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Patient assessment teaching and learning in undergraduate pharmacy curriculum: students' perspective of a pharmacist-physician instructional strategy

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Abstract

Introduction: Pharmacy programmes commonly use physicians, nurses, and physician assistants as instructors of patient assessment courses. These are often questioned to be physician-focused. The aim of this study was to assess pharmacy students' attitude and perceptions towards implemented changes to the instruction of a patient assessment course.

Description of Course: In a patient assessment course for undergraduate pharmacy students, we introduced a physician-pharmacist instructional strategy with a view to ensure relevance to and application in pharmacy practice.

Evaluation: A significantly greater proportion of the pharmacy students rated their skills as above average to excellent after the pharmacist's instruction when compared to prior instruction with a physician only (75%, n=18 vs. 42%, n=10, respectively; p=0.010). Similarly, most respondents (83%, n=20) rated their understanding of the importance of patient assessment skills as above average to excellent after the inclusion of the pharmacist in the course delivery as compared to only 50% (n=12) having such impression prior to the inclusion of the pharmacist (p=0.004).

Future Plans: A collaborative physician-pharmacist model of teaching patient assessment is feasible, may potentially improve outcomes towards learning the skills of patient assessment, and should be continued in this programme.

Keywords: *instruction, patient assessment, pharmacist-physician, pharmacy, physical assessment*

Introduction

Over the past years, pharmacy practice has been progressing globally and within our region from the traditional drug dispensing activities to direct patient care activities (Hepler & Strand, 1990; Holland & Nimmo, 1999; Kheir & Fahey 2011; Zaidan *et al*., 2011). As these roles continue to evolve and expand, the need to increase pharmacists' direct patient care skills and knowledge base has resulted into changes in pharmacy curricula to incorporate new contents. One of these skills is patient assessment for pharmacists. Current accreditation standards in North America require that first professional degree in pharmacy curricula to include instructions on patient assessment to develop familiarity with basic physical assessment techniques, terminology, and the modifications caused by common disease states and drug therapy (Association of Faculties of Pharmacy of Canada, 2010; Accreditation Council for Pharmacy Education, 2011; American Association of Colleges of Pharmacy, 2013).

Selecting and implementing the most appropriate instructional strategy for patient assessment in pharmacy is an ongoing challenge. According to a 2005 survey, a majority of pharmacy programmes in the US continue to use physicians, nurses and physician assistants as instructors of patient assessment courses (Spray & Parnapy, 2007). Strategies to redesign patient assessment instruction for pharmacy students in order to improve students' learning outcomes have been discussed in the literature (Sobieraj *et al*., 2009; Bolesta *et al.*, 2011; Sherman *et al*., 2011; Albano & Brown, 2012). In one study, the impact of a change from a nurse- to a pharmacist-led instruction intended to encourage students' use of patient assessment skills was evaluated (Bolesta *et al.*, 2011). The pharmacist-led instruction was found to improve pharmacy student comfort with and use of physical assessment skills (Bolesta *et al*., 2011).

However, the authors of this study are unaware of any report that describes a change from all-physician to a physician-pharmacist collaboration method of instruction. As part of our teaching innovation, we implemented a collaborative instruction of a patient assessment course during 2013/14 academic year. The current survey was designed to assess how well students perceived and accepted the instructional transformation and to explore the strengths and weaknesses of this strategy in pharmacy education.

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Description of the Patient Assessment Course

Patient Assessment Laboratory is a series of two courses (implemented in the Autumn and Spring semesters of each academic year) designed to introduce pharmacy students to the various techniques and tools necessary to conduct physical examinations and to monitor changes caused by common disease states and drug therapy. Based on the course objectives and learning outcomes, students were expected to: recognise patient assessment examination procedures including test measurements, implementation and interpretation of findings; demonstrate the basic skills for patient assessment including obtaining a comprehensive patient history using interviewing skills, performing basic assessment techniques, and interpreting common diagnostic test values; use and apply patient assessment findings in evaluating a patient's basic disease process and subsequent response to drug therapy; analyse and organise historical and physical data for making decisions and designing therapeutic plans for meeting the patient's health care needs and; demonstrate better communication skills with patients and health care providers and improved data collection and evaluation.

