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3 **Title:** Experiences and Perceptions of Pharmacy Students and Pharmacists With a Community  
4 Pharmacy-Based OSCE  
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6 **Running Title:** Experiences with a Community Pharmacy OSCE  
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28 The authors declare no conflicts of interest.  
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**Abstract**

**INTRODUCTION:** Self-care therapeutics teaches students how to apply the Pharmacists' Patient Care Process to determine if a patient's concern is appropriate for self-care and then independently prevent, diagnose, and treat the condition. Objective Structured Clinical Examinations (OSCEs) have been shown to be a reliable and valid form of assessment used in pharmacy education. There is limited research examining the use of a community pharmacy-based OSCE to evaluate self-care clinical skills in first year pharmacy (P1) students.

**OBJECTIVES:** To evaluate P1 students' and facilitators' experiences and perceptions of a community pharmacy-based OSCE. Student performance on the OSCE was evaluated as a secondary objective.

**METHODS:** Students completed an OSCE that consisted of 2 patient cases. Students' experiences with the OSCE were collected using a standardized questionnaire. The questionnaire consisted of 41 questions that assessed 4 areas: attributes of the OSCE, quality of the OSCE performance, OSCE scoring and objectivity, and comparison with other assessment methods. Facilitator experiences and perceived value of the OSCE were assessed using a questionnaire. The responses were evaluated using a Chi-Square test.

**RESULTS:** Eighty-eight students completed the OSCE and questionnaire. Students found the OSCE to be fair (91%) and cover a wide range of skills (76%). The majority of the students (91%) agreed that the OSCE provided opportunities to learn and was a practical and useful experience (86%). Approximately two-thirds (66%) of the students felt that the OSCE provided a true measure of essential clinical skills needed in self-care therapeutics. Fourteen facilitators participated in the OSCE and completed the questionnaire. Community pharmacists represented most of the facilitators (57%). Facilitators agreed that the OSCE tests the knowledge and skills needed to practice in community pharmacy (100%).

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3 **CONCLUSION:** A community pharmacy-based OSCE may be a valuable tool to assess clinical skills and  
4  
5 provide clinical learning experiences for pharmacy students.  
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8 **Key Words:** Self Care, Therapeutics, Patient Simulation, Education, Community pharmacy  
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6 According to the United States Bureau of Labor Statistics, a majority of pharmacy graduates enter the  
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8 workforce in a community pharmacy setting.<sup>1</sup> As the community pharmacy setting continues to evolve  
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10 from dispensing to providing additional patient care services, there is also a need for the pharmacy  
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12 curriculum to provide assessment of community pharmacy clinical skills.<sup>2</sup> Self-Care  
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14 Pharmacotherapeutics is a required course in the first semester for first year pharmacy (P1) students at  
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16 the University of Arizona College of Pharmacy that is designed to teach students how to apply the  
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18 Pharmacists' Patient Care Process (PPCP) in a community pharmacy setting. This course utilizes the PPCP  
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20 to teach appropriate use of medications for specific self-care inquiries including selection of appropriate  
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22 medications, appropriate dosing, and analysis of safety and monitoring. Case-based learning is  
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24 integrated into every class period to provide students with the opportunity to practice applying the  
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26 PPCP with their peers. Non-pharmaceutical therapy, counseling, and exclusions to self-care are also  
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28 covered in this course. Literature discussing the assessment of clinical skills acquired in a self-care  
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30 therapeutics course is limited. However, Objective Structured Clinical Examinations (OSCEs) are  
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32 accepted as a reliable and valid form of assessment that are used in health care education worldwide<sup>3</sup>  
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34 and have the potential to assess community pharmacy clinical skills.

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40 There is limited research in pharmacy education examining the use of a community pharmacy-based  
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42 OSCE to evaluate self-care clinical skills in P1 pharmacy students. This study evaluates the P1 students'  
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44 and facilitators' experiences and perceptions of a community pharmacy-based OSCE. Student  
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46 performance on the OSCE was evaluated as a secondary objective.

