

# The Benefits and Risks of Being a Standardized Patient: A Narrative Review of the Literature

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**Abstract** Standardized patients (SPs) are a widely used, valid, and reliable means of teaching and evaluating healthcare providers (HCPs) across all levels of training and across multiple domains of both clinical and communication skills. Most research on SP programs focuses on outcomes pertinent to the learners (i.e., HCPs) rather than how this experience affects the SPs themselves. This review seeks to summarize the current literature on the risks and benefits of being an SP. We reviewed the literature on the effects that simulation has on adults, children/adolescents, and medical professionals who serve as SPs, in addition to real patients (RPs) who are involved in teaching by sharing their medical histories and experiences. To collect the literature, we conducted two separate systematic searches: one for SPs and one for RPs. Following the searches, we applied standardized eligibility criteria to narrow the literature down to articles within the scope of this review. A total of 67 studies were included that focused on the outcomes of SPs or RPs. The benefits for those portraying SP roles include improved health knowledge and attitudes, relationships with their HCPs, and changed health behaviors. Negative effects of being an SP include anxiety, exhaustion/fatigue, and physical discomfort immediately following a simulation, but the literature to date appears to indicate that there are no long-lasting

effects. These findings are consistent across age groups and the type of role being simulated. They are also supported by studies of RPs who are involved in medical education. Overall, the benefits of being an SP appear to outweigh the known risks. However, there are significant limitations in the current literature, and additional studies are needed to better characterize the SP experience.

## Key Points for Decision Makers

Standardized patients (SPs) are a highly reliable educational tool, and they are widely used to train medical professionals around the world.

By participating in medical education, SPs experience both benefits and risks, but a review of the literature reveals that on the basis of self-reported SP data, the benefits outweigh the risks, including a sense of contribution to the healthcare field, an increase in collaboration with healthcare providers, and an improvement in health behaviors.

Most research has focused on the learning outcomes for medical professionals, not the benefits and risks for SPs themselves, and there is a growing need for further studies to better understand how medical education affects SPs.

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## 1 Background

Standardized patients (SPs) are people who are trained to portray a patient or a patient's family member in order to assess healthcare providers (HCPs) across multiple

disciplines and levels of training [1–4]. Over the past 40 years, SPs have become widely used in medical schools across the USA [5, 6] and around the world [6, 7], as well as in other health professional education programs (e.g., nursing [8], pharmacy [9, 10], and dentistry [11]). The numbers of SPs range widely across educational programs, with some having as few as 25 active at a time [6] and others maintaining a register of over 500 different individuals [7].

SPs are used to teach and assess multiple aspects of HCPs' communication skills and clinical competency, including interviewing skills, medical history taking, physical examination techniques (including breast/pelvic examinations), and patient education and counseling [1–3, 5, 12, 13]. These components can be assessed separately in specific encounters or simultaneously in a case-based scenario [1, 5, 12]. SP simulations have also been used to teach more specific skills, such as alcohol screening [14], health behavior counseling [15], and chronic disease management [16]. More recently, SPs have even been sent into clinics unannounced to evaluate the real-life practices of HCPs, who believe they are seeing a real patient [17, 18].

SPs have been shown to be a valid and reliable method of assessing HCPs in a wide range of clinical settings. They are trained to portray the same case realistically and consistently over time [19–23], to use behaviorally anchored, case-specific checklists to accurately rate observable aspects of HCP performance [24–26], and to give feedback to HCPs after the simulation has ended [22, 27]. SP training and performance has reached such a high standard that passing a high-stakes clinical examination consisting entirely of SP encounters is required for medical licensure in the USA [28–31].

The majority of research involving SPs has focused on the effects of simulations on HCP skills and competencies [1–31]. However, unlike other educational methodologies, SPs are capable of experiencing and learning alongside the people they are trained to evaluate. Anecdotally, many people who have worked with SPs have noted health benefits after their involvement in clinical assessment programs, but the effects of participating in these simulations are not fully understood or well studied. In this review of the literature, we sought to understand how the simulation experience affects those people who work as SPs.

## 2 Methods

### 2.1 Terminology

People who are trained to portray a patient have been referred to as both “simulated patients” and “standardized patients”. At times these terms have been used interchangeably, while in other cases they reflect an ambiguity in the literature [7].

According to one definition [1], the term “simulated patient” refers to a person who portrays the same ailment systematically and in an unchanging way across repeated encounters, whereas the term “standardized patient” refers to both simulated patients and real patients who present their personal medical history in a consistent way. According to another definition [8], the term “standardized patient” refers to a person who presents his or her real medical history in a structured way, whereas the term “simulated patient” refers to a healthy person acting out a patient role.

In this review, we use the terms “standardized patient” and “simulated patient” interchangeably, and we abbreviate both terms as “SP”. “SP” refers to a healthy actor or layperson trained to portray a patient case, whereas the term “real patient” (RP) refers to people with a health condition who present their own medical history and experiences for the purposes of medical education. We use the term “learner” when referring to any HCP who interacts with an SP or an RP.

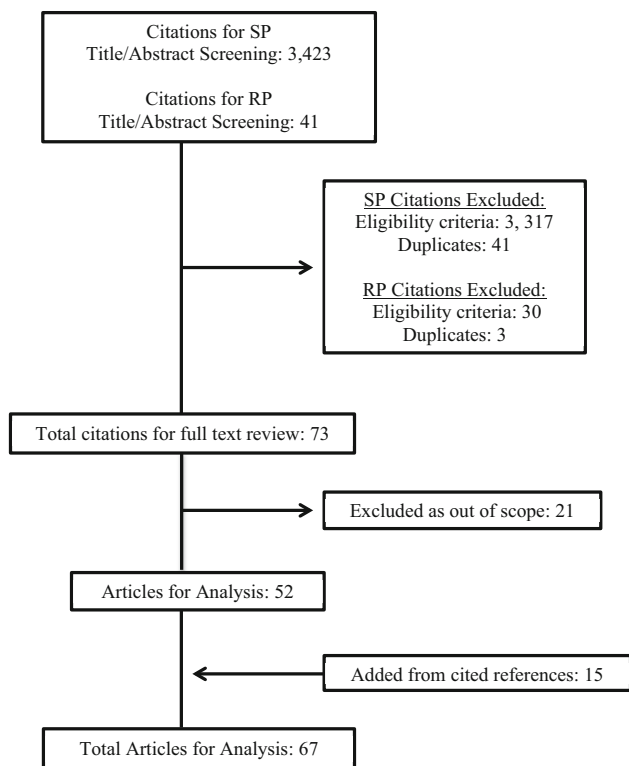
### 2.2 Literature Searches

We followed a protocol to conduct literature searches for the concepts of both SPs and RPs, and we then screened the results, using the same eligibility criteria. Along with a librarian (JN), we searched PubMed, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsycINFO, and the Education Resources Information Center (ERIC) through December 2014, using a search string for the concept of a “standardized patient”. These searches returned a total of 3423 articles.

