

# Standardized Patient's Views About their Role in the Teaching-Learning Process of Undergraduate Basic Science Medical Students

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## ABSTRACT

**Introduction:** Standardized Patients (SPs) are widely used in medical education. SPs have a number of advantages but also have certain limitations. At the institution, SPs have been used since January 2013 for both teaching-learning and assessment during the basic science years of the undergraduate medical program.

**Aim:** The present study was conducted to investigate the perception of SPs about various aspects of the program and obtain suggestions for further improvement.

**Materials and Methods:** A Focus Group Discussion (FGD) was conducted with a group of five SPs during the second week of November 2015. Respondents were explained the aims and objectives of the study and invited to participate. Written informed consent was obtained. The FGD was conducted using a discussion guide and was audio recorded. Various aspects of the SP program at the institution were discussed. Motivation/s for joining the program and suggestions for further improvement were obtained. Transcripts were created after listening to

the recordings and were read through multiple times. Similar responses were coded. Items with similar codes were grouped together into themes.

**Results:** Three respondents were female while two were male. The major advantage of SPs was their flexibility and ability to present a standardized response to the student. Students become familiar and comfortable with SPs. However, as a SP is simulating an illness s/he may not always be able to do complete justice to the role. The process used by SPs to prepare themselves to portray various diseases was highlighted. The use of SPs both during teaching-learning and assessment was also discussed. Some SPs are trained to provide feedback to students. Most SPs joined the program based on invitations from their friends who were already SPs. Challenges in recruiting SPs in a small island were discussed. Suggestions for further improvement were obtained.

**Conclusion:** The present study obtained the perception of SPs regarding various aspects of the SP program at the institution. The overall opinion of SPs was positive.

**Keywords:** Assessment, Caribbean, Medical students, Medical education

## INTRODUCTION

Standardized Patient (SP) was first used in medical education at the University of Southern California in the United States (US) by Harold S Barrows in 1963 [1]. The term coined by the Canadian psychometrician, Geoffrey Noman emphasizes an important feature of SPs that the patient challenge to each student remains the same [1]. SP offers the student an opportunity to come face to face with the totality of a patient, with his/her stories, his/her physical symptoms, emotional responses to illness, attitude toward doctors, and stress in coping with the illness.

There has been a dramatic reduction in the number of inpatient beds, shorter hospital stays and a greater proportion of patient care is now being delivered in ambulatory settings leading to a reduction in the number of inpatients available for student learning [2]. SPs are being increasingly regarded as alternatives to provide medical students early experiences in clinical skills. SPs can provide a reliable learning experience for students, offer valuable feedback and could be used to assess clinical skills acquisition by students [3,4]. The value of SPs in medical education has been described in an article published by Dr Barrows in 1993 [5]. They may serve as a transition to the real patient and provide students with an opportunity to improve their history taking and physical examination skills. The SP can be manipulated for educational purposes in a manner which may be difficult with real patients. SPs are increasingly being used instead of real patients during the Objective Structured Clinical Examination (OSCE) as they provide a consistent clinical scenario and may help reduce variability between students' experiences [6]. Some centers are also using

SPs as examiners and they evaluate students using a checklist [7].

Xavier University School of Medicine (XUSOM), a private medical school in Aruba, Dutch Caribbean, admits students mainly from US and Canada to the undergraduate medical (MD) program. There are also students from other countries. The school admits three cohorts of students, in January, May and September. From January 2014 the school shifted to a fully integrated, organ system-based curriculum with Early Clinical Exposure (ECE) [8]. Like many Caribbean medical schools students complete the basic sciences in Aruba and do their clinical rotations in affiliated hospitals in the US and Canada. Providing ECE is a challenge as the school does not possess its own clinical facilities on the island [9].

SPs provide students with ECE during the basic science years. An outline of the program has been provided in a recent article [10]. There are many challenges in developing a SP program in schools located on Caribbean islands. The perception of SPs regarding their role in teaching-learning and about different aspects of the program has not been previously studied.

## AIM

The present study was conducted to study the perception of SPs about various aspects of the program and also obtain suggestions for further improvement.

