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The effect of using standardized patients or peer role play on ratings of undergraduate communication training: A randomized controlled trial

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ABSTRACT

Objectives: Considering the expense of standardized patients (SP) for training communication skills and the convenience of peer role playing (RP) there is a surprising lack of studies directly comparing the two methods.

Methods: Fifth year medical students ($N = 103$) were assigned to three groups receiving a training in counseling parents of sick children with RP ($N = 34$) or SP ($N = 35$) or to a control group (CG, $N = 34$). We assessed self-efficacy, as well as objective performance in parent–physician communication using questionnaires and the Calgary-Cambridge-Observation-Guide Checklist in a six-station OSCE, respectively.

Results: The training led to an increase in self-efficacy ratings and in the post-intervention OSCE score after RP ($p < .021$ and $p < .001$ respectively) and SP-training ($p < .007$ and $p < .006$ respectively) compared to controls. Surprisingly, this benefit was higher after RP than after SP-training ($p < .021$) due to significantly higher performance in the domain *understanding of parents' perspective* ($p < .001$).

Conclusion: Both RP and SP are valuable tools for training specific communication skills. RP offer a methodological advantage in fostering empathy for patient perspectives.

Practice implications: Both peer-role-play and standardized patients hold specific benefits for communication training. Peer-role-play seems to foster a more empathic approach towards patients' concerns justifying its prominent role in medical curricula.

1. Introduction

"Good communication skills in medical practice are not innate, can be learned, and can always be enhanced" [1]. It has been well established that medical educators should use experimental rather than purely didactic methods to successfully develop and improve communication skills [2] to ensure that acquired skills are sustainably integrated into further clinical practice [3–5]. Both peer role play and training with standardized patients are popular amongst students [6] and present successful methods for training communication skills in both undergraduates and health professionals [7–10]. Both methods allow students to judge their strengths and weaknesses in performance against that of their peers [10]. When taking into consideration the enormous differences in resource requirements between the two methods, surprisingly little comparative data on their specific methodological advantages are available.

Peer role play (RP) is a low-cost tool which is relatively easy to put into practice. RP allows switching of roles to experience both physician and patient perspectives. Through this experience of ambiguities in the communicational processes, the trained communicating partners develop a better understanding of the involved physician–patient interaction dimensions [11,12]. With carefully designed RP training sessions and well-trained tutors, initial skepticisms towards RP may be resolved [6,13]. It provides successful and targeted practice as well as useful feedback, as has already been shown in a training program for aviators [14]. Nevertheless, RP needs careful planning "because it is easy to use badly" [11]. Guidelines for effective role-play include an adequate preparation of the sessions: realistic roles, alignment of roles and tasks appropriately designed for the participants' level of practice and structured feedback [7]. The majority of studies indicate that practicing communication with peers can be very successful and improves communication skills more than using purely didactic methods [10].

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Standardized patient (SP) is an umbrella term both for a *simulated patient*, trained to simulate a patient's illness, and an *actual patient,* trained to present their own illness, both in a standardized way [8,15]. In current practice, the terms *standardized patient* and *simulated patient* are used synonymously. We refer to SP in this publication as *simulated patients* trained in a standardized way. SP are classified as low-technology instruments, but are expensive tools for training communication skills [16]. They provide a high degree of realism and have strong potential for training general and specific communication skills [3,8,17–19]. They are suitable for formative as well as summative assessments of communication skills [9,20]. The key to SP's success is their professional feedback [9,21]. In pediatrics, SP may be integrated into the curriculum as pediatric standardized patients [22] or as standardized *parents* [6,17,23] as done in this publication.

In a recent review which compared the effects of either RP or SP on the training of communication skills, Lane et al. found major methodological weaknesses in studies on the effectivity of the two methods [10]. From the four studies identified in our literature review that directly compared peer role play with standardized patients within one study, the conclusion may be drawn that both methods warrant inclusion in medical curricula and are of comparable effectiveness [6,24–26], and result in the same levels of skills attainment in undergraduates and health professionals [24–26]. However, studies with objective performance measures focused on one specific task only (motivational interviewing for smoking cessation) [24–26] and were thus limited to one specific challenge in communication – namely behavioral change management. It is therefore difficult to draw conclusions about the specific values of peer role play and standardized patients in a broader medical context from these studies. In a previous study we could show that from the student perspective, both RP and SP were very well accepted and rated as realistic and valuable tools for training parent–doctor communication skills in the field of pediatrics. Training with SP provided better pay off and applicability for future real parent–physician contacts compared to RP [6]. However, there is a lack of objective data to date.

Based on the findings of our recent study [6], the aim of this randomized controlled study was to elucidate the effects of both methods on communication competencies as compared to a control group in a broad medical setting. Our hypothesis was that training with RP and SP would yield (i) higher self-efficacy ratings in communication competencies and (ii) better overall scores in objective communication performance measures compared to controls, and that (iii) training with SP, as a more elaborate training tool which aims at providing professional feedback [8,27], would provide an advantage over RP in both measures.

2. Methods

2.1. Subjects, randomization, concealment of allocation, blinding

Fifth year medical students of the University of Heidelberg eligible for their rotation in pediatrics ($N = 103$) were randomly assigned to one of three study groups. Two groups received communication training with either RP (RP group, $N = 34$) or SP (SP group, $N = 35$) in addition to the established course contents, which the control group (CG, $N = 34$) also received. Established course contents were maintained identical in all groups and included seminars, problem-based learning, virtual patients [28], bedside teaching, skills training and placements in private pediatric practices [29]. Due to the fact that Heidelberg medical students frequently opt for rotations abroad and also do so at short notice, there was a drop out of six students.

