Involving patients in the development of interpersonal skills of optometry students

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Background: Providing patients an opportunity to give feedback to optometry students on their communication and interpersonal skills allows for a unique learning opportunity. The aim of the current project was to determine if the Doctors’ Interpersonal Skills Questionnaire (DISQ) was suitable for use with optometry students in a large teaching clinic and if it provided useful feedback to the students for learning purposes.

Methods: The DISQ is a 12-item questionnaire that utilises a five-point Likert scale; a higher score indicates better performance. The DISQ was modified for an optometry context and developed into an online questionnaire. Patients were invited to complete the survey following their consultation with a final year student. Patients provided feedback on the interpersonal skills of the student optometrist who conducted the consultation under supervision. Students were provided with both individual and collated feedback obtained for the entire student group; strategies for improving communication were discussed. This activity did not form part of the grades of the students.

Results: Patients were very satisfied with the interpersonal skills of final year optometry students. Highest scores were given for questions relating to the warmth of greeting, respect shown and time given. Lowest scores were for questions relating to explanations, reassurance and confidence. There was a significant improvement in the communication and interpersonal skills of students following the provision of patient feedback and strategies for improving these skills, and an additional period of clinical experience.

Conclusion: Patients can provide feedback on the interpersonal skills of optometry students using the DISQ. This feedback results in further skill development for students and makes patients feel valued within the teaching clinic environment. This activity assisted in ensuring that graduating optometrists have the interpersonal skills required to communicate clearly and effectively with patients, a requirement for practising with a patient-centred focus.

Key words: clinical competence, education, interpersonal skills, optometry, questionnaire
Contact with and feedback from patients is a crucial component of the training of health professionals in terms of the development of clinical reasoning, communications skills, professional attitudes and empathy.  

Models for teaching communication skills in optometry and the importance of such programs have been previously described; teaching these skills are required as they are not inherent but must be developed. In the optometry program at QUT, methods to teach these skills include lectures, workshops involving group work, undertaking the analyses of communication styles and issues within videos, role-playing case history taking and supervisor feedback from patient interactions. The methods of assessment include written assignments including reflection on communication processes, written examinations of key principals, production of a video recording of a mock patient interaction, skills assessment using peers as mock patients, and direct supervisor assessment of patient interactions.

Hogan et al. have critically evaluated existing patient feedback instruments for use in medical student teaching. Their aim was to develop patient-centredness in students and the skills required to achieve this and thus they evaluated existing feedback instruments. The Doctors’ Interpersonal Skills Questionnaire (DISQ) (Appendix S1) was identified as most closely fitting the criteria for use with general practice medical trainees in Australia. The DISQ was considered a valid and reliable instrument for assessing interpersonal skills; on this basis the authors chose to trial this instrument at the QUT optometry clinic with optometry students. The aim was to determine if the DISQ was suitable for use with optometry students in a large teaching clinic and if it provided useful feedback to the students for learning purposes.

Methods

The DISQ is a 12-item questionnaire that utilises a five-point Likert scale; a higher score indicates better performance (1 = poor and 5 = excellent). Patients provide feedback on the individual health-care professional who delivered the service. Key interpersonal skills including warmth of greeting, listening, clarity of explanations, ability to elicit concerns or fears, and respect shown to the patient are assessed. The DISQ has previously been validated and is a single-scaled instrument with high internal validity and significant correlation to expert examiner ratings of interpersonal skills. It has also been shown to be responsive to interpersonal skill training, that is, training results in significant improvements in scores.

Figure 1 is a summary of the steps involved in trialling this initiative as a formative feedback, student-learning activity. The DISQ was modified slightly to indicate that it was optometry students who patients were being asked to comment upon; the word ‘doctor’ was replaced with ‘student optometrist’ or simply ‘student’. In addition, patients were asked to provide written comment on aspects that the student did well in, and aspects that could be improved. Patients were told they were providing feedback to assist the students to improve their performance and that the feedback was not being used in the determination of grades.

