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# Medical Student's Experiences of Training on Simulated and Real Patients in Education: A Qualitative Exploration

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## ABSTRACT

Patient interaction is a key learning experience in undergraduate medical education. An actual or simulated/standardised patient (SP) can be used for this purpose. Although both real patients and SPs have inherent advantages and disadvantages, the value of SPs, as opposed to real patients, is recognised as an important area warranting research. The objective of this study was to explore the students' perception of using real patients and SPs in their education. Six focus group interviews were conducted using medical undergraduates in the third, fourth, and fifth (final) year batches of the Faculty of Medicine, University of Kelaniya, Sri Lanka, from July to October 2020. The interviews were thematically analysed. All the participants considered real patient encounters more authentic than SP encounters. The students identified many strengths of SP interactions. SP encounters enabled them to prepare for real patient encounters. In particular, the participants appreciated the opportunity to practice communication skills with SPs. Students valued the feedback provided by SPs. The students identified real patient encounters enabled learning physical examination skills and procedural skills. Interestingly, most identified real patient encounters as more instructive, and some students identified that "the nervousness and anxiety" associated with real patient encounters helps improve self-confidence. Students identified specific strengths and weaknesses in both real patient encounters and SP encounters. Participants appreciated SP encounters explicitly for learning communication skills and preparing for real patient encounters. Real patient encounters were valued for learning and improving clinical skills. The findings of the study support harnessing these specific strengths of each encounter and, thus, incorporating both in undergraduate medical education.

**Keywords:** *Real patients, Simulated patients, Patient encounters, Undergraduate medical education, Learner perspective*

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## INTRODUCTION

Practicing clinical medicine is very much about interacting with patients. Patient encounters have always been identified as a vital component of undergraduate medical education. Patients help students learn myriad skills in addition to history taking and clinical examination, such as empathy, responsibility towards patients, and the development of professionalism (1, 2).

In medical education, patient encounters could be both actual patients or simulated/standardised patients (SPs). Although the real patient is the gold standard, using SPs also has many advantages in medical education (3). The ability to learn clinical skills, including physical examination skills in a safe, simulated setting, has been identified by students as one of the main advantages of using SPs. In addition, availability, flexibility, and standardisation are key advantages of using SPs (3, 4). Students have described several advantages of real patient encounters, such as the opportunity to learn through feedback, especially when the patient takes the role of a teacher (4–6).

While some studies have shown that students preferred real patient encounters to SP encounters due to the authentic nature of real patient encounters (7, 8), some have reported no difference in students' satisfaction (4, 7). In contrast, one study by Eagles and colleagues found that students preferred SPs over real patients (9).

Although the instructional value of SPs is widely identified, their incorporation into teaching/learning activities is remarkably limited, especially in settings like Sri Lanka, where actual patients are abundant for learning. Thus, the value of SPs, as opposed to real patients, has yet to be investigated in the Sri Lankan context. Therefore, this study was carried out to identify medical students' perspectives concerning the strengths and weaknesses of real patient and SP encounters in their education in the local setting, which would be helpful to generate insight into the value and utility of SPs in undergraduate medical curricula.

### Context

Currently, all medical faculties in the state universities in Sri Lanka admit students based on the GCE Advanced Level Examination results. Each of these faculties runs a five-year curriculum. This five-year medical curriculum of the University of Kelaniya, which is also a government institution, consists of the pre-clinical phase (first and second years), the para-clinical phase (third and fourth years), and the clinical phase (fifth/final year). The pre-clinical students have minimal contact with actual patients. However, they have few sessions in communication skills and procedural skills in the clinical skills laboratory with SPs. In their para-clinical and clinical phases, the students undergo clinical training in teaching hospitals and learn from real patient encounters. They also have a few sessions on communication and procedural skills training with SPs.

## METHODS

### Study Design

A qualitative study design, based on the general principles of phenomenology, was used to explore and understand in-depth student experiences in learning with simulated and real patients. The study focused on participants' pure descriptive accounts of their lived experiences and allowed for an in-depth exploration of the students' everyday experiences, challenges, and difficulties in learning from simulated patients and real patients in their educational programme.