## 47 48 49 **Methods**

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3 This study was approved by the University of Arizona Human Subjects Protection Program to evaluate  
4 student and preceptor perceptions on whether a community pharmacy-based OSCE is a fair and valid  
5 assessment of performance.  
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### 9 10 Setting and Sample

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12 All 120 students in the Self-Care Pharmacotherapeutics course were invited to participate in the  
13 community pharmacy-based OSCE. Six extra credit points, equivalent to two exam questions or 1% of  
14 the total points in the course, were offered to each student who completed the OSCE. Offering the  
15 OSCE as an extra credit opportunity allowed for it to be administered outside of regular class time to  
16 avoid penalizing students who were unable to attend, allowed the facilitators to grade rigorously  
17 without concern for hurting final grades, and avoided using class time needed for instruction. This was  
18 the first OSCE experience offered in the curriculum to these P1 students.  
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### 29 30 Procedure

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32 The OSCE was developed to assess students on two self-care therapeutics topics, heartburn and  
33 insomnia. These two topics were chosen for their difference in complexity due to the number of  
34 medications and exclusions to self-care students are required to master. Heartburn, by comparison to  
35 insomnia, requires understanding of a larger number of medications and exclusions to self-care.  
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42 To prevent confounding the results with differences in student preparation for the OSCE, the students  
43 were only made aware that the extra credit opportunity was an OSCE upon consent. The OSCE cases  
44 and rubric, referred to as the Facilitator OSCE Assessment Rubric (Appendix), were developed by the  
45 class coordinators and validated by a senior faculty member.  
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51 For the OSCE, up to 17 students arrived at a main coordination room every 10 minutes. Upon arrival, a  
52 randomized subject number was provided to every student participant, the study procedures were  
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3 reviewed, consent was obtained, and all questions were answered. Students were assigned to a  
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5 separate room and given 20 minutes to complete the OSCE with a facilitator. Using the Facilitator OSCE  
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7 Assessment Rubric, the facilitator administered the two cases to the student and graded their  
8  
9 performance (Appendix). Upon completion of the OSCE, the students and facilitators were provided  
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11 with a link to either an anonymous survey questionnaire for students (41 questions) or facilitators (9  
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13 questions).  
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17 The OSCE required two coordinators, 17 facilitators, and 17 rooms. The OSCE facilitators were volunteer  
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19 pharmacists from faculty and local community pharmacies that acted as the simulated patient and the  
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21 preceptor. Each received a training video that simulated the OSCE and reviewed the grading rubric.  
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23 Thirty minutes prior to the OSCE, facilitators received an overview of the OSCE followed by a Q&A  
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25 session with the research team.  
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#### 28 29 Data collection

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32 Students' experiences with the OSCE were collected using a standardized Qualtrics questionnaire that  
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34 has been used to assess student experience and perception of an OSCE with adequate reliability and  
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36 validity indexes.<sup>4,5</sup> The questionnaire consists of 41 questions and a box to provide additional feedback.  
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38 The questions are grouped into four different sections. The first section measures the attributes of the  
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40 exam. Section 2 assesses students' evaluation of the quality of the OSCE performance. Section 3  
41  
42 assesses OSCE scoring and objectivity. Section 4 assesses OSCE organization, and the final section asks  
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44 students to rate the OSCE in relation to other assessment methods used in education (multiple choice,  
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46 true or false, etc.).  
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50 Facilitators' experiences were collected using a 9 question Qualtrics questionnaire to assess their  
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52 experience and perceived value of the OSCE. The questionnaire was developed after a review of the  
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54 literature and adapted to be specific to pharmacy.<sup>6</sup>  
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3 OSCE performance was collected using a rubric completed by each facilitator. Two OSCE cases,  
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5 heartburn and insomnia, evaluated the students' application of the PPCP in a simulated setting. The  
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7 collection, assessment, planning, and implementation of a treatment plan during the OSCE were all  
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9 evaluated and scored according to the rubric in the Appendix. Each OSCE case was worth a total of 36  
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11 points.  
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#### 14 15 Data analysis

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18 The questionnaire responses were evaluated using a Chi-Square test on an Excel spreadsheet. Student  
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20 performance was evaluated using descriptive statistics on an Excel spreadsheet. A p-value of <0.05 was  
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22 considered a significant difference.  
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### 25 Results