The initial search results included only four articles that examined the experiences of RPs who volunteered as instructors in medical education. To compare the experiences of RPs with the experiences of SPs, it was necessary to conduct a secondary search to ensure we had fully covered the literature on RPs. Because the terminology for this concept differs considerably across the literature, the search protocol we followed is more similar to a search protocol for finding gray literature. First, it was necessary to use a combination of very broad search terms in PubMed to cover the concept of patient involvement in medical education. The resulting set of articles was hand-searched, and relevant articles were then mined for both their cited references and “cited by” references. This process returned an additional 41 articles.

### 2.3 Screening and Article Selection

A summary of the article selection process is presented in Fig. 1. The title and abstract of each article was screened to find articles whose outcome measures met the following eligibility criteria: (1) they were collected from SPs/RPs;



**Fig. 1** Article selection. *RP* real patient, *SP* standardized patient

and (2) they focused on the experiences of the SPs/RPs. All other articles (e.g., those whose outcomes focused on HCPs’ or learners’ experiences in SP programs) were excluded. Following screening, 106 SP articles were selected for full-text review. After exclusion of duplicate articles, this resulted in 65 SP articles for full-text review. After review of the body of each article, an additional 21 articles were excluded because their outcomes did not focus on the effect that simulation had on the SPs themselves, leaving 44 articles. The additional 41 articles from the RP search were analyzed separately, using the same eligibility criteria that were applied to the SP articles. Of those 41 articles, eight were included in the analysis.

Finally, cited reference searching was then used to identify 15 additional articles that focused on the concept of interest but did not contain the specific phrases that we searched for. The total number of articles for analysis was 67. Because of inconsistencies in the article types, study designs, and measures used, a meta-analysis was not possible; therefore, we have presented the results as a narrative review.

### 3 Results

The types and topics of all included articles are presented in Tables 1 and 2, respectively. Of the 67 articles, half focused on the risks and/or benefits of being an adult SP. A

**Table 1** Articles by type (*n* = 67)

Article type	Number
Commentaries/letters	2
Conference abstracts	8
Doctoral dissertations	2
Reviews	8
Qualitative studies	22
Quantitative studies	17
No control group	11
Control group	6
Mixed-methods studies	8
No control group	5
Control group	3

**Table 2** Articles by topic (*n* = 67)

Topic	Number
Adult SPs	34
Risks	6
Benefits	13
Both	15
Child/adolescent SPs	12
Medical professional SPs (e.g., medical, nursing, or physical therapy students; attending physicians)	7
RPs	14

*RP* real patient, *SP* standardized patient

smaller number of articles focused on several unique populations of SPs, notably child/adolescent SPs and medical professionals who served as SPs for their trainees or peers, or the effect of teaching on RPs.

#### 3.1 Risks of Being a Standardized Patient

Many of the earlier studies on the effects of simulation on SPs focused on the potential risks of the experience. The reported negative effects can be divided into several categories: immediate psychological effects, immediate physical effects, and long-term effects. Immediate psychological effects were most common, occurring in up to 75 % of SPs surveyed [32]. Some of these effects were due to reasons for selection as an SP—for instance, overweight women selected for a health behavior counseling course knew they were selected because of their weight, and felt embarrassment, shame, or guilt that their real characteristics were being used for the patient role [33]. Other effects were due to the experience of simulation itself, such as nervousness or anxiety before beginning a simulation [32, 34–39], difficulty transitioning into and out of the patient role [40–45], and SPs’ frustrations with their

own performance or the feedback they gave to the learners [32, 35, 38, 41]. Other negative psychological effects occurred in the immediate hours to days after a simulation, including residual anxiety [32, 36, 37, 39, 40, 43], fatigue or exhaustion [32, 35, 37–42], changes in energy levels [36, 37, 40, 46], feeling angry, irritable, or “on edge” [40, 46], increased sensitivity to noise [40], and sleep problems [39, 40].

These negative effects were more pronounced in SPs after they first played a new role [41] or after they played more psychologically/emotionally complex roles [36, 37, 40, 41, 43, 47]. They were also more likely to occur when SPs completed more than 3–4 simulations (equivalent to 40 min) in a row without a break [40, 41] or gave feedback to learners at the end of each simulation [41, 43, 48–51]. SPs who were trained as method actors (who draw on their own experiences to help form the role, as opposed to technique actors, who try to maintain a personal distance from the role) were also more likely to experience these negative effects [40, 46].

Immediate negative physical effects included pain due to elements of the physical examination (e.g., abdominal or breast pain) [35, 39, 41, 47], the posture held by the SP during the encounter (e.g., neck or back pain) [40, 41], or headaches from prolonged periods of concentrating while playing the patient role [35–37, 40]. Physical effects could also be case specific—for example, having puffy eyes after crying during a psychiatry case [40], feeling nauseated or having a loss of appetite after an HIV case [36, 37], or having genital/rectal discomfort after teaching a gynecological examination [52].

Despite reporting numerous immediate negative effects, SPs reported relatively few long-term negative consequences. In the specific case of SPs who taught a gynecological examination, some reported relationship problems and the possibility of an increased risk of vaginal infections [52]. For more general cases, SPs reported thinking about symptoms [39] and worrying about their physical or emotional health [36, 37] more often. In one case, an SP reported that he developed symptoms similar to those of a previous role, and he had to consciously think about not playing that role when seeing his own HCP [41], while others reported no change in their likelihood of seeing their primary care physician (PCP) for a medical problem [42] and no lasting negative effects 3 months after their last simulation [35].

