Tailoring to educational needs: preparatory studies into doctor-patient communication training and the development of trainers’ expertise in general practice specialty training

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Can we predict future doctor-patient communication skills on the basis of personal characteristics, knowledge, and reflective and current communicative skills?

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Submitted for publication
Abstract

Context
Doctor-patient communication has a substantial influence on the quality and outcome of doctor-patient encounters. Although it is quite common to pay attention to the training of doctor-patient communication skills, little is done to tailor educational programmes to trainees' needs, despite substantial differences in the level of skills in doctor-patient communication acquired in regular, non-tailored educational programmes.

Objective
To investigate the extent to which the skilfulness of General practitioner (GP) trainees in doctor-patient communication at the start and at the end of their first year of training, can be predicted by assessing their personal characteristics, knowledge, and reflective and communicative skills before the start of their training.

Methods
The doctor-patient communication skills of first-year GP trainees were assessed with the MAAS-Global rating list for consultation skills before and after a non-tailored 9-month longitudinal doctor-patient communication training. Before the training, gender, age, and previous experience and knowledge of doctor-patient communication were assessed. Emotional intelligence was measured with the Davis Interpersonal Reactivity Index. Reflective skills were measured with a reflection-evoking case vignette. Relationships were analysed using Pearson correlations.

Results
One third of the predictors had medium sized correlations with skills at the start of the training. At the end of the training, only pre-training doctor-patient communication (.49) and reflective skills (.40) still showed medium sized correlations. The correlation with reflective skills had increased.
Discussion

Good reflective skills can apparently contribute to the acquisition of doctor-patient communication skills. Characteristics related to lesser skills at the start of the training, such as being male, being older and having less knowledge, can be compensated for by training. To tailor doctor-patient communication training, both the initial skill level and reflective skills should be taken into account.
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Introduction

Doctor-patient communication skills have a substantial influence on the outcome of encounters between doctors and patients. These skills affect the accuracy of the diagnosis, the compliance and adherence of patients to treatments, patients’ satisfaction and the wellbeing of doctors.\textsuperscript{1-7} Not surprisingly, a substantial part of undergraduate and postgraduate medical training is dedicated to acquiring these skills, in line with recommendations from internationally used competency frameworks for medical doctors.\textsuperscript{8,9} Recommended approaches for teaching these skills - such as small group teaching with role play, observer-based feedback, enhancing theoretical knowledge of doctor-patient communication and integrating longitudinal programmes into the curriculum - are incorporated in the curricula of most medical schools.\textsuperscript{10-12} Nevertheless, many patients are dissatisfied with their doctors’ communication skills which relates to more malpractice suits.\textsuperscript{13,14} Every experienced teacher involved in training doctor-patient communication skills recognizes the natural-born communicators amongst their trainees, as well as the group that has difficulty mastering the skills. Despite this practice-based knowledge, most programmes are not tailored to trainees’ needs. It might, however, be more efficient if trainees’ potential difficulties in getting a grip on doctor-patient communication could be detected at the start of training. A more intensive training in these skills could then be offered. Moreover, trainees who have the potential to acquire the necessary skills without too much effort could follow a less elaborate training programme.

General practitioner (GP) speciality training historically devotes a great deal of time to doctor-patient communication, despite conflicting publications about the results of this focus.\textsuperscript{15-20} In the Netherlands, this training is group-based and consists of multiple sessions throughout the year. Sessions are a combination of getting familiar with the various phases in a consultation, practising skills in role play, and discussing and providing feedback on real-patient video consultations. Specific communication skills for specific situations and contexts are trained separately, for example ‘delivering the bad news’. More knowledge of what predicts the effect of training in doctor-patient communication skills is needed before the actual start of training if we want to establish a more efficient use of training hours and teaching staff by taking
trainees’ individual needs and level of skills into account. In other words, we should investigate whether it is possible to differentiate between trainees who will profit from more training and those who probably need other challenges because they have attained the required level of competence before time.

One approach that might help to make this differentiation is to establish trainees’ current skilfulness in doctor-patient communication. A common way to assess doctor-patient communication skills in general practice is to observe and score these skills. A widely used and validated instrument for measuring doctor-patient communication skills is the MAAS-Global rating list for consultation skills (MG). The MG contains three sections: phase-specific skills (7 items), which follow the timeline of a consultation; general communication skills (6 items), which can be put into practice at any point of the consultation and do not adhere to any particular timeline; and medical aspects (4 items). A desired standard for graduated GPs has been established for all skills.

