

Pharmacy Students' and Alumni Perceptions of Simulated Patient Use in Clinical Training: Insights from a Mixed-Methods Study

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Abstract

The use of simulated patients (SPs) is recognized as a valuable tool for teaching and evaluating clinical and communication abilities in healthcare education. This study aimed to assess the perceptions of pharmacy students regarding the use of SPs in Qatar and identify areas that need enhancement. An explanatory sequential mixed-methods design was implemented among students and recent graduates from the College of Pharmacy at Qatar University (QU-CPH). Initially, a quantitative cross-sectional survey was used to gauge their views on the current application of SPs. This was followed by six focus group discussions to explore the survey results in more detail. The quantitative and qualitative findings were then combined to offer a comprehensive interpretation. Over 90% of the participants acknowledged that engaging with SPs is crucial for developing effective communication and counseling skills in professional skills courses. Additionally, 80% of respondents believed that their interactions with SPs helped them better apply the clinical skills learned in professional skills and patient assessment sessions to real-world situations. Most participants also shared positive feedback on their experiences with SPs during competency assessments. They expressed comfort in interacting with SPs of the opposite gender. Key themes that emerged from the focus groups included: differences in experiences with trained versus faculty SPs, the need for more standardization and consistency in the role of SPs, challenges around communication and language barriers, the realism of case simulations, SPs' preparedness and competency, the psychological impact of SP interactions, and recommendations for improving the SP program. Areas requiring improvement included the need for better training and orientation for SPs, as well as more rigorous criteria for SP selection. The study revealed that students and alumni have a generally positive view of the role of SPs in the pharmacy curriculum. However, the SP program could benefit from enhancements in terms of SP training, orientation, and selection processes.

Keywords: Students' perception, Competency-based curriculum, Simulated patients, Performance-based assessment, Curriculum, Pharmacy education

Introduction

Education and training of healthcare professionals, including pharmacists, rely on diverse teaching and evaluation approaches to support the development of essential competencies. These competencies include

gathering patient information, conducting history-taking and physical examinations, formulating appropriate care plans, and establishing monitoring strategies [1]. Within pharmacy education, clinical competence and effective communication are core learning outcomes expected to be achieved during undergraduate training. These competencies can [be delivered and assessed through various approaches, including performance-based assessments that incorporate simulated patients (SPs) [1, 2].

A simulated patient is described as a trained individual who portrays a patient role during a clinical interaction with a healthcare provider or healthcare professional

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student [3]. SPs are widely regarded as a valuable educational resource for both teaching and assessing a broad range of clinical skills, such as communication, data collection, patient counseling, education, and physical examination [4, 5]. Existing literature highlights the advantages of using trained SPs over faculty members or peer students acting as patients, particularly within medical education [4, 6]. Furthermore, evidence suggests that integrating SPs into courses where communication is a primary learning objective enhances student performance across several health disciplines, including nursing, pharmacy, medicine, and physical, occupational, and speech therapies [5, 7-11].

The SP approach is considered an effective strategy for embedding communication skills into pharmacy practice education and serves as a foundation for structured communication skills development programs. This approach enables students to perform more effectively in problem-based scenarios and realistic clinical simulations [12]. Simulation-based education, with SPs as a core component, is grounded in several learning theories, most notably behavioral, constructivist, and social cognitive frameworks [13, 14]. These theories emphasize the interactive and social nature of simulation and support the alignment of simulation realism with intended learning outcomes during scenario design and implementation [14]. Consequently, curriculum development and the application of SPs within simulation-based learning should be informed by these theoretical perspectives.

Given the recognized role of SPs in enhancing patient-provider communication and replicating authentic clinical encounters [4, 6, 15-17], the College of Pharmacy at Qatar University (QU-CPH) launched an SP program in 2015. Established in 2007, QU-CPH is currently the sole pharmacy school in Qatar and delivers a Canadian-accredited, patient-centered curriculum aligned with international standards [18]. Communication proficiency is a fundamental competency for healthcare professionals, enabling effective patient care delivery and fostering productive interprofessional collaboration [19].

Before the implementation of the SP program, QU-CPH employed a variety of instructional and assessment strategies, including the use of faculty members and administrative staff to role-play patients. While this approach supported communication skills training, it became increasingly demanding as student enrollment expanded, curricular complexity increased, and the

number of performance-based assessments grew. To address these challenges and enhance learning integration, QU-CPH formally introduced the SP program. SPs are now primarily utilized in professional skills courses, patient assessment courses, and integrated case-based learning modules. Assessment formats involving SPs include Objective Structured Clinical Examinations (OSCEs), Structured Multi-Skill Assessments (SMSAs), and physical assessment practical examinations. The SMSA, developed at QU-CPH, is an adapted form of the OSCE designed to address contextual and cultural considerations within undergraduate pharmacy education [20]. It was introduced as a cost-effective performance-based assessment model suitable for institutions operating in resource-limited environments [20].