### 3.2 Benefits of Being a Standardized Patient

Overall, the negative effects of working as an SP are outweighed by the benefits, in terms of the SPs’ attitudes, relationships with HCPs, and health behaviors. Overwhelmingly, SPs reported valuing their experience and

their contribution to the education of HCPs [32, 35, 39, 40, 44, 48, 49, 52–54]. They reported increased medical knowledge [33, 36, 37, 39, 52, 55], increased knowledge of the healthcare system [40, 43, 55, 56], and decreased prejudices against people with chronic medical or psychiatric illnesses [34, 36, 37, 57]. Their experiences also made them better able to cope when they or their family members developed medical problems [43]. Most significantly, SPs became more activated real patients [58, 59] who prefer to have more control over their own health [60].

Simulation experiences have allowed SPs to develop skills that can be applied to interactions with their HCPs in real life. During simulations, SPs were more dominant in conversations with medical students, which represents an inversion of the traditional HCP–patient power dynamic. In these encounters, SPs more frequently initiated topics of conversation [61], spoke for the majority of the encounter [62], asked direct questions [61], interrupted when the medical students were talking [62], and gave the student permission to close the encounter [61].

Outside of simulations, SPs reported an increased understanding of the role of HCPs [42, 43], a realization of the differences in skill across different HCPs [42], and, as a result, higher expectations of their HCPs [38, 53–59, 63, 64]. These expectations apply not only to clinical skills [39, 42, 54, 57–59, 63] but also to communication skills [38, 39, 42, 54, 55, 57, 63]. Specific expectations expressed by SPs included a desire for patient-centered care and involvement in shared decision making [58]. SPs also felt more confident and assertive in their interactions with HCPs [38, 39, 52, 55], reported better communication with their HCPs [34, 48, 49, 56, 63], and viewed the HCP–patient relationship as a partnership [39, 52, 55–59]. Unsurprisingly, given their increased expectations and confidence, SPs reported a range of opinions about their HCPs. Some reported developing more negative perceptions of their HCPs [34, 64, 65] or losing confidence in PCPs overall [65] when they did not meet their expectations. Others reported high levels of satisfaction with their current HCP [38, 60] or switching HCPs in order to find someone who met their expectations [56–59, 63]. In between interactions with HCPs, SPs reported preparing for visits with their HCP by knowing what information they wanted to bring to their HCP’s attention [58, 59] and generating questions to ask [39, 57–59]. These benefits seemed to be more apparent in those who had worked as SPs for longer [48, 49, 63] and in those who participated in simulations that included a physical examination component, as opposed to just a history-taking component [63].

Finally, certain groups of SPs reported changing their health behaviors as a result of their experience. Overweight women who repeatedly simulated a patient in a health behavior counseling course were motivated to change their

behaviors in a number of ways. They increased their intake of fruits and vegetables while decreasing their intake of prepackaged meals. They also increased their physical activity by joining gyms or weight loss groups. Most importantly, the changes they made were not just “quick fixes” to lose weight, but were true lifestyle changes with the intention of maintaining the weight loss that they achieved [33]. Even more strikingly, SPs who played the role of patients first being told they were HIV positive were more likely to get tested for HIV, talk to their sexual partners about HIV, and ask their partners to get tested. In follow-up surveys 1 year after their simulation, these SPs reported that they had increased their use of sexually transmitted disease (STD) prophylaxis during sexual encounters, and they reported encouraging their friends to do the same [36, 37].

### 3.3 Special Populations of Standardized Patients

#### 3.3.1 Children/Adolescents

Children and adolescents have been engaged as SPs since the late 1970s—for almost as long as adult SPs—but their use has always raised ethical concerns [66, 67]. All of the studies on child or adolescent SPs have investigated potential risks rather than potential benefits. Broadly, the age ranges of SPs that have been studied are younger children (aged 6–9 years) [67], older children (aged 10–12 years) [67, 68], and adolescents (aged 13–18 years) [67–77]. Regardless of age group, all studies on child or adolescent SPs have revealed that their experience was positive overall with few negative effects.

Only one study involved younger children acting as SPs ( $n = 4$ ). All of the children reported that their experience was fun and that the roles they were asked to play, which typically were more physical (e.g., involving headaches or stomach pain) or behavioral (e.g., involving hyperactivity or bed-wetting), were not difficult. However, one SP reported experiencing fear because the simulation made her realize that a child her age could die, which is something she had never considered before [67].

Adolescent SPs have been used to portray a wider array of cases, from strictly medical illnesses (e.g., abdominal pain or diabetes) [70–72] to more psychologically difficult cases (e.g., drug use, child abuse, or domestic violence) [71–74, 77]. In general, much like the younger children, their experiences were positive. Adolescent SPs reported satisfaction with helping adults learn [67, 68, 70, 71], a realization that adults often make mistakes [43, 67], a better understanding of how other people react to their behavior or things they say [67], improved ability to ask questions in different ways [67], improved people skills [71], and increased self-confidence [67, 71]. They also

reported an increased interest in learning medicine [72–74] and empathy towards their peers with medical or psychiatric problems [72, 77]. Finally, a novel study that used high school theatre students as SPs found that the students’ acting and improvisation abilities improved after working with a local pharmacy program [70].

Like adult SPs, child and adolescent SPs reported an increased ability to judge the quality of doctors [67, 71–74]. In one study of ten female adolescent SPs, three changed their doctors because of their experience [72]. Additionally, while there were initial concerns about the psychologically difficult cases, many SPs reported that they would be less likely to engage in risk-taking behaviors, such as smoking or drug use, and that they would be more resistant to peer pressure on these topics [71, 72].

The few negative effects reported by adolescent SPs were only in regard to their immediate experience. Many found it difficult to provide feedback and were anxious about providing good-quality feedback [69]. Adolescents playing cases with purely medical illnesses found that repeated physical examinations were tiring and sometimes led to them feeling “like an object” [68], whereas those playing more psychologically complex roles reported feeling uncomfortable answering questions about sexual history, abuse, and suicidal ideation [68, 71, 77], even though the answers pertained to their role and not their real life. Some SPs reported needing a few minutes after completing the psychologically difficult simulations to get out of character [67, 73, 74], and one study found that adolescents who completed a depression/suicidality case experienced transient depressive feelings following the simulation [75, 76]. Otherwise, there were no negative effects [67, 69, 72–74] in terms of worries about physical or emotional health after a simulation [71], doctors’ visits for symptoms similar to the symptoms of cases they had played [71], relationships with friends or family [71], or pre/post differences in stress and self-esteem questionnaire scores [71, 72].

