

Editorial

Shifting beliefs across society would lay the foundation for truly biopsychosocial care

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The biopsychosocial model was first proposed by George Engel in 1977,¹ but it is arguable, four decades on, that we have not completely implemented this model in addressing pain. The strong influence of biomedicine on research and clinical work has supported consideration of the biological components of pain – most patients who report pain receive a full clinical examination in search of structural or systemic pathology, and any concerns revealed by this examination are likely to be considered in their management. The likes of Ronald Melzack, Dennis Turk, and Christopher Eccleston have advanced our understanding of the psychological components of pain; hence, most patients are screened for common comorbidities such as depression and anxiety, and the roles of thoughts and feelings are also likely to be considered in their management. However, the same cannot be said of the social components of pain, where there has been less progress. Although most patients are asked about their immediate social relationships and the type of work they do, the ways in which these social interactions influence their pain and their attempts to recover from pain are commonly left under-explored.

Personal beliefs about pain are an important determinant of successful recovery. The belief that pain is a faithful readout of tissue damage is common but incorrect, and can drive unhelpful responses such as fear and avoidance, and can prevent individuals from re-engaging with their daily roles and activities, leading to progressive disability.² For example, someone who believes that pain with a certain movement is a faithful readout of tissue damage may logically conclude that that movement is damaging and should be avoided. Pain biology education aims to facilitate an individual's process of (re-)conceptualising pain as an output of the nervous system rather than a readout of tissue damage. Such conceptual change is thought to reassure patients that it is safe to return to activity, while also empowering them to identify and develop their own personalised strategies to reduce pain.

Addressing personal beliefs about pain, using pain biology education, is an effective treatment for various pain conditions – including fibromyalgia,³ back pain,⁴ and chronic musculoskeletal pain conditions⁵ – so much so that education is now a first-line treatment for back pain.⁶ Critically, recent data indicate that the efficacy of pain biology education in reducing pain may rely on an individual's conceptual change. A sample of 799 people with chronic pain received a pain biology education intervention and were followed up at 1 month and 12 months after the intervention. The results tell a compelling story: those individuals who had undergone a conceptual change about pain by the 1-month follow-up point had significantly decreased pain at the 12-month follow up, whereas those who had not undergone a conceptual change by the 1-month follow-up point

did not have decreased pain at the 12-month follow-up (unpublished follow-up analysis on data from Lee et al).⁷ Any clinician who delivers pain biology education knows that achieving this kind of conceptual change is no easy task. Patients must not only be ready to change their ideas about pain, they must also reinforce their new knowledge and take active steps to revise the concepts and apply them as they re-engage with their daily roles.

While personal beliefs about pain have received much attention, societal beliefs about pain have been relatively neglected. As an individual adjusts their personal beliefs about pain and embarks on a journey of recovery, their social network plays an important role. The pain-related beliefs held by that social network can either promote^{8–10} or oppose^{11,12} the individual's process of recovery, depending on whether the societal beliefs encourage re-engagement or avoidance behaviours, respectively. Even individuals who have received optimal clinical care may meet significant barriers as they try to integrate a new understanding of pain within a social network that opposes this with entrenched and outdated beliefs. Perhaps it is this tension that is reflected in the underwhelming long-term outcomes for even the best treatment programs for persistent pain: gains made in treatment can be diminished or even lost under the sustained pressure of outdated beliefs that directly oppose new-found personal beliefs about change.

Societal beliefs are typically slow to change, and delayed change can have devastating consequences. When AIDS was first identified,¹³ it was widely believed to be an illness to which heterosexual people were rarely vulnerable. Some 34 years later, in 2016, more than 36 million people were estimated to have HIV,¹⁴ its rapid spread arguably having been facilitated by inaccurate societal beliefs that delayed the rollout of education and prevention and treatment programs. However, when societal beliefs and practices are successfully changed, the results can be spectacular. A Ugandan countrywide educational drive to change early beliefs about HIV and to encourage HIV testing and safe sex behaviours turned back the tide, such that HIV prevalence did not increase in Uganda between 1990 and 2000,¹⁵ even as the prevalence of HIV dramatically climbed in most of central Africa. Iceland's countrywide intervention to change parenting strategies and engage teenagers in extramural activities led to a 60% reduction in recreational drug use and incarceration rates.¹⁶ A 6-week Australian television campaign on the link between sugary drinks and chronic health conditions led obese people to change their beliefs on the negative health effects of drinking sugary drinks.¹⁷ Furthermore, the campaign reduced consumption of sugary drinks in Australian adults. These examples demonstrate that state-supported public health campaigns are capable of changing societal beliefs and practices, and improving health outcomes. In the context of pain, a shift in

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beliefs at a community or societal level could potentially improve outcomes by supporting individuals who are actively working to revise newly learned concepts about pain and apply them as they re-engage with their daily roles.