#### 26 27 28 Description of sample

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31 Demographics from the University of Arizona College of Pharmacy class of 2023 are publicly available.<sup>7</sup>  
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33 These demographics were used to avoid investigator bias on the final grades of the subjects and to  
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35 receive Institutional Review Board approval. Of the 120 eligible students, one student withdrew from  
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37 the college prior to the OSCE and 88 (74%) participated in the study (Table 1).  
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41 There were 17 facilitators that participated in the OSCE and 14 completed the questionnaire.  
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#### 44 OSCE evaluation by students

##### 45 46 *Attributes of the exam*

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49 There were 13 attribute items measured. There was a consensus amongst students on five positive  
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51 attributes of the OSCE: fairness (91%), administration (89%), knowledge area covered (88%), student  
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53 ability to compensate in some areas (81%), and the ability of the OSCE to highlight areas of weaknesses  
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3 (83%). More than 75% of the students agreed that the OSCE was well structured and sequenced (76%)  
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5 and that a wide range of skills were covered (76%). About half of the students agreed that the OSCE was  
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7 less stressful than other exams (51%) and felt that the amount of time spent with the facilitator was  
8  
9 adequate (60%) (Table 2).  
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#### 11 12 *Quality of performance testing, objectivity, and scoring*

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15 The majority of students (91%) agreed that the OSCE provided opportunities to learn and was a practical  
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17 and useful experience (86%). Tasks completed during the OSCE were viewed as fair (84%) and reflected  
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19 what was taught (85%). Approximately two thirds of the students felt that the OSCE provided a true  
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21 measure of essential clinical skills in self-care therapeutics (66%) and very little (3%) did not agree with  
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23 this at all (Table 3).  
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#### 26 27 *Comparison with other assessment methods*

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30 Compared with other exam methods (multiple-choice, true/false, essay/short answer), students found  
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32 the OSCE to be the fairest (77%), the format that they learned the most from (84%), and the easiest  
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34 (57%). Seventy six percent of the students would like the OSCE to be used more often as an assessment  
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36 method (Table 4).  
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#### 40 OSCE evaluation by facilitators

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43 Community pharmacists represented the majority (57%) of the facilitators that completed the  
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45 questionnaire (Table 5). One hundred percent agreed or strongly agreed that the OSCE tests the  
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47 knowledge and skills needed to practice in community pharmacy. The facilitators also agreed or  
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49 strongly agreed that the OSCE represents community pharmacy practice (79%) including the amount of  
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51 time an intern would have to interact with a patient (79%) (Table 6).  
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#### 55 Evaluation of student performance on the OSCE

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3 Each topic was evaluated separately. The average score for the heartburn OSCE was 78% (28.2 ± 5.61).  
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5 For the insomnia topic, students performed slightly better, with an average score of 80% (28.7 ± 6.37).  
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## 8 **Discussion**

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11 A community pharmacy-based OSCE may be a valuable experience to prepare students for community  
12 pharmacy. As previously discussed, data supporting a community pharmacy-based OSCE is limited.  
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15 Because this was the first OSCE that the P1 students experienced, the perceptions of the experienced  
16 community pharmacist facilitators provided insight into the accuracy of the simulation. The facilitators  
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18 agreed that the OSCE represented their community pharmacy practice, while both the facilitators and  
19  
20 the pharmacy students agreed that the OSCE tested the skills needed to provide care in the community  
21  
22 setting. The facilitators also agreed that the design of the simulation reflected common questions that  
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24 are asked by patients regarding self-care, as well as the amount of time that a student intern would have  
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26 to complete the PPCP. Thus, providing insight to the students that the PPCP can be applied to patients,  
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28 even when time may seem limited and the patient is the sole source of information.  
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35 The results of this study reinforces the use of OSCEs to assess clinical skills.<sup>8,9,10</sup> Similar to a study done  
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37 in 2019 by Bani-issa and colleagues<sup>11</sup> with nursing students, the pharmacy students and facilitators rated  
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39 the OSCE favorably in regard to providing a comprehensive method to evaluate the skills required to  
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41 assess and provide self-care to patients. Alternative examination methods, such as multiple choice and  
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43 true or false exams, tend to emphasize the first 2 levels of Bloom's taxonomy, remembering and  
44  
45 understanding<sup>12</sup>, and allow the student to score points with a lucky guess. The OSCE requires students to  
46  
47 apply the knowledge and skills learned in class by retrieving, evaluating, and analyzing information from  
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49 the simulated patient. This method allows facilitators to assess students' application of the PPCP to a  
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51 patient and provide feedback regarding their application of the material to the patient.  
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3 Utilizing an OSCE as a formative learning tool has potential for P1 students. Students in this study  
4 reported the OSCE was practical and useful, and provided an opportunity to apply their knowledge to a  
5 'real' patient. P1 students are uniquely poised to benefit from additional patient care opportunities  
6 considering they are likely to have less pharmacy work experience compared with 2<sup>nd</sup> year (P2), 3<sup>rd</sup> year  
7 (P3), and 4<sup>th</sup> year (P4) students. The benefit of OSCEs early in the pharmacy curriculum was supported  
8 by a 2017 study by McMillan and Barrickman that found that introducing OSCEs in the P1 year may allow  
9 students to become more familiar with this type of assessment and facilitate optimal design of future  
10 OSCEs in the curriculum.<sup>13</sup>

