Feedback by simulated patients in undergraduate medical education: a systematic review of the literature

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OBJECTIVES Although the importance of feedback by simulated patients (SPs) is generally recognised, knowledge is scarce about the most effective ways in which SPs can provide feedback. In addition, little is known about how SPs are trained to provide feedback. This study aimed to provide a systematic overview of the ways in which SPs provide feedback to undergraduate medical students, the domains in which SPs provide feedback and the ways in which SPs are trained to provide feedback.

METHODS We performed a systematic search of the literature using PubMed, PsychINFO and ERIC and searched for additional papers cited in reference lists. Papers were selected on the basis of pre-established inclusion and exclusion criteria and were classified, using a pre-established form, according to three aspects of SP feedback: training in giving feedback; the process of delivering feedback, and the domain(s) in which feedback is given.

RESULTS A total of 49 studies were included and described in detail on the basis of the three aspects of SP feedback described above. The ways in which SPs were trained to give feedback were largely heterogeneous, as were the processes by which feedback was provided by SPs. Only a few studies described feedback processes that were in accordance with general recommendations for the delivery of effective feedback. Although feedback from the patient's perspective is generally recommended, most SPs provided feedback on clinical skills and communication skills.

DISCUSSION There appear to be no clear standards with regard to effective feedback training for SPs. Furthermore, the processes by which feedback is provided by SPs and the selection of domain(s) in which SPs give feedback often seem to lack a solid scientific basis. Suggestions for further research are provided.

KEYWORDS review [publication type]; *patient simulation; *education, medical, undergraduate; Netherlands; *feedback.

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INTRODUCTION

The provision of feedback to students is an integral part of teaching with standardised or simulated patients (SPs). These SPs are unique in that they can be trained to give feedback from a patient's perspective.[1,2] The ability of SPs to give immediate and specific feedback on an encounter with a student is one of the advantages of using SPs compared with real patients.[2–4] Feedback can be defined as 'specific information about the comparison between a trainee's observed performance and a standard, given with the intent of improving the trainee's performance'.[5] Immediate, oral or written feedback provided by SPs after a student encounter is widely used in many medical schools.[4]

Students highly value the feedback provided by SPs.[6–9] Their feedback is valued equally or more positively than the feedback provided by doctors.[10–12] Students trained by SPs have performed as well or better than students trained by faculty teachers in, for example, tests of communication skills or pelvic examination skills.[13–17] Even at 6 months after the training, students trained by SPs showed better skills compared with students trained by more traditional teaching methods consisting of lectures and small-group discussions.[18] Feedback by SPs may be an important factor contributing to this.

Standardised patients provide feedback to undergraduate medical students on their performance in a variety of domains, such as interviewing skills or physical examination skills, and in a variety of formats, such as verbally or with the use of written checklists.[4] Although the importance of feedback by SPs is generally recognised and feedback by SPs is widely used in many medical schools, little is known about the most effective ways in which SPs can provide feedback to undergraduate medical students.[19] We also know little about the training of SPs in providing feedback.

The aims of this review were:

1 to identify the ways in which SPs provide feedback to undergraduate medical students;
2 to identify the domain(s) in which SPs provide feedback, and
3 to identify the ways in which SPs are trained to provide feedback.

METHODS

We searched the databases PubMed, PsychINFO and ERIC using the search terms 'feedback', 'standardised patients', 'simulated patients' and 'undergraduate medical education'. The databases were searched from their onset until July 2007. Standardised patients who actively teach medical students and provide them with feedback are often called 'patient-instructors'. Patient-instructors who teach in the fields of gynaecology or urology are also referred to as gynaecologic teaching associates, genitourinary teaching associates, urogenital teaching associates or urological teaching associates. Therefore, we used all these referents and '(undergraduate) medical education' as search terms. We included empirical research papers and descriptive papers in which SPs gave immediate, direct, specific, constructive and formative feedback to undergraduate medical students.