Traditionally, this course had been taught mainly by physicians invited as guest lecturers. Each session included a didactic lesson followed by a practical approach to each newly learned skill. At the end of each semester, students enrolled in the course were asked to evaluate the course content with the primary goal to improve the course delivery. Overall, students struggled with understanding of the application of patient assessment to daily practice of a pharmacist. Following this feedback, in Semester I of the 2013-2014 academic year, the decision was made to incorporate a pharmacist instructor into each 90-minute session of the course during Semester II of the same academic year. In the model that we used during the Semester II, a pharmacist instructor used the last 20 minutes of the class to stress the importance and application of the physical assessment methods delivered by the physician in pharmaceutical care practice context.

The goal of this collaboration of teaching between a physician and a pharmacist was for the students to be provided with expert instruction for the demonstration of each physical assessment technique followed by the practical application delivered by the pharmacist instructor. Instruction of the practical application of each patient assessment session was taught through the use of patient cases describing how a pharmacist would use patient assessment in providing pharmaceutical care and ultimately improving the outcomes of their patients' care. Upon completion of the 2013-2014 academic year, 25 students enrolled in the course were requested to complete a questionnaire to assess their perceptions of the implemented change to this course.

Evaluation

Ethics approval for the study was obtained from the Qatar University Institutional Review Board; the study was granted exempt status. A 23-item questionnaire was developed and pre-tested to evaluate the perspective of the undergraduate pharmacy students on the learning outcomes, design, and pharmacist-physician instruction of the patient assessment course.

The questionnaire was developed based on our course syllabus available on the web-based course management software (Blackboard®), the primary study objectives, and a thorough review of the identified relevant literature. The questionnaire contained three parts to assess the undergraduate pharmacy students' attitude towards: (1) course learning objectives (six items); (2) course design, instructional strategies, and assessment (ten items) and; (3) involvement of academic or practicing pharmacist in the delivery of the course and emphasising knowledge application in pharmacy practice (seven items). A 5-point Likert scale (strongly disagree to strongly agree) was used to generate the responses for sections one and two, while a 5-point rating scale (poor to excellent) was used for response options to the last section. The questionnaire was transferred into SurveyMonkey® online web-based survey link (https://www.surveymonkey.com/).

Descriptive and inferential data analyses were performed using Statistical Package for Social Sciences (IBM SPSS® Statistics) version 22. Proportions (frequencies and percentages) were used to summarise all the responses generated from the survey. Wilcoxon Signed Rank test was used to compare the students' perception of the physical assessment course prior to and after the inclusion of pharmacists' instructions. The level of significance was set a priori at $p \leq 0.05$.

Of the 25 professional year-two students who registered for the patient assessment course, 24 responded to the web-based survey (96% response rate). All respondents were female as the College of Pharmacy, Qatar University currently only enrolls female students. In Table I, we present the students' agreement with the learning outcomes of the patient assessment courses. Notably, about 88% (n=21) of the students agreed that at the end of the course they should be able to obtain and evaluate relevant history from the patient, their chart, caregivers and other health care professionals. Similarly, 79% (n=19) believed that a student should be able to perform and interpret findings of relevant physical assessments required to determine appropriate medication therapy.

In relation to course design, content and delivery, more than half of the pharmacy students agreed that the topics covered were relevant to pharmacy practice and that the application of hands-on experiences in patient assessment teaching was appropriate. A sizeable proportion (21%, n=5) of the surveyed students held the belief that there were culturally-sensitive topics that were not relevant to pharmacy practice included in the courses. On the other hand, the vast majority of the students (96%, n=23) noted that the use of videos enhanced their understanding of the physical assessment techniques. Table II provides more details on the patient assessment course content, design, and delivery.

Table III presents the pharmacy students' rating of the new instructional strategy in patient assessment course when compared with prior experience (*i.e.* the same

Table I: Undergraduate Pharmacy Students' Evaluation of Learning Outcomes of a Physical Assessment Course

Course learning objectives	Level of Agreement				
	Strongly Agree N (%)	Agree N (%)	Neutral N (%)	Disagree N (%)	Strongly Disagree N (%)
Obtain and evaluate relevant history from the patient, his/her chart, caregivers and other health care professionals.	7 (29.2)	14 (58.3)	0	2 (8.3)	1 (4.2)
Retrieve and assess relevant diagnostic assessments for making decisions and designing therapeutic plans.	2 (8.3)	15 (62.5)	4 (16.7)	2 (8.3)	1 (4.2)
Perform and interpret findings of relevant physical assessments that are required to determine appropriate medication therapy.	3 (12.5)	16 (66.7)	1 (4.2)	3 (12.5)	1 (4.2)
Determine the clinical status of the patient, including completing physical assessments required for monitoring of medication therapy.	2 (8.3)	15 (62.5)	5 (20.8)	1 (4.2)	1 (4.2)
Tailor the content of communication to specific contexts and audiences.	2 (8.3)	16 (66.7)	3 (12.5)	2 (8.3)	1 (4.2)
Adapt communication techniques to facilitate efficient and effective clinical encounters.	3 (12.5)	13 (54.2)	2 (8.3)	3 (12.5)	3 (12.5)

