.8	3.7	4.2	3.7	4.0	4.1 (0.3)
7. Available of accessory equipments for pharmaceutical service e.g. sphygmometer	4.7	3.9	4.4	4.1	4.4	4.1	3.6	3.7	4.3	4.1	4.0	4.1 (0.3)
8. Cleanliness of equipments	4.8	4.5	4.5	4.5	4.6	4.3	4.1	4.3	4.4	4.1	4.3	4.4 (0.2)
9. Duration of service for each patient-specific problem	4.8	4.4	4.3	4.5	4.4	4.2	3.9	4.2	4.4	4.0	4.3	4.3 (0.2)
10. Special services e.g. cutting pills, blood pressure measurement	4.6	4.0	4.4	4.2	4.2	3.7	3.5	4.6	4.1	3.9	3.8	4.1 (0.3)
11. Number of pharmacists and staff are sufficient for providing services	4.7	4.4	4.3	4.4	4.3	4.2	3.9	4.3	4.4	4.1	4.2	4.3 (0.2)
12. Cleanness of whitening gown cloth for pharmacist	4.9	4.7	4.6	4.7	4.7	4.4	4.3	4.6	4.5	4.7	4.6	4.6 (0.2)
13. Reliability and expertise of pharmacist	4.8	4.7	4.5	4.6	4.6	4.3	4.3	4.5	4.5	4.5	4.6	4.5 (0.1)
14. Pleasant and courteous staffs	4.6	4.7	4.4	4.7	4.6	4.5	4.4	4.7	4.6	4.5	4.6	4.6 (0.1)
15. Available information of drug list, strength, expired date, and price for customer	4.5	4.4	4.4	4.4	4.4	3.8	4.1	4.4	4.5	4.0	4.2	4.3 (0.2)
16. Completeness of medical history interviewing e.g. history of drug allergy, underlying diseases	4.9	4.5	4.5	4.5	4.5	4.3	4.1	4.1	4.5	4.3	4.5	4.4 (0.2)
17. Develop a writing or suggestion of referring if need	4.4	4.5	4.4	4.2	4.5	3.9	3.7	4.2	4.2	3.9	4.2	4.2 (0.3)
18. Discuss and suggest the best available medical option	4.9	4.6	4.4	4.5	4.5	4.2	4.0	4.4	4.5	4.1	4.4	4.4 (0.2)
19. Selection of precise medication items before dispensing	4.8	4.6	4.4	4.5	4.6	4.2	4.0	4.4	4.5	4.3	4.4	4.4 (0.2)
20. Pharmacist provides complete written information of medication use on label.	4.8	4.5	4.4	4.6	4.6	4.2	4.0	4.3	4.5	4.3	4.5	4.4 (0.2)
21. Pharmacist provides comprehensive information of medication use and storage	4.7	4.5	4.3	4.3	4.5	4.1	4.0	4.3	4.5	4.0	4.4	4.3 (0.2)
22. Offering varieties of health and self-care information resources	4.9	4.6	4.4	4.2	4.3	4.0	3.9	4.8	4.4	4.0	4.4	4.4 (0.3)
23. Pharmacist provides accurate and valid information for customers	4.5	4.4	4.4	4.4	4.4	4.2	3.9	4.2	4.3	4.1	4.3	4.3 (0.2)
24. Develop a specific plan to resolve health problems apart from dispensing medications	4.9	4.5	4.3	4.6	4.5	4.2	4.1	4.1	4.4	4.4	4.3	4.4 (0.2)
25. Quality of medication items and their packaging	4.8	4.5	4.6	4.3	4.6	4.3	4.3	4.5	4.7	4.3	4.4	4.5 (0.1)
26. Completeness packaging of medication supplies	4.6	4.5	4.5	4.2	4.6	4.3	4.2	4.6	4.7	4.2	4.4	4.4 (0.1)
27. Available of various medication items for best selection making.	4.0	4.3	3.9	3.9	4.4	4.2	3.9	4.3	4.5	3.9	4.2	4.1 (0.1)

Table 2 Comparison of mean perception by pharmaceutical students on ability of pharmaceutical clerkships in university's drugstores (N=244)

