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Long-term effects of empathy training in surgery residents: a one year follow-up study

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Abstract

Objectives: This study is a 1-year follow-up investigation of the retention of the knowledge, attitudes and skills acquired after empathy training.

Methods: Eight otolaryngology residents completed 5 assessment measures before and after empathy training and at 1-year. They attended a 90-minute focus group assessing clinical usefulness of the training, attitudes and factors that affect empathy.

Results: Qualitative analysis revealed a positive response to the training and application of skills to clinical practices. Quantitative analyses suggest improvement in empathy after training was maintained at 1-year follow-up ($p = 0.05$). Knowledge of the neurobiology and physiology of empathy remained significantly greater than before the training ($p = 0.007$).

Conclusions: Qualitative data indicate that the training program was well-received and helpful and, follow-up focus groups provided physicians with opportunities for self-reflection and support from peers. Quantitative analysis demonstrated that improvement in self-reported empathy and objective knowledge of the neurobiology of emotions persist at 1-year follow-up. Accordingly, we recommend that empathy training and follow-up booster sessions become a standard component of residency training.

Keywords

Burnout, communication skills, emotional engagement, emotional wellbeing, empathy, empathy training, idealism, improved clinical outcomes, long term effects, patient satisfaction, person-centered medicine, professionalism, sociocultural barriers, surgery residents

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Introduction

Although empathy is critical to medical practice, research has shown that empathy and idealism decline during medical school and postgraduate training [1-5] and up to 60% of practicing physicians report symptoms of burnout [6,7]. High physician empathy has been linked to increased patient adherence to therapies, increased patient satisfaction [8], improved clinical outcomes and fewer malpractice claims [9]. In 2010, we conducted a pilot study with otolaryngology residents at the Massachusetts Eye and Ear Infirmary (MEEI) that attempted to improve empathy and relational skills in resident physicians [10]. The present study is a follow-up investigation of the long-term retention of the knowledge, attitudes and skills acquired after empathy training. The original pilot study tested a novel training program designed to improve empathy in resident physicians using a training protocol grounded in the neuroscience of emotions. The protocol emphasized the neurobiology and physiology of empathy

to provide a scientific framework for emotional engagement with patients and the management of difficult patient-physician interactions. The training focused on: (1) decoding patients' verbal and non-verbal emotional cues; (2) recognizing physicians' own emotional responses to patients; (3) learning specific techniques for regulating and managing patient and physician emotional responses and (4) applying these skills to both typical and challenging patient encounters. The training has been described in detail elsewhere [10]. Eleven Otolaryngology residents received empathy training in the original study, which showed statistically significant improvements in physician knowledge of the neurobiology of emotions and in physician-reported empathy for patients.

The present study assesses quantitative and qualitative responses to the training at 1-year follow-up. The original study found high receptivity to the training with greater than 83% of residents reporting that the training was interesting, helpful, easily applied to patient care and motivated residents to try new techniques [10]. The present study investigates: (1) qualitative responses to the training; (2) the impact on empathy of professional, personal and socio-cultural factors and (3) quantitative assessment of retention of empathy knowledge and skills.

Methods

The 11 residents who participated in the pilot study were invited *via* email to participate in the follow-up study. Nine resident physicians (44% male; mean age 30.9 years) participated; the 2 remaining residents had graduated. The study design had 2 components: qualitative and quantitative follow-up investigations.

Qualitative: participation in a focus group

Residents were invited to attend a 90-minute focus group. Schedule conflicts precluded meeting as 1 group, so residents were assigned to 2 groups (n=5 and n=4) that met after work hours and included dinner. Each focus group was moderated by a psychiatrist (MP) and a sociologist (AL). The moderators posed a series of open-ended questions which were intended to raise the same topics in each group, but also allowed for natural variation. Residents were asked for their reactions to the training and their opinions about its utility in their clinical work. Residents were also asked about their attitudes about the role of empathy and empathy training in medical education, communication practices and socio-cultural factors that might affect empathy and the patient-physician relationship. Participants were given the opportunity to offer suggestions and to ask questions. Participation in the study was voluntary; participants were compensated $100 at completion of the study.

