Daring to say the word *pain*

Living in a chronic state of hurt is not impossible but it's hard for most of us to even think about

by MICHAEL FINLEY
Exclusive for *Twin Cities Business Monthly*

Just saying the word *pain* is painful. The eyes frown, the forehead pinches, the mouth puffs open in a grimace and closes in a tiny moan of dismay.

Ask people what's the worst thing that can happen to them, and many will say pain before they say death.

Chronic pain (as opposed to acute pain, which is usually injury-related, and goes away after a while) can occur almost anywhere, and under any number of guises: arthritis, lower back pain and sciatica and other kinds of bone and joint pain, peripheral neuropathy, intestinal cystitis, pelvic floor pain, repetitive stress injuries, irritable bowel syndrome, persistent headaches and fibromyalgia.

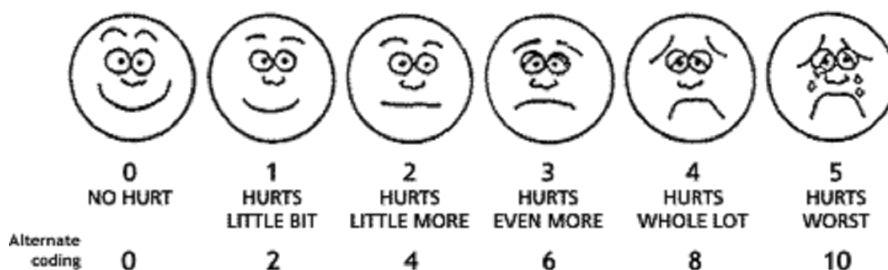
Accordingly to a 1999 National Pain Survey, 48 million Americans suffer from chronic nonmalignant pain. That's one in five Americans, many trudging daily off to work where we are expected to put our best face forward and smile, smile, smile.

Yet until the last 40 years, no one could rightly say what pain was. The ancients described it variously as a substance, a fire or a spirit that moved around inside us. The Bible tells of a pain-ameliorating sponge that was lifted up to Jesus on the cross. In the Middle Ages, doctors discovered opium, laudanum, and morphine. In the 1600s Rene Descartes presciently depicted the dynamic of as "the pulling of a thread." In 1897, the first aspirin was concocted from the bark of the willow tree. But by the 1950s, Albert Schweitzer still termed pain "the most terrible of all the lords of mankind."

It was still not until the 1960s that scientists learned that the body produces its own natural painkillers, called endorphins. This discovery led doctors for the first time to map out the biology of pain, including the neural pathways that fan out through the body like an upside-down tree, and conduct messages of sensation to the brain. Pain is sensed at the outlying "leaves" of the tree, the countless pain receptors at the tips of peripheral nerve cells; but it is processed and felt deep in the "root" of the thalamus.

"We used to think the nervous system was immutable, that you could never go back once something changed" said Miles Belgrade, clinical associate professor in the U of MN's Department of Neurology in the Medical School and medical director of Fairview Pain Management Center. "We know now that's not true."

One problem with pain is that we don't feel it all the same, so our vocabulary for it is subjective, like our vocabulary for colors. There is no way to be certain what I mean by *green* is the same thing you mean by it. Likewise, we rely on various scales to calibrate how much pain a person is in. Doctors use 1-10 scales, descriptor scales ("Is your pain *aching*, *burning*, *stabbing*, or *throbbing*?"), even picture scales like this, for children to describe their pain level:



But the worst problem for people with chronic pain is that it distorts personality and the way we behave. People become angry and depressed, irritable and self-destructive. They cycle through more emotions in a day than most of us do in a week. Being in pain wears you down and, unless you are able to establish a psychic beachhead against it, it takes a toll of your identity, and the way others perceive you.

"I tell people there are some worse things than pain. The loss of a child, the loss of function, the experience of deep depression."

Those patients do best who have an internal locus of control, meaning their worldview is that they are a player in their own lives, as opposed to an external locus of control, which is the view that one can do nothing to help oneself, that one is at the mercy of uncontrollable forces.

It's not much fun being a pain doctor either. "Chronic pain is not curable. Most doctors have problems with that," Belgrade said. Pain patients don't get "better" so their complaints never subside. The best professionals are compassionate, but able to "switch it off" when they need to, to get sleep at night.

