

Does hearing the patient perspective improve consultation skills? An exploratory randomised controlled trial in medical undergraduate education

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Abstract

Context

Medical students may benefit from hearing patients' experiences, but it is not clear whether offering patients' viewpoints on medical procedures has any measurable effect on students' skills or abilities. There are also ethical and practical issues in inviting lay people to repeatedly relive their experiences for students' benefit. This study explored the effect on students' exam performance of watching video clips of women describing their experiences of colposcopy. We explored whether students who had viewed such videos performed differently from those who had not heard the patient perspective.

Methods

Medical students in their penultimate year were randomised to receive one of two online learning modules. The experimental group saw a video of patients describing their experiences of colposcopy, while the control group viewed a clinician describing the procedure. All other elements of the module were the same. Students then completed a multiple choice questionnaire (MCQ) and were assessed by a blinded clinical examiner in an Objective Structured Clinical Examination (OSCE) with a simulated patient (SP). The SP, also blinded, scored students using the Doctors' Interpersonal Skills Questionnaire (DISQ). Students then rated the module's effect on their skills and confidence. Regression analyses were used to compare the effect of the two modules on these outcomes, adjusting for gender and graduate entry.

Results

88 students were randomised. The experimental group performed better in the OSCE than the control group (odds ratio 2.7 [95% C.I. 1.2 to 6.1]; p=0.016). They also reported

significantly more confidence in several key areas, including comfort with patients' emotional reactions (odds ratio 6.4 [95% C.I. 2.7 to 14.9]; $p < 0.0005$). There was no significant difference in DISQ or MCQ score between the two groups.

Conclusions

Teaching that includes recorded elements of real patient experience can significantly improve students' examination performance and confidence.

Introduction

Including the patient or carer voice in the education of healthcare professionals is increasingly considered to be important. In recent years it has been specifically recommended by the UK bodies that govern education in this field(1-4). Often, this is done by patients coming, in person, to describe their experience or illness story for students as part of an existing clinical course (5, 6). Research has repeatedly shown that interacting with patients and carers, and hearing their stories, can improve students' knowledge, attitudes and confidence(7-10). There is also evidence that involving real patients may be better for teaching communication than involving simulated patients (11). However, it is not always feasible or ethical to ask patients to return again and again to describe what may be unpleasant or upsetting experiences to successive cohorts of clinicians in training(12, 13). In addition, much of the research done to date involves relatively complex interventions, for example where patients and carers may discuss their story with students in groups or over time, and/or offer active feedback on communication skills (14). It is not always clear, therefore, which elements of a patient/carer educational intervention affect student outcomes.

Our study explored the effect on student performance and confidence of viewing a video of women describing their experiences of investigations for cervical abnormalities.

Methods

Recruitment and randomisation of participants

University of Oxford medical students in their fifth (penultimate) year during 2014-2015 were offered the opportunity to participate in this study. There were no exclusion criteria. Five cohorts of students were recruited during the year. The study took place in the introductory two week lecture session at the start of their obstetrics and gynaecology course, before they had gained any clinical experience. Most of those who did not take part were unable to do so because they had chosen to take up short-term clinical training opportunities overseas ('electives'). Within each cohort, as participants arrived to take part, they were randomised by a researcher (RS) consecutively assigning them to one of two educational modules. Students knew that they had been randomised to module 'A' or 'B', but were not told how these modules differed.

Module content

The modules were both online interactive programmes following two patients through the diagnosis and management of pre-cancerous changes in the cervix. Both modules covered the NHS cervical screening call and re-call programme, the natural history of cervical cancer and the diagnosis and management of pre-cancerous changes. Information was conveyed through video clips, images and text. The modules were expected to take 20 minutes to complete but no time limit was imposed.