Evaluation items	Mean (range 0 to 5, extremely non-satisfied to extremely satisfied)										
	University's Pharmacy										Mean (SD) of all shop
	1	2	3	4	5	6	7	9	10	11	
Vision and mission of university's pharmacies											
1. Serving a pilot pharmaceutical care training site to students.	4.8	4.1	4.3	4.7	4.4	4.3	4.1	4.1	4.3	4.2	4.3 (0.2)
2. Improving continuity and standard of pharmaceutical care in community setting.	4.9	4.3	4.5	4.6	4.7	4.7	4.1	4.1	4.4	4.2	4.5 (0.3)
3. Supporting rational drug use to promote health promotion.	4.9	4.3	4.9	4.5	4.8	4.8	4.3	4.3	4.5	4.4	4.6 (0.2)
4. Promoting healthy communities through counseling and providing health information.	4.8	4.3	4.8	4.5	4.8	4.4	4.2	4.3	4.4	4.3	4.5 (0.2)
Efficacy of pharmacy training at university drugstores											
5. Serving a quality primary care service for communities.	4.7	4.3	4.9	4.5	4.8	4.8	4.3	4.3	4.5	4.4	4.6 (0.2)
6. Qualified counselling on medication and health promotion.	4.8	4.3	4.8	4.5	4.8	4.4	4.2	4.3	4.4	4.3	4.5 (0.2)
7. Providing follow-up system for drug-related problem.	3.7	4.2	4.6	4.2	4.3	4.1	3.7	4.0	3.9	4.1	4.1 (0.3)
8. Existing counseling and referring system to other health care professionals.	3.5	4.1	4.4	4.3	4.6	4.6	3.8	4.0	4.0	4.2	4.2 (0.3)
Standardization of pharmacy practice at university drugstores											
9. Offer reasonable privacy for discussion or counselling	4.9	4.3	4.7	4.7	4.3	4.8	4.3	4.1	4.3	4.4	4.5 (0.3)
10. Representing obvious licensed-pharmacist certificated and working hours.	5.0	4.7	4.8	4.7	5.0	4.8	4.5	4.4	4.6	4.4	4.7 (0.2)
11. Full-time pharmacist during working hours.	5.0	4.7	4.9	4.9	5.0	5.0	4.7	4.4	4.8	4.5	4.8 (0.2)
12. Pharmacist on duty with a formal white gown cloth.	5.0	4.8	4.8	4.5	5.0	4.7	4.4	4.4	4.5	4.4	4.7 (0.2)
13. Differentiating pharmacist and pharmacist-assistant by formal clothing.	5.0	4.3	4.7	4.1	4.4	4.1	4.1	4.2	4.1	3.8	4.3 (0.3)
14. Ensuring continuity of care by documenting patient information in forms that could be used by another pharmacist or other health care practitioner.	3.2	3.7	4.5	4.4	4.2	4.4	3.8	4.0	4.2	3.8	4.6 (0.4)
15. Available of inventory control book.	5.0	4.1	4.2	4.5	4.4	4.6	4.1	4.0	4.4	4.1	4.6 (0.3)
16. Promoting rational drug use	4.5	4.3	4.9	4.8	4.8	4.7	4.5	4.4	4.6	4.5	4.6 (0.2)
17. Dispensing medication by pharmacist for all cases.	4.6	4.6	4.9	4.9	4.9	4.8	4.6	4.4	4.7	4.2	4.7 (0.2)
18. Available drug label to provide branding of drugstore, patient's name, dispense date, trade name and generic name, indication, administration, warning, and expired date.	4.5	4.7	4.9	4.7	4.7	4.8	4.4	4.5	4.8	4.4	4.6 (0.2)
19. Clarifying patients to take their medications and monitor their own therapy.	4.8	4.6	4.8	4.7	4.8	4.9	4.4	4.3	4.5	4.5	4.6 (0.2)
20. Pharmacist-assistant has no rights to dispense medication.	4.8	4.5	4.7	4.6	4.8	4.7	4.2	4.1	4.2	4.0	4.5 (0.3)
21. Providing drugs information to prevent and treat health problems. Providing drugs and toxic chemicals information to against drugs abuse.	3.6	4.4	4.7	4.4	3.9	4.2	3.9	4.2	4.2	4.1	4.2 (0.3)
22. Non-available of drugs and toxic chemicals eg., tobacco, alcoholic liquids.	5.0	4.6	4.9	4.8	4.9	4.8	4.8	4.6	4.7	4.4	4.8 (0.2)
Output of pharmacy practice in university drugstores											
23. Increasing and continuity advocacy of health information from university's drugstore.	4.9	4.2	4.1	4.0	4.3	4.1	4.0	4.1	4.0	4.0	4.2 (0.3)
24. Available resources and information of self-care	4.8	4.3	3.9	4.0	4.3	4.1	4.2	4.2	4.3	3.9	4.2 (0.2)