#### 3.3.2 Medical Professionals

In order to cut down on the significant cost of hiring and training SPs, several programs have used medical professionals as SPs, including medical students [78–81], nursing students [10], physical therapy students [82], and attending physicians [83]. Across many of these programs, the medical professionals reported that serving as an SP was a valuable learning experience that provided a better understanding of the patient perspective [10, 79–82] and helped them give more effective feedback to their trainees or peers [82, 83].

Fourth-year medical students who served as SPs to train second-year medical students scored more highly than their

peers on their end-of-year clinical examinations across multiple domains of interpersonal communication, including building rapport, providing emotional support, eliciting the underlying concerns of the SPs when they differed from the stated chief complaint, and patient satisfaction. Interestingly, their scores on the technical aspects of history taking, such as obtaining more complete details of the patient's symptoms and medical history, were also higher than those of their peers [78].

### 3.4 Real Patients as Teachers in Medical Education

SPs are not the only group of laypeople who become involved in medical education. A wide range of RPs (i.e., people with a health condition who discuss their own medical history) have been utilized, including people with chronic medical illnesses (e.g., hypertension, diabetes, chronic kidney disease, or chronic obstructive pulmonary disease) [84–86], musculoskeletal diseases (e.g., osteoarthritis, rheumatoid arthritis, fibromyalgia, or low back pain) [84, 86, 87], psychiatric illnesses (e.g., depression, anxiety, drug/alcohol dependence, eating disorders, or psychosis) [84, 88], and HIV [89–91]. The benefits of working as an SP are further supported by studies that evaluate the effects on these RPs. Overall, RPs have found their experiences valuable and reported that talking to someone is cathartic or therapeutic [84, 85, 87, 91, 92]. They overwhelmingly reported increased knowledge or insight into their disease [84, 85, 88, 89, 91, 93, 94] and were glad to “give back” to the healthcare system by teaching future doctors [84, 85, 90–93, 95, 96]. RPs also reported increased self-esteem [86, 88, 91–96], confidence [85, 87, 89, 92, 94], and empowerment in terms of dealing with their own disease [86, 88, 90, 91, 93, 95, 97]. Many reported having better relationships with their own HCPs [85, 87, 88, 94, 95] because they became more selective of HCPs [85, 91], confident or assertive in their interactions with HCPs [85, 87, 90], better at working as a team [94], or better at asking questions [89]. Also, like SPs, some RPs reported changing their HCP in order to establish a better relationship [91]. However, no articles were found that described benefits to RPs in terms of self-management behaviors or medical outcomes.

The negative effects reported by RPs were similar to those reported by SPs, including anxiety, nervousness, or feeling exposed and vulnerable when discussing their medical problems [85, 86, 88, 89, 91, 93, 95]. These feelings were worsened when patients had to revisit negative experiences [89, 91, 95] (e.g., first disclosing their HIV-positive status to friends or family), when they were discussing topics that had a social stigma [85, 91, 95], or during intimate parts of the physical examination [93].

## 4 Discussion

### 4.1 Effects of Simulation on Standardized Patients

On the basis of the available literature, the benefits of being an SP outweigh the risks for both adults and children/adolescents. A summary of these benefits and risks is presented in Table 3. SPs have reported that the experience is overall positive and that, as a result, they have increased knowledge about medicine, the healthcare system, and what it means to be a competent HCP. They also reported improved communication and more collaborative relationships with their HCPs. These findings were supported by studies of RPs who volunteered to be a part of medical education. Outside of encounters with HCPs, SPs have changed their diet and exercise habits [33] and reduced their risk-taking behaviors in terms of STDs [36, 37], smoking, and drug use [71, 72].

These benefits do not mean that simulation is without potential risks, especially when it comes to psychiatric cases, other psychologically/emotionally complex roles, or simulations involving intimate portions of the physical examination. However, the risks from these instances are short lived, often lasting only hours after the simulation is finished. Furthermore, it has been suggested that the negative effects can be potentially mitigated by appropriate SP selection [34, 35, 39, 43, 71], increased training/preparation and debriefings [35, 39, 40, 48, 49], or careful attention to the cumulative workload of the SP across multiple simulations on the same day [35, 39, 48, 49]. Further investigation is needed to determine what effect, if any, changes in these factors have on SP experiences.

### 4.2 Limitations of the Current Literature

This literature review has revealed several major shortcomings of studies investigating the effects of simulation on SPs. Significantly, almost half of the articles we found (30 out of 67) incorporated qualitative analyses on data from small focus groups (including anywhere from 6 to 37 SPs) or one-on-one semi-structured interviews. The studies that utilized quantitative measures [32, 35, 38, 39, 46, 48–51, 61–65, 69, 71–73, 75–80, 82, 87, 88] each used a different survey or developed its own survey tool to collect SP responses, as there are no previously validated measures of SP experiences. Further, only nine studies compared SPs or RPs with any kind of control group. Four of these studies involved child/adolescent SPs [71, 72, 75–77], two involved medical professional SPs [78, 79], and one involved RPs [87]. This means that the entire adult SP literature (34 articles), with the exception of two studies [46, 64], is based on focus groups or uncontrolled studies. There is also

**Table 3** Summary of reported benefits and risks of being a standardized patient (SP)

Time scale	Benefits	Risks
Immediate	Valuing experience and contribution to educating HCPs Increased medical knowledge Increased knowledge of the healthcare system Decreased prejudices against people with chronic medical or psychiatric illnesses Increased understanding of the HCP role Realization of differences in HCP skill	Physical risks Pain/discomfort due to repeated physical examinations or postures held during encounters Headaches Puffy eyes (after crying) Nausea/loss of appetite Psychological risks Nervousness/anxiety Difficulty transitioning into/out of patient role Frustrations with performance or feedback given Fatigue/exhaustion Irritability or feeling “on edge” Sleep problems
Long-term	Increased ability to cope with development of medical problems Higher expectations of HCPs Increased confidence/assertiveness in interactions with HCPs Better communication with HCPs Preparation for visits with HCPs: bringing information and asking questions Changing health behaviors: improved diet, increased physical activity Increased HIV testing and discussions with partners/friends about HIV testing Increased use of STD prophylaxis during sexual encounters	Thinking about symptoms Worrying about physical/emotional health more often

*HCP* healthcare provider, *HIV* human immunodeficiency virus, *STD* sexually transmitted disease

the problem of limited follow-up, as only five studies [35–37, 64, 71, 75, 76] followed SPs for any length of time after completion of their involvement with the program, the longest of which followed patients for 1 year [36, 37, 64].