However, such observation-based methods are time-consuming and thus costly. We were therefore particularly interested in the predictive value of trainees’ personal characteristics in regard to doctor-patient communication skills. Such characteristics are more easily measured through questionnaires and, moreover, a fair amount of knowledge is available about the relationship between those characteristics and doctor-patient communication skills. Laidlaw’s work showed that being female, being younger, having had prior communication skills training and being a native speaker are related to better doctor-patient communication skills. We added to this list some other potential predictors. First, we were interested in the predictive value of an objective structured video examination (OSVE). Second, Arora’s review showed that measures of emotional intelligence correlate positively with doctor-patient communication skills. Third, the ability to employ reflective thinking is interesting in relationship to doctor-patient communication skills since different authors make a connection between these two. The aim of our study was to investigate the extent to which we could predict GP trainees’ skilfulness in doctor-patient communication at the end of their first year, based on an assessment at the start of their training. More specifically, we studied the relationship between personal characteristics and doctor-patient communication skills at both the start and the end of the first year. We also studied the relationship between the level of skills in doctor-patient communication skills at the beginning of training, assessed with both
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OSCEs and real-patient consultations, with the level of skills in real-patient consultations at the end of the first year

Methods

Setting and Participants
All 71 first-year GP trainees (56 women and 15 men) at the Academic Medical Centre (AMC) of the University of Amsterdam who enrolled in 2007 were asked to participate in this study. Their average age was 30.3 years (SD: 3.6, range: 25-43 years). Nine trainees were born outside the Netherlands.

Study design and procedures
Participation involved a half-day test session prior to the start of the trainees’ speciality training (T0), taping 20 real-patient consultations in weeks 6 and 7 of their training (prior to the start of their doctor-patient communication training) (T1) and, again taping 20 real-patient consultations after nine months into their training (when they had finished the doctor-patient communication training programme) (T2). All participants were asked to give written informed consent to use their data for research purposes.

In the test session, trainees took a written knowledge test on doctor-patient communication, completed a semi-structured questionnaire consisting of a reflection-evoking case vignette and took an emotional intelligence test. Questionnaires were also administered to assess personal characteristics, namely age, gender, country of birth, native language and prior communication skills training. The trainees then participated in a videotaped 2-station OSCE, in which the focus was on communication.

We selected six consultations from the real-patient consultations at T1 and T2 (the outcome measures). In doing so, we used three criteria to ensure that we selected consultations that best represented what a GP encounters on an average day. These criteria were: (1) four of the patients should be female; (2) three of the consultations must represent the ICPC chapters with the highest prevalence in general practice, namely L (musculoskeletal), R (respiratory) or S (skin); and (3) of the remaining consultations, at least two should not represent ICPC chapter L, R or S. Follow-up consultations and consultations with children were excluded.

The OSCEs and real-patient consultations were rated by two raters. Raters were
the first author and eight students who had been trained in scoring by the first author during two half-day sessions. These students were either fourth-year medical students or psychology students. Regular sessions were held to retain consistency in scoring.

To control for differences in consultation difficulty, all consultations were also assessed on difficulty using a similar rating procedure.

**Instruments**

*Knowledge test on doctor-patient communication:* a study-specific OSVE was developed based on the required final attainment level of undergraduate medical training for doctor-patient communication skills. It covers knowledge about recognizing the various phases in a consultation and using specific techniques to elicit the patient’s perception about his/her complaints. The instrument consists of eight multiple choice or open-ended questions. Scores could range from 1 to 8.

*Reflective skills:* we developed a study-specific measure to assess reflective skills. This instrument embodied a case vignette describing subtle unprofessional behaviour in a doctor-patient encounter. The trainees reflected upon the encounter by answering seven open questions. Scoring was carried out with an adapted version of the observer rated instrument to assess student reflection developed by Boenink and colleagues. Scores could range from 1 to 10.

*Emotional intelligence:* we used the Davis Interpersonal Reactivity Index (IRI). This validated questionnaire has four subscales: perspective taking (PT), fantasy (FS), empathic concern (EC) and personal distress (PD). Each subscale contains 7 items. Scoring on the individual items is done on 5-point Likert scales. Scores on the subscales are calculated by averaging the individual item scores.