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12 OSCEs may be more memorable than completing patient cases or answering case-based questions and  
13 may be the reason students in our study reported the OSCE as the assessment format they learned the  
14 most from. OSCEs include the dynamic back-and-forth interactions that occur when interviewing a  
15 patient. This idea is further supported by the fact that facilitators' in this study felt the OSCE would  
16 prepare students for community practice better than other assessment methods. These practicing  
17 professionals saw the value in providing P1 students with more opportunities for knowledge application  
18 and patient interaction. The favorable perception of the OSCE may reflect the effectiveness of the  
19 teaching methods associated with the self-care therapeutics course. Teaching students in an interactive  
20 case-based format may prepare students to feel confident providing patient care to a 'live' patient.  
21 Students in this study reported they felt prepared and aware of the level of information needed to  
22 complete the OSCE. In addition to having this as an extra credit opportunity, this may support why the  
23 OSCE was reported as less stressful. This is in contrast to the 2019 Bani-issa and colleagues study<sup>11</sup>  
24 where students rated the OSCE favorably but found it to be intimidating and stressful. This difference in  
25 perceived anxiety around the OSCE may be due to differences in teaching strategies.

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3 Despite students preferring the OSCE to other assessment methods and feeling it was the best  
4 assessment format, the performance did not reflect a higher average than the performance students  
5 have historically had on previous assessment methods used in the self-care therapeutics course. Student  
6 perception of their performance may have been influenced by their ability to collect any information  
7 from the patient interview which is in contrast to traditional assessment methods.  
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12 OSCEs typically consist of one or more structured clinical scenarios that allow students to work  
13 interactively with a standardized patient while answering clinical questions or providing clinical  
14 counseling.<sup>14</sup> Multiple colleges of pharmacy have reported their experiences with OSCEs, including  
15 testing P1 students prior to the end of fall semester, P3 students) prior to Advanced Pharmacy Practice  
16 Experiences (APPEs), and as part of foundational skills courses.<sup>3,13,15</sup> Specifically, OSCE use with P1  
17 students was described by McMillan and Barrickman in 2017 and Curtis and colleagues in 2019.<sup>13,15</sup>  
18 Both groups assessed P1 students on overall pharmacy skills and knowledge, and the OSCE was not part  
19 of a self-care therapeutics course.  
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34 A 2009 survey of pharmacy schools found that 32 programs incorporated OSCEs as part of their  
35 assessment of pharmacy students, mostly in laboratory and communication courses.<sup>16</sup> This survey did  
36 not find any schools employing OSCEs to evaluate self-care therapeutic courses. However, a 2010 study  
37 by Hastings and colleagues did examine the use of OSCEs in an advanced self-care elective course  
38 offered to P3 students and found that OSCEs provided an enhanced mechanism for evaluation of self-  
39 care skills and students found the assessment format valuable.<sup>17</sup> P3 student perceptions were assessed  
40 using a standardized evaluation form that was used to evaluate all courses in the pharmacy curriculum.  
41 The evaluation tool utilized a 5-point Likert scale and was not validated to assess perception of an OSCE.  
42 Students' perceptions of the OSCE were collected via open comment sections on the evaluation form.  
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54 More recently, Chen and colleagues<sup>18</sup> published a study in 2019 that examined the use of a Simulated  
55 Self-care Counseling Encounter (SSCE) to evaluate student counseling skills in a self-care course.  
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3 Students were also asked to counsel a real patient during their Introductory Pharmacy Practice  
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5 Experience (IPPE) the same week.  
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9 Although rated as a favorable assessment method and learning experience, OSCEs do require more  
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11 resources than other examination methods (multiple choice, true or false, short answer). To maintain  
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13 the integrity of the OSCE, there would ideally be enough resources (facilitators and rooms) to administer  
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15 an OSCE to half of the class initially, immediately followed by administering the same OSCE to the  
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17 second half of the class. Community pharmacists were enthusiastic to participate in the OSCE, however,  
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19 some were unable to commit due to scheduling conflicts. As previously discussed, the community  
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21 pharmacists agreed that this OSCE represented their practice site. This allows the class coordinators to  
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23 train pharmacists from other practice settings to administer future OSCEs. Although conducting an  
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25 OSCE may be difficult to routinely coordinate, it should be considered as an addition to pharmacy  
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27 programs to evaluate clinical competency. Future research could consider OSCEs as an assessment of  
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29 both students' clinical skills and the associated courses' ability to prepare students to perform these  
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31 skills.  
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### 36 Limitations