Aside from these limitations of the actual articles found, there are also limitations in terms of the literature searches for this review. Both the initial and secondary searches returned many more citations than were relevant to the topic; after screening and article selection, 3423 articles on SPs were reduced to 44, and 41 citations on RPs were reduced to 8. One problem is the varying use of the terms “standardized patient” versus “simulated patient” in the literature. As previously discussed, these terms have varying definitions that can either overlap or be used interchangeably [1, 8], and both overlap with other concepts in the literature. For example, the term “simulated patient” returns articles on non-human simulators in medical education, while the term “standardized patient” returns articles on procedures performed on patients in a standard (i.e., systematic/consistent) way. A separate problem is the general terms used in the titles and abstracts of articles about both SPs and RPs. Searches for these terms often fail to distinguish studies that

evaluate educational programs in terms of learner outcomes from those that evaluate SPs or RPs themselves, as has been noted in previous reviews [86, 95, 97]. Because of these areas of ambiguity, it is possible that the searches we performed for this review did not find all of the potentially relevant articles that exist in the literature.

### 4.3 Future Directions

A summary of recommendations for improving the quality of studies that investigate the effect of simulation on SPs is presented in Table 4. All studies should define how they use the terms “standardized patient” and/or “simulated patient”, while also simply stating if their SPs are actors or laypeople, how they are recruited and selected, and how many SPs are active at their institution.

There is also a need for development and validation of an instrument that measures all aspects of the SP experience. On the basis of this review, such an instrument should include questions about the reason for deciding to work as an SP, immediate negative psychological and physical effects, general physical and mental health, health

**Table 4** Recommendations for improving standardized patient (SP) studies

Domain	Recommendations
Terms/subjects	Define uses of the terms “standardized patient” and “simulated patient” Describe background and selection criteria for SPs Report total number of SPs from which the study sample is drawn
Measures/ outcomes	Use validated measures of mood, anxiety, health beliefs and attitudes, and health behaviors until an instrument to assess SP experiences is developed and validated Include measures that correlate with biological disease severity (e.g., blood pressure, hemoglobin A <sub>1c</sub> level) for those with health conditions Collect data on healthcare utilization, especially preventative medicine services (e.g., screening tests, immunizations)
Study design	Compare SPs with a control group SPs versus non-SPs SPs who play psychologically/emotionally complex roles versus SPs who play medical illness roles Random assignment to groups Random assignment of cases (when possible, while maintaining accuracy/realism of the case) Wait-list control for new SPs
Timing/follow-up	Collect baseline data on health beliefs and behaviors Follow SPs throughout their time in active simulation, assess day-to-day experiences, and re-assess health beliefs and behaviors at regular intervals (e.g., yearly) Assessment of SPs could be coupled with major clinical examinations for learners to maximize responses and feasibility for SP program coordinators Collect data on why SPs stop participating in simulation and contact them several months/1 year later to assess the long-term effects of their experiences

beliefs, relationships with HCPs, and health behaviors. In order to link the self-reported benefits already described by SPs to their actual health, measures should include markers of disease severity (e.g., blood pressure or hemoglobin A<sub>1c</sub> level) when appropriate. However, it is possible that measures of healthcare utilization, particularly of age-appropriate screening tests and immunizations, may be better indicators of improved health outcomes in a relatively healthy population.

Finally, institutions with SP programs should move away from using small cross-sectional focus group studies and instead perform larger prospective studies where SPs are compared with a control group that either does not have their training and experience or has participated in different types of simulations. These studies should follow SPs from the time of their recruitment until well after they stop working as an SP in order to better understand how their attitudes and behaviors change from baseline and how stable they remain after the experience.

## 5 Conclusion

Overall, the self-reported benefits of being an SP include valuing the contribution one is making to healthcare, increased collaboration in relationships with HCPs, and improved health behaviors in real life. On the basis of the available literature, these benefits appear to outweigh the

risks, which are most often reported as being transient and contained to the immediate period before and after the simulation. However, many of the results are based on small or uncontrolled studies that only collected self-reported data. In order to fully characterize what SPs take away from their experiences, a standardized framework for conducting and reporting studies involving SPs is needed.

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## References

1. Barrows HS. An overview of the uses of standardized patients for teaching and evaluating clinical skills. *Acad Med.* 1993;68(6):443–51.