By their fourth year, each student had attended approximately 40 small group sessions with standardized patients taking the role of a physician or as an observer in other departments of our Medical Faculty.

None of the students opted not to take part in the communication training. Within the training sessions, no student objected to the turn-taking of interviewing or to taking the part of a parent (peer role play). Prior to the intervention, students were asked to complete questionnaires regarding *sex*, *age* (years), and their overall motivation to study medicine (*study motivation*, one item with a 6-point Likert-scale from 1 = very low to 6 = very high). The response rates of the questionnaires were high (PR group 88.2%, SP group 91.4%, control group 100%); see Table 1. For objective assessment of communication skills, students were subjected to an OSCE (see below). Five students opted out of the assessment with the OSCE (see Fig. 1).

A concealment of allocation or blinding of tutors could not be performed due to the nature of the course and the study design.

In light of the described study design and due to the fact that our design monitors the ongoing curriculum development, the University of Heidelberg Ethics Committee waived requirements for an ethical approval procedure.

2.2. Materials

2.2.1. Training cases

Nine training cases which combined the nine most common medical and most common communication problems defined by

Table 1
Age, sex and motivation to study medicine of participating students.

	Control group (CG) *N* (%)	Peer role play group (RP) *N* (%)	Standardized patient group (SP) *N* (%)	RP vs. CG Chi-square *p*-Value	SP vs. CG Chi-square *p*-Value	RP vs. SP Chi-square *p*-Value
Male	$N = 22$ (64.7)	$N = 19$ (61.3)	$N = 15$ (45.5)	$\chi^2 = 0.77$	$\chi^2 = 2.19$	$\chi^2 = 1.38$
Female	$N = 11$ (32.4)	$N = 11$ (35.5)	$N = 16$ (48.5)	n.s.	n.s.	n.s.
Not specified	$N = 1$ (2.9)	$N = 1$ (3.2)	$N = 2$ (6.1)	–	–	–
	Control group (CG) Mean ± SD	Peer role play group (RP) Mean ± SD	Standardized patient group (SP) Mean ± SD	RP vs. CG *t*-Value *p*-Value	SP vs. CG *t*-Value *p*-Value	RP vs. SP *t*-Value *p*-Value
Age	24.6 ± 2.3	23.7 ± .7	25.5 ± 3.0	$t = 1.66$ n.s.	$t = 1.67$ n.s.	$t = 3.35$ $p < .002$
Motivation to study medicine	5.2 ± .6	5.1 ± .6	4.9 ± 1.0	$t = .18$ n.s.	$t = .56$ n.s.	$t = .37$ n.s.

Sex, age (years), and motivation to study medicine (Likert scales from 6 = very high to 1 = very low) of the peer role play group (RP), standardized patient group (SP), and control group (CG). Values as mean and standard deviations (mean ± SD) or *N* and percentages (%). *P*-values indicate χ^2 test results for sex, or post hoc test results following ANOVA for age and study motivation to study medicine respectively.

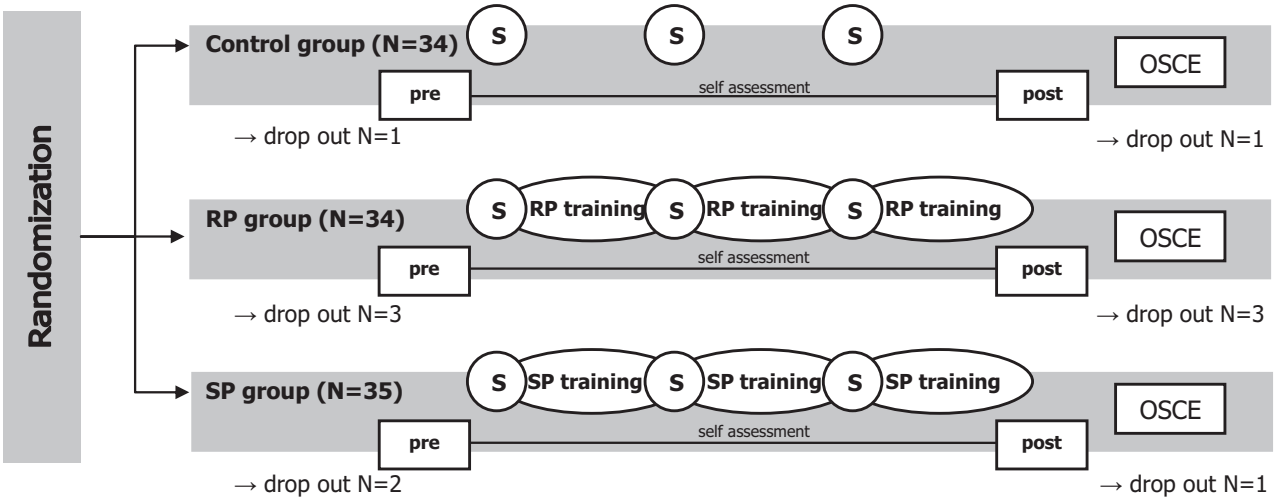

Fig. 1. Study design. The study was conducted in a controlled, randomized design: peer role play group (RP group), standardized patient group (SP group), and control group. Drop outs after randomization and before the training are shown on the left, drop outs after training but before the OSCE on the right. S = seminar, pre = self-assessment prior to study period, post = after study period.