While several studies have explored pharmacy students' perceptions of SP use [8, 16, 19], other research has focused on medical and nursing students [7, 21] or learners from disciplines such as speech and occupational therapy [11, 22]. However, since the establishment of the SP program at QU-CPH, no formal evaluation has been conducted to assess students' perceptions of SP-based learning and assessment. Given the extensive use of SPs within the curriculum, there is a recognized need to develop structured guidelines to further enhance the program [23]. Additionally, capturing the views of pharmacy students and recent graduates can support continuous quality improvement initiatives and provide insights applicable to pharmacy programs internationally. Therefore, the primary objective of this study was to examine pharmacy students' and recent graduates' perceptions of SP use in pharmacy education and its influence on their professional training. A secondary objective was to identify potential areas for improvement to optimize the use of SPs in teaching, learning, and assessment within the undergraduate pharmacy curriculum.

Study population

The study targeted all enrolled BSc pharmacy students in professional years 2 through 4, as well as alumni who completed their degrees in Spring 2018 and Spring 2019 at the College of Pharmacy, Qatar University (QU-CPH). In total, 133 individuals met the eligibility criteria and were invited to take part. Students in the first professional year were not included because they had minimal or no exposure to simulated patient (SP) activities. Additionally, graduates who completed their studies

prior to Spring 2018 were excluded to reduce the risk of recall bias.

Sampling strategy and sample size

Using the total eligible population ($n = 133$), a minimum required sample size of 99 participants was determined using the Raosoft® online sample size calculator, assuming a 95% confidence level and a 5% margin of error for the first phase of the study. Given the relatively small size of the population, a census sampling method was adopted, whereby all eligible students and alumni were invited to participate rather than selecting a subset.

Phase 1: quantitative questionnaire-based study

Data collection for the first phase was conducted through an online survey administered via a pretested questionnaire. Eligible participants received an initial email invitation that included an overview of the study objectives, information regarding informed consent, and a link to the survey. To enhance response rates, reminder emails were sent weekly over a six-week period.

Questionnaire validation and development

The questionnaire was designed by the research team following an extensive review of relevant literature and alignment with the educational objectives of the study [5, 10, 17, 19, 21, 24, 25]. The initial draft was reviewed and refined by the investigators and subsequently evaluated by faculty members with expertise in pharmacy education and survey design. Feedback from these reviewers resulted in multiple revisions to the questionnaire through an iterative review process.

To assess clarity and relevance, the questionnaire was pilot-tested with former QU-CPH graduates who were not eligible to participate in the study. Revisions were made based on pilot feedback, and the final version was developed through consensus among three members of the research team. The finalized questionnaire consisted of 29 items in addition to three demographic questions. It was organized into three domains assessing perceptions related to: (1) the use of simulated patients (SPs) in professional skills courses (10 items), (2) the use of SPs in physical assessment courses (7 items), and (3) the role of SPs in practical assessments and performance-based (11 items). Responses were captured using a Likert-type scale ranging from “strongly disagree” to “strongly agree”, with an additional “cannot recall” option. The survey was administered electronically using SurveyMonkey® (SurveyMonkey Inc., San Mateo,

California, USA), and the survey link was distributed to participants via individual email invitations. English was used as the survey language, consistent with the official language of instruction at QU-CPH. The questionnaire is available from the corresponding author upon request.

Data collection and survey administration

Participation in the survey was anonymous, and no identifying information was collected that could link respondents to their responses. The online survey remained accessible between 23 July and 6 September 2020. To maximize participation, five reminder emails were sent throughout the data collection period. After the survey link was closed, all responses were reviewed. Submissions that contained only demographic information (Section A), whether complete or incomplete, were excluded from the analysis, as they did not contribute meaningful data to the study outcomes.

Phase 2: qualitative focus group discussions

Participants who completed the quantitative phase were invited to take part in focus group discussions (FGDs) to gain deeper insight into their experiences and perceptions regarding the use of SPs within the pharmacy curriculum, as well as to explore their suggestions for program enhancement [26]. The FGDs were facilitated by a member of the research team with prior experience in conducting qualitative focus group research.

Focus setting and group guide

Focus group discussions (FGDs) were conducted using a semi-structured interview guide that had been developed in advance and reviewed by the research team. Data collection occurred over a three-week period from 21 September to 8 October 2020. Each focus group included four to seven participants and was approximately one hour in duration. Recruitment and data collection continued until theoretical saturation was reached, defined as the point at which no novel concepts or viewpoints emerged. After the sixth focus group session, the researchers agreed that saturation had been achieved. A total of 33 female participants took part across the six FGDs, comprising 19 currently enrolled BSc pharmacy students and 14 alumni. Each group included a combination of current students and recent graduates. Participants varied in nationality and academic standing or year of graduation. Several alumni were practicing pharmacists employed in a range of healthcare settings across Qatar at the time of participation.

Qualitative data analysis and collection

The focus group interview guide was informed by the literature reviewed during Phase 1 and aligned with the study objectives. Development and validation of the guide were undertaken by the study investigators. In response to restrictions imposed by the COVID-19 pandemic, all FGDs were conducted remotely using Microsoft Teams®. Consent for audio recording was obtained from all participants prior to data collection, and sessions were recorded using the platform's recording function. Audio files were transcribed verbatim for analysis.

Qualitative data were analyzed using a thematic analysis methodology. An analytical framework was created to systematically organize and interpret the data. Segments of text were assigned codes representing their underlying meaning. Related codes were clustered together, allowing broader patterns to emerge, which were subsequently refined into overarching themes representing participants' experiences and perspectives.