It would be easy if doctors could just give the green light to dispense narcotics. What drugs like morphine do is interfere with the transmission of pain messages, or retranslate them to the thalamus so they are more tolerable. Doctors routinely prescribe narcotics for people with acute pain, like terminal cancer, but they are loathe to get patients with decades of life ahead of them addicted.

"Some 30 percent of our pain patients deviate from protocol by misusing medication," said one doctor. "This is not to say they all are addicts. Often the problem is poor impulse control rough on by the discomfort. But the problem is real."

A few doctors are inching toward the possibility that narcotics can be a part of someone's life long-term. Dr. Todd Hess of the United Pain Center in Saint Paul has had to fend off accusations from fellow professionals that he is over-medicating patients. Hess is one of a growing number of doctors who see opportunities for relief in the specific ways pain pathways work in the body.

By medicating carefully for pain early on, according to an October 2002 article in *HealthScout*, researchers at Johns Hopkins and elsewhere are quashing pain without causing addiction problems. But this terrain doctors are reluctant to venture into, owing to. No one wants to turn patients into drug addicts or arouse unwelcome attention. Even

where there is no arrest and no evidence of physician wrongdoing, investigations send a chill through the medical community.

Box

1662 Descartes illustration of a child burning its hand over a flame.

Medieval Pain Cocktail

Ingredients for making a "healing sponge," from the journals of Paracelsus:

- opium
- juice of an unripe mulberry (possibly black nightshade)
- hyoscyamus (henbane)
- the juice of hemlock
- juice of the leaves of mandragora
- juice of climbing ivy
- juice of lettuce seed
- seed of the lapathum (dock)
- seed of the water hemlock

Stir with a rag, and let patient suck.

Sidebar

Staggering Statistics

- 48 million Americans suffer from chronic pain.
- 21.6 million Americans routinely take prescription painkillers.
- 13.6 million Americans can't do routine activities because of pain.
- 4 billion work days lost annually to pain.
- $65 billion lost in productivity annually due to pain.
- $3 billion in annual sales of over-the-counter analgesics.
- Americans spend $100 billion annually on pain care.
- 14% of employees take time off from work due to pain.
- Most common types of chronic pain that physicians treat - cancer, low back, arthritis, headaches, and fibromyalgia.

Sources The Wall Street Journal, Monday, October 18, 1999 Sources: National Institutes of Health; Louis Harris & Assoc., Inc.

Gate Control Theory

In 1965, a collaboration between two self-described iconoclasts, Canadian psychologist Ronald Melzack and British physiologist Patrick Wall, produced the gate control theory. Their paper, "Pain Mechanisms: A New Theory," (Science: 150, 171-179, 1965) has been described as "the most influential ever written in the field of pain." Melzack and Wall suggested a gating mechanism within the spinal cord that closed in response to normal stimulation of the fast conducting "touch" nerve fibers; but opened when the slow conducting "pain" fibers transmitted a high volume and intensity of sensory signals. The gate could be closed again if these signals were countered by renewed stimulation of the large fibers.

Melzack and Wall remember their collaboration on the Gate Control paper:

Ronald Melzack

Melzack: "So in the course of our talking I said to Pat, 'You know, you and I think a lot alike about a lot of things. Why don't we write a paper together?' So we wrote a paper that was published in Brain in 1962. And we struggled with that paper, putting it all together, and it was certainly jointly done all the way through. I think three people read the paper. So we began to write [a second] paper and sending back drafts back and forth-I'd bring them down, we would argue, and so on-and then at some stage, we began to organize the paper into components, and the main, the gate control theory got invented. Anyway, I suggested that we really aim for the top and try Science and see what the hell happens-the worst that will happen is to get rejected. It got accepted. We were astounded. Well, so, then you know the rest because some people loved it and most people hated it." (From the Oral History of Ronald Melzack, 1993)

Patrick D. Wall

Wall's pencil sketch of the gate, c.1965

Wall: "At this time, with a completely different background, there was Ron Melzack, with whom I've really never worked in my life, we'd only got to talking. You ask about the gate control theory, which is 1965 as published, if you read what we'd published certainly three years before, it says exactly the same thing in it. And we tossed a coin, and published essentially exactly the same paper, only as Wall and Melzack [1962] rather than Melzack and Wall [1965], and it was utterly ignored. And then we put out the

Science paper. And as you see, if you read this, we simply tried to bring together everything that we knew and what was in the literature at the time, knowing very well that we could be wrong, and certainly in the details." (From the Oral History of Patrick D. Wall, 1993)

In Pain Mechanisms: A New Theory, Melzack and Wall traced the history of the specific pain pathway back to the 16th century philosopher René Descartes's idea of "pulling on a thread."