As part of the module, the control group of students took an interactive online lesson about cervical screening and the clinical management of cervical abnormalities, which included a series of video clips in which a female doctor described the case histories of two patients ('doctor module'). The experimental group of students took an online lesson identical in every respect, except that instead of featuring the doctor, the clips were of the two patients themselves describing their personal experience of the relevant procedures, taken from the Health Experiences Research Group archive ('patient module'). Both modules offered the same clinical information, ensuring that students would be given all the facts they would later be tested on. However, in the patient interviews, women who had experienced colposcopy spoke about their initial fears and concerns, described personal pain responses and what that meant for their daily life and ability to work, and talked about post-procedural issues such as the emotional strain of waiting for results. By contrast, the 'doctor module' offered textbook information about common complications such as pain "of varying severity", and provided general recommendations for returning to work and resumption of sexual activity. Both modules included information on the time it took to process and deliver results. The modules were developed following a pilot of the experimental version with an earlier cohort of students to ensure ease of use and educational value. The full modules are available on request from the authors.

Data collection

Immediately after taking the module, both groups were given a 20-item untimed Multiple Choice Questionnaire (MCQ) testing their knowledge of the module content. They then took an Objective Structured Clinical Examination (OSCE), written by a gynaecologist with six years of exam-setting experience, in which they were asked to engage in a consultation with a simulated patient, answering the patient's questions about colposcopy (see Fig. 1). The simulated patient (SP) was played by professional actors with experience in medical role play. Assessments were done in the rooms where students would normally take their end-of-rotation examinations. Each OSCE was marked on a standard four-point scale (Fail/Borderline Fail/Clear Pass/High Pass) by a clinical examiner. Scores were based on the students' ability to explore the patient's concerns, explain accurately what a colposcopy is and how it is performed, and answer the patient's questions about timescales for receiving results. The SP scored students on a five-point scale (Poor/Fair/Good/Very Good/Excellent) using the Doctors' Interpersonal Skills Questionnaire (DISQ), adapted to reference 'students' rather than 'doctors'. The DISQ is a reliable and valid tool for assessing communications

competence in clinical consultations, which has been tested with real-life patients (15). Examiners and SPs were all blinded to which module students had been assigned to. Due to practical considerations, it was not always possible to have the same clinical examiners and SPs examining each cohort. Each time a cohort took part, three identical OSCE stations were provided at the same time to ensure speedy throughput of students. Over the five sessions, six examiners and six SPs took part.

After completing the module and assessments, students were asked to complete a questionnaire about their experience of taking the module. This used a 5 point scale (not at all/a little/somewhat/quite a bit/a lot) to score whether the module increased their knowledge of the topic, improved their ability to discuss cervical screening, improved their understanding of how to communicate with patients, increased their comfort level in discussing the topic with patients, increased their ability to respond to patients' emotions, or would affect their future practice (see Fig 3.)

Data on the participants' gender and cohort were recorded, alongside their overall OSCE scores, DISQ scores, and their self evaluations. Some students were "graduate entry", meaning that they had entered medical school having taken a first degree in a different discipline, and this was also recorded.

Since this was an exploratory study, we looked at a range of outcomes, specifically differences between the groups on their DISQ, MCQ and OSCE scores, and students' self-evaluation.

Data analysis

Consistent with work done by Greco et al, the twelve DISQ scores were averaged to calculate an overall "Interpersonal Skills Index" (ISI), expressed as a percentage(16). The ISI and students' MCQ scores were normally distributed. OSCE scores and students' evaluation scores were treated as ordinal variables.

Within the literature on patient-clinician interaction, there is evidence that male and female healthcare professionals interact with patients in slightly different ways, with women sometimes scoring more highly on empathy, patient-centredness and communication (17-19). In addition, although the students in our study were very close in age, a minority had come to medical school having completed a first degree in a different subject. Anecdotal evidence suggests that these "graduate entry" students may have a more mature communication style. We therefore decided to adjust for gender and graduate entry in our analyses of outcome measures related to students' performance (that is, ISI and OSCE scores).

We explored associations between group (experimental vs. control) and MCQ and ISI scores using linear regression. For the OSCE and evaluation scores we performed proportional odds ordinal regression analyses to obtain the odds ratio for a one point improvement in score associated with the experimental group compared to the control group. We used IBM SPSS Statistics 22 and Microsoft Excel 2010 to carry out the analyses.