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40 In addition to having the OSCE offered for extra credit, students may have shared the OSCE case studies  
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42 with classmates in latter groups, even though they agreed to maintain confidentiality upon consent. This  
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44 may be considered a limitation as this may have affected how stressful students viewed the assessment.  
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48 Utilizing pharmacists as simulated patients versus standardized patients may have influenced student  
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50 perceptions and performance. Although costly, having standardized patients for future iterations of this  
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52 OSCE will ensure that students are being evaluated only on the learned skills in the simulation.  
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3 Student perception of the OSCE may have also been influenced by the facilitator assigned. Although  
4 training and a standardized grading rubric was provided to the facilitators to ensure equity amongst  
5 student experiences, differences were noted between the facilitators and how they assessed the  
6 students when evaluating the data. The training videos provided to the facilitators modeled the OSCE  
7 using a different topic than heartburn and insomnia. Having a training video that models the exact cases  
8 that will be assessed by the facilitator may help with some of the differences seen.  
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17 Another limitation of this study is the inability to compare this OSCE experience to another OSCE  
18 covering a different topic or pharmacy setting, as these students are P1 students in their first semester  
19 of pharmacy school. Administering a community pharmacy-based OSCE later in the curriculum, after  
20 they have completed OSCEs in different settings, may change the students' expectations for an OSCE,  
21 thus altering their experiences and perceptions.  
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## 29 **Conclusion**

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32 This study evaluates students' and facilitators' experiences and perceptions of a community pharmacy-  
33 based OSCE to assess self-care clinical skills in P1 students. A community pharmacy-based OSCE may be  
34 a valuable tool to assess clinical skills and provide clinical learning experiences for pharmacy students.  
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## 17 18 Tables

19  
20 Table 1, Class of 2023 Demographics<sup>†,18</sup>

21 Applicants enrolled	120
22 Arizona residents	112
23 Non-residents	8
24 Men	36
25 Women	84
26 Average age of class	24
27 Underrepresented ethnicity	40
28 Students with bachelor's degree	47
29 Average PCAT composite score	63.18
30 Average cumulative GPA	3.36

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33 GPA = Grade Point Average; PCAT = Pharmacy College Admission Test.

34 †College admission demographics were used to avoid investigator bias.  
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37 Table 2. Evaluation of OSCE Attributes (N=88)

38 Question	39 Agree (%)	40 Disagree (%)	41 Neutral (%)	42 P-Value
43 OSCE was fair	91%	2%	7%	<0.001
44 Wide knowledge area covered	88%	1%	11%	<0.001
45 Needed more time with facilitator	13%	60%	27%	<0.001
46 OSCE well administered	89%	5%	7%	<0.001
47 OSCE very stressful	20%	36%	43%	0.03
48 OSCE well structured & sequenced	76%	2%	22%	<0.001
49 OSCE minimized chance of failing	43%	19%	38%	0.01
50 OSCE less stressful than other exams	51%	24%	25%	0.003
51 Allowed student to compensate in some areas	81%	3%	16%	<0.001
52 Highlighted areas of weakness	83%	3%	14%	<0.001
53 Intimidating assessment	24%	43%	33%	0.08
54 Student aware of level of information needed	75%	6%	20%	<0.001
55 Wide range of clinical skills covered	76%	2%	22%	<0.001

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OSCE = Objective Structured Clinical Examinations.

