

Evaluation of pharmacy students in a self-care standardised patient simulation

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Abstract

Background: Community pharmacists are generally accessible by patients, providing a direct access to care.

Objective: The objective was to determine the difference in student performance in a self-care simulation between using fourth-year pharmacy students (academic) as patients versus trained individuals known as standardised patients.

Method: The simulation was incorporated into the second-year of a Doctor of Pharmacy degree programme. Second-year students completed a self-care consultation with academic students playing the role of a patient in 2015. The same case scenario was completed by a second cohort of students utilising paid standardised patients in 2016. The academic and standardised patients completed the same assessment rubric based on the QuEST/SCHOLAR method for each student encounter in both years. The study was approved by the Institutional Review Board.

Results: One hundred and thirty-two (2015) and 108 (2016) second-year students completed the self-care simulation. There was no difference in the overall mean students' scores on the assessment rubric between the standardised and academic patients. However, students performed better on characterising the problem of the patient and identifying other medications taken by the patient with the standardised patients.

Conclusion: Student interactions with an academic or standardised patient gives students an opportunity for feedback to improve their self-care patient interactions.

Keywords: *Pharmacy Education, Self-Care, Standardised Patients, Quest/SCHOLAR, Active Learning*

Introduction

Pharmacy as a profession consistently ranks in the top tier of consumer polls for being recognised as one of the most honest and ethical professions (Gallup 2015). In the community pharmacy setting, pharmacists are generally accessible by patients without an appointment, providing a direct access to care that is unique from other healthcare professionals. Assisting patients with nonprescription medications and self-care is an important element of pharmacy practice and one that is emphasised in both pharmacy education and national pharmacy organisation standards (Ambizas 2014, Accreditation Council for Pharmacy Education [ACPE], 2015). From a global perspective, the definition of good pharmacy practice by the International Pharmaceutical Federation (FIP) and World Health Organization (WHO) encompasses pharmacists providing optimal, evidence-based pharmaceutical care (WHO, 2011). In the United Kingdom (UK), government policies encouraged the utilisation of community pharmacists for advice on minor ailments that maybe alleviated with self-care medications (Department of Health, 1997). On average, a patient visits their physician three times per year; however, it has been documented that 81% of patients use non-prescription products to treat minor ailments with approximately 26 trips to a community pharmacy for

non-prescription medications and self-care therapy per year (Consumer Healthcare Products Association, 2016). Sales contributed to self-care medications in the United States have steadily increased throughout the years, estimating US\$29.7 billion in 2013, US\$30.7 billion in 2014, and US\$32.1 billion in 2015 (Consumer Healthcare Products Association, 2016). With patients consistently engaging in self-care, it is essential that pharmacists have both the knowledge and skills to collect, assess, plan, implement, and follow-up with effective communication with patients regarding self-care recommendations as outlined by the Pharmacists' Patient Care Process (PPCP) (American Pharmacists Association, 2014).

A variety of frameworks have been developed or adapted to educate pharmacy students about how to efficiently counsel and recommend self-care therapies to patients in a community pharmacy setting. These include (but are not limited to) QuEST/SCHOLAR, WWHAM, AS METHOD, and CHAPS-FRAPS (Bates, 2002; Rutter 2004; Buring, 2007). Each of these methods have positive features, however, they may have limitations as well. The WWHAM method, which was studied in the UK, asks the following: "Who is the patient? What are the patient's symptoms? How long have the symptoms been present? Action taken so far? and Medications

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being currently being taken?” (Rutter 2004). The AS METTHOD is a mnemonic that stands for ‘Age, Self or someone else, Medicines currently taking, Exact symptom(s), Time or duration of symptoms, Taken anything for symptoms, History of diseases, Other symptoms, and Doing anything to alleviate or worsen condition’ (Bates, 2002). Unlike QuEST/SCHOLAR, neither of these methods address the patient’s allergies nor provide a guide for product selection (Buring, 2007). The WHHAM method does not take into account the patient’s medical history either (Buring, 2007). CHAPS-FRAPS is a technique that can also be used for assisting in self-care analysis, but unlike QuEST/SCHOLAR, it does not conclude if the patient is an appropriate candidate for self-care or if the patient needs to be referred to their physician for more extensive therapy. The QuEST/SCHOLAR is a framework developed by Leibowitz and Ginsburg that has been supported by the Self-Care Institute of the American Pharmacists Association (Buring, 2007). The tool outlines assessment questions to target appropriate patients for self-care therapy and includes an assessment for follow-up and monitoring (Buring, 2007). This method has a comprehensive list of questions that are designed to solicit important information from patients to identify the appropriate issue and self-care recommendation (Table I).