an expert group in a focus group approach were developed by senior staff of our Pediatric Department as previously described before [6,17] (see Table 2). Our cases addressed both biomedical and patient perspectives, as advocated by Kurtz et al. [30,31]. Detailed specific learning objectives included exploration and counseling, as well as the defined communication problems within the theoretical framework of transactional analysis [32] and communication theories of Schulz von Thun [33] with the aim of anticipating parental concerns to facilitate the transmission of factual information and the building of a functioning parent–physician relationship [34]. Schulz von Thun's model of the four aspects of communication (communication square) may be seen as a further development of the second axiom of Watzlawick [35] that communication always implies issues of content and of relationship: In Schulz von Thun's model, the four aspects of communication are: an objective content, matters of self-disclosure (motivation, values, emotions), matters of relationship (between sender and receiver), and an appeal. As an example, in the case scenario *abdominal pain/conflict due to long waiting time* [6], students were expected to extract the following four aspects of the communication of the mother's aggressive reproach: (1) objective content: *The waiting time was too long*!; (2) self-disclosure: *I am annoyed*!; (3) relationship: *I am disappointed in you as a health care provider*!; and (4) appeal: *I want an apology and you to treat my child as quickly as possible*!; and then intervene in accordance with the training focus (for example: *I can understand that you are angry and would like to apologize for the delay. I also think it's important for me to now quickly have a look at what is wrong with your child!*).

Cases were then designed to fit RP- and SP-training respectively, and took all predefined learning objectives into consideration. These included concise patient and practitioner briefing sheets for the SP and the students, as well as precise tutor instructions to ensure standardization.

Table 2
Training cases combining common medical and communication problems.

Case	Medical problem	Communication problem
Case 1	Faint	Prior dispute of parent with health personnel
Case 2	Urticaria	Dramatizing parent
Case 3	Diarrhoea	Foreign parent with poor command of German
Case 4	Abdominal pain	Conflict due to long waiting times
Case 5	Fever	Demanding parent
Case 6	Crying baby	Anxious and overburdened parent
Case 7	Meningism	Parent disapproves of drug administration
Case 8	Febrile seizure	Parent rejects lumbar puncture of the child
Case 9	Dyspnoea	Parent opposes admission of the child

Nine training cases combining both medical and communication problems.

2.2.2. Accompanying seminars and handouts

Parallel to the course, a weekly seminar covering the key issues addressed in the scenarios was attended well by all three groups (RP group 90.3%, SP group 90.9%, and CG 100%). The key issues addressed in the seminars related to medical aspects of the underlying diseases and the proposed management of the scenarios, as well as communication tasks that were expected to arise in the parent encounter with respective solution All three groups additionally received a printout as well as electronic access to an abstract of each scenario which summed up these key issues.

2.2.3. Standardized patients

Data on SP are stated in accordance with the recommendations of Howley et al. [36]. Overall, 19 individually trained SP (n = 14 female, n = 5 male) were deployed. The SP were used for case portrayal and providing oral feedback, and not for evaluating or scoring performance. There were n = 5 male and n = 7 female SP for training and n = 3 male and n = 5 for assessment in the OSCE, all Caucasian with an age between 26 and 48 years.

The training concept for the role of a parent of a sick child comprised a three-step approach as described earlier [37] at the SP Training Centre of our faculty, which supervises the continuous training of SP in more than 120 roles. First step: self-study of the SP studies noting shortcomings in clarity and questions concerning their role. Step two: SP and trainer work out the role together based on the technique of *psychodrama* [38] and on *method acting* [39]. Step three: role training in which the trainer assumes the physician's role, and the SP also switches to the physician's role, thus incorporating this character. This enhances the SP's flexibility in reacting to possible challenges during conversations. The feedback to the SP includes a sensitization to the performance as conversation partner, as well as to the cadence, the pitfalls and turning points of the dialogue.

Each SP was trained for one specific role, and performance in the specific roles for this study was approved in a case portrayal check by two consultant pediatricians.

2.2.4. Training sessions and feedback

A total of three small group training sessions with one tutor and three students were conducted on three consecutive weeks for all participants of both intervention groups (see Fig. 1). In each session, the students worked on three training cases and rotated in

the roles of a *physician*, *parent* and *observer* in the RP group, and in the roles of a *physician* and *observer* in the SP group. This enabled each student to be active in the training sessions as described earlier [40]. Each session started with a 10 min interview. The student in the physician's role then was the first to reflect on the interview, followed by a feedback (a) by the student in the parent role (RP group) or a structured feedback by the standardized patient (SP group), respectively; (b) by the observers (peers) using a structured feedback checklist addressing major medical and interaction issues; and (c) by the tutor with time for a subsequent group discussion and a debriefing [9].

2.3. Assessment of training effect

2.3.1. Self-efficacy rating of communication skills

The self-efficacy ratings of communication skills were quantified using questionnaires prior to (pre) and after the interventions (post) in the three study groups. 24 items with positive statements on general and specific communication skills were assessed. 14 of these items addressed general competences in communication with parents in analogy to a questionnaire developed by Mueller et al. [41]. The remaining 10 items addressed skills related to problems defined in the specific learning objectives of the cases used in the training (10-point Likert scales ranging from 10 = totally agree to 1 = do not agree at all).