Theoretically, there is a difference between standardised patients (persons with or without symptoms trained to portray a patient problem in a standardised, consistent manner) and simulated patients (persons trained to realistically portray a patient role).[1] Both standardised and simulated patients give feedback to students and the terms are often used interchangeably. Therefore, the theoretical difference between standardised and simulated patients was not considered important for our study. In our study, an SP was defined as a layperson with or without symptoms, trained to portray a patient role realistically and consistently.

Papers in which SPs did not give feedback directly to students, but, instead, to teachers, who subsequently passed it on to students, and papers that were not clear on who delivered the feedback to students (faculty staff or SPs) were excluded. Papers in which SPs gave feedback directly to students in the presence of teachers were included. Feedback should be formative as it is given with the intention of improving the student's performance. Therefore, studies in which the SPs only rated the performance of students on a checklist, such as in (summative) assessments, were excluded. The uniqueness of the feedback provided by SPs is that it is given from a patient's perspective. To ensure that feedback was provided purely from the patient's perspective and to prevent any bias arising from knowledge about physical examination techniques and history taking, for example, we only included papers in which

laypersons were trained as SPs. Studies in which faculty teachers, residents, medical students or other health care professionals were trained as SPs were therefore excluded.

Papers were selected by one of the authors (LB) on the basis of their abstracts. When a paper could not be selected on the basis of the abstract alone or when there was no abstract available, the full-text paper was used. In cases of uncertainty regarding the inclusion or exclusion of a paper, the selection of the paper was discussed with a second author (TL) until consensus was reached.

Using the search terms described earlier, we found 394 papers. Of these 394 papers, 38 were selected according to the inclusion and exclusion criteria. The references of selected papers were also checked for additional, relevant papers that had been missed in the initial search. This yielded another 50 papers, of which 14 met the inclusion and exclusion criteria. The full-text paper of one study could not be obtained. As the information provided by the abstract was too limited, this study was excluded from the review. Two papers described follow-up results of previously published studies. Each of these papers was analysed together with the respective previously published study because the SPs involved had been trained and used in exactly the same way. Ultimately, a total of 49 studies were included in the review.

Two independent reviewers (TL and LB) classified the papers using a pre-established form (Figure S1). The form was developed by one researcher (LB) on the basis of the literature and revised in line with comments made by all authors. The completed forms of both reviewers were then compared and any disagreements were discussed until consensus was reached. The studies were classified on the basis of three aspects of SP feedback:

1 training of SPs in providing feedback;
2 the process by which feedback is provided by SPs, and
3 the domain(s) covered by feedback provided by SPs.

The process by which feedback is provided refers to the ways in which SPs provide feedback to students. Overview papers on feedback in general, which are not specifically tailored to SPs, have outlined several recommendations for providing effective feedback in medical education (Fig. 1).[5,20–25] In this review, we compared the processes by which feedback is provided by SPs with pre-established recommendations for the provision of effective feedback in medical education. Feedback can be provided verbally or in writing. Elnicki *et al.*[26] found that learners perceived verbal, face-to-face feedback as equally valuable compared with written feedback. However, Kluger and DeNisi[23] found that verbal feedback was less effective. In addition, feedback can be provided to students individually or in the presence of peers or faculty teachers. Kluger and DeNisi[23] found that feedback given in a group was more effective, although the effect was minimised after excluding some of the studies from the meta-analysis. Information on these items (written versus verbal feedback and individual versus group feedback) is considered important to the purposes of this study, although the literature does not indicate a gold standard.

The domain(s) in which feedback is provided refers to the content of feedback provided by SPs. For example, SPs can give feedback on clinical skills, on history taking and physical examination, or on communication and interpersonal skills.[4] Feedback on medical issues is often linked with active instruction by SPs, such as by those referred to as patient-instructors or gynaecologic teaching associates. Standardised patients can also provide feedback from the patient's perspective. When providing this type of feedback, the SP focuses on how he or she felt during the consultation with the student.[27] The feedback is 'mirroring'; the patient recalls the reactions he or she experienced during the consultation with the student and relates them back to the student.[28] This is what underlies the uniqueness and strength of feedback given by SPs. Therefore, SPs have been recommended as providing feedback from the patient's perspective.[2,29] In our study, information on the domain(s) in which feedback is provided by SPs was classified according to the themes outlined previously: the patient's perspective; clinical skills (history taking and physical examination skills); communication skills (communication and interpersonal skills), and instruction by SPs.