Results

Figure 3 shows the flow of participants from eligibility assessment to analysis. From the 135 students in five cohorts who were asked to participate, 88 (65%) individual students agreed to take part. All participants completed their allocated learning module and multiple choice questionnaire, but one withdrew before taking part in the OSCE and self-evaluation.

Students from the control and experimental groups were evenly distributed across examiners ($p=0.92$) and SPs ($p=0.24$).

Significant differences were found between the two groups' OSCE scores (see Table 1).

Being in the experimental ('patient module') group meant that a student was 2.8 times more likely to score an extra point in their clinical exam than if they had been in the control ('doctor module') group.

The experimental group also assessed themselves as significantly more confident in their understanding of how to communicate with patients about cervical screening, their own comfort in discussing screening, and their comfort in responding to patients' emotional reactions. They also reported significantly more willingness than the control group to change their future practice (see Table 2).

There were no significant differences between the experimental and control group on any other outcome measures.

Full results are shown in Tables 1 and 2.

Table 1—Examiner-reported outcomes

Table 2—Student-reported outcomes

Discussion

The module that included patient experience appeared to have a significant impact on students' clinical exam performance and their self-reported comfort and confidence in their communication skills. It did not make any difference to their performance in the written test or their general interpersonal skills in a role play situation.

It is not a surprise that students' written test results did not show differences between the two groups. The written test dealt with procedures and diagnoses rather than communications about, or emotional responses to, those procedures. It is worth noting that the 'patient module' apparently did not distract students from learning these clinical facts. It is more surprising that there were no significant differences between the two groups' scores on the DISQ Interpersonal Skills Index. However, this could be a result of consistent communications teaching on other parts of the overall course. All students entering the study had already experienced a series of eight experiential clinical communication workshops in the previous year of the medical course. In this context, it is perhaps understandable that the non-specific interpersonal skills tested in DISQ remained similar no matter which module the students took.

There may be a number of explanations for the experimental group's improved OSCE performance. Firstly, they may simply have entered the exam feeling more emotionally prepared than their peers. These students reported significantly higher levels of comfort with emotions following the 'patient module', probably as a result of having had the chance

to hear and reflect on real patients' concerns. This opportunity is perhaps especially valuable for interactions around colposcopy, which students may find difficult because of the sensitivity of the topic and potential for embarrassment. This emotional mindset, while it made no difference to students' written exam results, may have allowed the experimental group to perform at a higher level in their OSCE clinical assessment.

Secondly, they may have felt more able to communicate information about colposcopy because of their exposure to patients' priorities around this specific procedure. As the similarity in scores for Interpersonal Skills demonstrates, exposure to patient experience does not appear to improve communication in a general way; rather it teaches students important context for the clinical material. In this instance, these included practical issues arising from post-procedural pain and bleeding, and the impact of waiting for results. Familiarity with these facts may explain the experimental group's significantly higher level of self-assessed "ability to communicate" with patients, and their comfort discussing the issues around colposcopy. Again, this may have added to the experimental group's readiness for the simulated consultation.

A third factor could be that having information presented by a real patient in lay language allowed the experimental group to access that information more easily during the consultation scenario.

In summary, hearing real patients describing what mattered to them before, during, and after a medical procedure seems to have prepared students more adequately for a face-to-face encounter than simply absorbing medically prioritised, clinically relevant facts.

Limitations

There are several limitations in the design of this exploratory trial. In particular, Oxford has a traditional six-year course in which students have regular patient contact only in the final three years of clinical teaching. This differs from many other medical schools, which, by following a more integrated approach, have more patient contact throughout the course. Therefore, the effect of hearing real patient stories may have a greater impact for Oxford students, who in year five would have had only 12 to 18 months' contact with patients. Students at schools with more developed patient tutor programmes might also respond in a different way. The topic, an intimate procedure for further investigation for cancer, is a sensitive one; less emotive patient accounts might have had less impact on the students. Students were also examined immediately after being exposed to the online modules; we therefore cannot say whether the results we found would hold true over a longer period between learning and testing. In addition, for this exploratory trial, numbers of participants were relatively low; a larger sample might be needed to detect possible differences in the Interpersonal Skills Index.