2.3.2. Calgary-Cambridge Referenced Observation Guide rating

Following the intervention, a structured clinical examination (OSCE) comprising of six stations addressed challenging parent–physician interactions, with one standardized patient per station. The OSCE stations were part of a formative assessment at the end of the course to avoid disadvantages for the control group from failing in a summative assessment. Feedback was given at the end of the OSCE in the form of quantitative feedback of performance. The Calgary-Cambridge Referenced Observation Guide [30] used for rating of OSCE performance covers both process and content issues of medical interviewing, which both are addressed in our training cases: process skills as the domains *understanding of parents' perspective* and *building relationship* and content skills as the domains *exploration of problems* and *providing structure* [30,31] rated on visual analogue scales that range from 100 = completely agree to 1 = strongly disagree. The domains *initiating the session* (i.e. opening dialogue) and *closing the session* (i.e. closing dialogue) were excluded from assessment in the OSCE stations as done in a prior study of our group [42] since the OSCE stations were mainly created to address specific details of history-taking and counseling. Ratings were performed by trained psychologists ($N = 18$) who were randomly assigned to the OCSE of the three study groups, with a different rater for each station. Raters were blinded for the allocation of students and did not participate in the training (i.e. as tutors).

2.4. Statistical analyses

To compare the measures *age* and *motivation to study medicine* assessed prior to the intervention, ANOVAs were conducted with the between-subject factor '*Group*' (RP group vs. SP group vs. CG) with *age* and *motivation to study medicine* serving as dependent variables. To compare the measure *sex*, chi-square tests were calculated. To determine changes in self-efficacy ratings of communication skills, a between-subjects analysis of variance (ANOVA) with the between-subject factor '*Group*' (RP group vs. SP group vs. CG) and the within-subject factor '*Time*' (pre- vs. post-intervention) was calculated. LSD post hoc tests were conducted. Internal consistency (Cronbach's alpha) of self-efficacy data was calculated based on pre-training data and the combined sample. To determine OSCE-performance, a MANOVA with the between-subject factor '*Group*' (RP group vs. SP group vs. CG) and the within-subject factor '*Domain*' (*understanding of parents' perspective*, *building relationship, exploration of problems*, and *providing structure*) was conducted. LSD post hoc tests were conducted. Effect sizes were calculated using Cohen's *d*. Overall reliability (Cronbach's alpha) of the OSCE was assessed. Levels of significance of $p < .05$ were considered relevant.

3. Results

3.1. Subjects

No significant group differences were found with respect to sex and motivation to study medicine. The ANOVA with the between-subject factor 'Group' and age serving as dependent variable, however, turned out to be significant ($F(2,89) = 5.04$; $p < .009$). Using post hoc tests, no difference was found with respect to age for the CG (24.6 ± 2.3) compared to the RP group ($23.7 \pm .7$; $p < .088$) and SP group (25.5 ± 3.0; $p < .129$). The observed difference between RP and SP group for age was small but significant ($p < .002$; see Table 1).

3.2. Self-efficacy ratings of communication training

An ANOVA with the between-subject factor '*Group*' and the within-subject factor '*Time*' was conducted. A significant main effect '*Time*' ($F(1,87) = 54.69$; $p < .001$) for the overall scores was found with significantly enhanced post intervention test scores regardless of group affiliation ($p < .05$). '*Group*' × '*Time*' interaction ($F(2,87) = 3.49$; $p < .034$) was significant. Post hoc tests revealed no significant differences prior to the intervention ("*pre*") between the three study groups (6.20 ± 1.02 for RP group, 6.51 ± 1.41 for SP group, $6.23 \pm .90$ for the CG). After the intervention ("*post*"), RP ($7.33 \pm .84$) and SP (7.37 ± 1.19) groups exhibited significantly higher post intervention scores ($p < .021$ for RP and $p < .007$ for SP) compared to CG ($6.71 \pm .85$; see Fig. 2), while RP and SP groups did not differ ($p < .704$; see Fig. 2).

3.3. Objective structured clinical examination (OSCE)

A MANOVA with the between-subject factor '*Group*' (RP group vs. SP group vs. CG) and the within-subject factor '*Domain*' (*understanding of parents' perspective*, *building relationship exploration of problems*, and *providing structure*) was conducted. The main effect '*Group*' ($F(2,87) = 13.29$; $p < .001$) indicated a significant difference in general communication performance between the three study groups. Further analyses revealed that both RP and SP

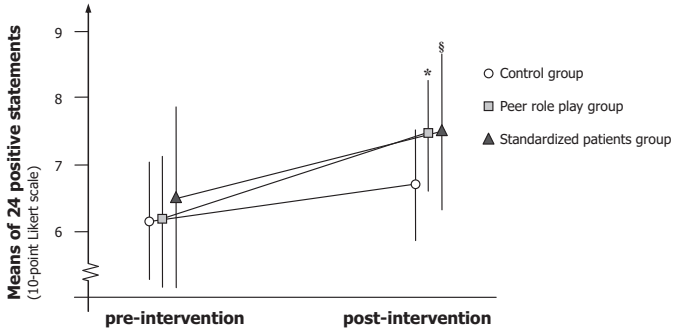

Fig. 2. Self-efficacy ratings of communication training groups before (*pre-intervention*) and after the interventions (*post-intervention*). Data are given as means and standard deviations of 24 positive statements rated with 10-point Likert scale ranging from 10 = totally agree to 1 = do not agree at all. Significant changes as compared to the control group are marked either with an asterisk (*) for the peer role play group ($p < .021$) or a section sign (§) for the standardized patients group ($p < .007$).