RESULTS

Of the 49 studies included in our review, 22 used experimental designs and 27 were descriptive in nature. In the large majority of studies, feedback by SPs was used as a tool to teach clinical skills to medical students. For example, feedback by SPs was used in teaching smoking cessation techniques to undergraduate medical students[30,31] and in teaching students about reproductive medicine.[32] We found

- Safe learning environment; the expectations of the students are clear and confidentiality is emphasised
- Feedback starts with the student's self-evaluation
- Feedback is related to learning goals defined by the student and therefore compatible to the student's prior knowledge and relevant for the student
- Standard with which the performance of the students is compared is clear
- Feedback is interactive; students are encouraged to reflect on their performance and to make learning goals for future encounters
- Feedback is specific and descriptive with examples of what happened
- Feedback focuses on observable behaviour, not on the student him or herself
- Feedback is labelled as subjective information, using "I" statements
- Give positive feedback before negative feedback
- Limit feedback, preferably to two to three key points
- Feedback is provided immediately after a performance and on a regular basis

Figure 1 Recommendations for providing effective feedback in medical education

only one comparative study in which two different ways of providing feedback to undergraduate medical students were evaluated. In this study, Pfeiffer *et al.*[33] assessed whether SPs were more lenient when they gave direct, face-to-face feedback to students as opposed to when they gave no direct feedback. No difference was found with respect to feedback on history-taking skills and physical examination skills and only a small difference was found with regard to feedback on interviewing and interpersonal skills. This suggests that direct feedback by SPs is accurate and reliable.

We will now address the three aspects of SP feedback examined by this study, namely: SP training in the provision of feedback; the process by which SP feedback is provided, and the domain(s) in which SP feedback is provided. Detailed information from the selected studies concerning these aspects is available in Table S1.

Training of SPs in giving feedback

Only 13 studies provided information on training SPs in giving feedback to students.[7,12,16,18,30,33–41] Most of these papers provided limited information. Generally, training in the provision of feedback represented only a small part of the total training of SPs, which also included training in role-playing and in teaching skills to students. The total training time varied from 20 minutes in experienced SPs to 40 hours in newly recruited SPs.[7,30] Training of SPs in recording checklist items and giving feedback consisted of studying videotaped interviews and practice in delivering feedback with SP trainers[12,16,18,30,33–36] or live interview and feedback practice.[12,16,18,33,36–38] In one study SPs could practise giving feedback to one another.[39] In seven studies, SPs received written instructional material or an instruction manual, which included, for example, articles or guidelines on giving feedback.[12,18,35–40]

Rosenbaum and Ferguson[41] found that SPs were able to provide more genuine feedback if they had been trained using patient-generated SP cases rather than pre-written cases. Similar results were found in a study in our setting.[3]

In conclusion, we found substantial heterogeneity with regard to the ways in which SPs were trained to provide feedback and there were no clear standards for training. There is evidence that feedback can be made more genuine by using patient-generated SP cases.

Process of providing feedback

Most of the papers briefly described the processes by which feedback was provided by SPs. However, we found three papers that described the process of providing feedback in greater detail.[7,12,33] Kneebone *et al.*[7] reported on feedback sessions that started with a student's self-evaluation, which was followed by feedback from the SP and teachers. In the study by Pfeiffer *et al.*,[33] feedback was provided in four steps. First, the SP asked the student to self-evaluate his or her performance. Then the SP gave detailed feedback on interpersonal and interviewing skills and reviewed a checklist on the content of the consultation he or she had completed. Finally, the student was able to practise parts of the consultation in which his or her performance had been weak.[33] A study by Levenkron *et al.*, in which SPs taught students on risk-factor counselling skills,[12] described another

process by which feedback was provided by SPs. Firstly, the criterion for the ideal response was identified on the basis of a checklist that was used in scoring the consultation. After this, the student's response was described and rephrased to approximate the ideal response. Finally, the student was invited to rehearse the ideal response in his or her own words.[12]