2. McGaghie WC, Issenberg SB, Petrusa ER, Scalese RJ. A critical review of simulation-based medical education research: 2003–2009. *Med Educ*. 2010;44:50–63.
3. Stillman PL, Swanson DB. Ensuring the clinical competence of medical school graduates through standardized patients. *Arch Intern Med*. 1987;147:1049–52.
4. Ziv A, Wolpe PR, Small SD, Glick S. Simulation-based medical education: an ethical imperative. *Simul Healthc*. 2006;1:252–6.
5. Anderson MB, Stillman PL, Wang Y. Growing use of standardized patients in teaching and evaluation in medical education. *Teach Learn Med*. 1994;6(1):15–22.
6. Howley LD, Gliva-McConvey G, Thornton J. Standardized patient practices: initial report on the survey of US and Canadian medical schools. *Med Educ Online*. 2009;14:1–7.
7. Nestel D, Tabak D, Tierney T, Layat-Burn C, Robb A, Clark S, Morrison T, Jones N, Ellis R, Smith C, McNaughton N, Knickle K, Higham J, Kneebone R. Key challenges in simulated patient programs: an international comparative case study. *BMC Med Educ*. 2011;11:1–10.
8. Churhouse C, McCafferty C. Standardized patients versus simulated patients: is there a difference? *Clin Simul Nurs*. 2012;8(8):e363–5.
9. Austin Z, Gregory P, Tabak D. Simulated patients vs. standardized patients in objective structured clinical examinations. *Am J Pharm Educ*. 2006;70(5):1–7.
10. Haddad A. What health science students learn from playing a standardized patient in an ethics course. *Camb Q Healthc Ethics*. 2010;19:481–7.
11. Yoshida T, Ogawa T, Taguchi N, Maeda J, Abe K, Rodis OM, Nakai Y, Shirai H, Torii Y, Konoo T, Suzuki K. Effectiveness of a simulated patient training programme based on trainee response accuracy and appropriateness of feedback. *Eur J Dent Educ*. 2014;18:241–51.
12. Ainsworth MA, Rogers LP, Markus JF, Dorsey NK, Blackwell TA, Petrusa ER. Standardized patient encounters: a method for teaching and evaluation. *JAMA*. 1991;266:1390–6.
13. Yedidia MJ, Gillespie CC, Kachur E, Schwartz MD, Ockene J, Cherpatis AE, Snyder CW, Lazare A, Lipkin M. Effect of communications training on medical student performance. *JAMA*. 2003;290(9):1157–65.
14. Johnson JA, Seale JP, Shellenberger S, Velasquez MM, Alick C, Turk K. Impact of a medical student alcohol intervention workshop using recovering alcoholics as simulated patients. *Adv Med Educ Pract*. 2014;5:133–9.
15. Wagenschutz H, Ross P, Purkiss J, Yang J, Middlemas S, Lyson M. Standardized patient instructor (SPI) interactions are a viable way to teach medical students about health behavior counseling. *Patient Educ Couns*. 2011;84:271–4.
16. Cohen AG, Kitai E, Ben David S, Ziv A. Standardized patient-based simulation training as a tool to improve the management of chronic disease. *Simul Healthc*. 2014;9:40–7.
17. Rethans J-J, Gorter S, Bokken L, Morrison L. Unannounced standardised patients in real practice: a systematic literature review. *Med Educ*. 2007;41:537–49.
18. Zabar S, Hanley K, Stevens D, Murphy J, Burgess A, Kalet A, Gillespie C. Unannounced standardized patients: a promising method of assessing patient-centered care in your health care system. *BMC Health Serv Res*. 2014;14:1–8.
19. Erby LAH, Roter DL, Biesecker BB. Examination of standardized patient performance: accuracy and consistency of six standardized patients over time. *Patient Educ Couns*. 2011;85:194–200.
20. Furman GE. The role of standardized patient and trainer training in quality assurance for a high-stakes clinical skills examination. *Kaohsiung J Med Sci*. 2008;24:651–5.
21. Gormley G, Sterling M, Menary A, McKeown G. Keeping it real! Enhancing realism in standardised patient OSCE stations. *Clin Teach*. 2012;9:382–6.
22. Bokken L, Van Dalen J, Scherpbier A, Van Der Vleuten C, Rethans J-J. Lessons learned from an adolescent simulated patient educational program: five years of experience. *Med Teach*. 2009;31:605–12.
23. Brown CB, Kahraman N. Exploring psychometric models to enhance standardized patient quality assurance: evaluating standardized patient performance over time. *Acad Med*. 2013;88:866–71.
24. Boulet JR, van Zanten M, de Champlain A, Hawkins RE, Peitzman SJ. Checklist content on a standardized patient assessment: an ex post facto review. *Adv Health Sci Educ*. 2008;13:59–69.
25. Langenau EE, Dyer C, Roberts WL, De Champlain AF, Montrey DP, Sandella JM. Relationship between standardized patient checklist item accuracy and performing arts experience. *Simul Healthc*. 2011;6:150–4.
26. Heine N, Garman K, Wallace P, Bartos R, Richards A. An analysis of standardised patient checklist errors and their effect on student scores. *Med Educ*. 2003;37:99–104.
27. Bokken L, Linssen T, Scherpbier A, van der Vleuten C, Rethans J-J. Feedback by simulated patients in undergraduate medical education: a systematic review of the literature. *Med Educ*. 2009;43:202–10.
28. Grand'Maison P, Lescop J, Rainsberry P, Brailovsky CA. Large-scale use of an objective, structured clinical examination for licensing family physicians. *Can Med Assoc J*. 1992;146(10):1735–40.
29. Klass D, De Champlain A, Fletcher E, King A, Macmillan M. Development of a performance-based test of clinical skills for the United States Medical Licensing Examination. *Fed Bull*. 1998;85(3):177–85.
30. Cuddy MM, Swygert KA, Swanson DB, Jobe AC. A multilevel analysis of examinee gender, standardized patient gender, and United States Medical Licensing Examination step 2 clinical skills communication and interpersonal skills scores. *Acad Med*. 2011;86(10):S17–20.
31. Tamblyn R, Abrahamowicz M, Dauphinee D, Wenghofer E, Jacques A, Klass D, Smee S, Blackmore D, Winslade N, Girard N, Du Berger R, Bartman I, Buckeridge DL, Hanley JA. Physician scores on a national clinical skills examination as predictors of complaints to medical regulatory authorities. *JAMA*. 2007;298(9):993–1001.
32. Bokken L, van Dalen J, Rethans J-J. Performance-related stress symptoms in simulated patients. *Med Educ*. 2004;38:1089–94.
33. Wagenschutz H, Ross PT, Bernat CK, Lyson ML. Impact of repeated health behavior counseling on women portraying an overweight standardized patient. *J Nutr Educ Behav*. 2013;45:466–70.
34. Spencer J, Dales J. Meeting the needs of simulated patients and caring for the person behind them. *Med Educ*. 2006;40:3–5.
35. Harvey P, Radomski N. Performance pressure: simulated patients and high-stakes examinations in a regional clinical school. *Aust J Rural Health*. 2011;19:284–9.
36. Triviño X, Ferrer L, Bernales M, Cianelli R, Moore P, Peragallo N. Effect of emotionally-complex roles on standardized patients. Presented at the Association for Medical Education in Europe (AMEE) 2013 Conference: Prague; 24–28 Aug 2013. <https://www.amee.org/getattachment/Conferences/AMEE-Past-Conferences/AMEE-Conference-2013/AMEE-2013-ABSTRACT-BOOK-updated-190813.pdf>. Accessed 8 May 2015.
37. Triviño X, Ferrer L, Bernales M, Cianelli R, Moore P, Peragallo N. Effect of emotionally complex roles on HIV-related simulated patients. *Hisp Health Care Int*. 2013;11(2):72–7.

