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Can we go too far with empathy? Shifting from empathy to compassion

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While reading the recent article 'Humanistic medicine in the technological age: development and assessment of humanism curriculum for anaesthesiology residents' by Canales and colleagues[1] in the *British Journal of Anaesthesia*, the following line from a poem by Walt Whitman came to mind:

> *'I do not ask the wounded person how he feels. I myself become the wounded person.'*[2]

This quote epitomises empathy, which is perhaps, as Canales and colleagues[1] propose, an antidote to depersonalisation in healthcare and risk of physician burnout. Krasner and colleagues[3] have shown that increasing physician empathy (through well-being training) can reduce burnout.

Up to 60% of practicing physicians report experiencing symptoms of burnout.[4,5] No doubt we are all aware of concerns that empathy is on the wane, that technologies such as electronic healthcare records limit the time we spend on meaningful patient interaction, and that burnout is an emerging epidemic that may be linked to this depersonalisation of healthcare. There is growing interest in the role of empathy in clinical care,[6–10] and the connections between empathy, compassion, and clinician well-being.[3,7,11–13] In turn, medical programmes are embedding humanistic medicine into their curricula, emphasising the humanity of both the patient and the provider to foster a caring relationship.[9,12]

Canales and colleagues[1] introduced a humanistic curriculum for first-year anaesthesia residents with the aim of increasing resident compassion, communication, and empathetic care of their patients.[1] They found that resident ratings for empathy increased, and that patients were more satisfied with the interaction, and their scores for anxiety and pain scores decreased. An unexpected side benefit for the residents was a sense of more personalised patient interactions, improving their working experience. While the authors acknowledge that increased training time could have been a factor, it seems to be a 'good news' story all around, and the study clearly sets the standard for a humanistic curriculum in anaesthesia training.

Two things stand out from this study that we propose exploring further. First, there is one component of the curriculum in which residents became 'patients' momentarily. While the intention is to increase resident understanding of the patient experience, we consider there are some possible downsides to this approach. Second, we were struck by the lack of distinction between the terms empathy and compassion in the paper. We propose that this distinction is important, and argue for a shift from empathy to compassion.

The doctor becomes the patient

As part of the humanistic curriculum described in the study be Canales and colleagues,[1] anaesthesia residents spent a morning going through the motions of what patients typically go through in the lead up to their surgery: fasting, changing into a patient gown, being wheeled into theatre, pre-oxygenation, and so forth. As 'patients' they remained in theatre until the 'Time Out' in the Surgical Safety Checklist. Then they were moved to the perioperative acute care unit where they had to wait until their processing was completed, which they found annoying because they had work to get on with. The authors report that the residents learnt valuable insights through undertaking this activity, such as how cold patients can become waiting passively in a hospital gown, or how difficult breathing can become when the circuit valve is closed during pre-oxygenation.

Such insights undoubtedly improve their future patients' care. And we might even suggest that being made to wait, possibly for hours, while processing occurs is a great exercise in experiencing the thorough lack of agency that patients experience in healthcare systems. But beyond that, can we really believe that the participating residents came even close to experiencing the reality of imminent surgery? We might suggest that being cold and uncomfortable are moot points compared with patients' emotional distress when staring at a consent form detailing the many risks of surgery and anaesthesia, and facing the imminent possibility of pain, disfigurement, loss of autonomy, or even death. The participating residents can empathise with some

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aspects of the patient experience, but it is largely theoretical until *you* are the patient and *you* are about to go under the knife.

Canales and colleagues[1] did not report separately on the extent to which the residents, or indeed the hospital staff, appreciated this immersive element of their humanistic curriculum. We suggest this warrants further investigation as there are a number of potential downsides. The time and resources required to deliver this immersive experience safely could limit its feasibility. The extent to which this immersion experience is acceptable to residents and hospital staff is unclear, and the validity of the experience as a proxy for the patient experience is open to question. Do residents come away thinking they have had an authentic patient experience, and could this in turn encourage assumptions about what patients actually experience? If patients perceive a lack of authenticity in the empathetic expressions of their doctor, could this jeopardise their trust in the relationship. To what extent can any of us ever really '*become the wounded person*' that Whitman described? While the written experiences of physicians who have actually become patients makes edifying reading, this simulated experience may have the downsides of disruption to the clinical workflow, limited acceptability by staff and learners, and lack of authenticity.