Data analysis

Quantitative survey data were exported from SurveyMonkey® and analyzed using IBM Statistical Package for the Social Sciences (IBM SPSS® Statistics for Windows, version 26.0; IBM Corp, Armonk, NY, USA). Descriptive statistical methods were applied, with categorical variables summarized using frequencies and percentages. For the qualitative component, thematic content analysis was undertaken as described above. Coding was performed manually by members of the research team. To strengthen the rigor and transparency of qualitative reporting, the Standards for Reporting Qualitative Research (SRQR) checklist was followed [27].

Ethical considerations

Approval for this study was granted by the Qatar University Institutional Review Board following review of the study protocol, informed consent documentation, questionnaire, and focus group guide (approval number QU-IRB 1331-EA/20). Ethical principles related to confidentiality, privacy, and voluntary participation were upheld throughout the study. Survey responses were anonymous, and participation in all study components was optional. Study data were accessible only to the research team and will be securely retained and

permanently deleted after five years in accordance with institutional ethics requirements.

Results and Discussion

Quantitative phase

Participants' demographic characteristics

Of the 133 eligible students and recent alumni who were invited to participate in the study, 103 completed the online questionnaire (response rate, 77.4%). All participants were female, because the QU CPH was a gender-segregated college with only female students at the time of the survey. Approximately 39 (37.8%) were recent graduates while the rest were students in professional years 2–4. As shown in **Table 1**, we had similar response rates from the three professional years. One-third (33%) of the participants were from Egypt, followed by Syria (11.7%) and Palestine (10.7%). The other participants were from countries such as Sudan, Tunisia, Pakistan, and Algeria. More details about the demographics of the participants are presented in **Table 1**.

Table 1. Demographic characteristics of pharmacy students and recent graduates ($n = 103$)

Variable	Category	n (%)
Academic Status	Professional Year 2	21 (20.4)
	Professional Year 3	22 (21.4)
	Professional Year 4	21 (20.4)
	BSc Graduates (Class of 2019)	20 (19.4)
	BSc Graduates (Class of 2018)	19 (18.4)
Nationality	Qatari	6 (5.8)
	Palestinian	11 (10.7)
	Syrian	12 (11.7)
	Egyptian	34 (33)
	Other nationalities	40 (38.8)
Gender	Female	103(100.0)

Perceptions of pharmacy students and graduates regarding simulated patients in professional skills education

When comparing learning partners, most respondents did not support replacing simulated patients with peers, as 53.4% expressed disagreement, 25.2% expressed agreement, and 21.4% reported a neutral position. Responses followed a similar trend when participants evaluated interactions with instructors versus simulated patients (**Table 2**). The educational value of simulated patients was strongly endorsed, with 92.3% of

participants indicating that such interactions play an important role in strengthening communication skills during professional skills activities. Furthermore, more than 90% of respondents reported improvements in both educational and patient counseling abilities as a result of working with simulated patients. Preparation for real-

world practice was also highlighted, with approximately 80% of participants stating that simulated patient encounters enabled them to transfer clinical skills learned in professional skills sessions to real-life settings. A comprehensive breakdown of participant responses is presented in **Table 2**.

Table 2. Student and graduate evaluations of simulated patient-based activities in Professional Skills courses (n = 103)

Learning and Assessment Statement	Strongly agree n (%)	Neutral n (%)	Agree n (%)	Disagree n (%)	Cannot recall n (%)	Strongly disagree n (%)
Preference for interacting with course instructors instead of simulated patients during Professional Skills activities	13 (12.6)	19 (18.4)	19 (18.4)	38 (36.9)	0 (0)	14 (13.6)
Preference for working with fellow students rather than simulated patients during Professional Skills activities	7 (6.8)	22 (21.4)	19 (18.4)	35 (34.0)	0 (0)	20 (19.4)
Perception that simulated patient interactions reduced confidence in the data-gathering process during Professional Skills activities	1 (1.0)	15 (14.6)	15 (14.6)	43 (41.7)	1 (1.0)	28 (27.2)
Perception that simulated patient interactions decreased confidence in patient education and counseling during Professional Skills activities	2 (1.9)	9 (8.7)	15 (14.6)	47 (45.6)	0 (0)	30 (29.1)
Effectiveness of simulated patient interactions in strengthening patient education and counseling skills during Professional Skills activities	38 (36.9)	6 (5.8)	56 (54.4)	3 (2.9)	0 (0)	0 (0)
Perception that simulated patient encounters did not represent real-life scenarios during Professional Skills activities	3 (2.9)	20 (19.4)	18 (17.5)	44 (42.7)	0 (0)	18 (17.5)
Usefulness of simulated patient interactions in applying clinical theory during Professional Skills activities	25 (24.3)	11 (10.7)	63 (61.2)	4 (3.9)	0 (0)	0 (0)
Role of simulated patient interactions in promoting a structured approach to data collection during Professional Skills activities	19 (18.4)	24 (23.3)	54 (52.4)	6 (5.8)	0 (0)	0 (0)
Preparedness for applying clinical skills and knowledge in real-life practice as a result of simulated patient interactions	29 (28.2)	14 (13.6)	53 (51.5)	4 (3.9)	2 (1.9)	0 (0)
Contribution of simulated patient interactions to the development of communication skills during Professional Skills activities	49 (47.6)	4 (3.9)	46 (44.7)	4 (3.9)	0 (0)	0 (0)

Views of students and graduates on the incorporation of simulated patients in patient assessment training

Response patterns showed that engagement with simulated patients was favored over instructor-led interactions, with 51.5% of participants preferring simulated patient encounters compared with 32% who favored instructors. The educational benefit of simulated patients was evident, as 78.6% of respondents reported

that using simulated patients during patient assessment sessions improved their ability to identify and interpret verbal patient cues. In addition, a large majority (82.5%) indicated that simulated patient interactions enabled them to translate theoretical concepts of physical examination into practice during patient assessment activities. A detailed breakdown of these findings is presented in **Table 3**.