## MATERIALS AND METHODS

At present there are seven SPs in the program. The newest SP joined the program on November 15<sup>th</sup> 2015 after the FGD. Five

of the six SPs (83.3%) who were involved in the program at the time of the study participated. The FGD was conducted during the second week of November 2015. All five participants were Aruban citizens. All had traveled abroad and three of them had spent more than a year in the Netherlands and Europe. Three of the SPs were retired. One was working while one was a student. Among the retirees one was a legal advisor, one was an educator while another was a physician assistant. All belonged to the middle socioeconomic class. Two were males while three were females. None of the SPs spoke English as the first language.

SPs were explained the aims and objectives of the study and invited to participate. Written informed consent was obtained. SPs were informed that participation in the study was voluntary and they were free not to participate or to withdraw from the study at any time. Focus Group Discussions (FGDs) were conducted with the SPs by the first author. The second author was a co-facilitator. As there were only five SPs they were assigned to a single group. Each participant was asked to pick a number from 1 to 5 and mention the number each time before speaking. They were also requested to refer to other participants using their numbers. The FGD was audio recorded and facilitated using a FGD guide.

The session was initiated by the respondents and the facilitators briefly introducing themselves. The respondents' opinion about SPs and their perceptions about the increasing use of SPs in medical education were elicited. The advantages and limitations of SPs compared to real patients were also enquired into. Respondents were asked their overall perspective regarding the use of SPs in the institution. Information was obtained about how SPs contributed to students' learning of history taking and physical examination skills. Some SPs have been trained to provide feedback to students regarding their performance and information was collected about the feedback process and whether SPs felt that they were able to provide good quality feedback. Respondents were asked what motivated them to be a SP and how the institution can involve more individuals from the island as SPs. Their suggestions to further improve the use of SPs both during teaching-learning and assessment were also elicited. SPs are used during the Objective Structured Clinical Examinations (OSCEs) at the end of each organ system and their opinion about their involvement in the process was enquired into. The training process of SPs to effectively portray patients suffering from various diseases was also discussed. The FGD concluded with the facilitator asking the respondents if they had any other points which they would like to discuss. The facilitators thanked all participants for their time and for participating.

The authors listened to the recordings multiple times and created transcripts which were read through multiple times. Similar responses were coded. Items with similar codes were grouped together into themes. Free text quotes in the language used by the respondents have been presented in certain places. The FGDs were conducted in English. The study was approved by the Institutional review board vide notification XUSOM/IRB/2015/06 dated 23<sup>rd</sup> October 2015.

## RESULTS

Respondents felt a SP is someone who helps students learn about clinical medicine, history taking and physical examination skills. SPs obtain a script, play the role of a patient suffering from a particular condition and the student takes a history from or performs a physical examination on the SP.

### Advantages of SPs

The major advantage mentioned by the respondents was their flexibility. Patients are often reluctant to be examined by students. SPs are easily available to facilitate student learning. Over the course of time in the institution, students become familiar with the

SPs and feel comfortable and less nervous in their presence. As the SP is only acting the role of a sick person and is not really ill s/he can participate in a greater number of student learning sessions. A real patient may not provide the same response each time and there may be variation between encounters. SPs are trained to provide a standardized response with little variation between encounters.

### Limitations/disadvantages of SPs

SPs are not real patients and are not suffering from illness. They are not actually in physical or mental pain and only attempt to portray the same through their acting. They may not always be successful in doing so. Respondents mentioned that they faced challenges in depicting certain types of pain and in demonstrating different types of breathing.

*"A SP has to act and act properly so that the illness is portrayed properly. So the student learns. During his career if a student encounters a real patient suffering from the particular condition then he knows what to do."* (Respondent P-1)

A respondent was previously working as a medical assistant before she joined the SP program. She mentioned,

*"In my case, I worked, my last job was as a medical assistant. So I see the patient, I work with the patient. I know about their pain. This helps me with the role which I am playing, with my acting."* (Participant, P-5)

Respondents mentioned that the faculty member teaching 'Introduction to Clinical Medicine, (ICM) helps them with preparing for playing the role of patients suffering from different diseases. She demonstrates salient features of the disease and helps SPs put themselves in the situation of a patient.