Table 3
Objective structured clinical examination (OSCE) scores.

Domains	Control group (CG)	Peer role play group (RP)	Standardized patient group (SP)	RP vs. CG	SP vs. CG	RP vs. SP
	Mean ± SD	Mean ± SD	Mean ± SD	*t*-Value *p*-Value	*t*-Value *p*-Value	*t*-Value *p*-Value
Process skills						
Understanding parent's perspective	54.84 ± 11.2	69.72 ± 8.72	59.79 ± 9.04	$t = 7.78$ $p < .001$	$t = 2.64$ $p < .009$	$t = 5.11$ $p < .001$
Building relationship	85.59 ± 7.72	88.54 ± 3.43	84.97 ± 6.30	$t = 1.54$ $p = .124$	$t = 0.33$ $p = .741$	$t = 1.84$ $p = .067$
Content skills						
Exploring problems	79.64 ± 6.07	85.72 ± 3.51	84.68 ± 5.45	$t = 3.18$ $p < .002$	$t = 2.68$ $p < .008$	$t = .53$ $p = .593$
Structuring consultation	74.99 ± 8.15	82.36 ± 4.95	82.40 ± 8.98	$t = 3.84$ $p < .001$	$t = 3.94$ $p < .001$	$t = .02$ $p = .984$
Overall score	73.76 ± 6.33	81.59 ± 3.32	77.96 ± 6.23	$t = 5.14$ $p < .001$	$t = 2.81$ $p < .006$	$t = 2.35$ $p < .021$

OSCE performance rated with the Calgary-Cambridge Referenced Observation Guide (CCROG) using visual analogue scales (do not agree at all to totally agree). Values are stated as means and standard deviations (SD). *P*-values indicate post hoc test results further elucidating the MANOVA 'Group' × 'Domain' interaction effect and in case of overall scores post hoc test results of further analyses of the main effect 'Group'.

training resulted in higher overall scores compared to controls (RP group $p < .001$, Cohen's d 1.48; SP group $p < .006$, Cohen's d 0.63), with even higher ratings for the RP group compared to the SP group ($p < .021$, Cohen's d 0.71). The effect size can be considered medium to high. The significant main effect '*Domain*' ($F(3,26) = 420.25$; $p < .001$) revealed lowest scores for the domain *understanding of parents*' *perspective*, followed by the domains *providing structure* and *exploration of problems*, and showed the highest scores for the domain *building relationship*, with all four domains differing significantly from one another (all $p < .001$). A significant '*Group*' × '*Domain*' interaction effect ($F(6,26) = 10.55$; $p < .001$) could be attributed to the following post hoc results: In the domain *understanding of parents*' *perspective* significantly higher scores were found for the RP ($p < .001$, Cohen's d 1.48) and SP ($p < .009$, Cohen's d 0.49) groups compared to the CG, with even higher scores for the RP group than for the SP group ($p < .001$, Cohen's d 1.12). Regarding the domain *building relationship*, no significant differences between groups were observed (all $p > .05$). The scores in the domains *exploration of problems* and *providing structure* showed higher scores for RP and SP compared to CG (all $p < .008$), while scores did not differ significantly between the two intervention groups (both domains $p > .05$; see Table 3).

3.4. Reliability of self-efficacy ratings and the objective structured clinical examination (OSCE)

Regarding self-efficacy, reliability (Cronbach's alpha) was .862 for the combined sample prior to the intervention. The overall reliability (Cronbach alpha) of the six station objective structured clinical examination (OSCE) was .705. By using the Spearman–Brown formula it was computed that using at least 10 comparable OSCE stations would lead to a reliability of at least .8 [43].

4. Discussion and conclusion

4.1. Discussion

Our randomized controlled study is the first comparing communication training with peer role play and standardized patients in a broad medical context covering a broad range of communication problems representative for outpatient medical care. We could show that training with both peer role play and standardized patients has a significant effect on self-efficacy ratings and objective performance measures. This effect is more pronounced after training with peer role play than after training with standardized patients. To further minimize potential bias great care was taken to demonstrate the consistency of the three groups after randomization with no differences in the baseline assessments with respect to *sex*, *motivation to study medicine* or *self-assessment skills* of communication competencies prior to the intervention.

4.1.1. Objective assessment of communicative performance

Both intervention groups showed higher performances regarding OSCE scores after the intervention compared to the control group, as was expected [10]. Against our hypothesis training with peer role play – as a less elaborate training tool requiring fewer resources and applying less professional feedback (compared to that of trained standardized patients) – led to significantly better communication performance of students than training with standardized patients in the overall score. The standardized patient group was trained and assessed with the same tools, which would rather have suggested a methodological advantage for them. Since we controlled for topics, structure and complexity of training content as well as the training of tutors in both intervention groups, we attribute this effect to the specific methodological effect of peer role play.