Quantitative: self-report assessment of empathy attitudes and knowledge

In the original pilot study, participants completed 5 self-assessment measures before and after empathy training. For this 1-year follow-up study, we administered the same measures *via* a secure, HIPAA compliant web-based application. The measures were: (1) a self-report version of the Consultation and Relational Empathy Measure (CARE), which assesses physicians' perceptions of their own empathic and relational skills. The physician self-report version of the CARE measure was adapted from the patient CARE measure [11], which according to Hemmerdinger *et al*. [12], is the only patient-report measure of empathy with excellent reliability and good content, face and convergent validity; (2) The Jefferson Scale of Physician Empathy, which assesses attitudes about the relative value of empathy in clinical practice [13]; (3) the Balanced Emotional Empathy Scale (BEES), which measures general empathic responsiveness in personal life [14]; (4) the Neurobiology and Physiology of Empathy Test, which assesses knowledge of the neurobiology and physiology of empathy, including recent research on neural mechanisms involved in the experience of empathy and (5) the Ekman Facial Decoding Test [15], which assesses physician skill at de-coding subtle facial expressions of emotion. A Post-Empathy Training Survey was also included to obtain subjective feedback on the training.

Qualitative analysis

Both focus groups were audio-recorded and the data was transcribed by a moderator (AL) to obtain a *verbatim* report. Both moderators then analyzed the data independently. Participants were identified by focus group and gender when necessary. In accordance with grounded theory [16,17], which emphasizes an inductive and a systematic approach, ideas and concepts from the data were highlighted using a 'long table' method in order to develop a thematic framework. Through repeated study of the data, discourse content was coded and grouped in categories along with supporting quotes according to frequency, specificity, intensity, extensiveness and broad ideas. These findings were then presented to the research group for refinement. Off-topic comments were removed from the body of the transcriptions. Only consensual and similar data qualified as validated criteria and was reported in the final results.

Results

Qualitative Data

Three themes emerged and were categorized as such: (1) effects of empathy training on clinical interactions; (2)

attitudes about empathy training and (3) factors influencing empathy.

Effects of empathy training on clinical interactions

Residents remained positive about their participation in empathy training at the 1-year follow-up and all but 1 reported they would recommend incorporating this empathy training into their graduate medical education. The overwhelming majority of participants reported that they continued to find aspects of the training useful and applicable to their clinical practices. Specific findings are described below, categorized according to the goals of the training described in the introduction.

Detecting and eliciting verbal and non-verbal emotional cues from patients

Participants reported an increase in their knowledge and skills of empathy, particularly their ability to detect and elicit verbal and non-verbal emotional cues from patients. Sixty-seven percent of participants rated the technique of maintaining eye contact as "very helpful" and 78% rated the "take a moment" techniques as "moderately helpful." During the focus group, the skills most frequently described as helpful were mirroring patients' facial expressions and emotions, maintaining eye contact, sitting down with patients and not interrupting patients:

> "It's amazing what patients will tell you if you just let them talk."

> "Definitely, even to this day, I find myself doing certain things that I learned about before the training but I think the training reinforced them. For example, sitting down with the patient. Even when we were doing our 'Head and Neck Rounds' upstairs, it's our worst possible scenario to try to connect with someone because you're very focused on just changing dressings, looking at wounds and going through a number of patients in a very short period of time. So that's probably when it's most important to think about some of these things. [I] try to mirror their expression and their emotions even in that short time. And little things like if you can find a place to sit down, even if it's for 30 seconds or a minute or whatever. I still find myself using things that the training taught me or reminded me of that I learned in medical school."

Topics viewed as less clinically useful included de-coding facial expressions, the neurobiological model of empathy and diaphragmatic breathing exercises.

Effect on detecting and managing physician emotional responses

Residents reported learning about their own emotional responses during day-to-day clinical encounters. Increased emotional awareness appeared to prompt reflection about overall levels of empathy and have a positive effect on clinical interactions:

> "And the inherent set-up is that you are on your own down (in the Emergency Department) and it's not conducive to empathic treatment of the patients. You feel like you're getting bombarded and feel very isolated. … But I think it was good that we received the training this time last year. It helped to step back and start thinking to be nicer to people and to realize they have problems and that's why we're there."

Ability to apply these skills to typical and challenging patient encounters

Training provided techniques to understand and manage emotional responses when faced with challenging clinical situations:

> "As residents for sure we don't get any formal training on how to deal with difficult patients and it's so common. It's nice to be reminded, you get a flight or fight response, you get tachycardic.… It gives us more of a framework to think about how to control those things when they're happening, instead of just reacting to them in the moment."

Relaxation techniques that were helpful to some residents included taking a breath between patients or using formal diaphragmatic breathing exercises prior to meeting with challenging patients. Other residents did not find the relaxation techniques helpful. Finally, residents reported that their use of the empathy skills began to decline 2-3 months after training.