### Preparing to portray different disease conditions

SPs follow the detailed illness scripts provided. They read through the script multiple times and practice the illness scripts in pairs. The scripts provide detailed information about how to portray the role of a patient suffering from a particular disease. A respondent mentioned how he prepared for the role of a patient suffering from Parkinson's disease. He stated,

*"For a Parkinson disease patient, your hands have to be trembling and the movement has to be like a Parkinson patient, so what you have seen on TV or in movies is helpful. Certain famous personalities had Parkinson's for example the boxer, Muhammad Ali and I saw how they act in real life. This provides me with an idea about how you have to act and how you have to portray."* (Participant, P-3)

SPs are provided with a hard copy of the illness script and those who so desire could also obtain a soft copy of the script. They are provided about two weeks to learn a particular script. They portray the illness in front of the faculty involved and obtain constructive suggestions for improvement. SPs portray a disease condition at least three times before they are considered ready to play the role of a patient during teaching-learning and assessment. SPs have to learn to portray different disease conditions which may sometimes be challenging. Repeated practice and playing the same role during successive semesters help SPs to improve. However, before OSCE, each SP are assigned only one script to portray particular disease condition to avoid any confusion among different disease conditions which SPs may face during encounter with students. Further SPs undergo repeated training sessions by faculty to ensure they are well versed to portray illness (both verbally and non-verbally).

### Use of SPs in teaching-learning

SPs first interact with students during the training sessions. During each organ system SPs portray selected diseases. Students have

multiple opportunities to interact with SPs as they progress through the basic sciences program. During the training sessions students in group of 3 or 4 interact with the SP. They take a history and do a physical examination. The SP provides them with feedback on what they did well and the areas where they have to improve. A respondent mentioned cough as a complaint to illustrate the process of providing feedback. He mentioned,

*"For example if the patient has cough and the student asks whether the patient is suffering from cough and moves on to the next question then you tell them.. Listen you should ask what were you coughing, did you cough blood. Are you having dry cough and things like that? If they ask about pain then go into the pain. What type of pain do you have, is it a cramping pain, stabbing pain. Ask about the severity of the pain, does it go anywhere, radiate."* (Participant, P-3)

Feedback is provided at the end after the student group finishes. The SP tries to remember the details and also makes notes. During the exam the SP-student encounters are videotaped and feedback is provided later by faculty after reviewing the video with the student involved.

While teaching physical examination skills, the faculty member (author 2) initially demonstrates the examination on the SP. During the process the SPs understand the proper sequence of steps and correct technique to be followed during the physical exam. Then students conduct the physical exam on the SP/s. They demonstrate the process in front of the faculty. This provides the preceptor with an opportunity to correct any observed mistakes.

Our SPs had no concerns about and were comfortable with being used during the learning of physical examination skills.

### Why they joined the SP program?

Two of the SPs have been associated with the SP program right from the beginning. The director of the program at the beginning of 2013 invited them to come and observe the program and join if they found it interesting. Some individuals involved as SPs in the beginning dropped out due to various reasons. One of the SPs involved from the beginning is a retired educator. He mentioned that the program helps him to keep himself mentally active and also enables him to stay involved in teaching. One of the SPs has a daughter who is a doctor and after retirement was interested in becoming a SP. She was invited by an 'older' SP to join the program. One of the SPs as mentioned before had worked as a medical assistant and after retiring she wanted to work as a SP and continue to utilize her medical knowledge.

### Encouraging other persons in Aruba to join the SP program

The ability to memorize and act out the illness script is an important prerequisite for a SP. They should be able to come for sessions when required by the school and should be able to work flexible hours. Most persons are recruited to the program by 'word of mouth'. They hear about the program from SPs already involved. A respondent mentioned,

*"You have to have someone that you know really well. Everyone has friends and you can know right away which one of your friends you can ask. You may have one who is busy, you may have one who does not like to go into these sort of things. Word of mouth is important and if just put an advertisement inviting people to come I do not think it would be very helpful. You can ask a person you know but he should be able to act, able to memorize the script. We had SPs who had dropped out of the program."* (Participant P-2)

SPs should be fluent in English, the language of teaching-learning at the school. This may be a problem as not all persons in Aruba are fluent in the language. The native language of the island is Papiamentu.