It could be argued that this ship is already sailing. The past decade has seen a powerful push to train healthcare professionals who have a particular interest in pain in strategies to facilitate personal conceptual change with patients (eg^{18–20}). However, small-scale training of clinicians only trickles down to the individuals who have pain and are fortunate enough to see a healthcare professional who has been trained in this way. Further, they are likely to encounter other healthcare professionals whose personal ideas about pain more closely resemble the patient's original and outdated beliefs and who, by their interactions with the patient, may unwittingly obstruct recovery from persistent pain.

This push to improve knowledge about pain amongst interested healthcare professionals, clinical students, and patients is important and admirable, but changing a select few will not bring about the degree of change that is required. A new strategy is needed – one that directly targets societal beliefs. Systematic, grass-roots programs are needed to target broader society, including lay people and the wider community of clinicians. If an entire community could engage with a modern understanding of pain, those who do experience persistent pain would be better equipped to understand, treat, and recover from their pain with the understanding and implicit support (rather than opposition) of the wider community.

Widespread public education campaigns to improve societal beliefs about pain have been trialled before. Massive funding and media support were provided to a state-wide campaign that aimed to reduce avoidance behaviour in people with back pain in Victoria, Australia. The campaign yielded small but important improvements in beliefs about back pain in the general public and medical professionals, and decreased the number of compensation claims related to back injury, pain-related absenteeism, and medical costs for back pain over the duration of the campaign.²¹ No long-term follow-up studies have assessed the longevity of the improvements seen in this Australian campaign. A similar, less-funded campaign in Canada failed to replicate the success of the Australian campaign in both the short term²² and long term.²³ There were important differences between the Australian and Canadian campaigns, which may explain the differences in results. The Australian campaign used televised advertisements in prime-time slots, whereas the Canadian campaign used primarily radio advertisements. This may have led to greater societal exposure to the Australian campaign. Further, the Australian campaign leveraged the explicit endorsement of well-known doctors and prominent sporting and television personalities who had successfully recovered from back pain, which may have increased the attention paid to the advertisements.

Shifting societal beliefs about pain through means such as public education campaigns has the potential to combat the problem of persistent pain in three ways. First, successful conceptual change in societal pain beliefs could promote recovery of individuals who have pain, by providing a helpful context for active recovery. Second, accurate society beliefs about pain could prevent or limit the effects of future episodes of pain, by supporting ongoing activity in the presence of pain. Third, as children grow up with a healthier understanding of pain and its relationship to activity, they may more rapidly recover from acute episodes of pain rather than following the preceding generations into fearful inactivity and disability.

In addition to public education campaigns, face-to-face interactions are important to allow individuals the opportunity to develop greater personal understanding, deeper learning, and to immediately clarify any concepts that remain unclear. To be effective, such interactions will need to be easily accessible, user-friendly, and engaging. One such example has recently emerged in the form of the Australian 'Pain Revolution' campaign that aims to improve pain knowledge in rural areas of Australia. The Pain Revolution is in its third year. In April 2018, 21 clinicians and researchers cycled from the

city of Sydney to the small town of Albury-Wodonga over the course of 7 days, stopping in a different town each day. In each town, a mobile pain science laboratory gave residents – both lay people and clinicians – access to an experimental 'science museum'-type educational display that was designed to raise questions about pain. Free, public-access educational seminars about pain were provided for community members to attend and ask questions. The campaign also aimed to increase public awareness of pain and raise money to fund training of local 'pain champions' for each rural area. These 'pain champions' are local health professionals tasked with addressing societal beliefs by sustaining and increasing pain knowledge amongst both lay people and clinicians in their communities. The results of this comprehensive approach to education and sustained empowerment of rural communities have yet to be tested, but the strategy has already sparked other groups and countries to consider developing locally relevant strategies to create strong social structures that will support recovery from pain.

The global effort to more decisively understand and treat pain has come a long way: we know substantially more than we did several decades ago; more healthcare professionals are trained than ever before to understand pain; and some countries have taken the first steps towards implementing national public knowledge campaigns to change beliefs. However, individuals who are given accurate information about pain still face significant opposition when they try to integrate modern concepts about pain within their social contexts, and recovery rates remain disappointing. It seems that the societal barrier to recovery is an important problem, and here lies an opportunity for intervention. Co-ordinated, government-funded campaigns that target societal pain beliefs with both widespread and grass-roots strategies could be the next step in improving outcomes for biopsychosocial treatment of pain.

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