* Note-No data available from university's drugstore number 8

Acknowledgement

The views expressed herein are the sole responsibility of the authors and do not necessarily reflect the views of university's pharmacies. This work was supported by a grant award from the Pharmacy Network for Health Promotion under Thai Health Promotion Foundation. The authors would like to acknowledge all research investigators from 12 faculty of pharmacy in Thai universities whom facilitated data collection at their respective institutions. We also would like to acknowledge Professor RME Richards for his helpfully editing in English manuscript.

References

1. Pharmacy Network in Health Promotion program [Internet]. Bangkok: Chulalongkorn University; [cited 2011 May 28]. Available from: <http://www.pharmhp.org/index.php>.
2. Kittipibul P, Kulsomboon V, Kittisopee T. Pharmaceutical Care-based Practice of Thai Community Pharmacists: A Focus Group Study. *Thai Hospital Pharmacy Journal*; Apr 2006.
3. Somsaard P, Sookaenkun P, Towanna B and Chokkatiwat K. Effect of the screening for diabetes mellitus and hypertension by pharmacists in accredited community pharmacy in Mahasarakham province. *IJPS* 2010; 6:34-49.
4. Khumsikiew J, Arkaravichien W, Hongsamoot D, Sangkar P. Diabetes and hypertension screening by accredited community pharmacy in Khon Kaen under a pilot project with the National Health Security Scheme. *Srinagarind Med J* 2009; 24:215-23.
5. Chaiyakunapruk N, Laowakul A, Karnchanarat S, Pikulthong N and Ongphiphadhanakul B. Community pharmacy-based implementation and evaluation of an osteoporosis self-assessment tool for Asians. *J Am Pharm Assoc* 2006; 46:391-6.
6. Sookaneknun P, Richards RME, Sanguansermisri J and Teerasut C. Pharmacist involvement in primary care improves hypertensive patient clinical outcomes. *Ann Pharmac* 2004; 38:2023-8.
7. Blenkinsopp A, Anderson C and Armstrong M. Systematic review of the effectiveness of community pharmacy-based interventions to reduce risk behaviours and risk factors for coronary heart disease. *J Public Health Med* 2003; 25: 144-53.
8. Young D. Asheville project improves patient outcomes, cuts medical costs. *Am J Health-Syst Pharm* 2003; 60:868.
9. Reutzel TJ and Hogan M. Development of a patient-based practice model in community pharmacy practice: academic-practice interface. *Am J Pharm Educ* 1999; 63: 119-26.
10. Duncan-Hewitt and Austin Z. Pharmacy schools as expert communities of practice? a proposal to radically restructure pharmacy education to optimize learning. *Am J Pharm Educ* 2005; 69:54.
11. Braun L, Tiralongo E, Wilkinson JM, Spitzer O, Bailey M, Poole S, Dooley M. Perceptions, use and attitudes of pharmacy customers on complementary medicines and pharmacy practice. *BMC Complement Altern Med* 2010; 10: 38.
12. Nau DP, Chi C, Mallya U, Kirking DM. Member satisfaction related to self-reported cost share and difficulty in obtaining prescription drugs in a university pharmacy benefit plan. *J Manag Care Pharm* 2007; 13:135-41.
13. Siracuse M, Schondelmeyer SW, Hadsall RS, Schommer JC. Third-Year Pharmacy Students' Work Experience and Attitudes and Perceptions of the Pharmacy Profession. *Am J Pharm Educ* 2008;72:50.