### Use of SPs for assessment

As they have been playing the role of a patient suffering from the disease during the teaching-learning sessions they are familiar and comfortable with the role by the time of the exam. Also, SPs may have played the role during previous semesters. During the exam students interact with the SPs on a one to one basis and get no help and support from peers. The encounters are video recorded and feedback is provided by faculty at a later date. Some of the SPs may grade certain students especially during history taking. The encounters are graded in this case by both the faculty member and the SP. Students are graded using a checklist and at the end of the session the checklist of the SP assessor is compared with that of the faculty.

### SPs providing feedback to students

Certain SPs provide feedback to students and gradually all SPs are being trained to undertake this important role.

### Suggestions for further improvement

SPs felt that they may benefit from more training. Watching videos of individuals suffering from the disease may enable them to portray the disease more accurately. The issue of portraying a person behaving aggressively toward the doctor and of a person suffering from a mental illness was also discussed with the respondents. They were positive about playing these roles but would like more training and inputs regarding the same. SPs in medical schools in other countries are increasingly using makeup and other external aids to enhance their portrayal of patients.

## DISCUSSION

### Advantages of SPs

The participants in the FGD mentioned many advantages of SPs. Many of these have also been mentioned in the literature. SPs can be available at any time and in any setting [5]. SPs can be used in classrooms and in non-clinical areas. Barrows mentions that use of SPs can reduce the mistreatment of real patients [5]. The SP is paid to be examined again and again by numerous students. Novice medical students can work with SPs without embarrassment. Students get opportunities to perfect their communication, history taking and physical examination skills and develop confidence. Students can practice simulated emergency conditions and difficult and sensitive medical conditions. Barrows mentions that the 'time in-time out' technique is an important educational manipulation. After a group of students work with a SP for a period of time the instructor can call a time out. The SP remains in a suspended animation and the instructor and the students can discuss what is going on, what is their plan for the patient, their interpersonal skills and many other issues which they may not discuss in front of a real patient.

### Limitations/disadvantages of SPs

The respondents in the present study mentioned many disadvantages of SPs. Barrows mentions that some of the disadvantages may be assumed and may not be true in reality. He mentions that it is assumed that a long training period may be required to produce a high quality simulation [5]. A good simulation can be produced in approximately two to three hours. He mentions that he and his colleagues encourage the SP to understand what it is like to be an actual patient with the feelings and problems that the patient has. He also mentions that an experienced SP can be trained for a new role in about an hour. Also it is assumed that only a limited range of findings can be simulated during physical examination. But this is not true and a variety of findings can be simulated [5].

### Preparing to portray different disease conditions

SPs play the role of patients during OSCE. OSCE are conducted at the end of most organ systems. During the first five semesters 2 OSCE stations are used simultaneously and students get seven minutes to complete this exercise. To reduce variation both examiners use a structured checklist and discuss assessment issues before the exam. For physical examination skills students get ten minutes for the exercise and chose which part of the system to examine using a lottery system. For the sixth semester, 3 OSCE stations are run simultaneously and each student has to go through all three stations. During each stations students are asked to take a comprehensive history and perform comprehensive physical exam including discussing diagnostics work up with the patient. Students get 15 minutes at each OSCE station. Also, students are required to write Subjective Objective Assessment Plan (SOAP) notes for each clinical cases encountered. Students get 10 minutes to write a SOAP note for each clinical case. SPs play the role of patients during the OSCE. The sessions are video recorded and feedback is provided by the faculty later. SPs do not provide feedback during the OSCE.

### Use of SPs in teaching-learning

The SPs during the FGD provided detailed information about their use in teaching-learning at XUSOM. SPs are being increasingly used in medical and health professions education. In Belgium and the Netherlands 13 schools collaborate regarding the use of SPs in their undergraduate medical curricula [11]. The schools however, differ with regard to the timing and/or the placement of the SPs and the way they are used. At the University of South Florida College of Medicine in the US, SPs teach students how to break bad news [12]. Fourth year medical students during their oncology clerkship spend 3 hours in a conveying difficult news session with a SP. Each student had a videotaped encounter with a SP, followed by a small group discussion and a review of the tape with other students and a clinician. SPs are increasingly being used to help students better develop their competencies to serve persons with disabilities. Several US training programs either involve SPs with disabilities or SPs who are physically normal but portray persons with disabilities [13].