38. Russell D, Etherington C, Hawthorne K. How can simulated patients' experiences suggest ways to improve candidate performance in the MRCGP clinical assessments? *Educ Prim Care*. 2012;23:391–8.
39. Boerjan M, Boone F, Anthierens S, van Weel-Baumgarten E, Deveugele M. The impact of repeated simulation on health and healthcare perceptions of simulated patients. *Patient Educ Couns*. 2008;73:22–7.
40. McNaughton N, Tiberius R, Hodges B. Effects of portraying psychologically and emotionally complex standardized patient roles. *Teach Learn Med*. 1999;11(3):135–41.
41. Bokken L, van Dalen J, Rethans J-J. The impact of simulation on people who act as simulated patients: a focus group study. *Med Educ*. 2006;40:781–6.
42. Denney ML, Wakeford R, Hawthorne K, Bewick M. Experiences of simulated patients and candidates in the Membership of the Royal College of General Practitioners Simulated Surgery Examination. *Educ Prim Care*. 2006;17:354–61.
43. Woodward CA. Standardized patients: a fixed-role therapy experience in normal individuals. *J Constr Psychol*. 1998;11:133–48.
44. McNaughton N, Hodges B, Abbey S. Standardized patients and long psychiatry examination simulations. Presented at the Association for Medical Education in Europe (AMEE) 2005 Conference: Amsterdam; 30 Aug–2 Sept 2005. <https://www.amee.org/getattachment/Conferences/AMEE-Past-Conferences/AMEE-Conference-2005/AMEE-2005-Abstracts.pdf>. Accessed 8 May 2015.
45. Hoelzer H, Froehmel A, Kretschmann J. The impact of simulation on simulated patients. Presented at the Association for Medical Education in Europe (AMEE) 2007 Conference: Trondheim; 25–29 Aug 2007. <https://www.amee.org/getattachment/Conferences/AMEE-Past-Conferences/AMEE-Conference-2007/AMEE-2007-Abstract-Book.pdf>. Accessed 8 May 2015.
46. Naftulin DH, Andrew BJ. Effects of patient simulation on actors. *J Med Educ*. 1975;50:87–9.
47. Schrauth M, Schmulius N, Gross G, Kowalski A, Zipfel S, Martens U. Education or examination—different strains on standardized patients. Presented at the Association for Medical Education in Europe (AMEE) 2005 Conference: Amsterdam; 30 Aug–2 Sept 2005. <https://www.amee.org/getattachment/Conferences/AMEE-Past-Conferences/AMEE-Conference-2005/AMEE-2005-Abstracts.pdf>. Accessed 8 May 2015.
48. Abe K, Roter D, Erby LH, Ban N. A nationwide survey of standardized patients: who they are, what they do, and how they experience their work. *Patient Educ Couns*. 2011;84:261–4.
49. Abe K, Evans P, Cleland J, Barton P, Ker J, Suzuki Y. International survey of standardized patients—who they are, what they do, and how they experience their work. Presented at the Association for Medical Education in Europe (AMEE) 2010 Conference: Glasgow; 4–8 Sept 2010. <https://www.amee.org/getattachment/Conferences/AMEE-Past-Conferences/AMEE-Conference-2010/AMEE-2010-Abstract-book.pdf>. Accessed 8 May 2015.
50. Newlin-Canzone ET. The effect of improvisations and observations on standardized patient encounters, subjective workload and stress [PhD thesis]. Norfolk: Old Dominion University; 2011.
51. Newlin-Canzone ET, Scerbo MW, Gliva-McConvey G, Wallace AM. The cognitive demands of standardized patients: understanding limitations in attention and working memory with the decoding of nonverbal behavior during improvisations. *Simul Healthc*. 2013;8:207–14.
52. Jha V, Setna Z, Al-Hity A, Quinton ND, Roberts TE. Patient involvement in teaching and assessing intimate examination skills: a systematic review. *Med Educ*. 2010;44:347–57.
53. Linszen T, van Dalen J, Rethans J-J. Simulating the longitudinal doctor-patient relationship: experiences of simulated patients in successive consultations. *Med Educ*. 2007;41:873–8.
54. Johnston JL, Lundy G, McCullough M, Gormley GJ. The view from over there: reframing the OSCE through the experience of standardised patient raters. *Med Educ*. 2013;47:899–909.
55. Keith AL. Memoirs of a simulated patient: what physicians can learn from actors. *Virtual Mentor*. 2003;5(12):1–2.
56. Thompson ME, Mavis B, Noel M. The experiences of standardized patients in the health care system: higher expectations and enhanced social action. Presented at the Association of American Medical Colleges (AAMC) Annual Meeting: San Francisco; 2–7 Sept 2012. <https://www.aamc.org/download/308808/data/poster-mavis.pdf>. Accessed 8 May 2015.
57. Woodward CA, Gliva-McConvey G. Effect of simulating on standardized patients. *Acad Med*. 1995;70(5):418–20.
58. Gillespie C, Hyland Bruno J, Kalet A. What standardised patients tell us about 'activating' patients. *Med Educ*. 2009;43:1112–3.
59. Gillespie C, Hyland Bruno J, Tewksbury L, Zabar S, Ark T, Kalet A. Can SPs teach us how to activate real patients? Presented at the Society for General Internal Medicine (SGIM) 32nd Annual Meeting; Miami Beach; 13–16 May 2009.
60. Lewy CMS. Health care attitudes: does the experience of being a standardized patient have an effect? [dissertation]. Portland: Portland State University; 2003.
61. de la Croix A, Skelton J. The simulation game: an analysis of interactions between students and simulated patients. *Med Educ*. 2013;47:49–58.
62. de la Croix A, Skelton J. The reality of role-play: interruptions and amount of talk in simulated consultations. *Med Educ*. 2009;43:695–703.
63. Wallach PM, Elnick M, Bogner B, Kovach R, Papadakis M, Zucker S, Speer A. Standardized patients' perceptions about their own health care. *Teach Learn Med*. 2001;13(4):227–31.
64. Rubin NJ, Philp EB. Health care perceptions of the standardized patient. *Med Educ*. 1998;32:538–42.
65. Sielk M, Brockmann S, Spannaus-Sakic C, Wim S. Do standardised patients lose their confidence in primary medical care? Personal experiences of standardised patients with GPs. *Br J Gen Pract*. 2006;56(531):802–4.
66. Tsai T-C. Using children as standardised patients for assessing clinical competence in paediatrics. *Arch Dis Child*. 2004;89:1117–20.
67. Woodward CA, Gliva-McConvey G. Children as standardized patients: initial assessment of effects. *Teach Learn Med*. 1995;7(3):188–91.
68. Klaber RE, Pollock I. Clinical teaching in paediatrics: understanding perceptions, motives and concerns. *Arch Dis Child*. 2009;94:371–5.
69. Bokken L, van Dalen J, Rethans J-J. The case of 'Miss Jacobs': adolescent simulated patients and the quality of their role playing, feedback, and personal impact. *Simul Healthc*. 2010;5:315–9.
70. Schultz KK, Marks A. Community-based collaboration with high school theater students as standardized patients. *Am J Pharm Educ*. 2007;71(2):1–9.
71. Hanson M, Tiberius R, Hodges B, Mackay S, Mcnaughton N, Dickens S, Regehr G. Adolescent standardized patients: method of selection and assessment of benefits and risks. *Teach Learn Med*. 2009;14(2):104–13.
72. Blake KD, Gusella J, Greaven S, Wakefield S. The risks and benefits of being a young female adolescent standardised patient. *Med Educ*. 2006;40:26–35.
73. Blake K, Greaven S. Recruiting and following adolescent standardized patients. *Acad Med*. 1999;74(5):584.
74. Blake K, Greaven S. Adolescent girls as simulators of medical illness. *Med Educ*. 1999;33:702–3.