The phenomenological method is built around a phenomenon of interest. It seeks to understand the subjective lived experience of that phenomenon (10), which focuses on the individual experience typically pursued

through interviews (11). Although focus groups are extensively used in exploratory and qualitative research (12), they are also increasingly used in phenomenological research (13–16). Focus groups used in phenomenological research allow the researcher to explore what participants think and why they think what they think. Participants are encouraged to react to each other's opinions and generate new ideas from different points of view, which is unique to focus group discussions. Thus, we draw on the strengths of focus groups in phenomenological research, which stimulate discussion and open up new perspectives within a group, which provide a greater understanding of the phenomenon under study.

## The Sample

In this study, we used a purposive sampling technique to recruit participants. In order to ensure maximum variation in the student sample, third-, fourth-, and final-year medical students who have had clinical attachments in the five major clinical disciplines were invited to participate. Initially, the participants were contacted via telephone and explained the reasons for doing this research. They have had exposure to both actual patients and SPs. From among those who volunteered to participate, 20 students from each academic year were recruited for the discussion groups. Informed written consent to participate in the focus group discussions were obtained from the participants. Ethical approval for the study was obtained from the Ethics Review Committee of the Faculty of Medicine, University of Kelaniya. The participants were allowed to withdraw from the study at any time.

## Data Collection

Focus group discussions were conducted using a semi-structured interview guide. The open-ended questions served to guide, but not constrain, the interview. Two focus group discussions were held per student from each academic year (i.e., two focus groups for third-year students). The participants were encouraged to describe their experiences and perceptions of learning from actual patients and SPs. They were encouraged to react to each other's opinions and generate new ideas from different points of view. The focus group discussions were conducted according to the guidelines offered by Kitzinger (17).

The first author (KK), a lecturer with a Master's degree in medical education, conducted all the focus group discussions. She has contributed to several qualitative research and has had training in conducting focus group interviews. Each focus group consisted of seven to nine students. There were no non-participants in the focus groups. The focus group discussions were conducted in English. Each focus group discussion lasted 1 to 1.5 hours and was held at the Faculty of Medicine, University of Kelaniya, from July to October 2020. Field notes were made during and after the discussions. With the consent of the students, the discussions were audiotaped for later transcription. The focus group discussions were limited to six as saturation of ideas was observed (18), and no repeat interviews were carried out. The audio records were transcribed verbatim. The transcripts were subjected to member checking. To maintain strict anonymity, no personally identifiable data were collected from the participants.

## Data Analysis

The data was analysed using the thematic analysis described by Braun and Clark (19) using ATLAS.ti for data organisation and retrieval (ATLAS.ti Scientific Software Development GmbH). As this study was part of doctoral research, KK analysed the data. The transcripts were repeatedly read in order to familiarise with the data. This was followed by generating initial codes, a detailed examination of small units of transcript, and collating relevant data to each code. The next stage involved

the identification of potential themes that arose from the codes and collating of all codes into themes. Emergent themes were scrutinised among the three individual transcripts. Finally, themes were refined and defined to represent the aspects of the phenomena which emerged from the focus group discussions (20). Pseudonyms were used throughout the data collection and analysis stages to preserve the anonymity of the participants.

### Rigour

The qualitative research methodologies involve a continued interaction between the researcher's understanding of the phenomenon under research and the participant's perceptions of the sense-making process (21). Thus, maintaining scientific rigour is vital for qualitative research. Therefore, during the data analysis, we focused on developing appropriate codes that fit the data. To ensure rigour, we used a re-iterative process to check for new codes throughout the data analysis process.

In addition, researchers must reflect on and be aware of their own assumptions (22). This is to ensure their biases do not unknowingly impact the analysis and interpretation of qualitative data. Therefore, the authors of this study discussed our own biases to become aware of and be transparent about our individual perspectives, personal feelings, and preconceptions and consider these critically concerning the research being conducted to promote reflexivity (23). To further improve the validity of the findings, both TS and RP cross-checked the analysis of all six transcripts.

## RESULTS

Of the 60, third-, fourth- and fifth-year medical students invited to the focus group discussions, 52 participated. Each group consisted of seven to nine participants from a single academic year. There were 18 third-year medical students, 17 fourth-year students and 17 fifth-year students. The sixth focus group yielded no new information, so additional focus group discussions were not conducted.

Five main themes emerged from the focus group discussions—physical examination skills, procedural skills, communication skills, feedback and phases of the curriculum (Table 1).