*Doctor-patient communication skills:* we used the MAAS-Global (MG) rating list for consultation skills to rate trainees’ skills during both OSCEs and real-patient consultations. The validity and reliability of the MG have been found to be satisfactory in several studies. The MG includes 17 items, of which 13 are on doctor-patient communication and refer to either phase-specific skills (e.g. ‘opening’ and ‘evaluation of consultation’; \( n = 7 \)) or general skills (e.g. ‘dealing with emotions’ and ‘giving summaries’; \( n = 6 \)). For this study, we used only the
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13 items on communication. Because we excluded follow-up consultations, we dropped the item covering aspects of a follow-up consultation, which left us with 12 items. Items are case-independent and global, but anchored with 3-4 detailed criteria per item. For example, when scoring the item ‘dealing with emotions,’ the rater has to assess the degree to which the trainee (1) explores patients’ feelings and (2) reflects adequately upon those feelings, and (3) does both sufficiently throughout the consultation. For each consultation, all items must be completed except for the item ‘physical examination,’ which may not be applicable. Here, we report only an overall consultation score, which was obtained by averaging the individual item scores.

Difficulty of consultation: This was scored with the Amsterdam Clinical Challenge Scale (ACCS). This is an instrument with which the difficulty of five aspects of a consultation is rated on a 5-point Likert scale. These aspects are: previous history/actual context, problem presented, communication from the patient, physical examination and patient management. A total score is calculated by averaging the five scores.

Data analysis
SPSS 16.0® was used to describe and analyse the data. Pearson correlation coefficients were used to study the relation between predictors (T0) and outcome measures at T1 and T2. We performed a G study to investigate the inter-observer reliability of the raters of the consultations.

Results

Participants
Of the 71 GP trainees who started their specialty training, 69 attended the half-day test session, which was embedded in the introduction to their GP training. Of this group, two trainees did not give informed consent to use their data, one dropped out of the training, three did not hand in consultations and eight provided real-patient consultations videotapes of insufficient audio-visual quality. Of the 55 trainees of whom we had all data at T1, due to various reasons (Figure 1) only 29 provided us with patient consultations at T2. These 29 were taken into analyses. Differences between the characteristics of trainees who were taken into analyses and those who were not are minimal (table 1).
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Figure 1. Overview of drop-out

Table 1. Personal characteristics of participants and non-participants

<table>
<thead>
<tr>
<th></th>
<th>Participants (n=29)</th>
<th>Non-participants (38)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male (%)</td>
<td>20.7</td>
<td>23.7</td>
</tr>
<tr>
<td>Age in years (mean and SD)</td>
<td>30.0 (3.5)</td>
<td>30.0 (3.7)</td>
</tr>
<tr>
<td>Dutch as native language (%)</td>
<td>96.6</td>
<td>94.7</td>
</tr>
</tbody>
</table>

* No data were available on four of the trainees, namely those who were not present at the introduction or did not give informed consent (see Figure 1).

In table 2 personal characteristics are listed together with the overall MG score on the OSCEs at T0 and the real-patient consultations at T1 and T2. MG scores at T1 and T2 on the skill level are reported elsewhere.37
Table 2. Personal characteristics of the trainees and MG scores (n=29)

<table>
<thead>
<tr>
<th>Personal characteristic</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior training in doctor-patient communication skills</td>
<td>89.7%</td>
</tr>
<tr>
<td>Reflective skills (mean (SD))**</td>
<td>6.89 (1.3)</td>
</tr>
<tr>
<td>Emotional intelligence (IRI)</td>
<td></td>
</tr>
<tr>
<td>Perspective taking scale (PT) (mean (SD))*</td>
<td>3.89 (0.5)</td>
</tr>
<tr>
<td>Fantasy scale (FS) (mean (SD))*</td>
<td>2.18 (0.7)</td>
</tr>
<tr>
<td>Empathic concern (EC) (mean (SD))*</td>
<td>3.14 (0.8)</td>
</tr>
<tr>
<td>Personal distress (PD) (mean (SD))*</td>
<td>3.81 (0.5)</td>
</tr>
<tr>
<td>Overall MG score OSCEs T0 (mean (SD))#</td>
<td>2.48 (0.4)</td>
</tr>
<tr>
<td>Overall MG scores real-patient consultations T1 (mean (SD))#</td>
<td>2.33 (0.4)</td>
</tr>
<tr>
<td>Overall MG scores real-patient consultations T2 (mean (SD))#</td>
<td>3.00 (0.4)</td>
</tr>
</tbody>
</table>

* scale of 1-5
** scale 1-10
# scale of 1-6

Table 3 presents per criterion the percentages of the sets of six consultations that met our selection criteria. Although these differences were considerable, t-tests showed there was no significant difference in skilfulness (total MG scores) between consultations that did or did not match the criteria.