Post hoc test results to further elucidate observed interaction effects between study groups and the different domains of the Calgary-Cambridge Referenced Observation Guide revealed a significantly higher score of the peer role play group in a domain attributed to process skills, *understanding parent's perspective*.

4.1.2. Self-efficacy ratings of communication skills

There was a significant increase in self-efficacy ratings of communication skills in both intervention groups compared to the control group. This is in line with earlier findings obtained in studies that analyzed either peer role play [24] or standardized patients [8,9]. However, the correlation between self-efficacy and objective performance and motivational factor measures, remains controversial. Self-efficacy may be seen to reflect a person's self-confidence rather than the objective quality of his or her performance (for a review see Davis et al. [44]). In this respect, our intention for assessing students' self-efficacy was to provide a tool for students to reflect on their self-confidence in communication and then – relating to their OSCE performance – to offer a remedy for those students misjudging their performance.

4.1.3. Interpretation of OSCE data

The post hoc testing revealed that the surprisingly higher scores of the peer role play group in the OSCE were attributed to a process skill, *understanding parent's perspective*. Switching roles in the

training may have made the access to an empathic approach easier for the peer role play-group: having role-played both the doctor and patient in the exercise is a key to the success of peer role play [45] and creates a heightened awareness for the ambiguity of roles of the partners in communication [12]. Our findings suggest that peer role play fosters an even more active exploration of the patients' perspective than what has previously been described for standardized patients [46,47]. It therefore provides a possibly underestimated potential for an empathic, patient-centered approach. Facilitating such an empathic approach appears to outweigh the potential methodological advantage standardized patients provide in framing their feedback more professionally than peers due to their specific feedback training as well as their extensive experience of the performance of typical student performance and its variability. This becomes even more relevant when considering that feedback is generally seen as a central factor supporting the individual learning processes [7,8,11,36,47–49]. Structuring feedback with observer rating forms, as done in our study, seems to be essential [14]: if feedback is conducted using the same well-structured observer rating forms, there is no difference in the effects regardless of whether it is performed by standardized patients or by peers in the peer role play group [24,26].

The fact that the other domain attributed to process skills, *building relationship*, revealed no significant effect, may be attributed to a ceiling effect with high scores of all three groups. This objective is one of the main focuses of prior training of the students in courses earlier on in their studies.

With its ability to sense and appreciate patients' views, the empathic approach towards the patients fostered by peer role play is not *l'art pour l'art* but can be seen as a basis for a functioning and safe patient–physician relationship [50,51]. It improves patient adherence and supports patient safety [52,53] which are increasingly important issues in physicians' daily work. Switching roles in peer role play allows for experiencing both biomedical and patient perspectives. Fostering such awareness of the ambiguity of the partners in the communication process (process skills) is of high relevance and these skills are still underrepresented in communication training [31]. Peer role play seems to particularly support them which highlights its methodological importance and advocates for a more prominent role of peer role play in medical curricula. We have now successfully included peer role play in our curriculum in order to train communication with parents of sick children, and we assess students' performance with standardized patients in the concluding summative OSCE. Our students continuously and invariably rate the presented training very highly and as one of the best parts of the course [6].

4.1.4. Study limitations

The control group received less teaching time, and effects in the intervention groups may therefore be attributed to the mere increased attention they received. This would, however, not explain the difference between the intervention groups themselves. Interviews in the OSCE were not videotaped and the rating of each of the six OSCE stations was performed by only one (albeit blinded) rater. The overall reliability of the OSCE was relatively high, but no interrater reliability could be included. Our data were collected immediately after the intervention and thus no conclusions can be drawn regarding the sustainability of the changes found. However, this would be of great interest for future studies. Students' performance was not videotaped and rated by one rater per station, meaning that no interrater reliability could be calculated. Data on self-efficacy were collected anonymously with the intention of providing the students with an unbiased reflection on their performance. For this reason, we are unable to provide data on the correlation between self-efficacy and OSCE performance. There was a potential bias for the performance of students in the standardized patient group – being trained and assessed with the same tool (standardized patients) and facing the same scenarios in the OSCE would have been of advantage to the standardized patient group – and yet we found a better performance in the peer role play group. A single communication training may provide sustainable improvement in counseling skills, even after one year [54]. But generally, a sustainable change in clinical practice necessitates consolidation, i.e. training with standardized patients [55] or with continuous clinical supervision [56]. The effect of peer role play has not been investigated in this respect, so future research should address the differential and specific contributions that the two methods offer for sustainability.

4.2. Conclusion

We present a randomized controlled study with medical clerkship students that elucidates the differential benefits of peer role play and standardized patients in communication training in a broad clinical context. Both interventions allow for higher self-efficacy as well as better objective performance of content and process skills in communication. Peer role play led to a significantly higher performance than training with standardized patients due to better performances in understanding the patient's perspective. This may be attributed to the methodological advantage of peer role play, as it allows experiences of both biomedical and patient perspectives and as effect a more empathic approach. Fostering such process skills is of high relevance but is still underrepresented in communication training.

Our data suggest that peer role play particularly supports these skills, and we would therefore advocate its more prominent use in medical curricula.

4.3. Practice implications

- Both peer role play and standardized patients are valuable experimental methods for communication training.
- Peer role play is relatively easy to implement, requires less resources and is equally effective in a broad medical setting compared to a training with standardized patients. Decisions on which of either methods should be employed in a specific setting should take the required resources into account.
- Additionally, peer role play may provide a methodological advantage in fostering a more empathic approach towards patients' concerns.