**Table 1:** Themes and theme definitions of focus group discussions

| Theme | Theme definitions |
|---|---|
| Physical examination skills | Use of real patients in learning physical examination skills |
| Procedural skills | Use of real patients in learning procedural skills |
| Communication skills | Advantages and disadvantages of SPs and real patients in learning communication skills |
| Feedback | Provision of feedback by patients acting as teachers |
| Phases of curriculum | Advantages of SPs and real patients in different phases of education |

## Theme 1: Physical Examination Skills

### *Subtheme 1: Facilitators of learning physical examination skills*

Most students considered the actual patients in the ward setting the best means of learning physical examination skills. Almost all the students were eager to learn physical examination skills from real patients. They appreciated the diversity and the authenticity of learning from real patients.

> We learn how to do a physical examination best from real patients. They are more interesting, and we learn a lot from examining them. Both what is normal and what is not. (Ruchira, Y4)

### *Subtheme 2: Barriers to learning physical examination skills*

Although SPs have been used in some instances to teach physical examination skills, most students felt that the focus deviated to communication skills rather than physical examination skills.

> In most of our classes of physical examinations with the use of SPs, more weight was given to communication rather than to the skill itself. (Samanthi, Y5)

However, students identified the value of using SPs in learning to obtain consent, explain the examination procedure and give instructions to the patients during a physical examination.

> …but with SPs, we get to practice how to take consent and walking them through a physical. It gets awkward when we do that with real patients sometimes. So, SPs are better to learn those things. (Harshani, Y3)

## Theme 2: Procedural Skills

Almost all the participants preferred learning procedural skills in the clinical skills laboratory using simulators before practicing on real patients. They valued the safe environment the skills laboratory provides to learn from their mistakes.

> We can learn and correct mistakes (at skills lab). First attempts might go wrong for us, so we can correct ourselves by doing these in practical classes. (Nirmal, Y3)

> We are nervous about doing it straightaway on people. And doubting if you'd do something wrong. So it's better to have practiced it beforehand so that then, we can go and try it on a patient. (Sudesh, Y3)

Interestingly, most participants did not think SPs were needed to learn procedural skills.

> I don't think simulated patients are needed to learn procedural skills. Because we are more concerned about the technical aspects of it (performing a procedure), which you can learn without an SP. As long as I am okay with the technical aspects of a procedure, I'd go and try on a patient in the ward, who you know…has an indication for it (procedure). (Akash, Y4)

Real patient encounters were valued by the students in learning procedural skills. Most students were eager to learn from practicing on real patients following the guidance at the skills lab.

> Nervousness is part of doing things in the real world. We learn a lot from doing things in the ward on real patients, which you can't really learn at the lab…even with SPs. (Rintchen, Y4)

## Theme 3: Communication Skills

### *Subtheme 1: Facilitators of learning communication skills*

Majority of the students identified SP interactions as good opportunities to practice communication skills. They valued the opportunity to learn from mistakes with an SP encounter.

> With SPs we get to concentrate on the communication aspects. And we have to sweat a lot to get the information from them, but it teaches you how to talk. (Zengpo, Y5)

> We can make mistakes, but then, it doesn't have bad outcomes as with a real patient. So, you kind of feel safe to learn (communication skills) with an SP…especially in breaking bad news and stuff. (Kelum, Y4)

However, students identified the advantage of real patients and learning communication skills in the ward, especially when dealing with talkative patients and communicating under pressure/stressful situations.

### *Subtheme 2: Challenges of learning communication skills*

Most students felt that in a real patient encounter, they are more concerned with the disease and diagnosis and, thus, pay less emphasis on learning communication skills.

> We are more worried about coming to a diagnosis etc. So we don't really put much thought into learning communication when dealing with real patients. (Sayuri, Y4)

Besides that, most students were reluctant to practice communication skills with real patients. They felt insecure and uncomfortable practicing communication skills with real patients. Furthermore, they felt that practicing communication skills with an actual patient put the patient in an uncomfortable situation.

> And it's really awkward to practice communication skills with patients, for you and the patient both. SPs are great in that sense; they don't mind if we mess up. (Avinash, Y3)

## Theme 4: Feedback

### *Subtheme 1: Challenges of learning through feedback*

Almost all the students found the feedback provided by SPs to be more valuable and honest than the feedback provided by actual patients.

> If something goes wrong or even if we hurt the patient while doing a procedure, that person won't complain to us…usually. They (real patients) will always be like "yeah, it was okay." But SPs will tell you if we did something wrong. (Ruwanthi, Y4)

The majority of the students identified differences in providing feedback between real patients and SPs. Students felt the SPs concentrated on their tasks and provided feedback on very minute things.