Table 3. Evaluation of OSCE Quality of Performance Testing, Objectivity, and Scoring (N=88)

Question	Neutral (%)	Not at all (%)	To great extent (%)	P-Value
Fully aware of nature of assessment	44%	2%	53%	<0.001
Tasks reflected those taught	14%	1%	85%	<0.001
Time at each station was adequate	17%	3%	80%	<0.001
Setting and context at each station felt authentic	33%	2%	65%	<0.001
Instructions were clear and unambiguous	32%	5%	64%	<0.001
Tasks asked to perform were fair	15%	1%	84%	<0.001
Sequence of stations logical and appropriate	11%	1%	88%	<0.001
OSCE provided opportunities to learn	8%	1%	91%	<0.001
OSCE scores provide true measure of essential clinical skills in self-care therapeutics	31%	3%	66%	<0.001
OSCE scores are standardized	58%	6%	36%	<0.001
OSCE is a practical and useful experience	14%	0%	86%	<0.001
Personality, ethnicity, and gender will not affect OSCE scores	20%	9%	70%	<0.001

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Table 4. Rating of OSCE in Relation to Other Assessment Methods Used in Education (N=88)

Which of the following formats is easiest?	Difficult (%)	Easy (%)	Undecided (%)	P-Value
Multiple Choice Question	16%	51%	33%	<0.001
Essay/Short Answer Question	50%	24%	26%	0.004
OSCE	13%	57%	31%	<0.001
True or False Questions	26%	44%	30%	0.08

Which of the following formats is fairest?	Fair (%)	Unfair (%)	Undecided (%)	P-Value
Multiple Choice Question	70%	3%	26%	<0.001
Essay/Short Answer Question	53%	14%	33%	<0.001
OSCE	77%	3%	19%	<0.001
True or False Questions	58%	14%	28%	<0.001

From which of the following formats do you learn most?	Learn a lot (%)	Learn very little (%)	Undecided (%)	P-Value
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Multiple Choice Question	55%	10%	35%	<0.001
Essay/Short Answer Question	59%	11%	30%	<0.001
OSCE	84%	0%	16%	<0.001
True or False Questions	28%	31%	41%	0.31

<b>Which of the following formats should be used more often in the self-care therapeutics course?</b>	<b>Undecided (%)</b>	<b>Used much less (%)</b>	<b>Used much more (%)</b>	<b>P-Value</b>
Multiple Choice Question	40%	9%	51%	<0.001
Essay/Short Answer Question	31%	33%	36%	0.81
OSCE	19%	5%	76%	<0.001
True or False Questions	35%	33%	32%	0.92

OSCE = Objective Structured Clinical Examinations.

Table 5. Characteristics of Facilitators (N=14)<sup>†</sup>

Primary Practice Site	Academia	21%
	Ambulatory Care	7%
	Community Pharmacy	57%
	Inpatient Pharmacy	7%
	Specialty Pharmacy	7%
Primary role	Clinic/Specialty Pharmacist	21%
	Faculty	14%
	Pharmacy Manager/Pharmacist In Charge	21%
	Regional pharmacy manager/director/Vice President	7%
	Staff Pharmacist	36%
Average hours worked per week at practice site	20-29.9	14%
	30-39.9	14%
	40-49.9	50%
	50-59.9	21%
Number of prescriptions processed daily	100-199	7%
	200-299	21%
	300-399	21%
	> 500	14%
	Not Applicable	36%
Years of practice	< 5	14%
	5 - 10	50%
	10 - 15	29%
	15 - 20	7%

†17 facilitators administered the OSCE, 14 completed the questionnaire.