At the University of Louisville School of Medicine in the US a series of nine longitudinal SP cases was developed [14]. The same SP portrayed the same patient with the same student during 19 encounters during the two-year preclinical Introduction to Clinical Medicine course. Among the benefit described was students had more time to focus on the communication skills topic for each SP session as they already knew the patient details. Students learned more about continuity of care and documented their progress notes using a longitudinal patient chart.

SPs are being used for student education in certain Caribbean medical schools but we were not able to come across descriptions of these programs in the scientific literature. However, SP programs have been described in the websites of certain Caribbean medical schools. Association for Medical Education in Europe (AMEE) has published a guide regarding real patients, simulated patients and simulators in clinical examinations [15]. They also published another guide exclusively dealing with the use of SPs in medical education [16]. The various roles which SPs can play in teaching-learning of medical students have been mentioned.

Our SPs had no concern about being used during the learning of physical examination skills. A survey conducted in Japan among 532 SPs showed that eighty percent were willing to participate in physical examination of head, arms and legs while only 25% were willing to have physical examination of their chest, back and

abdomen [17]. Willingness varied according to age and gender. Cultural factors may have a role to play.

### SPs providing feedback to students

A systematic review published in 2009 examined this issue [18]. The authors examined a total of 49 studies and concluded that the ways in which SPs were trained to provide feedback was heterogeneous, as were the processes through which SPs delivered feedback. The authors concluded that there appeared to be a lack of clear standards with regard to effective training for SPs on how to provide feedback. Student attitudes toward SP examiners, and SP and physician evaluation of student competence were examined [7]. Most students reported that SP stations were less stressful, that SP were as good as physicians in providing feedback and SPs were sufficiently trained to judge clinical skills.

In an Australian medical school SPs were interviewed to explore their views of students' emerging professional identities and their contributions toward developing the same [19]. SPs opined that they contributed to students' professional identity development by providing a supporting environment to hone their skills through realistically role-playing illness scripts, making their bodies available for physical examination and providing feedback as patients.

### Possible future directions regarding the use of SPs in the institution

SPs have been used in the institution for over three years. Under the new integrated, organ system-based curriculum SPs are being trained to portray common disease conditions according to organ systems. Only minimal make up and external aids are being used. OSCE rooms according to the National Board of Medical Examiners (NBME) standards are available. In addition to interactions with SPs, role-plays and case scenarios are also being used to develop communication skills of students. A medical humanities module is conducted at the institution [20]. We are considering using SPs to introduce students to dealing with patients with disability, aggressive patients and patients suffering from mental illness. We are working toward recruiting more persons from Aruba for the SP program.

We also obtained informal student feedback regarding the use of SPs for teaching-learning and assessment. Student feedback was positive and they were of the opinion that SPs provided them with an opportunity to interact with patients and obtain early clinical exposure. They were also being prepared for clinical rotations and for the licensing examinations. We plan to obtain detailed student feedback in future.

### LIMITATION

The study had limitations. SPs perception was studied only using a FGD. Only five SPs participated in the study. Only a single FGD was conducted with a single group of SPs. The FGD was continued till no new data was obtained. The data obtained was not triangulated with that obtained from other sources. Students' opinion regarding the SP program was not studied. We plan to do so in future.

### CONCLUSION

The present study obtained the perception of SPs regarding various aspects of the SP program at the institution. The overall opinion of SPs was positive. Their participation in teaching-learning and assessment was studied. Their motivations for becoming a SP and methods for motivating more Arubans to be involved with the SP program were discussed. Suggestions for further strengthening future sessions were obtained.

### Appendix: Guide used to facilitate the focus group discussions

Can you briefly introduce yourself?

What do you understand by standardized patients?

In your opinion why are standardized patients being increasingly used in medical schools?

In your opinion what are possible advantages of SPs over real patients?

What if any are their limitations compared to real patients?

What are your overall comments regarding the use of standardized patients in XUSOM?