Table I: QuEST/SCHOLAR method

Qu	Quickly and accurately assess the patient SCHOLAR Symptoms Characteristics History Onset Location Aggravating factors Remitting factors Medications (prescription, over-the-counter, herbal) Allergies (medications or allergies and type of reaction) Coexisting conditions (past medical history)
E	Establish if the patient is a candidate for self-care once you have identified the medical and drug related problems Include any assumptions (additional facts) made when determining treatability
S	Suggest appropriate self-care strategies based on desired therapeutic outcomes (if appropriate) Include medication name, dose, frequency, duration of therapy, and nonpharmacologic general care measures
T	Teach the patient Include medication action, administration and adverse effects

Reference: Buring, S.M., Kirby, J. & Conrad, W.F. (2007). A Structured Approach for Teaching Students to Counsel Self-care Patients. *American Journal of Pharmaceutical Education*, 71(1), 08.

The QuEST/SCHOLAR method has been studied at a variety of institutions, generally in the context of active learning exercises (Hastings, 2010). Active learning can be defined as any instructional method that engages students in the process of learning (Prince, 2004). Skills involving interpersonal communication and patient counselling may similarly benefit from the use of active learning, whether in the context of an in-class exercise, interactive assignment, or simulation experience. Simulation exercises have a long history of utilisation in medical and nursing schools, with some particularly focused on the improvement and assessment of communication skills (Comert, 2016; Kassam, 2016). However, these exercises have only become prevalent in pharmacy education curricula within the past decade (McFalls, 2013). The ACPE defines simulation experiences as an activity or event mimicking pharmacy practice, and that these patient-care simulation experiences can include the use of actors, virtual-reality software, artificial models or manikins, or artificial/virtual environments (ACPE, 2015). In the 1980s, three separate studies were published that utilised simulated patients to provide students the opportunity to enhance their medication history interviewing skills (Ellington, 2002). These three studies concluded that use of simulated patients provided a controlled environment for learning, allowed for immediate feedback for students, encouraged natural personal interactions with actual patients, and improved the techniques of the students’ interviewing skills (Ellington, 2002). While a variety of simulation-based exercises have been published using either trained standardised patients or available faculty/students within the academic institution, none have so far examined differences between the two to see if there is a preferable method.

A patient simulation exercise using the QuEST/SCHOLAR method was developed and incorporated into the second-year, spring semester laboratory course within a four-year Doctor of Pharmacy (Pharm.D.) curriculum. Students in the Pharm.D. programme also receive didactic lectures on Patient Self-Care and Monitoring at the same time as the self-care simulation. In 2015, fourth-year pharmacy students (academic) on a pre-graduation internship with an academic focus were recruited to play the role of the patient and complete the assessment of the second-year student. In 2016, the School of Pharmacy secured funding and obtained standardised patients for the QuEST/SCHOLAR self-care simulation. Standardised patients are lay persons trained to replicate a patient scenario and assess the student's performance (Stillman, 1990). The objective of this study was to determine the difference in student performance in a self-care simulation between using academic versus standardised patients.

Methods

The self-care simulation exercise used fourth-year pharmacy students (academic patients) on a pre-

graduation internship with an academic focus course known as an Advance Pharmacy Practice Experience playing the role of the patient in the 2015 self-care simulation. In 2016, the school utilised standardised patients for the same scenario with a second cohort of students. Both scenarios used the exact same case and assessment rubric. Second-year students participated in the simulation as part of their required laboratory course during the spring semester. Students were prohibited from sharing the case scenario or assessment rubric with classmates based on a signed student confidentiality agreement. In addition, all students received a grade from the simulation exercise based on the assessment rubrics.

The case scenario used four academic patients in 2015 and four standardised patients in 2016. Standardised patients were required to complete several training sessions and assessments about the role of a standardised patient prior to participation in the standardised patient scenarios at an institution. In addition, standardised patients receive monetary compensation for their time. None of these training sessions were required for the academic patients, and the academic patients did not receive monetary compensation. Both the academic and standardised patients were given a script. In addition, both were required to attend a 30-minute orientation session at the School of Pharmacy that covered the self-care simulation script and assessment tool along with the logistics of the scenario. The orientation sessions in 2015 and 2016 were administered by the same faculty member. The case scenario and assessment rubric were reviewed by several faculty members that specifically taught in the didactic self-care courses of the pharmacy curriculum prior to incorporation into the simulation.