The survey was trialled initially in hard copy form; this trial indicated that patients and students thought it useful and that it was fit for the purpose. The next stage was to develop the survey into an online format that was easily accessible to patients. Patients were given small cards with information about the survey and the link to access the online form later at their own convenience; all patients who had attended the clinic were contacted via e-mail and reminded to complete the questionnaire if they had not already done so. The primary aim was to have every student obtain feedback from at least one patient encounter.

This activity was run across a primary eye-care clinic during summer for a 12-week period involving 61 final year optometry students. Students were given individual feedback and also collective patient feedback from the student group was discussed as a teaching and learning exercise. Students

![Figure 1. Flow diagram of the stages used in development of the patient feedback process for use with optometry students to further the students' interpersonal skills development](image-url)
underwent a further three months of clinical training and patients were again asked to comment on the interpersonal skills of the students. The second survey period was eight weeks during the winter clinic and involved the same final year optometry student group.

To determine if improvements to this activity were required, students and patients provided comments about the use of the DISQ. Patients indicated whether they agreed or disagreed with four simple statements about completing the DISQ. Students were asked to complete a five-question, five-point, Likert survey (where 1 = strongly disagree to 5 = strongly agree), and to reflect on what they had learnt and what they had changed after receiving patient feedback.

On completion of the learning and teaching activity, de-identified data were sent to the researchers for analysis and reporting. The QUT University Human Research Ethics Committee (UHREC) assessed this research as meeting the conditions for exemption from UHREC review and approval in accordance with section 5.1.22 of the National Statement on Ethical Conduct in Human Research (2007).

Data analysis

De-identified data from the online surveys were collated by clinic staff and sent to the researchers for analysis. Average scores for each DISQ question were calculated out of the maximum of five. In addition, the 12 scores were added to calculate an overall interpersonal skills index (ISI) expressed as a percentage of the theoretically perfect score. The ISI is an overall measure of the interpersonal skills of the health provider.\(^1\)

Feedback from the patient and student surveys about this activity have also been reported and representative patient and student comments included.

There is much debate in the literature about the best way to analyse Likert rating scale survey data; recommendations include that aggregated rating scores and individual rating items with numerical response formats of at least five categories in length may generally be treated as continuous data.\(^1\) The outcome of the Shapiro-Wilk test was that the DISQ ISI data were normally distributed (p = 0.001) and thus parametric statistical tests were appropriate. Scores from the summer and later winter clinics were compared; the independent samples t-test was used for statistical analysis. Hedges’ g\(^1\) was used to estimate the effect size of the two samples, summer versus winter, of unequal size.

Cronbach’s alpha\(^1\) for the DISQ surveys returned in this study was 0.959. This value is the same as that determined during development of the questionnaire (\(\alpha = 0.96\)).\(^1\) This indicates that the DISQ has excellent internal consistency and reliability; it does not mean that the measure is unidimensional. To determine if scores for the 12 items differed, a repeated measures analysis of variance (ANOVA) with Bonferroni post hoc test was used.

Results

Summer clinic DISQ outcome

One hundred and nine DISQ surveys were returned during the summer clinic. As 430 cards were handed to patients providing the link to the online survey, this represents a response rate of about 25 per cent. Ages of surveyed patients ranged from 18 to 85 years. There was a good spread of ages of patients surveyed (seven per cent were 18–24, 12 per cent 25–34, 15 per cent 35–44, 12 per cent 45–54, 15 per cent 55–64, 29 per cent 65–74 and nine per cent > 75 years), and 55 per cent were female. Reasons for attending the optometry clinic were varied, including: routine eye checks, glaucoma checks, foreign body sensation, blurry vision, dry eyes, visual field testing, and new spectacles. This indicates that a broad range of patient interactions were sampled.