Participation was voluntary and it is possible that the absent students might have responded differently to the modules than their peers. It is also possible that during the course of the year, students in earlier cohorts discussed the study with their peers in later cohorts, although they were asked not to do so.

Finally, actors who simulate a patient scenario again and again may not respond to the students' interpersonal skills in the same way as women facing a real-life one-off consultation about an unfamiliar procedure. The DISQ questionnaire has been validated with real patients, but not specifically with patients facing investigation for possible cancer. It is therefore possible that in a real world scenario, patients might rate students differently.

Conclusions

Use of pre-recorded patient experience alongside more traditional teaching materials may improve students' confidence and performance in examined clinical consultations. Since there are ethical and resource considerations involved in asking real patients to repeatedly recount personal experiences as part of medical education, recorded patient interviews which are proven to benefit students' performance may provide a more acceptable alternative. Future work is required to explore whether our results can be replicated in different topic areas, over longer periods of time, with larger groups of students, and with students who have had different styles of general teaching.

Contributors

KT, JM and HS made substantial contributions to the study conception and design. RS collected and analysed all data, and wrote the first draft of the manuscript. JC made substantial contributions to data analysis and interpretation, and revised multiple drafts. HS, JC, JM and KT revised the final drafts. All authors approved the final manuscript for submission. All authors agreed to be accountable for all aspects of the work.

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Conflicts of interest

None.

Ethical approval

This study was reviewed and approved by the University of Oxford's Central University Research Ethics Committee.

Figures/tables

Fig 1. Objective Structured Clinical Examination (OSCE)

Information offered to student: *You are an F2 in general practice. Mrs Gina Evans is a 45 year old patient who has just had an abnormal smear – moderate dyskariosis and so has been invited for colposcopy. She has come to see you to discuss this.*

Assessment criteria used by assessor:	
Exploring the patient's concerns	
Asks patient what she wants from consultation	
Active listening	
Invites patient to ask questions	
Explaining what a colposcopy is	
Establishes patient's prior knowledge	
Uses appropriate (non jargon) language	
Checks understanding	
Explains that it investigates abnormal cells found on smear	
Plan or do further treatment to correct abnormalities	
Explaining what a colposcopy is like	
How patient will be lying	
What procedures will take place (stains, LLETZ, biopsy)	
Pain, need for anaesthetic	
Complications	
Appropriate answers to specific questions (all SPs to ask these):	
Return to work day	
Rough time before patient can expect results (given in module as 1-2 weeks)	

Global Score: 1 = Fail; 2 = Borderline Fail; 3 = Clear Pass; 4 = High Pass.

Fig 2. Student assessment of learning

	Not at all		→		A lot
How much did this module increase your knowledge of cervical screening?	1	2	3	4	5
How much do you think this module will increase your ability to discuss cervical screening with patients?	1	2	3	4	5
How much did this module increase your understanding of how to communicate with patients with respect to cervical screening?	1	2	3	4	5

How much do you think this module will increase your comfort when discussing cervical screening?	1	2	3	4	5
How much do you think this module will increase your comfort in responding to a patient's emotional reaction to cervical screening?	1	2	3	4	5
Will this module change your future practices?	1	2	3	4	5

Figure 3. Flow of participants from eligibility assessment to analysis.