75. Hanson MD, Niec A, Pietrantonio AM, Johnson S, Young M, High B, MacMillan H, Eva KW. Effects associated with adolescent standardized patient simulation of depression and suicidal ideation. *Acad Med.* 2007;82(10):S61–4.
76. Hanson M, Niec A, Pietrantonio AM, Johnson S, Young M, High B, MacMillan H, Eva KW. Adolescent standardized patients' simulation of suicidality—is it safe? Presented at the Association for Medical Education in Europe (AMEE) 2007 Conference; Trondheim; 25–29 Aug 2007. <https://www.amee.org/getattachment/Conferences/AMEE-Past-Conferences/AMEE-Conference-2007/AMEE-2007-Abstract-Book.pdf>. Accessed 8 May 2015.
77. Hanson MD, Johnson S, Niec A, Pietrantonio AM, High B, Macmillan H, Eva KW. Does mental illness stigma contribute to adolescent standardized patients' discomfort with simulations of mental illness and adverse psychosocial experiences. *Acad Psychiatry.* 2008;32:98–103.
78. Sasson VA, Blatt B, Kallenberg G, Delaney M, White FS. 'Teach 1, do 1...better': superior communication skills in senior medical students serving as standardized patient-examiners for their junior peers. *Acad Med.* 1999;74:932–7.
79. Hwang JY. Checklist maker, standardised patient and rater. *Med Educ.* 2013;47:529.
80. Mavis BE, Ogle KS, Lovell KL, Madden LM. Medical students as standardized patients to assess interviewing skills for pain evaluation. *Med Educ.* 2002;36:135–40.
81. Wettach GR. A standardized patient enrolled in medical school considers the national clinical skills examination. *Acad Med.* 2003;78:1240–2.
82. Mandrusiak AM, Isles R, Chang AT, Choy NLL, Toppenberg R, McCook D, Smith MD, O'Leary K, Brauer SG. Senior physiotherapy students as standardised patients for junior students enhances self-efficacy and satisfaction in both junior and senior students. *BMC Med Educ.* 2014;14(105):1–7.
83. Abdelkhalek NM, Hussein AM, Sulaiman N, Hamdy H. Faculty as simulated patients (FSPs) in assessing medical students' clinical reasoning skills. *Educ Health.* 2009;22(3):1–7.
84. Stacy R, Spencer J. Patients as teachers: a qualitative study of patients' views on their role in a community-based undergraduate project. *Med Educ.* 1999;33:688–94.
85. Lauckner H, Doucet S, Wells S. Patients as educators: the challenges and benefits of sharing experiences with students. *Med Educ.* 2012;46:992–1000.
86. Jha V, Quinton ND, Bekker HL, Roberts TE. Strategies and interventions for the involvement of real patients in medical education: a systematic review. *Med Educ.* 2009;43:10–20.
87. Gecht MR. What happens to patients who teach? *Teach Learn Med.* 2000;12(4):171–5.
88. Walters K, Buszewicz M, Russell J, Humphrey C. Teaching as therapy: cross sectional and qualitative psychiatry teaching in the community. *BMJ.* 2003;326:1–6.
89. Solomon P, Guenter D, Stinson D. People with HIV as educators of health professionals. *AIDS Patient Care STDS.* 2005;19(12):840–7.
90. Vail R, Mahon-Salazar C, Morrison A, Kalet A. Patients as teachers: an integrated approach to teaching medical students about the ambulatory care of HIV infected patients. *Patient Educ Couns.* 1996;27:95–101.
91. Hatem DS, Gallagher D, Frankel R. Challenges and opportunities for patients with HIV who educate health professionals. *Teach Learn Med.* 2003;15(2):98–105.
92. McKeown M, Malihi-Shoja L, Hogarth R, Jones F, Holt K, Sullivan P, Lunt J, Vella J, Hough G, Rawcliffe L, Mather M. The value of involvement from the perspective of service users and carers engaged in practitioner education: not just a cash nexus. *Nurse Educ Today.* 2012;32:178–84.
93. Coleman K, Murray E. Patients' views and feelings on the community-based teaching of undergraduate medical students: a qualitative study. *Fam Pract.* 2002;19(2):183–8.
94. Honig P, Dargie L, Davies S. The impact on patients and parents of their involvement in the training of healthcare professionals. *Eur Eat Disord Rev.* 2006;14:263–8.
95. Towle A, Bainbridge L, Godolphin W, Katz A, Kline C, Lown B, Madularu I, Solomon P, Thistlethwaite J. Active patient involvement in the education of health professionals. *Med Educ.* 2010;44:64–74.
96. Lucas B, Pearson D. Patient perceptions of their role in undergraduate medical education within a primary care teaching practice. *Educ Prim Care.* 2012;23:277–85.
97. Wykurz G, Kelly D. Developing the role of patients as teachers: literature review. *Br Med J.* 2002;325:818–21.