Conflicts of interest

There is no conflict of interest of the authors.

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References

[1] Maguire P, Pitceathly C. Key communication skills and how to acquire them. Brit Med J 2002;325:697–700.
[2] Rees C, Sheard C, McPherson A. Medical students' views and experiences of methods of teaching and learning communication skills. Patient Educ Couns 2004;54:119–21.
[3] Ainsworth MA, Rogers LP, Markus JF, Dorsey NK, Blackwell TA, Petrusa ER. Standardized patient encounters. A method for teaching and evaluation. J Amer Med Assoc 1991;266:1390–6.

[4] Aspegren K. BEME Guide No. 2: Teaching and learning communication skills in medicine-a review with quality grading of articles. Med Teach 1999;21:563–70.
[5] Thomson O'Brien MA, Freemantle N, Oxman AD, Wolf F, Davis DA, Herrin J. Continuing education meetings and workshops: effects on professional practice and health care outcomes. Cochrane Database Syst Rev 2001. CD003030.
[6] Bosse HM, Nickel M, Huwendiek S, Jünger J, Schultz JH, Nikendei C. Peer role-play and standardised patients in communication training: a comparative study on the student perspective on acceptability, realism, and perceived effect. BMC Med Educ 2010. doi: 10.1186/1472-6920-10-27.
[7] Nestel D, Tierney T. Role-play for medical students learning about communication: guidelines for maximising benefits. BMC Med Educ 2007;7:3.
[8] Barrows HS. An overview of the uses of standardized patients for teaching and evaluating clinical skills. AAMC Acad Med 1993;68:443–53.
[9] Cleland JA, Abe K, Rethans JJ. The use of simulated patients in medical education: AMEE Guide No. 42. Med Teach 2009;31:477–86.
[10] Lane C, Rollnick S. The use of simulated patients and role-play in communication skills training: a review of the literature to August 2005. Patient Educ Couns 2007;67:13–20.
[11] Simpson MA. How to use role-play in medical teaching. Med Teach 1985;7:75–82.
[12] Yardley-Matwiejczuk KM. Role play: theory and practice. London: Sage; 1997.
[13] Wibley S. The use of role play. Nurs Times 1983;79:54–5.
[14] Beard RL, Salas E, Prince C. Enhancing transfer of training: using role-play to foster teamwork in the cockpit. Int J Aviat Psychol 1995;5:131–43.
[15] Barrows HS. Simulated patients in medical teaching. Can Med Assoc J 1968;98:674–6.
[16] Ziv A. Simulators and simulation-based medical education. In: Dent JA, Harden RM, editors. A practical guide for medical teachers. 2nd ed., Edinburgh, New York: Elsevier Churchill Livingstone; 2005. xii. p. 436.
[17] Bosse HM, Nikendei C, Hoffmann K, Kraus B, Huwendiek S, Hoffmann GF, et al. Communication training using standardized parents for paediatricians—structured competence-based training within the scope of continuing medical education. Z Arztl Fortbild Qualitatssich 2007;101:661–6.
[18] Kneebone R, Kidd J, Nestel D, Asvall S, Paraskeva P, Darzi A. An innovative model for teaching and learning clinical procedures. Med Educ 2002;36:628–34.
[19] Towle A, Hoffman J. An advanced communication skills course for fourth-year, post-clerkship students. Acad Med 2002;77:1165–6.
[20] Adamo G. Simulated and standardized patients in OSCEs: achievements and challenges 1992–2003. Med Teach 2003;25:262–70.
[21] Sloane PD, Beck R, Kowlowitz V, Blotzer AM, Wang L, Akins L, et al. Behavioral coding for evaluation of medical student communication: clarification or obfuscation? Acad Med 2004;79:162–70.
[22] Carraccio C, Englander R. The objective structured clinical examination: a step in the direction of competency-based evaluation. Arch Pediatr Adolesc Med 2000;154:736–41.
[23] Greenberg LW, Ochsenschlager D, O'Donnell R, Mastruserio J, Cohen GJ. Communicating bad news: a pediatric department's evaluation of a simulated intervention. Pediatrics 1999;103:1210–7.
[24] Papadakis MA, Croughan-Minihane M, Fromm LJ, Wilkie HA, Ernster VL. A comparison of two methods to teach smoking-cessation techniques to medical students. Acad Med 1997;72:725–7.
[25] Mounsey AL, Bovbjerg V, White L, Gazewood J. Do students develop better motivational interviewing skills through role-play with standardised patients or with student colleagues? Med Educ 2006;40:775–80.
[26] Lane C, Hood K, Rollnick S. Teaching motivational interviewing: using role play is as effective as using simulated patients. Med Educ 2008;42:637–44.
[27] Teherani A, Hauer KE, O'Sullivan P. Can simulations measure empathy? Considerations on how to assess behavioral empathy via simulations. Patient Educ Couns 2008;71:148–52.
[28] CAMPUS http://www.medizinische-fakultaet-hd.uni-heidelberg.de/index.php?id=110045&L=en. Centre of Virtual Patients; 2009.
[29] Bosse HM, Gross M, Forster J, Hoffmann GF, Krüger M, Muntau AC. Four innovative pediatric curricula – implementing the German Medical Licensation Act 2001. Monatsschr Kinderh 2008;156:436–45.