Table 3. Evaluation of simulated patient-based learning within patient assessment courses by students and graduates (n = 103)

Learning and Assessment Statement	Strongly agree n (%)	Disagree n (%)	Agree n (%)	Neutral n (%)	Cannot recall n (%)	Strongly disagree n (%)
Preference for interaction with course instructors instead of simulated patients during Patient Assessment course activities	9 (8.7)	38 (36.9)	24 (23.3)	17 (16.5)	0 (0)	15 (14.6)
Perception that mannequin-based patient assessment was superior to using simulated patients during Patient Assessment activities	9 (8.7)	41 (39.8)	20 (19.4)	13 (12.6)	4 (3.9)	16 (15.5)
Preference for peer interaction rather than simulated patient interaction during Patient Assessment course activities	2 (1.9)	38 (36.9)	22 (21.4)	26 (25.2)	1 (1.0)	14 (13.6)
Use of simulated patients supported observation of patients' non-verbal behaviors (e.g., reactions and emotions) during Patient Assessment activities	29 (28.2)	9 (8.7)	51 (49.5)	9 (8.7)	4 (3.9)	1 (1.0)
Simulated patient interactions enabled application of theoretical physical examination knowledge during Patient Assessment course activities	26 (25.2)	3 (2.9)	59 (57.3)	10 (9.7)	5 (4.9)	0 (0)
Simulated patient interactions enhanced confidence in performing patient assessments during Patient Assessment course activities	24 (23.3)	7 (6.8)	53 (51.5)	15 (14.6)	4 (3.9)	0 (0)
Use of simulated patients facilitated recognition of patients' verbal responses during Patient Assessment activities	24 (23.3)	6 (5.8)	57 (55.3)	11 (10.7)	4 (3.9)	1 (1.0)

Students' and graduates' perceptions of simulated patient use in practical and performance-based examinations (OSCE/SMSA)

Overall feedback toward the involvement of simulated patients in performance-based assessments was positive. During SMSA and OSCE examinations, 71.6% of respondents described their interactions with simulated patients as good experiences. Similarly, simulated patient use in practical patient assessment examinations was viewed favorably by 79.4% of participants. Regarding preparation and case familiarity, 51% of respondents agreed that simulated patients were adequately trained

and knowledgeable about the cases they portrayed, whereas more than 14% expressed disagreement. Role consistency was also evaluated; over 65% of participants agreed that simulated patients maintained their assigned roles throughout the interaction, compared with 13.8% who disagreed and 20.6% who selected a neutral response. In addition, more than half of the respondents (56.8%) agreed that the demographic characteristics of simulated patients were appropriate for the examination scenarios, while 19.6% were neutral and 15.7% disagreed. Detailed response distributions are presented in **Table 4**.

Table 4. Students' and graduates' perceptions of simulated patient use in practical and performance-based examinations (OSCE/SMSA) (n = 102)

Learning and Assessment Statement	Strongly agree n (%)	Disagree n (%)	Agree n (%)	Neutral n (%)	Cannot recall n (%)	Strongly disagree n (%)
Experience of engaging with simulated patients during Patient Assessment practical examinations	25 (24.5)	4 (3.9)	56 (54.9)	14 (13.7)	1 (1.0)	2 (2.0)
Experience of working with simulated patients during SMSA and/or OSCE examinations	17 (16.7)	9 (8.8)	56 (54.9)	18 (17.6)	0 (0)	2 (2.0)
Effectiveness of simulated patient use in assessing patient education and counseling skills during practical examinations	24 (23.5)	1 (1.0)	60 (58.8)	14 (13.7)	0 (0)	3 (2.9)
Effectiveness of simulated patient use in evaluating my clinical knowledge during practical examinations	24 (23.8)	5 (5.0)	53 (52.5)	17 (16.8)	0 (0)	2 (2.0)
Consistency of simulated patients in maintaining their assigned roles throughout the interaction	13 (12.7)	12 (11.8)	54 (52.9)	21 (20.6)	0 (0)	2 (2.0)
Adequacy of simulated patient training and familiarity with examination case scenarios	11 (10.8)	12 (11.8)	41 (40.2)	35 (34.3)	0 (0)	3 (2.9)