Table 3. Percentages of trainees’ consultations that met the selection criteria

<table>
<thead>
<tr>
<th></th>
<th>T1</th>
<th>T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 of the patients are female</td>
<td>63.6</td>
<td>31.0</td>
</tr>
<tr>
<td>ICPC chapters L, R or S represented in at least 3 and at most 4 consultations</td>
<td>67.3</td>
<td>41.4</td>
</tr>
<tr>
<td>No children</td>
<td>94.5</td>
<td>82.8</td>
</tr>
<tr>
<td>No follow-up consultation</td>
<td>89.1</td>
<td>41.4</td>
</tr>
</tbody>
</table>

Regarding the difficulty of consultations at T1, 90.9 % were rated ‘rather easy’ and 9.1% ‘moderately to rather difficult’ with the ACCS. At T2, the figures were 89.7% and 10.3 %, respectively. Since the difference was small, difficulty was not included in the analyses as a control variable.

The generalizability coefficient over the 12 items, with 9 observers and 6 consultations, was 0.63, which is considered satisfactory.

Predictive value of personal characteristics and doctor-patient communication skills

Pearson correlations are presented in table 4. Gender, reflective skills, having prior experience of doctor-patient communication training and MG scores assessed with OSCEs all showed medium sized correlations with real-patient consultation MG scores at the start of training. Only the reflective skills maintain this medium sized correlation with MG-scores at the end of the
training (T2). The MG scores on the real-patient consultations at the start of the training also have a medium sized correlation with overall MG scores. Results on native language are not reported, since only one member of our final analysis group was not a native speaker of Dutch.

Table 4. Pearson correlations between personal characteristics and doctor-patient communication skills

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>T1</th>
<th>T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (n=29)</td>
<td>.43*</td>
<td>.20</td>
</tr>
<tr>
<td>Age (n=29)</td>
<td>.29</td>
<td>.13</td>
</tr>
<tr>
<td>Knowledge of doctor-patient communication (n=28)</td>
<td>.25</td>
<td>-.05</td>
</tr>
<tr>
<td>Having prior experience of doctor-patient communication training (n=29)</td>
<td>.36</td>
<td>.03</td>
</tr>
<tr>
<td>Enjoying prior doctor-patient communication training (n=27) #</td>
<td>-.10</td>
<td>-.22</td>
</tr>
<tr>
<td>Valuing doctor-patient communication as important (n=29)</td>
<td>.20</td>
<td>.09</td>
</tr>
<tr>
<td>Perspective-taking scale (PT) (n=29)</td>
<td>.20</td>
<td>.00</td>
</tr>
<tr>
<td>Fantasy scale (FS) (n=29)</td>
<td>.29</td>
<td>.28</td>
</tr>
<tr>
<td>Empathic concern (EC) (n=29)</td>
<td>-.01</td>
<td>.08</td>
</tr>
<tr>
<td>Personal distress (PD) (n=29)</td>
<td>-.11</td>
<td>-.16</td>
</tr>
<tr>
<td>Reflective skills (n=29)</td>
<td>.34</td>
<td>.40*</td>
</tr>
<tr>
<td>Overall MG score on OSCEs at T0 (n=28)</td>
<td>.46*</td>
<td>.28</td>
</tr>
<tr>
<td>Overall MG at T1 (n=29)</td>
<td>---</td>
<td>.49*</td>
</tr>
</tbody>
</table>

Correlation is significant at the 0.05 level
^ For 1 trainee we had missing values on this characteristic
# Two trainees did not have prior experience with doctor-patient communication training and therefore could not answer this question

**Discussion**

The aim of our study was to see whether it is possible to predict at the beginning of the first year of GP training the skilfulness in doctor-patient communication at the end of the first year.

We found that one third of the predictors measured during the introductory session showed medium sized correlations with the consultation skills at the start of the communication training, six to seven weeks later. The relationship between the predictors and the skills level at the end of the training, however, was much weaker. The best predictor of the skills level at the end of the training was the communication skills at the start of the training, followed by, perhaps more surprisingly, the scores on reflective skills. This last association even
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seemed to increase over time.