Overall, patients reported they were very satisfied with the interpersonal skills of the final year optometry students. Average scores for each of the 12 items varied from 4.4 to 4.8 on the five-point Likert scale (Table 1, Figure 2). There was a significant impact of item on scores (repeated measures ANOVA, \(F_{11, 119} = 2.3, p = 0.012\)). This reflects the multidimensional nature of the DISQ with individual items surveying different aspects of interpersonal skill.

The highest scores were given for questions that related to the warmth of greeting (Q2), respect shown (Q8), time given (Q9), and concern shown to the patient as a person (Q11). Overall, patients felt the students conducted themselves with professionalism, the patients felt safe and comfortable, and the eye examination had been thorough.

On the whole, procedures and eye conditions were explained well, and patients felt they were listened to. An example of a positive patient comment: ‘The student had a warm, friendly and professional manner, and explained what was going to happen before doing various parts of the assessment. When explaining the functional problems I was experiencing, and how to do the vision therapy exercises, the student checked that I understood what had been said.’

Lower scores occurred for questions related to clarity of explanations (Q4), reassurance provided (Q5), confidence (Q6), and consideration of the individual personal situations of the patient (Q10). Students were thus encouraged to consider how confident they acted in their interactions, to allow time to provide clear explanations about procedures that were to be undertaken, their explanations of eye-care problems and their management strategies. This included limiting the use of medical and optical jargon and acronyms. An example of a less positive patient comment was: ‘I was given some eye drops and suddenly my eyes felt numb. It was a bit troubling. The student hadn’t told me this would happen.’

Winter clinic DISQ outcome

Twenty-four DISQ surveys were returned during the shorter winter clinic. As 114 cards were handed to patients, this represents a response rate of about 21 per cent. There was a significant improvement in some scores at the later time point (Table 1) including the total score (p = 0.02). The largest improvements occurred in: overall satisfaction (Q1), adequacy of explanations (Q4), extent of reassurance (Q5), opportunity to express concerns (Q7), consideration of personal circumstances (Q10), and whether they would recommend the optometry student to friends (Q12). If a Bonferroni correction was applied, then the p-value for significance was reduced to 0.004; in this case only the improvement in the score for Q5 on the extent of reassurance the student provided to the patient remained significant.

Graphical comparison of the summer versus winter DISQ survey data is shown in Figure 3. Here box plots of the outcomes for all 12 questions are shown from left Q1, to right Q12. The change in the mean scores is due to increases in the median and reduction in low outliers. The improvement was
optometry student interpersonal skills. Schmid, Hopkins and Huynh

| DISQ item | Question                                      | Summer clinic | Winter clinic | Difference | p-value |
|-----------|-----------------------------------------------|---------------|--------------|------------|---------|
| Q1        | Overall satisfaction with the visit           | 4.61 ± 0.57   | 4.77 ± 0.42  | 0.16       | 0.01    |
| Q2        | Warmth of optometry student’s greeting       | 4.72 ± 0.54   | 4.77 ± 0.42  | 0.05       | 0.3     |
| Q3        | Ability to listen to the patient             | 4.65 ± 0.60   | 4.68 ± 0.57  | 0.03       | 0.7     |
| Q4        | Adequacy of explanations to the patient      | 4.54 ± 0.66   | 4.73 ± 0.45  | 0.19       | 0.02    |
| Q5        | Extent of reassurance provided to the patient| 4.50 ± 0.65   | 4.73 ± 0.46  | 0.23       | 0.004   |
| Q6        | Confidence in optometry student’s ability    | 4.58 ± 0.64   | 4.68 ± 0.55  | 0.10       | 0.2     |
| Q7        | Opportunity for patient to express concerns and fears | 4.59 ± 0.63 | 4.73 ± 0.45 | 0.14       | 0.03    |
| Q8        | Respect shown to patient                     | 4.77 ± 0.44   | 4.82 ± 0.39  | 0.05       | 0.3     |
| Q9        | Time given for visit                         | 4.79 ± 0.47   | 4.86 ± 0.35  | 0.07       | 0.1     |
| Q10       | Consideration of patient’s personal situation in choice of treatment or advice | 4.62 ± 0.57 | 4.77 ± 0.42 | 0.15       | 0.02    |
| Q11       | Concern for patient as a person              | 4.69 ± 0.55   | 4.82 ± 0.35  | 0.12       | 0.1     |
| Q12       | Recommendation of optometrist to friends     | 4.67 ± 0.55   | 4.86 ± 0.35  | 0.19       | 0.01    |
| Total     | Aggregated DISQ item score                   | 55.6 ± 5.8    | 57.2 ± 3.5   | 1.6        | 0.02    |
| Interpersonal skills index | Total converted to %                  | 92 ± 9        | 95 ± 6       | 3          | 0.02    |