> Real patients don't think too much when giving feedback…really. But SPs pick on the most insignificant things sometimes. Sometimes it felt rather extreme really. (Chamathka, Y4)

Most students agreed that they only ask for feedback from actual patients sometimes. The students did not expect the real patients to be candid about giving feedback either.

> Even if we did ask for feedback, they (real patients) wouldn't go into detail much and will be very brief. They put up with mistakes a lot but don't mind telling us that we did well or okay, even if we didn't. (Ruwani, Y4)

### Theme 5: Phases of the Curriculum

#### *Subtheme 1: Facilitators of learning*

Most students felt SPs are best utilised in the pre-clinical years (first two years of medical school).

> SPs are great to learn from during the first two years. Then you don't get much exposure to actual patients. (Sudesh, Y3)

Students identified SPs help the transition from pre-clinical to para-clinical years.

> Since we had some experience with SPs, it helped us to go to the wards and interact with patients. It didn't feel too overwhelming. (Rizana, Y3)

#### *Subtheme 2: Challenges to learning*

Most students felt that once they encounter real patients in the clinical attachments from the third-year onwards, the need or usefulness of an SP interaction minimises.

> Patients (real) are very interesting to talk to and to learn from. Once we go to the wards in the third-year and after, we get to interact with real patients, and that experience is…very authentic. You sort of lose the interest for a SP. (Hashan, Y3)

Nevertheless, some students identified the use of SPs in learning communication skills and preferred to learn with SPs during the third and fourth years. In contrast, some students thought learning communication skills from SPs during the pre-clinical years was sufficient.

## DISCUSSION

The present research, to our knowledge, is the first of its kind in Sri Lanka, which explored the strengths, weaknesses, and usefulness of real patient encounters and SP encounters in undergraduate medical education from the learners' perspective. We found that the students valued both real patients and SPs in their education. They identified learning different things from SPs and real patients, especially during different phases of the curriculum. These findings substantiate the views of other studies that sought to find the value of different patient encounters in medical education.

In general, the students considered SP interactions a good learning experience to prepare for real patients. The students felt SPs were most useful for learning communication skills and highly valued the feedback given by SPs. They identified that learning communication skills with SPs has both advantages and disadvantages. While communication with SPs was found to be easier and less stressful than with real patients, paying less attention to medical aspects when interacting with an SP was highlighted as the disadvantage. The study revealed that the students highly appreciated the SPs for giving honest and detailed feedback, mostly in the context of learning communication skills. Furthermore, the students emphasised the use of SPs in the pre-clinical phase of their education. The study revealed that the students valued the experience of SP encounters and felt it prepared them for real patient encounters in the clinical context. However, this study revealed that the students considered real patient encounters to be more instructive than SP interactions.

At the Faculty of Medicine, University of Kelaniya, SPs are primarily used to teach communication and procedural skills. Furthermore, students encounter SPs in formative and summative assessments (i.e., objective structured clinical examination [OSCE] stations). This study revealed that the usefulness of SPs was mainly limited to learning communication skills. The utilisation of SPs in medical education to augment communication skills and the learners' ability to engage with patients in various clinical contexts is well established (24). However, studies have shown that students learn more than just communication skills when interacting

with SPs. The responses from SPs during the interaction have been shown to give students an understanding of how well they communicate (25). Lovink and colleagues (25) show the need to balance the authenticity and standardisation of SPs that encourage meaningful learning.

SP encounters could be better utilised to teach medical/clinical aspects such as clinical reasoning skills, especially during the para-clinical phases of the study (26), where enthusiasm for learning from SPs seemed to deteriorate with the introduction of real patients. SPs could be incorporated into problem-based learning (PBL) sessions, and case discussions (27), which could provide an authentic experience to the students, revitalising the SP-led education.

The students reported authenticity as an important aspect of real patient encounters. However, research on SPs' strengths versus real patients seems inconclusive. The finding of this study appears inconsistent with some research findings (28, 29), whereas some have shown that real patients are authentic as opposed to SPs (8, 30). All the participants of this study had SP interactions prior to real patient encounters. Therefore, their views of having an encounter with a SP or a real patient may have been affected due to their previous experiences with SPs and the novelty of real patient interactions in later years of education. Thus, it would be helpful to qualitatively explore the views of such students who have not been biased due to previous experiences.