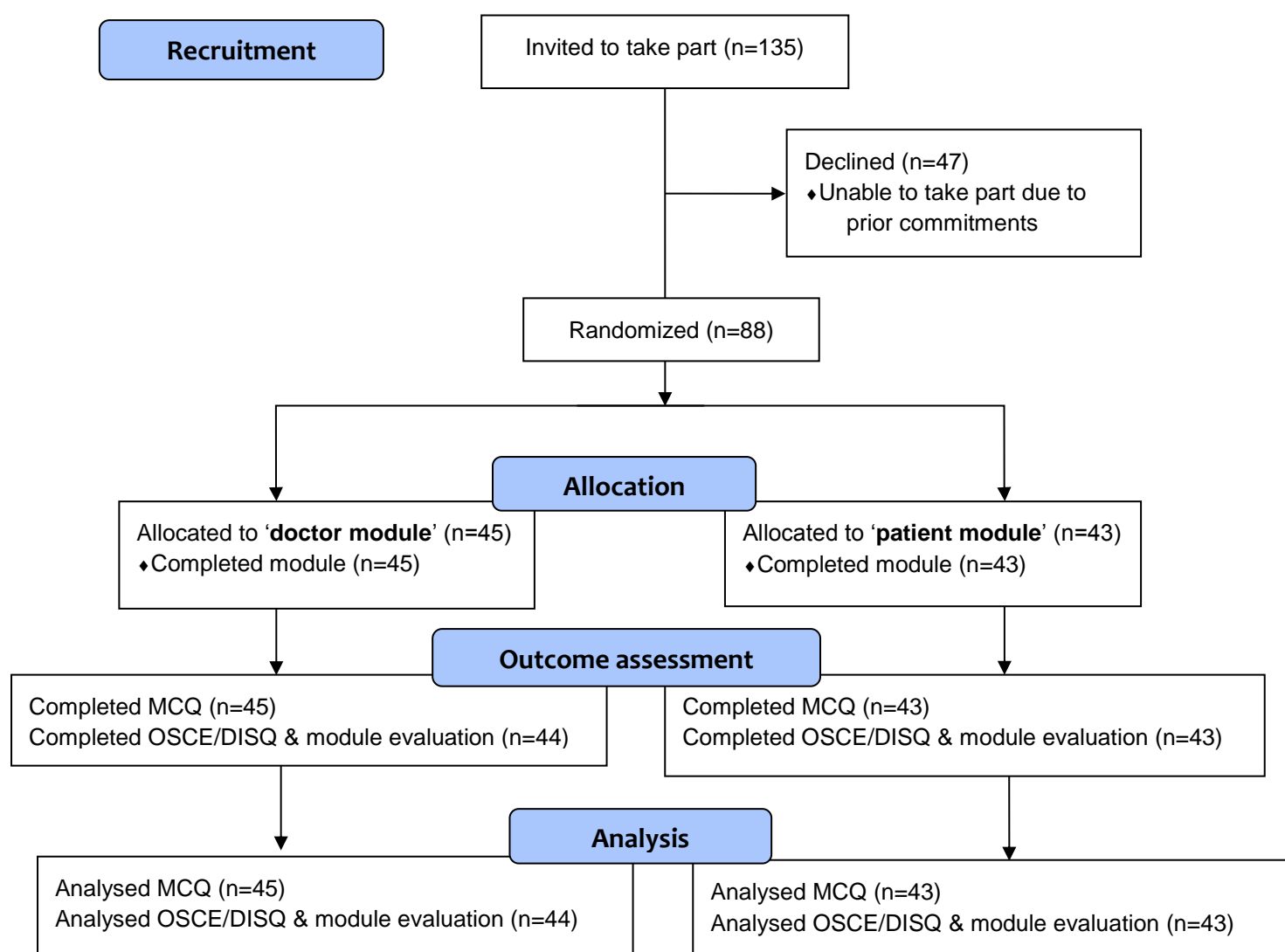


Table 1. Examiner-reported outcomes

<i>Outcome</i>		<i>Control group</i>	<i>Experimental group</i>	<i>Crude estimate (95% C.I.)</i>	<i>Adjusted estimate** (95% C.I.)</i>	<i>p-value</i>
ISI (average of all DISQ) as a percentage		Mean 68.9% (s.d. 18.6%)	Mean 75.1% s.d. (17.35%)	Beta co-efficient: 6.27 (-1.49 to 14.03)	Beta co-efficient: 5.72 (-2.13 to 13.57)	0.15
OSCE score	<i>Fail</i>	3 (6.8%)	0 (0.0%)	Odds ratio 2.7 (1.2 to 6.1)	Odds ratio 2.8 (1.2 to 6.4)	0.013*
	<i>Borderline fail</i>	11 (25.0%)	8 (18.6%)			
	<i>Pass</i>	22 (50.0%)	17 (39.5%)			
	<i>High pass</i>	8 (18.2%)	18 (41.9%)			
MCQ score out of 20		Mean 18.2 (s.d. 1.4)	Mean 17.9 (s.d. 1.4)	Beta co-efficient: -0.27 (-0.87 to 0.33)	N/A	0.37

* p<0.05

** ISI and OSCE score adjusted for gender and graduate entry

Table 2. Student-reported outcomes

<i>Outcome: How much did this module...</i>		<i>Control group</i>	<i>Experimental group</i>	<i>Odds ratio (95% C.I.)</i>	<i>p-value</i>
... increase your knowledge of cervical screening?	<i>Not at all</i>	0 (0.0%)	0 (0.0%)	1.0 (0.5 to 2.2)	0.97
	<i>A little</i>	0 (0.0%)	0 (0.0%)		
	<i>Somewhat</i>	8 (18.2%)	4 (9.3%)		
	<i>Quite a bit</i>	19 (43.2%)	25 (58.1%)		
	<i>A lot</i>	17 (38.6%)	14 (32.6%)		
...increase your ability to	<i>Not at all</i>	0 (0.0%)	0 (0.0%)	1.5 (0.7 to 3.3)	0.35
	<i>A little</i>	2 (4/5%)	0 (0.0%)		