Level of stress associated with simulated patient interactions compared with scenarios acted by college staff	7 (6.9)	44 (43.1)	18 (17.6)	15 (14.7)	2 (2.0)	16 (15.7)
Perceived effectiveness of practical examinations conducted without simulated patients compared with those using simulated patients	2 (2.0)	49 (48.0)	12 (11.8)	19 (18.6)	4 (3.9)	16 (15.7)
Level of anxiety experienced when interacting with simulated patients compared with college staff acting the scenario	8 (7.8)	44 (43.1)	17 (16.7)	15 (14.7)	1 (1.0)	17 (16.7)
Preference for interacting solely with simulated patients without the assessor present during practical examinations	32 (31.4)	11 (10.7)	27 (26.5)	21 (20.6)	4 (3.9)	7 (6.9)
Appropriateness of simulated patient demographic characteristics (e.g., age, gender, ethnicity) relative to case scenarios	8 (7.8)	14 (13.7)	50 (49.0)	20 (19.6)	8 (7.8)	2 (2.0)

^a1 missing data

Overall perceptions regarding simulated patients' gender

Participants were also asked to evaluate their level of comfort when interacting with simulated patients of the

opposite gender (male simulated patients). The majority of respondents indicated no discomfort with such interactions, with more than 71% expressing disagreement with the statement (**Figure 1**).

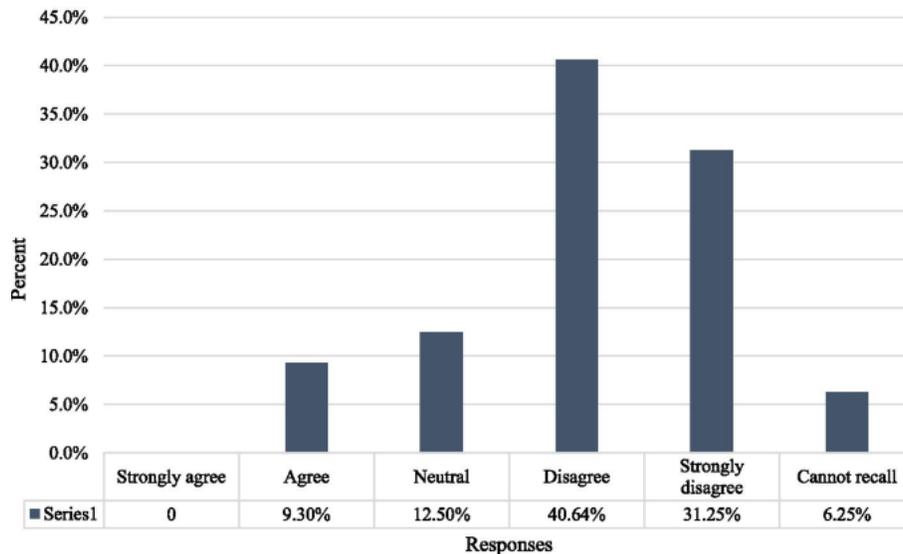


Figure 1. Participants' overall views regarding simulated patients' gender (n = 101)

Qualitative phase

Analysis of the focus group discussions yielded seven overarching themes. These included comparisons between interactions with professionally trained simulated patients and faculty members acting as simulated patients, the degree of role standardization and consistency among simulated patients, challenges related

to communication and language, the realism of simulated clinical scenarios, simulated patients' preparedness and competency, psychological effects associated with engaging with simulated patients, and suggested approaches for enhancing the simulated patient program. An overview of the identified themes and their corresponding subthemes is presented in **Table 5**.

Table 5. Themes and subthemes identified through qualitative analysis

Theme	Subthemes
Theme 1: Comparison of interactions with trained simulated patients and	• Preference for engaging with professionally trained simulated patients rather than faculty acting as patients

faculty members acting as simulated patients	<ul style="list-style-type: none"> • Preference for faculty members serving as simulated patients over trained simulated patients • No clear preference regarding whether interactions involved trained simulated patients or faculty
Theme 2: Role consistency and standardization among simulated patients	<ul style="list-style-type: none"> • Inconsistent portrayal of roles and variation in information provided by simulated patients • Differences in acting abilities and overall performance among simulated patients <ul style="list-style-type: none"> • Variations in simulated patients' behaviors and mannerisms
Theme 3: Communication, language, and interaction-related challenges	<ul style="list-style-type: none"> • Difficulties related to simulated patients' verbal communication skills <ul style="list-style-type: none"> • Challenges associated with non-verbal communication cues • Lack of interaction initiation by simulated patients leading to student uncertainty
Theme 4: Realism of simulated clinical scenarios	<ul style="list-style-type: none"> • Perception that interactions with simulated patients closely resemble real clinical encounters <ul style="list-style-type: none"> • Importance of diversity in the simulated patient pool and their personal characteristics • Perceived lack of realism related to language proficiency, health literacy, number of medical conditions portrayed, and length of interactions • Mismatch between some simulated patients' demographic characteristics and assigned case scenarios • Need to recruit non-healthcare professionals as simulated patients to enhance realism
Theme 5: Preparedness and competence of simulated patients	<ul style="list-style-type: none"> • Insufficient preparation and perceived incompetence among some simulated patients • Negative impact of simulated patients' poor performance on student outcomes during SMSAs <ul style="list-style-type: none"> • Consideration of selecting simulated patients with healthcare backgrounds
Theme 6: Psychological effects associated with simulated patient interactions and performance-based assessments	<ul style="list-style-type: none"> • Stress and anxiety resulting from inadequate simulated patient preparation and performance <ul style="list-style-type: none"> • Sources of anxiety unrelated to simulated patient performance • Influence of student anxiety on the quality of the interaction • Suggested criteria for selecting appropriate simulated patients
Theme 7: Strategies for improving the simulated patient program	<ul style="list-style-type: none"> • Recommendations for enhancing training and preparation of simulated patients <ul style="list-style-type: none"> • Proposed solutions to improve simulation quality and role standardization