Data are mean ± SD. p-values represent the outcome of the independent samples t-test comparing scores for the summer and winter clinics.

Table 1. Comparison of average Doctors’ Interpersonal Skills Questionnaire (DISQ) item scores for surveys returned during the summer versus later winter clinic.

Small based on the effect size determination: Hedges’ g = 0.293.

Patient and student perspectives

More than 90 per cent of patients agreed with statements indicating they felt they were helping, that it was easy to give constructive comments, and that providing this feedback fostered patient participation in the clinic learning environment. In addition, more than 90 per cent of patients indicated that they thought providing this feedback was a worthwhile learning activity for students. Only a small portion, < 10 per cent, indicated they felt some anxiety about providing feedback. Examples of what patients thought of the feedback they received and its impact include: ‘I feel more confident after reading the positive feedback from the patient’. ‘I have tried to take more time to explain results and reasons for each test to keep the patients in the loop.’

Discussion

The modified DISQ was easy to administer, relevant to optometry students and feedback was able to be provided in a timely manner; this supports the view of Hogan et al.7 on this feedback instrument. Optometry students found the feedback valuable and they appreciated the formative nature, where the primary aim was to provide them with information they could use for their interpersonal skill development. The patients reported the modified DISQ was easy to complete and they felt more involved in the clinic. This activity was a worthwhile learning activity for optometry students by finalising their training in interpersonal skill development through gaining feedback from the patients with whom they had individually interacted.

The average ISI scores of 92 ± 9 per cent for the summer clinic and 95 ± 6 per cent for the winter clinic represent exceptionally high DISQ scores. For comparison, reported average ISIs for general practice registrars were 86.5 per cent before and 86.8 per cent after they were provided with patient feedback.15 The high DISQ scores indicate that the optometry students have well-developed interpersonal skills at the level required to practise with a patient-centred focus, that is they are able to clearly communicate and share information with patients. Communication skills are an important dimension of practitioner competence and linked to positive patient health outcomes.19

An added benefit of asking patients to provide feedback on their interactions with optometry students was the fact that patients reported it as a positive experience where they felt their contribution was important and valued. Patients presenting to student optometry clinics are reported to view student involvement as important as well as a highly positive experience.20 It has previously been shown that patients are very able to assess the interpersonal skills of doctors,5 consider these skills very
It has been reported that patients may overvalue the time spent with their student health-care provider rather than the actual quality of the health information provided and tend to more highly rate those who seem nicer. These patient feedback characteristics are also apparent in the feedback obtained here; even after informing patients that their feedback would not be used for summative purposes, higher scores of four or five tended to be given. There was a time delay in when the consultation occurred and when patients completed the survey; it is possible that patients were not as critical or constructive due to this. There is a large impact of survey methodology (for example, interview versus survey; mail, online versus phone; on-site versus off-site; timing), on patient-reported satisfaction with their health service. Although it is often reported that older groups have lower computer literacy than younger groups, there was a good response to the online DISQ across all age groups.