The simulation was set-up as a consultation suite with four individual rooms for each patient. Students completing the exercise were randomly assigned a room. Students were allowed time prior to the scenario to review self-care medications outside the room. The table contained six (Tylenol®, Benadryl®, Suphedrine Pe®, Chlortab®, Delsym®, and Nyquil®) self-care medications. The student was given a verbal note from the instructor of the simulation that a patient needed some assistance with a self-care product. The second-year student, assuming the role of a community pharmacist, entered the simulation patient room to begin the simulation exercise. The same products that were outside the room where also available inside the consultation suite for the pharmacist to use if needed. The students were not timed during the simulation. The goal of the exercise was for the students to use the QuEST/SCHOLAR method to conclude that the patient could be safely treated for their dry cough with an over-the-counter medication and counsel the patient on appropriate use of the medication. Once the student completed and left the simulation consultation room, the academic or standardised patient was allowed approximately five to ten minutes to complete the paper assessment rubric. The academic and standardised patients completing the assessment rubric were instructed to answer a seven-question assessment by selecting either yes (full credit), maybe (1/2 or partial credit), or no (zero credit). In addition, the academic and

standardised patients had a section to write comments for the students.

Statistical analyses were conducted using SPSS (IBM Corp. Released 2016. IBM SPSS Statistics for Windows, v23.0. Armonk, NY: IBM Corp). For analysis of Likert-scale data, Mann-Whitney test was used to detect differences in median scores and frequencies among the two categories. For analysis of continuous data (scores), independent *t*-test was used to detect differences in the mean scores. This research was approved by the Samford University Institutional Review Board.

Results

A total of 240 second-year pharmacy students participated in the simulation self-care activity in 2015 (n=132) and 2016 (n=108). Overall, second-year pharmacy students did well scoring an overall average of eight out of ten (80%) on the assessment rubric for self-care. No statistical difference was noted in the overall total mean scores of the students’ evaluations between the two student groups (Table II). In addition, no statistical difference was noted between the students’ mean sub-scores for the combined questions 1-6 (8.0076 vs. 8.060, *p*=0.344) which outlined the problem, other medications, co-existing conditions, allergies and appropriate medication recommendation. As for question seven which outlined the specific elements of counselling for a non-prescription product such as dose, side effects, expected time of effect, and reason for the medication, students’ mean overall score (0-4 scale) showed no statistically difference between the groups (2.6136 vs. 2.5972, *p*=0.873). However, the low average scores amongst both years of a 2.6 out of 4 demonstrate a need for improvement in students’ ability to discuss self-care products with academic and standardised patients.

Table II: Students’ overall mean assessment scores with academic and standardised patient groups

Group	Patient Type	Number of Participants	Mean Score (out of 10)	SD*	<i>p</i> -value
P2-2015	Academic	132	8.0076	1.20904	0.344
P2-2016	Standardised	108	8.0602	1.13302	

SD*=Standard Deviation

When the questions were individually analysed (Table III), students performed better with the standardised patients on questions related to characterising the primary problem (question 1) and asking about other medications (question 2). Students performed better on establishing the appropriateness of a self-care candidate with standardised patients compared to academic patients (100% vs 72%, *p*<0.001). In contrast, students performed

better with academic students versus standardised patients when asked about allergies (question 4) (85% vs 65%, $p < 0.001$, respectively).

The remaining two areas, recommending the correct medication and asking about co-existing conditions, showed no statistical difference between the two groups; however, students' scores were higher with the standardised patients when discussing co-existing medication conditions (86% compared to 83%, respectively).

