Using meditation techniques to manage chronic pain mindfully

In a quiet room in a hospital basement, seven men and women are sitting around a table in comfortable, upright chairs. It's the sixth week of Royal Prince Alfred Hospital's eight-week pain management course and they are here for the mindfulness meditation session led by clinical psychologist Lynne Bousfield. All have lived with chronic pain for at least six months, pain that has disrupted their lives and exhausted their medical treatment options. Now they're trying to change their relationship to it. Each has committed to doing physical activity each day, working towards goals, changing their "self talk" and building up to 45 minutes of meditation daily.

"Meditation," Bousfield tells them, "is meant to key into all the other techniques you are learning. If you find a pleasant sensation you can stay with it, or likewise an unpleasant one. But you can learn to see it as just a sensation rather than something catastrophic. What you are trying to do is control your attention. Don't get frustrated. You can't have the attitude that if you didn't have this pain you could learn to meditate, because you have the pain — so just bring the attention back. Don't think you're not meditating. You are still meditating."

Once everyone has their eyes closed, Bousfield methodically takes them through a body scan, a variation on traditional mindfulness practice, which usually begins with experiencing movement of the breath. She invites them to note what sensations, or absence of sensations, can be felt as they focus in turn on each part of the body. Twenty minutes later, the clients open their eyes. Afterwards, it's clear that while meditation is novel — "It takes time to get used to it", "The family wonders what you are doing" — the clients are open to exploring, and find it beneficial. "It doesn't take away the pain," says one, "but it gives you something to help deal with it."

Peter, born with severe scoliosis, has three self-fused vertebrae in his spine and has lived with pain all his life. At five he had heart failure and nearly died. In his 30s he lost hope and contemplated suicide. When he first came to the Royal Prince Alfred Hospital (RPAH) pain clinic, he was in such pain he couldn't walk or breathe properly. Now a veteran of five courses and the clinic's voluntary patient advocate, he feels the clinic has been life-changing.

"Being able to meditate for 10 minutes is a breakthrough," he says. "I can actually quieten my mind, whereas a few years ago I couldn't. The tempest has calmed down. You're still in a leaky boat, but you're in a better position."

While most of Australia's 81 pain management clinics teach some form of relaxation, Sydney's RPAH is unusual in teaching a traditional meditation technique. As defined by US psychologist Jon Kabat-Zinn, who put it on the medical map, mindfulness meditation is "the effort to intentionally pay attention, non-judgmentally, to present-moment experience and sustain this attention over time".

Bousfield, a meditator herself, first introduced mindfulness to RPAH's pain management course in 1992. Both she and fellow psychologist Michael Anderson, national convenor of the Australian Psychological Society's Buddhism and Psychology Interest Group, regard it as more effective than relaxation techniques because of the way it trains the mind. Anderson lists the core skills cultivated as flexibility of awareness, stability of mind, self awareness and non-reactivity; in other words, learning to let go of unhelpful conditioned responses to pain.

"Mindfulness meditation fundamentally changes your relationship to thoughts, emotions and sensory experiences," he says. "It can be used in a wider range of circumstances than relaxation. For example, if I'm at a dinner party, I can't allow myself to go into trance. But if I can allow myself to be open to the pain in a more mindful way, the pain is just one aspect of my experience but not all-consuming."

Meditation, in various forms, has been practised for at least 3500 years and has been the central practice of Buddhism for 2500 years. While its primary spiritual goal has always been liberation from suffering and the attainment of enlightenment, historically it's likely that it was used to address not only spiritual but also physical suffering. Now, meditation and relaxation techniques are finding acceptance in Western conventional medicine as strategies for managing chronic pain.

Around one in five adult Australians — some four million people — suffers pain that persists for three months or more. The most common cause is degenerative conditions of the spine, but pain is also a major issue in patients with migraine, cancer, burns, spinal cord injuries and autoimmune diseases such as multiple sclerosis, fibromyalgia, arthritis and other conditions.

Chronic pain and depression

Chronic pain is commonly associated with depression, anxiety and also grief over pain-related losses (as is now being recognised), and psychologists play a key role in its management. Multidisciplinary pain management programs in Australia, the US and the UK reflect the model of "multiple convergent therapy" advocated by psychologist Ronald Melzack and medical scientist Patrick Wall, who revolutionised the understanding of pain with their 1965 "gate control" theory. Melzack and Wall posited that the experience of pain resulted not only from ascending sensory input into the spinal cord but also from the descending inhibitory control by the brain. They argued that chronic pain should be tackled both physically and psychologically.

Several factors have increased the appeal of meditation and relaxation to patients and to the doctors and psychologists who care for them. RPAH clinical psychologist Tony Merritt points to psychology's evolution from behaviourism, which confined itself to externals, via cognitive therapy, which opened the door to examination of thinking, to psychology's current focus on the importance of attention.

"Psychologists have found that if you try to teach people distraction techniques [to deal with pain]," he says, "they don't work. With meditation, unlike distraction techniques, you are not trying to force anything out of your head. You are just trying to disengage effortlessly from your pain."

In the past two decades there has also been an outpouring of basic science data regarding the role of stress hormones in the mechanisms of inflammation, pain, neural plasticity and delayed nerve cell death. Chronic pain and depression or anxiety usually go hand in hand, and disruption of the stress system has been demonstrated both in patients suffering depression and in those suffering chronic pain and various painful conditions including lower back pain, multiple sclerosis, rheumatoid arthritis and fibromyalgia.

It has been hypothesised that associated inflammatory and emotional disturbances may derive from common alterations in the central nervous system pathways governing responses to stress. Of all pain, the most difficult to treat is neuropathic pain, which results from rewiring of the central nervous system following nerve injury. Neuronal hyperexcitability is thought to play a key role in neuropathic pain, and stress hormones such as glucocorticoids have been implicated in neuronal hyperexcitability and central nervous system damage.