Theme 1: comparisons between interactions with trained simulated patients and faculty members acting as simulated patients

This theme emerged as one of the most frequently discussed topics during the focus group discussions. Participants shared their perspectives on interacting with professionally trained simulated patients (SPs) versus faculty members acting as SPs and expressed varying preferences. A commonly reported view was a preference for engaging with real or trained SPs rather than faculty members. Participants explained that interactions with real SPs felt more comfortable and less intimidating, as SPs were unfamiliar individuals, allowing students to approach the interaction as if it were a genuine patient encounter without concern about being evaluated or judged. Many participants also described encounters with trained SPs as more authentic and closer to real clinical practice compared to interactions with faculty members

acting in patient roles. In contrast, interacting with faculty SPs was often described as more stressful, largely due to students' perception of faculty members' superior knowledge and experience, as well as fear of making mistakes in front of them.

“When it’s an SP, it feels easier because you’re not talking to someone you already know. But when it’s a faculty member, I get nervous because I feel they know much more than I do, and I worry that if I say something wrong, they’ll notice immediately.” (FG4, SA)

“SPs really help you get into the mindset of caring for a patient. It feels more real compared to when a professor is acting as the patient. We’ve had situations where faculty played patients, and it just felt different.” (FG2, ST)

Conversely, another group of participants expressed a preference for faculty members or fellow students acting as SPs during professional skills stations. These

participants felt that faculty SPs were more cooperative and capable of offering richer and more constructive feedback because of their advanced clinical knowledge. Additionally, some participants indicated that they felt more at ease interacting with familiar faculty members rather than unfamiliar SPs. A few participants reported having no strong preference, stating that the effectiveness of the interaction depended more on the individual than on whether the SP was faculty or professionally trained. "I actually feel more comfortable with faculty because I'm familiar with them. Talking to a doctor I know doesn't stress me out as much as dealing with a new SP I've never met before, especially during exams." (FG5, DM)

Overall, participants' experiences with trained SPs ranged from highly positive to somewhat negative, reflecting differing comfort levels and expectations.

Theme 2: consistency and standardization in simulated patients' role portrayal

Another prominent theme across the focus groups was the lack of consistency in how simulated patients portrayed scenarios and the variability in the information they provided. This issue was particularly noticeable in parallel examination stations where different SPs were assigned the same case. Participants described differences among SPs in acting ability, behavior, mannerisms, and the completeness of information shared. Such inconsistencies were reported to negatively influence student performance, as they sometimes hindered students' ability to recognize key clinical cues and appropriately manage the case.

"I remember an SMSA station about Parkinson's disease. Some students said it was very obvious, while others couldn't even identify it. In our station, the SP barely showed the tremor and spoke very softly, so we struggled to understand what was wrong, even though we were expected to pick up on those signs." (FG2, ST)

Participants also noted that SPs portraying the same scenario occasionally provided different responses to identical questions or failed to disclose critical information needed for proper counseling or assessment. In some cases, the same SP was reported to give inconsistent answers to different students, emphasizing the need for clearly standardized responses for each scenario.

"There was a clear difference in the information given at different stations. My friend received all the details and did well, but in my case, the SP either didn't mention

important points or gave incorrect information, which affected my counseling and cost me marks." (FG1, HS)

In addition, participants highlighted differences in SP personalities and communication styles, noting that these variations influenced their performance. Some SPs were described as supportive and forthcoming, while others were perceived as reserved, difficult, or unwilling to engage fully in the interaction.

"Some SPs are very cooperative and share information easily, while others make you work hard just to get basic details." (FG6, MA)

Theme 3: communication, language, and interaction-related barriers

Difficulties related to communication with simulated patients were repeatedly raised during the focus group discussions. Participants frequently described challenges in how information was conveyed during interactions. Some simulated patients were perceived as omitting key details required for appropriate assessment, while others disclosed information too readily without allowing students the opportunity to explore the case through questioning. In addition, participants noted that variations in simulated patients' speech patterns, including speaking speed and accent, sometimes interfered with clear understanding during the encounter. "For example, we once had a hypertension case where I asked if the patient was taking any other medications, and she said no. Later, the instructor corrected it because the SP was actually supposed to mention another medication. Sometimes they just forget important details." (FG3, AA)

"At times, it's hard to understand them, especially when they pronounce medication names with a strong accent. I had to ask the SP to repeat herself several times just to understand what she was saying." (FG6, RT)

Participants also reported that non-verbal communication occasionally added to the confusion. In some cases, simulated patients' body language did not align with the emotions or symptoms they were portraying, making it difficult for students to accurately interpret the situation during the interaction.

Theme 4: realism of simulated clinical case scenarios

Overall, interactions with simulated patients during professional skills courses were often described as realistic and reflective of real-world clinical encounters. Participants highlighted the diversity of the simulated patient pool, noting variation in nationality, cultural background, accents, health beliefs, and healthcare

practices. This diversity was viewed positively, as it helped students develop cultural awareness and communication skills applicable to real patient care.