In 14 studies SPs provided students with written and verbal feedback.[6–10,30,31,37,38,42–47] In these studies SPs mostly provided feedback in the domains of clinical skills or communication skills. We found only three studies in which SPs gave written and verbal feedback from a patient's perspective.[7,10,30] Written feedback mostly consisted of structured checklists or forms. Occasionally, written comments could also be made on the forms.[10,30] In most studies (n = 32) SPs gave verbal feedback, sometimes based on completed checklists and forms.[12–18,27,28,32–36,39–41,48–63] In one study, SPs provided the students with written feedback only, which consisted of completed checklists and evaluative comments.[42]

In 19 studies SPs provided feedback to students individually.[7,9,12,18,30,31,33–38,40,42,45–47,59–61,64] In the majority of studies, however, SPs gave feedback to a student in the presence of others, who included, for example, peers and other SPs. The group of peer students present was small, with a maximum 10 students. One or two teachers were present during the provision of feedback in 24 (49%) studies.[7,8,10,17,27,28,32,41,44,45,48,50–52,54–56,58–60,62,63,65,66]

In summary, although most studies provide limited and heterogeneous information on the processes by which feedback is provided by SPs, the processes that are described in more detail accord with some of the recommendations for delivering effective feedback; these include, for example, the exhortations to 'start with the student's self-evaluation' and to present a 'clear standard with which the student's performance is compared'. Standardised patients mostly provide verbal feedback to students, whether or not it is based on written checklists, and mostly in the presence of other students or SPs.

Domain of feedback

In the majority of the studies (n = 35), SPs gave feedback on clinical skills.[6,8,9,12–15,17,18,30,31,33–40,42,43,46–49,52–54,57–64] Feedback on clinical skills included scoring aspects of history taking or physical examination. For example, in studies on teaching smoking cessation techniques to students, these aspects might be represented by items such as 'Obtaining a patient's smoking history' and 'Asking after the age of onset of smoking'.[30,31] In a study on teaching gynaecological examination skills to students, such items might include 'Inserts speculum fully before opening' and 'Palpates abdomen to find uterine fundi'.[43] In 31 studies, SPs gave feedback on communication skills.[6,8–10,12,15,16,18,27,30,31,33–37,40,42,44–49,52,53,56,60,61,63–66] Feedback on communication skills included scoring items that describe aspects of communication behaviour, such as 'Treats the patient with respect' and 'Addresses the patient with her last name'.[37]

In 26 (74%) of the studies in which SPs gave feedback on clinical skills[6,8,9,12–15,17,18,36,38–40,42,43,45–49,52–54,57–59,61,62] and in 15 (48%) of the studies in which SPs gave feedback on communication skills,[6,8,9,12,15,18,36,40,42,45–49,52,53,61] SPs also gave instruction to the students (in their roles as patient-instructors or gynaecologic teaching associates). In 20 of all 49 studies, SPs did not give instruction to students;[7,10,16,27,28,30,31,33–35,37,41,44,51,56,60,63–66] instead, SPs gave feedback on clinical skills in nine (45%) of these studies[30,31,33–35,37,60,63,64] and feedback on communication skills in 16 (80%).[10,16,27,30,31,33–35,37,44,56,60,63–66]

In 11 of all 49 studies,[7,10,27,28,30,36,39,41,51,56,59] SPs gave feedback from the patient's perspective. In four of these studies, feedback was given solely from the patient's perspective; no feedback was given on clinical skills or communication skills and no instruction was given to students.[7,28,41,51] When providing feedback from a patient's perspective, the SP recalled how he or she had felt during the consultation. Some studies used structured checklists to support this, which consisted of items like 'The student made eye contact with you' or 'The questions were understandable'.[10]

In summary, although feedback from the patient's perspective is generally recommended, we found that, in most studies, SPs provided feedback on performance in the domains of clinical skills and communication skills. Even if we exclude studies in which SPs gave instruction to students, SPs provided feedback on clinical and communication skills in the majority of studies.