[30] Kurtz SM, Silverman JD. The Calgary-Cambridge Referenced Observation Guides: an aid to defining the curriculum and organizing the teaching in communication training programmes. Med Educ 1996;30:83–9.
[31] Kurtz S, Silverman J, Benson J, Draper J. Marrying content and process in clinical method teaching: enhancing the Calgary-Cambridge guides. Acad Med 2003;78:802–9.
[32] Berne E. What do you say after you say hello?. New York: Grove Press; 1975.
[33] Schulz von Thun F. Miteinander reden. Störungen und Klärungen – Allgemeine Psychologie der Kommunikation. Reinbeck bei Hamburg Rowohlt Taschenbuch Verlag; 1996.
[34] Flocke SA, Miller WL, Crabtree BF. Relationships between physician practice style, patient satisfaction, and attributes of primary care. J Fam Pract 2002;51:835–40.
[35] Watzlawick P, Beavin J, Jackson D. Menschliche kommunikation: formen, störungen, paradoxien, 9th ed., Göttingen, Toronto, Seattle, Bern: Hans Huber Bern; 1996.
[36] Howley L, Szauter K, Perkowski L, Clifton M, McNaughton N, On Behalf of the Association of Standardized Patient Educators (ASPE). Quality of standardised patient research reports in the medical education literature: review and recommendations. Med Educ 2008;42:350–8.
[37] Schultz JHSJ, Lauber H, Nikendei C, Herzog W, Jünger J. standardized patients for communication and interaction training for medical students (Medi-KIT): needs assessment – training – perspectives. Zeitschrift für Gruppendynamik und Organisationsberatung 2007;38:7–23.
[38] von Ameln F, Gerstmann R, Kramer J. Psychodrama. Heidelberg, New York, Berlin: Springer Berlin; 2004.
[39] Strasberg L. Schauspielen und das training des schauspielers, 6th ed., Köln, Berlin: Alexander Berlin; 2005.
[40] Joyner B, Young L. Teaching medical students using role play: twelve tips for successful role plays. Med Teach 2006;28:225–9.
[41] Mueller PS, Barrier PA, Call TG, Duncan AK, Hurley DL, Multari A, et al. Views of new internal medicine faculty of their preparedness and competence in physician–patient communication. BMC Med Educ 2006;6:30.
[42] Nikendei C, Bosse HM, Hoffmann K, Möltner A, Hancke R, Conrad C, et al. Outcome of parent–physician communication skills training for pediatric residents. Patient Educ Couns 2011;82:94–9.
[43] Spearman C. Correlation calculated from faulty data. Brit J Psychol 1910;3:271–95.
[44] Davis DA, Mazmanian PE, Fordis M, Van Harrison R, Thorpe KE, Perrier L. Accuracy of physician self-assessment compared with observed measures of competence: a systematic review. J Amer Med Assoc 2006;296:1094–102.
[45] Lim EC, Oh VM, Seet RC. Overcoming preconceptions and perceived barriers to medical communication using a 'dual role-play' training course. Intern Med J 2008;38:708–13.
[46] Kruijver IP, Kerkstra A, Kerssens JJ, Holtkamp CC, Bensing JM, van de Wiel HB. Communication between nurses and simulated patients with cancer: evaluation of a communication training programme. Eur J Oncol Nurs 2001;5:140–53.
[47] Veloski J, Boex JR, Grasberger MJ, Evans A, Wolfson DB. Systematic review of the literature on assessment, feedback and physicians' clinical performance: BEME Guide No. 7. Med Teach 2006;28:117–28.
[48] Norcini JJ. Peer assessment of competence. Med Educ 2003;37:539–43.
[49] Ang M. Advanced communication skills: conflict management and persuasion. Acad Med 2002;77:1166.
[50] de Haes H, Bensing J. Endpoints in medical communication research, proposing a framework of functions and outcomes. Patient Educ Couns 2009;74:287–94.
[51] Hart CN, Drotar D, Gori A, Lewin L. Enhancing parent–provider communication in ambulatory pediatric practice. Patient Educ Couns 2006;63:38–46.
[52] Levinson W, Roter DL, Mullooly JP, Dull VT, Frankel RM. Physician–patient communication. The relationship with malpractice claims among primary care physicians and surgeons. J Amer Med Assoc 1997;277:553–9.
[53] Street Jr RL, Makoul G, Arora NK, Epstein RM. How does communication heal? Pathways linking clinician–patient communication to health outcomes. Patient Educ Couns 2009;74:295–301.
[54] Cornuz J, Humair JP, Seematter L, Stoianov R, van Melle G, Stalder H, et al. Efficacy of resident training in smoking cessation: a randomized, controlled trial of a program based on application of behavioral theory and practice with standardized patients. Ann Intern Med 2002;136:429–37.
[55] Delvaux N, Merckaert I, Marchal S, Libert Y, Conradt S, Boniver J, et al. Physicians' communication with a cancer patient and a relative: a randomized study assessing the efficacy of consolidation workshops. Cancer 2005;103:2397–411.
[56] Heaven C, Clegg J, Maguire P. Transfer of communication skills training from workshop to workplace: the impact of clinical supervision. Patient Educ Couns 2006;60:313–25.