Shifting the focus from empathy to compassion

Empathy is the ability to identify with or understand another person's thoughts or emotional state.[7,14] In contrast, compassion begins 'with recognition of a patient's suffering, accompanied by an internal response to the suffering (often called emotional resonance) and movement towards addressing suffering through presence, word and action.'[7] In short, empathy identifies with and compassion addresses.[13] We argue that compassion is the appropriate goal in the doctor–patient relationship, giving satisfaction in the caring relationship for both doctor and patient, while avoiding the pitfalls of empathy. Potential pitfalls of empathy include inability to act, emotional exhaustion, and differential care of patients. Taken too far, the empathetic act of putting oneself in the patient's shoes could provoke an emotional response in the doctor, rendering them less able to think clearly and assist the patient. Constantly feeling the pain of the patient could be emotionally exhausting, contributing to fatigue, burnout, and diminished physician well-being.[15] A further problem with empathy is that it is easier to empathise with someone like us. What about patients from different cultures and ethnicities, those with different health beliefs, and patients who do not behave as we expect them to? Could our unconscious bias favour the care of patients with whom we can readily empathise, thus contributing to inequities in healthcare delivery?

Compassion is distinct from empathy. When we provide compassionate care, we feel concern about our patients' suffering, but from more of a distance, and with a desire to help. Looked at in this way, it may be a natural progression for medical students and junior doctors to become less empathetic, as they begin to identify more as doctors than patients. The challenge for healthcare practitioners and educators alike may be to ensure that our learners also become compassionate.

Canales and colleagues[1] have undertaken an important study because it tells us that humanism is important for high quality patient-centred care and for satisfaction by both patients and carers. The extent to which each element of their curriculum is important to this improvement remains to be tested, but we suggest revisiting the purpose and outcomes of the 'doctor as patient' exercise. Further work could be done in differentiating empathy and compassion, and the associations of these different constructs with burnout and physician well-being.

In summary, we strongly support Canales and colleagues'[1] humanistic curriculum for residents. A caring and compassionate doctor–patient relationship is fundamental for high-quality patient care and for professional satisfaction at work. It can counter burnout and promote physician well-being. We have explored the potential downsides of teaching empathy, including fake empathy, impaired ability to assist, empathy fatigue and burnout, and empathy bias. We argue for shifting the focus from empathy to compassion.

There are many situations that most of us, regardless of training, will never be able to truly empathise with because we have no point of similar experience on which to draw. But we can show compassion towards people in any situation, and research suggests that patients appreciate it when we do.[1,16,17]

Authors' contributions

Writing the manuscript: both authors.

Declaration of interest

JW is a board member of the *British Journal of Anaesthesia*. The authors have no other conflicts of interest to declare.

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Deep learning for risk assessment: all about automatic feature extraction

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At the core of clinical medicine is shared decision-making about tests and treatments based upon individual patients' risk–benefit calculus. Interventions are undertaken when benefit outweighs risk from a patient's perspective. Although much of the *art of medicine* relies on gestalt, the use of data-driven approaches to quantify both potential value and probable harm is a core precept of modern practice. No stranger to statistical modelling for risk quantification, anaesthesiology is warming up to applications of one of our generation's most exciting new technologies: deep learning. In this issue of the *British Journal of Anaesthesia*, Fritz and colleagues[1] apply sophisticated deep learning approaches to the task of estimating 30 day postoperative mortality risk, and compare them with other machine learning techniques. Using patient data derived from the pre- and perioperative period, they developed postoperative mortality models with various methodologies. They compared these various approaches on the basis of area under the receiver–operator characteristic curve (AUROC) and area under the precision–recall curve (AUPRC), and also examined calibration with use of a reliability curve. When evaluated on their held-out test set, the authors showed the deep learning based approaches to be superior.

The goal of predictive modelling is to derive a mathematical relationship between a set of input features and an outcome of interest. With machine learning, that derivation is performed by computers. Deep learning is a distinct sub-field of machine learning that applies the principles of connectionism to this task, and thus centres on the development and application of artificial neural networks (ANNs). The 'neurones' of ANNs are referred to as *hidden units*, and ANNs are composed of stacks of *hidden layers*, each composed of hidden units. Each unit in a layer represents a weighted linear combination of units from the previous layer, usually after that linear combination has been subjected to a non-linear transformation. The weights represent the strength of connection between each unit, and represent the aspect of ANN that is *learned* or *trained*.

ANNs are trained by back-propagation of errors ('backprop'), a method initially introduced in 1986.[2] To understand backprop, we must first introduce what is meant by error. *Error*, as the name implies, is simply what the ANN predicts incorrectly. Error is quantified by a *loss function*, which varies by the task; for binary classification problems such as the postoperative mortality task, it is typically *binary cross entropy*. Binary cross entropy essentially measures the difference

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