“Most of my encounters with SPs were well done. Some of them really acted the case convincingly, which helped me focus and feel like I was dealing with a real patient, even though it was an exam.” (FG1, MM)

Despite these positive views, some participants felt that the simulated patient program did not fully represent the breadth of real patient populations. They noted the absence of certain groups, such as pediatric patients and individuals with special needs. Others felt the scenarios lacked realism because simulated patients were often highly educated and portrayed multiple medical conditions simultaneously. Participants suggested that recruiting simulated patients without medical knowledge might better reflect real clinical encounters. Additionally, some participants commented that the strict time limits imposed during assessments did not align with real practice, where interactions are often more flexible. Mismatches between simulated patients’ demographic characteristics and their assigned case scenarios were also cited as factors that reduced the authenticity of the experience.

“In one SMSA, the SP was a woman, but the character’s name was Yasser, which is a male name. I was confused the entire time and even asked if she was pregnant, only to later find out she was supposed to be playing a male patient.” (FG3, MR)

Theme 5: SPs’ competence and preparedness

Several participants reported that some standardized patients (SPs) lacked sufficient competence and preparation for professional skills stations. These SPs were described as having difficulty recalling appropriate responses from written materials, providing incorrect or misleading information, and demonstrating low confidence, often seeking reassurance from assessors during the encounter.

“At times, when you ask them something they don’t know, they begin looking toward the doctor who is present. If the doctor tells them to move on, they either do so or give an answer that completely disrupts the scenario.” (FG4, AS)

Participants also noted that some SPs hesitated when responding and appeared dependent on confirmation from professors or assessors before continuing, which students found challenging and disruptive.

“...and confidence as well. I remember an SP in the language-barrier station—I was really trying hard and using all the techniques, but the SP seemed unsure about whether they should engage. They kept looking at the professor, as if asking, ‘Should I continue? Should I sit?’ You could see they were waiting for approval. It was very distracting and slowed everything down considerably...” (FG2, A2)

During the FGDs, participants recommended selecting SPs who have healthcare-related backgrounds, such as nurses or CPH students, particularly for roles involving physicians. These individuals were perceived as more knowledgeable, consistent, and credible in their responses.

“Another point is that SPs with a medical background—some are nurses and some are CPH students—understand what they’re saying. They stay consistent and deliver the information in a way that feels appropriate and realistic.” (FG2, LS)

Theme 6: psychological impact associated with SPs and performance-based assessment

Participants identified multiple factors contributing to heightened stress and anxiety during SMSAs. These included inadequate SP performance and preparation, ambiguous expectations regarding student responses, the artificial nature of simulation settings, and strict time limitations. In addition, the involvement of professors acting as SPs was perceived to further increase students’ stress. According to participants, elevated anxiety negatively influenced both their performance and the overall quality of interactions.

“...It feels quite stressful because you are unsure about what they expect you to ask. At the same time, even when you do ask a question, the SP may not respond in a way that provides the information you are looking for.” (FG4, AS)

Theme 7: strategies for improving the SP program

Participants in the FGDs proposed several recommendations to enhance the SP program, focusing on strengthening SP selection criteria, improving training, and addressing issues related to simulation and standardization. They suggested broadening SP recruitment to include individuals from diverse nationalities and linguistic backgrounds, with particular emphasis on Arabic-speaking SPs. In addition, participants emphasized the importance of SPs’ personal attributes during selection, recommending individuals

who are attentive during sessions and capable of providing constructive feedback. The inclusion of real patients as SPs and ensuring alignment between SP demographics and case scenarios were also recommended. Moreover, participants highlighted the value of incorporating students' feedback into evaluations of SP performance.

"...I think having SPs who speak Arabic or other languages that require interpretation would give us much richer experience. Interacting with SPs speaking Hindi or any other language—and especially Arabic—would be very beneficial, rather than relying only on English." (FG2, MH)

A strong and recurring subtheme across all FGDs was the need for more comprehensive SP training and orientation. Participants generally felt that the current orientation and training sessions were insufficient and emphasized the importance of developing structured training programs for SPs under faculty supervision, including mock examinations prior to assessments. They also recommended implementing detailed orientation sessions that clearly outline essential points SPs must consistently remember.

"...I would strongly suggest that before the exam, a doctor sits with the SP, acts as a student, and practices the entire counseling scenario with them to assess whether they know how to respond appropriately..." (FG5, KA)

Participants further recommended establishing a registry of regular SPs and prioritizing the selection of individuals who demonstrate confidence and strong communication skills. They suggested involving SPs not only in assessments but also in routine practical sessions. Obtaining assessors' feedback on SP performance was considered crucial, with recommendations to develop formal surveys for this purpose. To improve standardization, participants proposed assigning a single SP to each case, conducting rehearsal sessions between SPs portraying the same scenario, and organizing role-play sessions with faculty members. Matching demographics among SPs playing identical roles and recording SP–student interactions were also suggested. To ensure consistency in information delivery, participants recommended providing SPs with written case scenarios or structured answer checklists.