A randomised control trial that recently evaluated SPs and real patients in teaching communication skills to pre-clinical students revealed no significant difference between these two groups (29). These findings support the use of SPs in pre-clinical education. Where early patient contact in medical education is recommended, SPs form a promising method of initiating teaching patient interactions for pre-clinical students (31–33). Students were found to appreciate such early patient contacts in pre-clinical years as helpful in the transition into clerkships (34). In addition, students identified that interaction with SPs contributes to their professional and personal identity development (25).

Students also considered real patient encounters more valuable in learning physical examination skills than SP encounters. This could be because there is an abundance of patients to learn from in the Sri Lankan context.

Students also considered real patient encounters more valuable in learning physical examination skills than SP encounters. This could be because there is an abundance of patients to learn from in the Sri Lankan context. The students are used to examining many patients and have enough chances to practice as well. This finding is consistent with the findings of Janicik and colleagues (35), although some research states that students have identified SPs as more valuable and instructive in learning physical examination skills (36).

It is noteworthy that the students felt that when learning physical examination skills with SPs, the focus deviated to communication skills rather than physical examination skills. Since traditionally, SPs were used to teach communication skills, there is a possibility that medical teachers as well as students were compelled to focus on communication aspects with an SP encounter rather than on examination skills. This emphasises the role of medical teachers when facilitating the teaching exercise using SPs.

In this study, we found that real patients rarely provide proper feedback, and when given, it tends to be very brief and tends to ignore valuable criticism. The students felt that the real patients put up with many mistakes. However, though the real patients' feedback is brief, it often points towards important mistakes made by the students. Therefore, it is important that students appreciate and pay more attention to the feedback given by real patients during

clinical training. The students valued the feedback given by SPs, however, some felt this feedback was too "extreme." Although perceived negatively, this extreme feedback might provide a good opportunity to become a good, humane and empathetic doctor. Thus the opportunity for rectifying errors through detailed SP feedback, even on minute errors, is invaluable for proper training. Hence, it is crucial to create an opportunity for the provision of sound feedback that is palatable to the student during SP interactions.

From the findings of this research, several recommendations can be made in relation to the use of SP and real patient encounters in undergraduate medical curricula. The recommendations are given in Table 2.

**Table 2:** Recommendations for the use of real patients and SPs in undergraduate medical education

| Recommendations for the use of SPs and real patients in undergraduate medical education |
|---|
| Use SP encounters in pre-clinical phase of education to prepare students for real patients. |
| Use SPs for teaching communication skills in pre-clinical phase of education. |
| Train SPs on provision of sound feedback. |
| Encourage SP feedback on medical aspects in addition to communication skills. |
| Use real patients for teaching physical examination skills. |

Since almost all the invitees actively participated in this qualitative exploration, and as the participants had a maximum diversity, the findings of this research may have become more robust and applicable to similar settings. However, our study has several limitations. This study was conducted at the Faculty of Medicine, University of Kelaniya, where SPs are used to teach communications skills and some procedural skills. The utilisation of SPs and real patients in other medical undergraduate programmes might differ. For example, some medical faculties introduce SPs to teach emergency management skills. In such instances, the student's views on the use and value of SPs might differ from these findings. Furthermore, this study explored only medical students' perspectives on the use of SPs and real patients. Although this study's findings shed light on the utility of SP and real patient encounters in undergraduate medical education, an investigation into the perspectives of medical and clinical teachers may add further insight into this cause.

## CONCLUSION

Our study found several strengths and weaknesses of a real patient and SP encounters in undergraduate medical education. SP encounters enabled students to prepare for real patient encounters, learn communication skills and improve their learning through SP feedback. Real patient encounters were identified as more authentic and instructive. The students valued learning from real patient encounters, especially in the domains of physical examination skills and procedural skills. The participants of this study appreciated the use of real patients as well as simulated patients in their learning. Thus, based on these findings, it would be beneficial to incorporate SPs in addition to real patients in undergraduate medical programmes. Especially in contexts where SPs are not or are minimally used for learning, we have identified critical areas for which SPs can be utilised. Thus, we have made recommendations for using both these encounters to maximise the benefits of each encounter for meaningful learning.

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## ETHICAL APPROVAL

Ethics approval was obtained from the Ethics Review Committee of the Faculty of Medicine, University of Kelaniya (reference number P233/11/2019).

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