All this adds logical support for the use of meditation and relaxation techniques, which have long been known to reduce stress system activity. In the mid-1970s, Harvard professor of medicine Herbert Benson and his colleagues demonstrated that the "relaxation response" reduced metabolism, blood pressure, heart rate, rate of breathing and muscle tension. Some forms of meditation have also been shown to lower stress hormone levels.

Jon Kabat-Zinn, director of the Stress Reduction and Relaxation Program at the University of Massachusetts Medical Center in the US, believes mindfulness meditation is also likely to "abate or short-circuit the fight-or-flight reaction" (ie the stress response). Kabat-Zinn was first to demonstrate the benefits of mindfulness meditation for chronic pain. In a 1982 study, he showed that for most chronic pain patients, training in mindfulness meditation cut their pain rating by at least a third and in some cases by more than half. Further work with a control group showed that those who did the program felt less pain, had fewer psychological symptoms and cut their drug use. A recent study by other researchers of the use of mindfulness meditation by chronic pain patients reached similar conclusions.

Mindfulness-based cognitive therapy

Work is now being done to compare the use of mindfulness meditation and cognitive-behavioural therapy (CBT), the mainstay of most pain management programs. CBT aims to teach the patient to replace negative thinking patterns with more accurate and adaptive ones. British psychologist John Teasdale and his colleagues have integrated elements of both cognitive therapy and mindfulness meditation into what they term "mindfulness-based cognitive therapy" (MBCT) and have carried out the first randomised, controlled trial of a mindfulness-based clinical intervention.

They found that MBCT significantly reduced the risk of recurrence of depression for patients with three or more prior episodes; that both cognitive therapy and MBCT reduced the risk of relapse; and that they may do so in much the same way, ie by changing the way people process negative thoughts rather than by changing their belief in thought content. For Teasdale, the advantages of mindfulness meditation are that it can be practised any time, it makes people more aware of their thought patterns and it reduces the sensory input associated with arousal (ie stress).

Scientific interest

In May 2003, in a striking illustration of the growing scientific interest in mindfulness, the online journal Clinical Psychology: Science and Practice published a lengthy systematic review and five commentaries on the use of mindfulness as a clinical intervention. Reviewer Ruth Baer of the University of Kentucky, USA, examined studies dealing with chronic pain, stress-related conditions and other medical disorders. "In general," she states, "findings for chronic pain patients show statistically significant improvements in ratings of pain, other medical symptoms and general psychological symptoms." Overall, she found that mindfulness-based interventions yielded at least medium-sized effects on symptoms in most studies, and in some cases quite large effects.

Quite how it does this, no one is certain. There may be various mechanisms: exposure to symptoms and improved ability to tolerate them; cognitive change; better self management; acceptance; and relaxation. Baer points out that the relationship between relaxation and meditation is complex: while relaxation is a well-documented effect of meditative strategies, "the purpose of mindfulness training is not to induce relaxation, but instead to teach non-judgmental observation of current conditions".

While early studies described the potential benefits of mindfulness, they suffered from various shortcomings: lack of control groups, small sample sizes, lack of assessment of clinical significance and so on. All the Clinical Psychology commentators, including Kabat-Zinn and Teasdale, agree with Baer that the time has come for more rigorous evaluation. But the process that one commentator terms "the secularisation of mindfulness" raises a host of thorny questions.

What aspects of the practice should be scientifically tested? Who should teach mindfulness in a research context, and how do you determine whether they are properly trained and qualified? Should a teacher have to practise mindfulness meditation herself? Is mindfulness a general-purpose practice that can be taught to mixed groups, or should it be taught only to groups of individuals suffering the same condition? Do clients become more mindful as a result of mindfulness training and, if so, how do you measure it? Indeed, how do you even define mindfulness for research purposes?

With mounting evidence both of the role of the stress system in pain and a wide range of medical conditions, and of the benefits of mindfulness meditation, interest in it is likely to spread beyond clinical psychology to other areas of medicine. Logically, once the psychological benefits of the practice are better elucidated, the next step will be exploration of its physiological effects — effects that are likely to carry considerably more weight with physicians.

In pain management, meditation is often offered only once conventional treatment options have been exhausted. With more substantial evidence of its physiological benefits and lack of side-effects, it might become not a treatment of last resort, as at present, but a medical priority at a much earlier stage. Could mindfulness and other meditative strategies help resolve some cases of chronic pain, or even prevent an acute pain syndrome from becoming chronic? Such questions have yet to be thoroughly explored.

Kabat-Zinn warns in his commentary that it's important in translating mindfulness into the scientific paradigm not to strip it of its meditative context. Mindfulness, he says, is more than a technique: "...the actual practice of mindfulness is, however, always nested within a larger conceptual and practice-based ethical framework oriented towards non-harming (an orientation it shares with the Hippocratic tradition of Western medicine). This 'view' includes a skillful understanding of how unexamined behaviours and what the Buddhists would call an untrained mind can significantly contribute directly to human suffering, one's own and others. It also includes the potential transformation of that suffering through meditative practices that calm and clarify the mind, open the heart, and refine attention and action."

Bousfield shares that view. She believes the use of mindfulness meditation to alleviate patients' distress is quite appropriate, but that it can only offer a small taste of the profound purpose of the teaching.

"The Buddha taught mindfulness meditation with the aim of liberation from all suffering," she says. "This is not just a path for stress reduction. It's not just the removal of people's abnormalities. In the West, we tend to focus on people's illness, not health. The aim of Buddhist psychology is ultimate or unconditional happiness."

References available from the author on request.

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