Attitudes about empathy training

Residents responded favorably to the training. Though some expressed initial reservations, they described the training overall as interesting and clinically useful. Participants reported an absence of formal training in communication during residency. Instead they described learning *via* observation of the behaviors and attitudes of their peers, superiors and other clinical staff:

> "I think that the biggest effect on residency is … attendings' attitudes... and how they treat their patients. I think it has a huge trickle-down (effect)."

> "Coming into it (the training) I thought a lot of it would be a repeat of things that I learned at medical school. . . . I was surprised by the fact that, even if it was something I did learn at medical school, I still found it very useful to go over it again…. Because I think as a medical student some of these things go over your head because you don't really have that clinical experience."

> "I didn't see how you could train someone to be more empathic. It's something either you were born with or got at an early age and it's not something you can practice. (But) I realize(d) through concrete things …you can be reflective about it and improve in different ways."

Factors affecting empathy

Professional and personal factors

Data from the online survey revealed a myriad of factors affecting empathy. The most frequently cited reason for difficulty conveying empathy in a clinical interaction was lack of time (67%). The next most frequent reason was feeling too "burned out or stressed" (33%). Other factors reducing empathy included lack of sleep (100%), being on a service with a high volume of patients (78%), personal stressors (44%) and working with difficult patients (44%).

The focus groups revealed similar factors affecting residents' perception of their ability to connect empathically with patients. These included: systems challenges, isolation, inexperience relative to responsibility, lack of direct education, socio-cultural barriers and lack of awareness:

> "It's almost like the system is set up as traps and forcing people not to do the best that they can do.... I think the structure has a lot to do with whether somebody can be empathic or not. And then it's not easy to say that regardless of your circumstances you should still be able to be empathetic. It's just not that simple."

Factors that positively affected empathy included: having longitudinal relationships with patients (100%), working with empathic staff (67%) and treating very ill patients (71%). A majority (56%) reported a positive effect stemming from the culture of the otolaryngology residency program. An additional finding was the positive effect of reflection on overall empathic levels:

> "So having this training, as (the others) said, it did make you think about where you have been and where you were originally…to kind of touch base with that."

The course of empathy levels during residency training varied. One-third of participants reported no change in their empathic capacity since beginning residency, while one third reported a decline and one-third an increase:

> "The stress of residency keeps building…and your empathy fades away."

> "Basically I think we all went into this being good people and being on the more compassionate side of things in the spectrum of the general population and you definitely see a change in yourself over the course of your training and this directly correlated with just being very busy and probably having some stress, being very tired. And you see a personality change where you are shorter with people and with nurses, than you probably would have been if you hadn't gone through that."

More senior residents commented on the ebb and flow of empathy:

> "In medical school I came in with a broad general idea of wanting just to help people.... I thought I would be good at it and I enjoyed interacting with people. But what has changed is that it kind of gets ripped apart as too many responsibilities are piled up on you. And the other piece is not seeing the end. I'm coming to the end of this residency part of it now and stepping into a career path.... I've had a chance to see how attendings have structured their careers and how they interact with patients and (I'm) trying to see who I want to be.... (The stressors) have been replaced with some other stressors obviously, but not to the extent that I feel like my empathy has been beaten down. I feel that it is strong again."

Socio-cultural factors

Residents discussed gender, language and cross-cultural communication as additional challenges to the practice of empathic medicine:

> "(As a woman) you have to prove yourself a little bit… it makes me more insecure I think, as their physician."

> "(Working with a) translator is just very awkward…. It becomes even more difficult when you're in an emergency or 'bad news' type situation when communication is very critical."

> "And I get really angry…. I've been in situations where the woman speaks English but the man doesn't, but they won't let the woman talk, so I just… try and spend as little time as possible in that situation…. I feel like an abject failure in communication."

Quantitative statistical analysis

Eleven otolaryngology residents participated in the original empathy training pilot study and 8 participants (73%) completed all original and 1-year follow-up assessments. All quantitative analyses for the present study are based on these 8 participants and the results are shown in Table 1. At the conclusion of the training, physicians reported significant improvements in their empathic and relational skills with patients (CARE measure, $p = 0.01$) and these improvements remained significant at the 1-year follow-up ($p = 0.05$). Although there were no statistically significant findings for the Jefferson Scale of Physician Empathy, the pattern of results was similar to the CARE.