N = Number of observations

Table II: Undergraduate Pharmacy Students' Attitudes towards the Physical Assessment Course, Its Design and Delivery

Course content and delivery	Level of Agreement				
	Strongly Agree N (%)	Agree N (%)	Neutral N (%)	Disagree N (%)	Strongly Disagree N (%)
The topics covered were relevant to pharmacy practice.	6 (25.0)	7 (29.2)	6 (25.0)	1 (4.2)	4 (16.7)
There were culturally-sensitive topics that were not relevant to my practice.	2 (8.3)	3 (12.5)	2 (8.3)	8 (33.3)	9 (37.5)
The use of didactic instructions was appropriate.	4 (16.7)	8 (33.3)	7 (29.2)	4 (16.7)	1 (4.2)
The application of hands-on was appropriate.	2 (8.3)	11 (45.8)	4 (16.7)	4 (16.7)	3 (12.5)
The use of videos enhanced my understanding of the techniques.	10 (41.7)	13 (54.2)	0	0	1 (4.2)
In general, the time allocated for the sessions was sufficient.	3 (12.5)	18 (75.0)	1 (4.2)	0	2 (8.3)
The time dedicated to hands-on was adequate.	1 (4.2)	7 (29.2)	5 (20.8)	5 (20.8)	6 (25.0)
The details of the topics covered were sufficient.	2 (8.3)	11 (45.8)	6 (25.0)	1 (4.2)	4 (16.7)
I have been sufficiently exposed to basic equipment required for physical assessment (e.g. thermometer, stethoscope, sphygmomanometer, turning fork).	10 (41.7)	10 (41.7)	3 (12.5)	0	1 (4.2)
The course assessments (written and practical) were appropriate.	0	9 (37.5)	1 (4.2)	7 (29.2)	7 (29.2)

N = Number of observations

Table III: Undergraduate Pharmacy Students' Opinion on Having a Pharmacist Instruct Knowledge Application of Physical Assessment in Practice

Knowledge application in pharmacy	Degree of Rating					
	Excellent N (%)	Above Average N (%)	Average N (%)	Below Average N (%)	Poor N (%)	*p*-value§
The instruction of the pharmacist on application of physical assessment in patient care.	11 (45.8)	7 (29.2)	5 (20.8)	1 (4.2)	0	-
The student's skill rating prior to pharmacist's instruction.	3 (12.5)	7 (29.2)	9 (37.5)	4 (16.7)	1 (4.2)	0.010
The student's skill rating after pharmacist's instruction.	3 (12.5)	15 (62.5)	5 (20.8)	1 (4.2)	0	
Understanding of the importance of physical assessment prior to pharmacist's instruction.	3 (12.5)	9 (37.5)	5 (20.8)	4 (16.7)	3 (12.5)	0.004
Understanding of the importance of physical assessment after pharmacist's instruction.	9 (37.5)	11 (45.8)	3 (12.5)	1 (4.2)	0	
The quality of instruction of physical assessment prior to pharmacist involvement.	3 (12.5)	10 (41.7)	8 (33.3)	1 (4.2)	2 (8.3)	0.095
The quality of instruction of physical assessment after pharmacist's involvement.	6 (25.0)	12 (50.0)	4 (16.7)	1 (4.2)	1 (4.2)	

N = Number of observations; §*p*-values were calculated using Wilcoxon Signed Rank tests

course with different body systems learned in the previous semester). Overall, 75% (n=18) of the students rated the pharmacist's instruction on application of patient assessment in patient care as above average to excellent. A significantly greater proportion of the pharmacy students rated their skills as above average to excellent after the pharmacist's instruction when compared to prior (75%, n=18 vs. 42%, n=10, respectively; p=0.010). Similarly, 83% (n=20) of the students rated their understanding of the importance of patient assessment skills as above average to excellent after the inclusion of the pharmacist in the course delivery as compared to only 50% (n=12) having such impression prior to the inclusion of the pharmacist (p=0.004). Other details are provided in Table III.