Although a robust and validated questionnaire was used, the DISQ, like all self-report-based questionnaires, is subject to bias. Unconscious biases of patients may include gender, ethnicity and age; these may impact the objective assessment of the quality of the communication skills of the student. For example, gender and ethnicity have been shown to impact patient determinations of the empathy of medical students during clinical encounters with females being ranked higher than males. The impact of this could not be assessed here as the de-identified data available for analysis did not include information about the student optometrists.

It is also possible that the students chose to ask patients things they thought would provide high scores and this could further bias the outcomes, although as this activity was for formative feedback rather than summative assessment, there was no motivation for the students to do this. Given these limitations, the focus was on providing feedback to students about areas that were done best versus those that were not done quite so well rather than the actual overall DISQ ISI score.

As only de-identified data were provided, it was not possible to determine if some students had many surveys returned about their performance and other students very few. It was also not possible to link the surveys of individual students at the two time points for direct comparison. The winter teaching clinic was shorter than the summer clinic and thus there was not the opportunity to gather a large number of DISQ patient surveys (only 22 surveys were completed). The lack of patient responses during the winter clinic may also reflect the view of the students that they had already completed and gained from this learning activity when it was run during the summer clinic; thus, they were less proactive in seeking feedback. Accordingly, the analysis of whether there was a difference in DISQ scores at the two time points was based on fewer responses at the later time point. Even given this, the comparison was significant, indicating improved patient perception of the performance of students at the later time point, albeit with a small effect size.

Although statistically the calculated effect size was classified as small, Greco et al. comment that while changes in scores following training may appear small, this masks the fact that a large number of patients may have changed their scores by an entire grade. The three per cent improvement in ISI measured here is equivalent to 15/100 patients increasing their ratings by one grade for all DISQ items. Relevant to this, 7/109 (six per cent) patients at the first time point and no patients at the second time point gave scores of three or less on some items. The outcome is representative of the fact that the majority of DISQ surveys returned during the winter clinic had higher scores. Determination of the impact of small improvements in DISQ scores on clinical practice and patient outcomes is impossible to quantify. However, to reiterate, there are known positive associations between health provider communication skills and positive patient outcomes and thus the aim should
It was not possible to determine if the improvement was due to the feedback provided by the DISQ or from the extra experience obtained during another period of clinical training. A randomised trial where half the students were randomly allocated to be provided feedback and the others not provided feedback would have addressed this; however, this initiative was run as a student-learning exercise and not as a fundamental research project.

The DISQ has been used previously to determine changes in general medical registrars’ interpersonal skills as they completed a vocational training program. Greco et al. concluded that obtaining feedback from patients at regular intervals resulted in sustained skill improvements and was a valuable addition. Feedback here emphasised areas where the scores were lower and thus improvement possible, including clarity of explanations (Q4), reassurance provided (Q5), and consideration of patient’s individual personal situations (Q10); the survey outcomes suggest these skills take longer to develop.

It has been suggested that the following all add to increasing the value of patient feedback in communication skill development: (i) using a valid and reliable questionnaire like the DISQ; (ii) recruiting patients by an independent person; (iii) collecting patient feedback over more than one day; (iv) gaining feedback from patients immediately following the consultation; (v) reporting feedback results to practitioners by using a combined method of data presentation that allows comparison with peers; and (vi) conducting follow-up that includes reassessment of practitioners by new patients at regular intervals. The student-learning activity described here comprised most of these suggestions except that it did not involve independent recruitment and although patients were asked immediately if they would provide feedback, they could then choose to do this when it suited them. Minor modifications based on these suggestions could be considered but would likely only minimally change the learning value of the patient feedback obtained.

**Conclusion**

Patients can provide feedback on the interpersonal skills of optometry students using the DISQ. This feedback results in further skills development for students and makes patients feel valued within the teaching clinic environment. This activity assists in ensuring that graduating optometrists have the interpersonal skills required to communicate clearly and effectively with patients, a requirement for practising with a patient-centred focus that leads to better health outcomes.

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Supporting information

Additional supporting information may be found in the online version of this article at the publisher’s website.

Appendix S1. Questionnaires.