Table III: Students' performance in QuEST/SCHOLAR self-care simulation

Question Number	Question Content	Type of Patient	Student Performance (rounded to nearest whole number)			p-value
			Yes	Maybe	No	
1	Did the student correctly characterized the patient's current problem with SCHOLAR?*	Academic	84%	16%	0%	0.045
		Standardised	93%	7%	0%	
2	Did the student ask about other medications (prescription, non-prescription and herbal)?	Academic	61%	28%	11%	0.005
		Standardised	78%	17%	5%	
3	Did the student ask about co-existing conditions (past medical history)?	Academic	83%	0%	17%	0.210
		Standardised	86%	6%	8%	
4	Did the student ask about allergies?	Academic	85%	1%	14%	0.001
		Standardised	65%	7%	28%	
5	Did the student establish that the patient is an appropriate self-care candidate?	Academic	72%	23%	5%	<0.001
		Standardised	100%	0%	0%	
6	Did the student recommend the appropriate product?	Academic	95%	2%	3%	0.136

*Scholar means symptoms, characteristics, history, onset, location, aggravating or remitting factors.

Discussion

Overall, the students' performance was better on majority of the individual questions in the QuEST/SCHOLAR rubric with standardised patients compared to academic patients. However, students' overall performed well with an average score of eight out of ten with both academic and standardised patients. The goal of this type of

activity was to create the most realistic portrayal of the interactions that transpire between a pharmacist and patient. The PPCP promotes and highlights the importance of and need for consistency in the delivery of patient care in any practice setting (American Pharmacists Association, 2014). A study by McFalls surveyed 21 community pharmacy preceptors about students' patient counselling skills and self-care medication knowledge. These preceptors gave students an average rating of 2.6 on a 5-point Likert-type scale (1-lowest and 5-highest), signifying significant room for improvement (McFalls, 2013). These are potential motivating factors for pharmacy schools to develop simulation exercises with standardised patients, especially related to self-care communication skills and content knowledge.

There are advantages and disadvantages to both standardised and academic patients. Factors to consider when selecting either an academic or standardised patient are the potential for bias in evaluating a student, understanding of the case and rubric, and costs associated with the simulation. Since the academic patient was a fourth-year pharmacy student completing their pre-graduation internship with an academic focus, there is a potential for unintended biases associated with evaluating their fellow students despite the two-year separation in the curriculum. Additionally, the academic patient may accidentally fill in gaps of information that are pertinent to the case which were not addressed by the student due to their advanced knowledge of the subject matter. While not impossible, these circumstances are less likely to occur with standardised patients due to their training. In addition, simulation scenarios are uncomfortable for many people. For some, simulation with someone that they are familiar with, such as an academic student, may influence a student's performance compared to an unknown patient. However, the results of the simulation demonstrated no difference in the overall scores of the second-year student. As for standardised patients, the time to educate and train the patients is required. In a study that evaluated 38 German medical faculty, more experienced educators recognised the possibilities and options of using trained standardised patients in communication sessions within the medical education curriculum. In addition, the more experienced medical faculty noted the valuable opportunity for students to interact and self-reflect after an encounter. Although the study was positive, a few improvements noted by faculty were more time to complete scenarios, motivation of students, and improved training for standardised patients (Alvarez, 2017).

Lastly, costs associated with academic and standardised patients is a factor to consider. The cost for standardised patients to assist with twelve total hours of simulation time was approximately \$1,500 to \$2,000 US dollars. This did not include the cost for the overall training or administration of the standardised patient programme. Our academic patients did not receive monetary compensation; however, they also did not receive any professional training beyond the brief orientation before the simulation scenario.

There were several limitations in the study. The ten-point rating scale utilised in the simulation provided little variation between the overall scores which may have limited the detection of a difference in the students' scores. Another limitation of the study was comparing two separate classes of students. There could be variations in the class dynamics, and how they were taught the material that pertained to this exercise. By comparing different class cohorts, the ability to assess student improvement in their performance between academic patients compared to the standardised patients was lacking. Other factors were the difference in the training. Standardised patients have extensive training about role playing and evaluation of the student participant. The lack of keeping time could have also bias the results. Students that spent more or less time with the academic patient compared to standardised patient has the potential to bias the results. Lastly, a single centre simulation has the potential to impact the results. There is a need for further research to assess students' perception of performance and preparation for delivery of patient care in conjunction with the evaluator's assessment along with a matched cohort.

Conclusion

With the focus on the need for consistency in the delivery of patient care in any pharmacy practice setting, self-care simulated experiences with standardised or academic patients are a method to consider in the pharmacy curriculum. Based on these results, academic students with training may be a reasonable substitution for standardised patients portraying the interaction between a pharmacist and a patient in a self-care simulation to evaluate a students' performance in communication related to a self-care encounter. Student interactions with an academic or standardised patient gives students an opportunity for feedback to improve their self-care patient interactions.

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