discuss cervical screening with patients?	<i>Somewhat</i>	9 (20.5%)	5 (11.6%)		
	<i>Quite a bit</i>	20 (45.5%)	25 (58.1%)		
	<i>A lot</i>	13 (29.5%)	13 (30.2%)		
...increase your understanding of how to communicate with patients with respect to cervical screening?	<i>Not at all</i>	2 (4.5%)	0 (0.0%)	4.3 (1.0 to 5.0)	0.001*
	<i>A little</i>	11 (25.0%)	3 (7.0%)		
	<i>Somewhat</i>	16 (36.4%)	8 (18.6%)		
	<i>Quite a bit</i>	10 (22.7%)	25 (58.1%)		
	<i>A lot</i>	5 (11.4%)	7 (16.3%)		
...increase your comfort when discussing cervical screening?	<i>Not at all</i>	1 (2.3%)	0 (0.0%)	2.3 (1.0 to 5.0)	0.042*
	<i>A little</i>	4 (9.1%)	2 (4.7%)		
	<i>Somewhat</i>	14 (31.8%)	10 (23.3%)		
	<i>Quite a bit</i>	19 (43.2%)	18 (41.9%)		
	<i>A lot</i>	6 (13.6%)	13 (30.2%)		
...increase your comfort in responding to a patient's emotional reaction to cervical screening?	<i>Not at all</i>	1 (2.3%)	0 (0.0%)	6.4 (2.7 to 14.9)	<0.0005*
	<i>A little</i>	4 (9.1%)	2 (4.6%)		
	<i>Somewhat</i>	14 (31.8%)	10 (23.3%)		
	<i>Quite a bit</i>	19 (43.2%)	18 (41.9%)		
	<i>A lot</i>	6 (13.6%)	13 (30.2%)		
...change your future practices?	<i>Not at all</i>	0 (0.0%)	0 (0.0%)	2.9 (1.3 to 6.5)	0.009*
	<i>A little</i>	9 (20.5%)	4 (9.3%)		
	<i>Somewhat</i>	19 (43.2%)	11 (25.6%)		
	<i>Quite a bit</i>	12 (27.3%)	20 (46.5%)		
	<i>A lot</i>	4 (9.1%)	8 (18.6%)		

* p<0.05

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