"The key is proper training and selecting SPs who speak clearly, perform confidently, and act naturally. Sometimes SPs are extremely shy—we once had an SP who was so timid that I felt uncomfortable even asking her to speak." (FG4, SA)

"...Or perhaps there should be a confidential survey after each SP session, allowing us to indicate whether an SP performed well or requires further training. We were never given the opportunity to share our opinions about SPs; they seemed to be assigned randomly." (FG2, ST)

To further strengthen the realism of simulations, participants recommended extending the time allocated for each station, recruiting real patients as SPs, and organizing site visits for SPs to observe and interact with actual patients. They also emphasized the importance of exposing SPs to examples of ideal interactions to better prepare them for future engagements with students.

Overall, participants expressed favorable views toward the use of standardized patients (SPs) in a range of professional skills–based learning activities. This positive perception was evident across several domains of the survey. In particular, students reported a clear preference for working with SPs rather than peers or faculty members when practicing or being assessed in professional skills and patient assessment activities. Many participants also indicated that interactions with SPs supported the development of counseling and patient education competencies. These findings align with earlier research in undergraduate pharmacy education and other health professions, where SP involvement has been shown to enhance student performance, particularly in communication-related tasks [16, 24]. While the results of the present study are consistent with existing evidence, it should be noted that students' perceptions of SPs—especially within pharmacy education—have been relatively underexplored in the literature.

Participants also perceived SPs as valuable contributors to learning in patient assessment courses, which focus on history-taking, interviewing, and physical examination skills across body systems. Previous research has reported mixed findings in this area. One study found no significant differences between using SPs and mannequins for physical examination performance [28], while another identified both benefits and drawbacks of SP utilization in patient assessment education among pharmacists [29]. In contrast, the present study demonstrated high ratings for SP use in patient assessment in both the quantitative data and FGDs. This may be explained by the limited verbal exchange required during patient assessment activities compared with other professional skills courses that demand more extensive communication during consultations, information gathering, education, and counseling. Consequently, there may have been fewer opportunities

for inconsistencies, lack of standardization, or inaccurate information from SPs during patient assessment encounters.

Participants' views regarding the use of SPs in assessment settings were similarly positive. Most students described SP-based assessments as beneficial and effective in evaluating their knowledge. They also valued the simulated nature of the encounters, which helped them anticipate real-world practice scenarios. Additionally, these interactions were reported to improve students' confidence in communicating with patients. Comparable outcomes have been documented in prior studies [16, 30]. For example, one investigation involving pharmacy students demonstrated improved examination performance following SP use [16], while another reported enhanced confidence and communication skills during OSCEs [30]. High student satisfaction with SP use has also been reported among nursing students in health assessment courses [31].

Qualitative analysis offered deeper insight into students' experiences and further reinforced the quantitative findings. Most participants preferred SPs over faculty members when portraying patients, a preference that mirrors results from earlier studies [8, 32]. For instance, pharmacy students in one study favored interactions with community volunteers rather than peers or academic staff [32], and another study reported generally positive learning experiences associated with SP encounters [8]. Participants also emphasized the authenticity of SP interactions, noting that these encounters closely resembled real-life clinical situations. Similar observations have been reported elsewhere, including a qualitative study by Koo *et al.*, which found that SP use enhanced the realism of simulated cases from students' perspectives [33]. Nevertheless, concerns were raised about encounters involving poorly prepared or inadequately skilled SPs, which participants felt negatively affected assessment experiences (FG4, AS). Such challenges have been acknowledged in earlier studies examining SP-based education [34, 35].

The FGDs also generated several recommendations aimed at strengthening the SP program, many of which are supported by existing literature. Participants suggested exposing SPs to models of optimal interactions as part of their preparation. This strategy has been described in prior reviews, which noted that some institutions use video demonstrations of ideal encounters to improve SP performance [35]. In addition, participants recommended incorporating structured SP feedback for

students, emphasizing its potential to enhance learning experiences. The value of SP-provided feedback has been widely recognized as an important element in improving student performance and satisfaction within SP programs [33].

One of the main strengths of this study lies in its robust mixed-methods design. By integrating qualitative and quantitative approaches, the study was able to provide a more comprehensive understanding of students' experiences, capitalizing on the strengths of each methodology while minimizing their individual limitations [26, 36, 37]. Another strength is the inclusion of students from multiple cohorts, ensuring adequate representation of the target population. A limitation of the quantitative component is the relatively small sample size, which may limit the generalizability of the findings. However, this reflects the structure of pharmacy education in Qatar, as QU-CPH is the only pharmacy school in the country and enrolls relatively small cohorts of approximately 25–35 students per professional year. Despite this, the study achieved a strong response rate of over 77%. Finally, although the involvement of faculty members as investigators raises the possibility of social desirability bias, such bias was not apparent during the qualitative phase of the study.

Lessons learned and conclusion

This study demonstrated that the use of standardized patients (SPs) had a beneficial influence on teaching, learning, and assessment within professional skills and patient assessment courses in the pharmacy curriculum, as perceived by both students and alumni. Overall, SPs were viewed as adding significant value to simulation-based learning and contributing meaningfully to students' readiness for future professional practice. Despite these positive outcomes, the findings highlight the need for further refinement of the SP program, particularly with respect to improving SP training and orientation, to minimize inconsistencies in case standardization and enhance the realism of simulated encounters. Future research should broaden the scope to include all health professional education programs within the university that employ SPs, thereby enabling a more comprehensive evaluation of SP utilization and supporting the development of targeted strategies to strengthen this essential educational program.

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