From: René Descartes. Renatus Des Cartes de homine. Lvgdvni Batavorvm: Petrvm Leffen & Fransciscvm Moyardvm, 1662

From: René Descartes. L'homme de Rene Descartes. Paris: Charles Angot, 1664

Gate control offered a new heuristic for pain research, one which integrated experimental and clinical observations, and inspired many young scientists to begin work on the problem. Although the model has been much revised since 1965, the idea of the modulation of pain perception within the nervous system continues to be central to pain studies.

Hi Mike,
I just spoke with someone who is willing to speak with you for your story on chronic pain. Dr. Miles Belgrade is a clinical associate professor in the U of MN's Department of Neurology in the Medical School. He is also the medical director of the Fairview Pain Management Center. He said that he would have time to do an interview right now, otherwise you can call him and set something up for the future. He can be reached at (612) 273-9925.

Please let me know if you have any questions or need any further assistance.
Thanks,
Ashley

Bio

A new science

Chemical reactions and receptors that modulate pain

Used to think nervous systrem was immutable – you can’t go back or change

Now we know that changes do occur – problem is, they are not alwsy ones we like

If we can change for the worse, that leaves the door open for some day changing it for the better

Tools are still primitive, and largely psychological – self-talk, relaxation, exercise – but these don’t work for hard cases

Can be very hard for patients to cope, shunted from group to group. Of medicvation can’t alleviate the pain

1st choice, end the pain

lots of scales for pain – subjectiove 0-10, mild/moderate/severe

qualities – shotting, stabbing, burning – neuropathic

aching, throbbing – muskuloskeletal or inflammatory

most doctors are not pain specialists and most haite treating pain

chronic pain is not a curable condition

many things are worse than pain – the loss of a child, the loss of function, the experience of deep depression – and pain can lead to these too

drs worried about scrutiny from public and medical boards

quote stat we do use narcotics, sometimes 100s of patients

30% deviate from protocol, they misuse the medication, not all addicts, but often impulse control issues

the best pain doctors are good listeners. Compassionate but don’t get embroiled. Don’t take it home with them,

best pain patient has strong internal locus of control

worst have external locus of control, social network, lousy upbringing, chaotic childhood

faith orientation an spirituality are helps

Dr. Jeffrey Rome

What can workplace do to help?

Symptoms accompanying your pain: nausea, headache, dizziness, weakness, drowsiness, constipation, diarrhea, perspiration.

Emotional effects: anger, depression, crying, mood swings, irritability, suicidal feelings.

Lifestyle changes: work, recreation, interpersonal relationships, ability to get around, self-care activities

Sources

Miles Belgrade, clinical associate professor, University of Minnesota Medical School's Department of Neurology in the Medical School, and medical director of the Fairview Pain Management Clinic. (612) 273-9925

Dr. Jeffrey Rome, consultant in Mayo Clinic's Department of Psychiatry and Psychology and medical director of the Mayo Clinic Comprehensive Pain Rehabilitation Center

Todd M. Hess

anesthesiology, pain management, disability medicine

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Mpls.

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763-537-6000

Click here for a profile on this doctor.\

SIDEBAR

How to live with pain

- Accept the fact of your pain
- Set specific goals of work, hobbies and social activities towards which you will work
- Let yourself get angry at your pain if it seems to be getting the best of you
- Pace your activities
- Get in shape, and keep fit
- Learn to relax, and practice it
- Time your medications, then taper off them
- Have family and friends support only your healthy behavior, not your invalidism
- Be open and reasonable with your doctor

Adapted from a pamphlet by Richard Sternbach, “How Can I Learn to Live With Pain When It Hurts So Much?,”