DISCUSSION

Although we found many studies in which feedback by SPs was used as a tool to teach skills to medical

students, we found only one comparative study in which two methods for the provision of feedback by SPs were evaluated. This is a remarkable finding. There may be several explanations for the scarcity of comparative studies. First of all, although we tried to be as systematic and comprehensive as possible in our search of the literature, all review processes risk missing one or more important papers. Furthermore, in overview papers on feedback in general (not specifically that of SPs), many effective methods for providing feedback have been identified (Fig. 1). The evidence provided by these studies may be considered to be so comprehensive that studies on effective ways by which SPs might give feedback are not expected to provide additional information. In this case, we would expect the majority of studies to report on SPs giving feedback to students on the basis of the general recommendations for effective feedback. However, we found only three studies that reported on SPs providing feedback on the basis of some of these recommendations. There was no information on the follow-up of other recommendations for feedback behaviours, such as recommendations to 'focus on behaviour' or 'give positive feedback before negative feedback'. We also found substantial heterogeneity in the feedback provided by SPs. This suggests that the most effective ways by which SPs can give feedback are not easily evident. Furthermore, in terms of ways of providing feedback, such as written versus verbal, or group versus individual delivery, studies on feedback in general have not provided clear answers about which is best. For these reasons, we feel that more (comparative) research is needed to identify the most effective ways by which SPs might provide feedback. For example, research comparing the effectiveness of the spontaneous feedback given by SPs against the effectiveness of feedback from SPs trained in general recommendations for the provision of effective feedback, might provide some elucidation.

Although it has been recommended that SPs provide feedback to students from the patient's perspective, only a quarter of all studies referred to this type of feedback. The majority of feedback given by SPs referred to clinical and communication skills. Feedback in these domains is essential in the teaching of skills to students. Therefore, it is not surprising that most SPs who gave feedback on clinical or communication skills also gave instruction to students. However, in the majority of studies in which SPs gave no instruction to students, they did give feedback on both clinical and communication skills. Further research is needed to identify the domains in which SPs can most effectively provide feedback to students. Until this has been clarified, we suggest that SPs provide feedback from the patient's perspective (in addition to feedback on clinical and communication skills in cases where SPs give instruction to students) because feedback in this domain best utilises the uniqueness and strength of the type of feedback provided by SPs.

We were surprised by the small number of studies that reported on training SPs in the provision of feedback. In parallel with our finding on the ways in which SPs gave feedback, we found widespread heterogeneity in the ways in which SPs were trained to give feedback. Further research is needed to identify the most effective ways of training SPs in providing feedback. For example, comparative research on the impact of different ways of training on the effectiveness of feedback provided by SPs would be useful.

There are some limitations to this study. Firstly, papers were selected and included in the review by one researcher. Although the selection of papers was discussed with a second researcher in cases of uncertainty, this may have biased our results. Furthermore, we did not consider the quality of the papers included in the review. This may also have biased our results. Finally, as we found a scarcity of evidence regarding feedback provided by SPs, we were unable to explore interesting issues such as the effect of the level of student experience on SP feedback and the impact of training on the authenticity of feedback by SPs.

In conclusion, the ways in which SPs provide feedback to undergraduate medical students and the ways in which SPs are trained to provide feedback are largely heterogeneous. There appear to be no clear standards for the effective training of SPs in providing feedback. Furthermore, the processes by which feedback is provided by SPs and the choice of domain(s) in which SPs give feedback often seem to lack a solid scientific basis. Further research into the most effective ways by which SPs might provide feedback and the most effective ways of training SPs in the provision of feedback is needed.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article:

Table S1. Details of studies included in the review

Figure S1. Form used to classify the selected studies.

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