There was a trend for general empathic responsiveness in personal life (BEES) to improve after training ($p = 0.12$), but at the 1-year follow-up there was a significant decline as compared to the end of training ($p = 0.02$). The training significantly improved physicians' knowledge of the neurobiology and physiology of empathy (Neuro Test, $p = 0.002$) and although their knowledge declined significantly from post-training to 1-year follow-up ($p = 0.02$), their knowledge at the 1-year follow-up was still significantly greater than before the training ($p = 0.007$). There was a post-training trend toward improvement in skill at de-coding facial expressions of emotion (Ekman Test, $p = 0.10$), but the improvement did not persist at the 1-year follow-up.

Table 1 Assessments at Pre-Training (Pre), Post-Training (Post) and 1-Year Follow-up (F/U)

				p-values		
Measure	**Pre**	**Post**	**F/U**	**Pre-Post**	**Pre-F/U**	**Post-F/U**
CARE	25.1±3.1	28.5±3.8	28.3±2.2	0.01	0.05	0.88
Jefferson	110.4±4.1	115.5±3.8	114.0±3.4	0.15	0.34	0.42
BEES	43.0±9.2	50.1±9.5	40.7±8.1	0.12	0.58	0.02
Neuro Test	4.3±0.5	6.5±0.3	5.3±0.6	0.002	0.007	0.02
Ekman Test	6.5±0.5	8.1±0.8	7.0±0.8	0.10	0.64	0.23

Note: CARE = Consultation and Relational Empathy Measure. Jefferson = Jefferson Scale of Physician Empathy. BEES = Balanced Emotional Empathy Scale. Neuro Test = Neurobiology and Physiology of Empathy Test. Ekman = Ekman Facial Decoding Test. Pre = Pre-Training Assessment. Post = Post-Training Assessment. F/U = One-Year Follow-Up. All values are means ± standard errors. Changes over time were evaluated using paired t-tests.

Discussion

This follow-up study explored the persistence of the effects of empathy training 1-year after implementation and the factors that may augment or diminish empathy.

Qualitative data assessed the impact of empathy training in the context of the many factors affecting empathy among resident physicians. Residents continued to report that the training was interesting and useful 1-year later. Regular practice of newly-learned empathic skills began to erode approximately 2-3 months post-training, though there was wide variability between individuals in their retention of specific skills and techniques.

While residents' overall self-reported empathy for patients persisted at the 1-year mark, focus group data revealed fluctuations in empathy levels and use of empathic communication practices during residency. In general, residents noted a divergence between the ideals they held at the beginning of residency and their current practice.

Factors contributing to the bolstering or erosion of empathy were varied. The most frequently mentioned factors eroding empathy were fatigue, stress, isolation, workload, personal stressors and socio-cultural factors. Factors bolstering empathy levels were working with empathic staff, forging longitudinal relationships with patients, the culture of their residency training program, working with very ill patients and opportunities for reflection. Regarding the culture of the residency program, residents noted efforts stemming from program leadership to emphasize humanism in medicine. It is interesting to note that the majority of eroding factors occur in situations exacerbating personal isolation, whereas the majority of bolstering factors occur in situations favoring interpersonal connection. Such a pattern suggests an opportunity for improvement in the resident experience *via* attempts to reduce isolation and to enhance connection.

Corroborating this pattern was the unexpected finding of the positive effects of group reflection on self-reported empathy levels. Participants reported that reflection during the training and during the focus groups 1-year later improved their overall empathic capacity and their clinical practice. It re-kindled knowledge of material they had learned and provided an opportunity to learn from and support each other. Thus, group reflection appears to help consolidate didactic material and may serve to guard against the erosion of empathy. Several residents suggested reflective exercises every 6 months. Future studies are needed to assess this further and to determine the optimal spacing of reflective exercises.

Among the otolaryngology residents in our sample, there was a striking absence of formal empathy training during residency. While a majority of the residents had been introduced to courses in medical school that included patient-doctor communication skills, interviewing techniques, management of challenging patient encounters and physician emotional wellbeing, they did not receive formal training in these subjects at the graduate medical education level. Instead, an informal education in empathy - both positive and negative - emerged from observation of the behaviors and attitudes of senior residents, attendings and nurses [18]. Clearly, there is a need for standardization and teaching of effective empathic and interpersonal skills.

The empathy training protocol makes empathy and communication skills an explicit part of the residency training curriculum. Moreover, this is consistent with 2 core competencies promulgated by The Accreditation Council for Graduate Medical Education (ACGME): “Interpersonal and Communication Skills” and “Professionalism.” The empathy training is relatively simple to implement, time efficient and, as this study suggests, the training can have long-lasting beneficial effects.