Future Plans

Patient assessment skills related to medication therapy are becoming increasingly important and necessary for pharmacists in order to determine the safety and efficacy of drug therapy, and to interpret the findings documented by other healthcare providers (Spray & Parnapy, 2007; Jones & Rospond, 2009; Jones *et al*., 2014). We redesigned the physical assessment course at our institution to incorporate the involvement of both a physician and a clinical pharmacist into each lesson. We believe that adopting collaborative interprofessional instruction in patient assessment courses would enrich the pharmacy students' educational experiences. The current findings suggest that students were satisfied with the changes in collaborative instructional methodology. This instructional change was well received by students and demonstrated a promising return in the overall perception of the course. Future studies will now need to investigate if this collaborative teaching method improves student knowledge and ability.

Although the results from the survey suggest that students were in favor of the collaborative instructional strategy, our evaluation does not allow for definitive conclusions regarding whether this method of instruction improved the knowledge base of the students at the end of the course. Future areas for improvement in our instructional design may include evaluating whether or not the instructional changes have any impact on eventual practice habits of the graduates from our programme.

In an effort to prepare future pharmacists for the expanded scopes of pharmacy practice, pharmacy schools should incorporate appropriate instructional strategies in patient assessment courses. The findings from this evaluation have important implications on including pharmacists in the instruction of patient assessment courses. The impact of this teaching innovation on clinical practice needs to be further investigated.

References

Accreditation Council for Pharmacy Education. (2011). Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree (online). Available at: http://www.acpe-accredit.org/standards/default.asp. Accessed 24th July 2014.

Albano, C.B. & Brown W. (2012). Integration of physical assessment within a pathophysiology course for pharmacy. *American Journal of Pharmaceutical Education*, **76**(1), Article 14.

American Association of Colleges of Pharmacy (2013). Center for the Advancement of Pharmaceutical Education (CAPE). Educational Outcomes 2013 (online). Available at: http://www.aacp.org/resources/education/Pages/CAPEEducationalOutcomes.aspx. Accessed 24th July, 2014.

Bolesta, S., Trombetta, D.P. & Longyhore, D.S. (2011). Pharmacist instruction of physical assessment for pharmacy students. *American Journal of Pharmaceutical Education*, **75**(2), Article 29.

Association of Faculties of Pharmacy of Canada (AFPC). (2010). Educational Outcomes for First Professional Degree Programs in Pharmacy (Entry-to-Practice Pharmacy Programs) in Canada. AGM, Vancouver (online). Available at: http://www.afpc.info/sites/default/files/AFPC%20Educational%20Outcomes.pdf. Accessed 3rd June, 2010.

Hepler, C.D. & Strand L.M. (1990). Opportunities and responsibilities in pharmaceutical care. *American Journal of Hospital Pharmacist*, **47**, 533-43.

Holland, R.W. & Nimmo, C.M. (1999). Transitions in pharmacy practice, part 1: Beyond pharmaceutical care. *American Journal of Health-System Pharmacist,* **56**,1758-64.

Jones, M., Gokun, Y., Cain, J. & Romanelli, F. (2014). Physical examination instruction in US pharmacy curricula. *Currents in Pharmacy Teaching and Learning*, **6**(3), 340-347.

Jones, R.M. & Rospond, R.M. (2009). Patient Assessment in Pharmacy Practice. 2nd ed. Philadelphia, PA: Lippincott, Williams and Wilkins.

Kheir, N. & Fahey, M. (2011). Pharmacy practice in Qatar: challenges and opportunities. *Southern Medical Review*, **4**, 92-6.

Sherman, J.J., Riche, D.M. & Stover, K.R. (2011). Physical assessment experience in a problem-based learning course. *American Journal of Pharmaceutical Education*, **75**(8), Article 156.

Sobieraj, D.M., Mccaffrey, D. & Lee, J.J. (2009). Redesign and evaluation of a patient assessment course. *American Journal of Pharmaceutical Education*, **73**(7), Article 133.

Spray, J.W. & Parnapy, S.A. (2007). Teaching patient assessment skills to doctor of pharmacy students: the TOPAS study. *American Journal of Pharmaceutical Education*, **71**(4), Article 64.

Zaidan, M., Singh, R., Wazaify, M. & Tahaineh, L. (2011). Physicians' perceptions, expectations, and experience with pharmacists at Hamad Medical