According to you how do SPs help in the learning of history taking skills?

According to you how do SPs help in the learning of physical examination skills?

Are you able to provide students with proper feedback regarding their history taking skills?

What motivated you to be a SP?

How can the school involve more individuals from Aruba to be involved as SPs?

What are your suggestions to further improve the effectiveness of SPs during teaching-learning?

What is your opinion regarding the use of SPs during OSCE? How can this be further strengthened?

Do you feel adequately trained to portray the various diseases/clinical scenarios?

Do you have any suggestions to offer which can further improve the effectiveness of SPs during OSCE?

Any other comments?

### REFERENCES

- [1] Wallace P. Following the threads of an innovation: The history of standardized patients in medical education. *Caduceus*. 1997;13:5-28.
- [2] McGraw RC, O'Connor HM. Standardized patients in the early acquisition of clinical skills. *Med Educ*. 1999;33:572-78.
- [3] Van der Vleuten CPM, Swanson DB. Assessment of clinical skills with standardized patients. State of the art. *Teach Learn Med*. 1990;2:58-76.
- [4] Colliver JA, Williams RG. Technical issues: test application. *Acad Med*. 1993;68:454-60.
- [5] Barrows HS. An overview of the uses of standardized patients for teaching and evaluating clinical skills. *Acad Med*. 1993;68:443-51.
- [6] Adamo G. Simulated and standardized patients in OSCEs: achievements and challenges 1992-2003. *Med Teach*. 2003;25:262-70.
- [7] McLaughlin K, Gregor L, Jones A, Coderre S. Can standardized patients replace physicians as OSCE examiners? *BMC Med Educ*. 2006;6:12.
- [8] Shankar PR, Balasubramaniam R, Dwivedi NR, Nuguri V. Student feedback about the integrated curriculum in a Caribbean medical school. *J Educ Eval Health Prof*. 2014;11:23.
- [9] Shankar PR. Challenges in implementing an integrated curriculum in Xavier University School of Medicine, Aruba. *Education in Medicine Journal*. 2014;6:e74-77.
- [10] Shankar PR, Dwivedi NR. Using standardized patients for teaching-learning and assessment in a Caribbean medical school. *Education in Medicine Journal*. 2015;7:e78-79.
- [11] Rethans JJ, Grosfeld FJ, Aper L, et al. Six formats in simulated and standardized patients use, based on experiences of 13 undergraduate medical curricula in Belgium and the Netherlands. *Med Teach*. 2012;34:710-16.
- [12] Kiluk JV, Dessureault S, Quinn G. Teaching medical students how to break bad news with standardized patients. *J Cancer Educ*. 2012;27:277-80.
- [13] Long-Bellil LM, Robey KL, Graham CL, et al. Teaching medical students about disability: the use of standardized patients. *Acad Med*. 2011;86:1163-70.
- [14] Kodner C, Bohnert C. The Longitudinal Standardized Patient Project: innovation from necessity. *Acad Med*. 2015;90:317-20.
- [15] Collins JP, Harden RM. AMEE medical education guide no.13: real patients, simulated patients and simulators in clinical examinations. *Med Teach*. 1998;20:508-21.
- [16] Cleland JA, Abe K, Rethans JJ. The use of simulated patients in medical education: AMEE guide no. 42. *Med Teach*. 2009;31:477-86.
- [17] Abe K, Suzuki T, Fujisaki K, Ban N. A national survey to explore the willingness of Japanese standardized patients to participate in teaching physical examination skills to undergraduate medical students. *Teach Learn Med*. 2009;21:240-47.
- [18] Bokken L, Linssen T, Scherpbier A, et al. Feedback by simulated patients in undergraduate medical education: a systematic review of the literature. *Med Educ*. 2009;43:202-10. 10.1111/j.1365-2923.2008.03268.x.
- [19] McLean M, Johnson P, Sargeant S, Green P. Simulated patients' perspectives of and perceived role in medical students' professional identity development. *Simul Healthc*. 2015;10:85-91.
- [20] Shankar PR, Rose C. Main streaming the medical humanities in a Caribbean medical School. *RHIME*. 2016;3:1-5.

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