Cross-cultural communication is emerging as a critical target for improving empathic skills. Given the increasing diversity in the U.S. population, the risk for cross-cultural misunderstanding is on the rise and could negatively affect patient satisfaction, clinical decision-making and treatment adherence [19,20]. Although a variety of cross-cultural training programs have been incorporated into medical education to address this issue, several challenges remain that blunt the impact of these interventions [21]. Most medical schools consign this topic to the non-clinical years [22], which separates theory from clinical application. In addition, the subject of empathy is often approached without regard to socio-cultural differences. It is important that the socio-cultural backgrounds and worldviews of both the patient and the physician are recognized and

understood, especially perceptual biases that may negatively affect patient interactions and clinical decision-making [21]. Difficulties arising from cross-cultural misunderstandings and language barriers were mentioned by a few participants. It has been shown that there is a strong relationship between language proficiency and the expression of emotional cues by patients from ethnic minorities [23]. This could present an additional obstacle to effective communication with patients, thus making it difficult for physicians to understand patients' emotional states and reducing empathic connections. A few female participants conveyed feelings of insecurity when interacting with patients from a male-dominated, patriarchal culture. Even though women report higher levels of empathy than men [1,24,25], feelings of insecurity in female physicians might interfere with their ability to effectively interact with certain patients. Overall, our qualitative data regarding socio-cultural barriers to empathy point to issues that should be explored in future research and incorporated into empathy training programs.

The quantitative data suggest that effects of empathy training persist at 1-year follow-up on 1 of 2 self-assessment measures (CARE measure). In a previous report on this group of otolaryngology residents [10], we showed that empathy training resulted in significant improvements in knowledge of the neurobiology and physiology of empathy (Neuro Test) and an increase in self-reported empathy for patients (CARE measure). The results of the present study indicate that these gains were largely maintained at the 1-year follow-up. The trend toward improvement in ability to de-code subtle facial expressions of emotions (Ekman Test) shown at the end of empathy training appeared to decay over the course of the year. Interestingly, over the course of the year since the empathy training, participants showed a significant decrease in their general empathic responsiveness in personal life (BEES). We speculate that this decrease may have occurred as a result of the ongoing stress associated with intensive postgraduate surgical training. Such a loss in empathic capacity is consistent with the well-known findings of reductions in empathy across medical training [1,3-5]. We find it hopeful, however, that residents' assessment of their empathy for patients, as measured by the CARE measure, did not show a similar decline, perhaps as a result of the empathy training they received.

This study has a number of limitations. First, the small sample size limits the statistical power of the quantitative analyses and reduces the variety of perspectives included in the qualitative analyses. Second, the CARE measure used in this study was adapted from the patient-report CARE and this version has not yet been validated as a self-report assessment. A third limitation of this study is the possibility of response bias. To minimize this, the moderators emphasized that all information collected would remain anonymous and confidential and that the residency training director would not have access to audiotapes or transcripts. In addition, the 2 moderators were not involved in the original pilot study, thus minimizing any worries the participants may have had about hurting the feelings of members of the study staff, nor would the moderators have future interactions with the participants or their residency program. Moreover, participants who might have been uncomfortable voicing a dissenting opinion in the focus groups had an opportunity to voice their opinions in the on-line survey. Our confidence in the qualitative results was also bolstered by the fact that similar themes arose independently in the 2 separate focus groups. Finally, the use of multiple study personnel who analyzed the focus group transcripts independently should minimize any potential individual biases.

Conclusion and practice implications

The original pilot study demonstrated that empathy training appears to increase physician knowledge of the underlying neurobiology of emotions as well as specific communication skills designed to improve interactions with typical and challenging patients. The quantitative analyses of the current study indicate that these effects tend to persist at the 1-year follow-up. In addition, the qualitative data indicate that the training program and follow-up focus groups provided physicians with beneficial opportunities for self-reflection and support from peers. Although the quantitative data suggested that some knowledge and skills were retained at the 1-year follow-up, residents reported in the focus groups that they felt that improvement in their empathic and relational skills lasted for only 2-3 months post training and then gradually eroded. This finding suggests that residency programs might benefit from the addition of "booster" empathy training sessions. Future studies should focus on replicating and extending our findings with larger and more diverse samples of physicians and determining whether empathy training and group reflection can increase patient satisfaction and adherence, improve patient outcomes, minimize malpractice lawsuits and reduce physician burnout.

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