In our study, we replicated most of the findings of Laidlaw and colleagues. In their study among 78 residents who were in their first year or were beginning their second year at a Canadian medical school, they also found a positive relationship between gender, younger age and prior training in communication skills, and performance in doctor-patient communication skills. All their assessments were carried out at one single moment in the year. Communication skills were assessed with OSCEs, whereas in our study real-patient consultations were used as an outcome. Interestingly, in our study the above-mentioned relationships diminished greatly, or were even negligible when skilfulness at the end of the year was used as an outcome. Laidlaw’s group can be compared to our group regarding stage of training. This suggests that the strong emphasis in GP training on doctor-patient communication as compared to the training of postgraduates in internal and surgical rotations, possibly overcomes the disadvantages of some personal characteristics.

This is encouraging, since it implies that training can compensate for the disadvantage that male trainees, older trainees and untrained trainees have. However, it could also be interpreted as an indication of too much focus in the regular training programme on improving the skills of trainees who have low scores at the start of the training.

The predictive value of our OSVE was nullified. This is not that surprising, since questions in this OSVE assessed the knowledge required to finish undergraduate school, and this knowledge is refreshed in the first year of GP training.

Unexpectedly, emotional intelligence (EI) did not have a strong relationship with the trainees’ communication skills. Only the subscale ‘fantasy’ had a weak-medium sized positive relationship. This is remarkable, since the content of this scale refers to daydreaming and fantasizing, which do not seem directly related to the competences needed by a GP. In contrast, the subscale ‘perspective taking’, which refers to the more cognitive ability to see things from the perspective of another person, showed only a small sized relationship at the start of the training and was nullified at the end of the training. This came as a surprise, since in a recent review a positive association of EI with doctor-patient communication was established, independently of the moment of measurement. However, Stratton and colleagues did find that EI scores assessed with the IRI and another EI instrument (the Trait Meta-Mood Scale; TMMS) diminish over time in clerkship trainees. Their explanation is that many of the positive attributes (e.g. high
scores on EI) that are deemed important by admission committees and society at large are not always reinforced in medical training. This seems an unlikely explanation in our setting, since GP training in doctor-patient communication reinforces positive attributes and empathic behaviour.

The importance of reflective skills for learning in general has been described. For instance, Ericson’s deliberate practice theory emphasizes the importance of reflecting on experiences in order to become a medical expert.\textsuperscript{40,41} From the results of our study, we conclude that reflection is also important for becoming a communication expert. Thus, trainees who are less skilled in reflective thinking do not profit from this intensive training. This might explain why the correlation of reflective thinking with doctor-patient communication was stronger after the training. Taking into the account the reflective skills of trainees may therefore be helpful in the development of ideas about how to tailor doctor-patient communication programmes to the needs of trainees. If this can be replicated in other studies, it would also serve our need for a simple, cost-effective instrument to assess trainees before assigning them to different tailored educational programmes in doctor-patient communication.

**Strengths and limitations**

The strength of this study lies in our use of a comprehensive set of known characteristics that influence doctor-patient communication. None of these predictors had previously been studied in the context of GP training. Moreover, we do not know of any other study that observed the value of these predictors of future performance. This study, however, suffered from a considerable loss to follow-up. This might have influenced our results even though personal characteristics did not differ between participants and non-participants. Another limitation is the inclusion of only a small number of men, since this is one of the predictors of a lag in doctor-patient communications skills. This is, however, representative of an average class of GP trainees, which for the last 5 years has consistently comprised around 25\% men. We were also not able to study the effect of being a native speaker – which is a potentially important predictor of doctor-patient communication – as we had just one non-native speaker in our analysis group. A final limitation concerned the study-specific instrument that we used to measure reflective skills, namely an adapted version of the observer rated instrument to assess student reflection developed by Boenink and colleagues. Further research should confirm its validity.\textsuperscript{32}
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Recommendations and further research
This study would ideally be replicated with a larger group of trainees from different institutes. The construction of a more elaborate predictive model for doctor-patient communication skills might then be possible.
We established evidence for a relationship between reflective skills and doctor-patient communication. Further studies should be done to improve the understanding of the role that reflection plays in acquiring doctor-patient skills.
The effects of tailoring doctor-patient communication skills training to the individual trainee’s potential should be investigated. Only then will we know whether training in doctor-patient communication skills should be made more or, where applicable, less intense.
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