Table 6. OSCE Evaluation by Facilitators (N=14)

Question	Strongly Agree	Agree	Disagree	Strongly Disagree	P-Value
The OSCE instructions were clear	29%	57%	14%	0%	0.02
My questions were answered to my satisfaction	43%	50%	7%	0%	0.01
The training video provided me with adequate information to facilitate the OSCE	29%	64%	7%	0%	0.003
The OSCE briefing gave me the information I needed	36%	64%	0%	0%	0.001
I understood the point scheme	14%	43%	36%	0%	0.18
The OSCE could have been better organized	7%	43%	36%	14%	0.18
The OSCE tests the knowledge needed to practice in a community setting	29%	71%	0%	0%	<0.001
The skills needed for practice in community setting are adequately tested	21%	79%	0%	0%	<0.001
The attitudes needed to practice are tested	36%	43%	14%	0%	0.07
The OSCE questions were clearly written	14%	43%	36%	0%	0.07
The OSCE represents my practice site	21%	57%	14%	0%	0.01
The amount of time provided to complete the OSCE is representative of the actual time a pharmacy intern would have at my practice site	21%	57%	14%	0%	0.01
An OSCE better prepares students for the retail/community practice setting	29%	64%	0%	0%	0.001
I enjoyed being a facilitator for the OSCE and would volunteer again in the future	43%	50%	0%	0%	0.004

OSCE = Objective Structured Clinical Examinations.

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**Appendix**

Facilitator OSCE Assessment Rubric

### OSCE Assessment for Facilitator

Total of 36 points per case

<b>Case- 1 (repeat for case 2)</b>			
<b>COLLECT</b> (1 point per SCHOLARMAC question asked – 10 points total)			<b>Use this column to write notes</b>
<input type="checkbox"/>	<b>S-Symptoms</b>	What is bothering you/How can I help you?	
<input type="checkbox"/>	<b>C-Characteristics</b>	What are the symptoms like?	
<input type="checkbox"/>	<b>H-History</b>	What have you tried? Is this a new problem or a recurrence?	
<input type="checkbox"/>	<b>O-Onset</b>	When or how did it start?	
<input type="checkbox"/>	<b>L-Location</b>	Where is the problem/symptoms?	
<input type="checkbox"/>	<b>A-Aggravating Factors</b>	What makes it worse?	
<input type="checkbox"/>	<b>R-Remitting Factors</b>	What makes it better?	
<input type="checkbox"/>	<b>M-Medications</b>	What prescription, non-prescription, and herbal supplements do you take?	
<input type="checkbox"/>	<b>A-Allergies</b>	What allergies do you have?	
<input type="checkbox"/>	<b>C-Coexisting Conditions</b>	What other medical conditions do you have?	
	Patient age, sex, height, weight, pregnancy status	No points associated	
	Patient occupation	No points associated	
	Patient dietary habits	No points associated	
<b>ASSESS (6 points total)</b>			
<input type="checkbox"/> Identify Primary Problem (1 point)	Differentiate signs and symptoms and identify patient's primary problem	Student identifies primary problem as _____	
<input type="checkbox"/> Determined that self-care is appropriate (1 point) <input type="checkbox"/> Described exclusions for self-care (4 points)	Is the patient an appropriate candidate for self-care?	Options include (circle what student chooses to do): 1) Refer to a health care provider now 2) Recommend self-care 3) Recommend self-care until patient can be seen by health care provider 4) Take no action	Rationale: Discuss exclusions for self-care
<b>PLAN – Student to present plan to pharmacist preceptor (16 points total)</b>			

<input type="checkbox"/> Non pharm selection (3 points) <input type="checkbox"/> Rationale (5 points)	Non-pharmacologic recommendations and rationale	Non-pharmacologic options: List options here	Rationale: Discuss rationale for non-pharmacologic options
<input type="checkbox"/> Pharm selection (3 points) <input type="checkbox"/> Rationale (5 points)	Product recommendation and rationale	Pharmacologic (OTC) treatment options: List options here included correct selection	Rationale: Discuss rationale for pharmacologic options
<b>IMPLEMENT, FOLLOW UP, MONITOR, AND EVALUATE (4 points total)</b>			
<input type="checkbox"/> Counseling & follow up (4 points)	Provide specific recommendation – drug, dose, route, frequency, duration, administration instructions, expected time to relief, common side effect	1) Drug name 2) Recommend dose and frequency of administration (and any administration instructions) 3) Duration of therapy 4) Expected time to relief 5) Common side effects 6) Recommendations if condition worsens 7) Storage requirements 8) Non-drug recommendations for condition 9) Solicit follow-up questions from patient 10) Follow up recommendations	

OSCE = Objective Structured Clinical Examinations; OTC = over-the-counter.