

When Stress Rises, Empathy Suffers



Humans—and mice—are much more likely to feel empathy toward friends than strangers. New research finds that stress hormones are to blame, writes Robert M. Sapolsky

Feeling someone else's pain can alter how we feel about our own. Photo: Getty Images



By

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Among the many contradictions of humans, some of the more striking ones concern empathy. Our hearts break at a disaster on another continent, and we send money to people whose faces we will never see. We look after the well-being of our pets with deep, empathic concern. We feel the pain of characters in a novel. But at the same time, we can walk past a homeless person sleeping on the sidewalk without noticing him. It's no news that we're one very complicated species.

The challenge is to make sense of such behavior, to understand the circumstances that foster or hinder empathy. [A recent study published in Current Biology](#)—I'm one of the paper's many co-authors—uncovers some of its biological underpinnings.

The research, conducted by Loren Martin and Jeffrey Mogil of McGill University in Montreal and colleagues, explores the effects of stress on empathy. It's well established that stress and the hormones secreted when we're stressed alter brain function. They disrupt aspects of learning and memory, impair judgment and impulse control, and increase the risks of anxiety and depression. As it turns out, the hormones also disrupt aspects of empathy.

Feeling someone else's pain can alter how we feel about our own. If you watch a needle poke the hand of someone you identify with, your own hand tenses. You display "emotional contagion," a rudimentary version of empathy.

Some years ago, Dr. Mogil showed that even mice display such emotional contagion; their sensitivity to pain increased when they were exposed to another mouse in pain. Even more remarkably, the effect depended on familiarity: It only occurred if the other mouse was a cage mate. A stranger provoked no emotional contagion.

Why doesn't a stranger evoke such empathy? A mouse exposed to a new mouse has a stress response, secreting a class of stress hormones called glucocorticoids. The scientists in the McGill study gave mice drugs that temporarily blocked either the secretion or the action of glucocorticoids. As a result, the mice displayed emotional contagion for strangers. The stress response had been blocking their capacity for empathy.

The researchers then moved on to human volunteers and were able to demonstrate the same effect: Subjects showed empathic emotional contagion (i.e., increased pain ratings in response to a noxious stimulus) when in the presence of a friend in pain, but not a stranger. When the scientists blocked glucocorticoids in humans, they reacted as the mice had: Strangers elicited emotional contagion. Dr. Mogil and his colleagues are now figuring out which brain regions are involved in this reaction and how stress hormones affect it.

In another part of the study, scientists explored what it would take to alter "stranger" status in this setting. Before pain testing, they paired a subject and a stranger to "play" four Beatles songs in the videogame "Rock Band." After a mere 15 minutes of this shared social experience, ex-strangers now elicited empathic emotional contagion.

It's rare to find individuals in whom stress brings out the best—fostering calm, rational thinking, deep humanity and the notion that strangers are just friends you've yet to meet. More typically, stress literally and metaphorically narrows our field of vision; it tends to make us less generous and cooperative in economic games, more xenophobic, more likely to interpret ambiguous expressions as hostile ones, and more likely to displace frustration and aggression onto those around us. As this new study on the biology of stress found, it also makes us less likely to feel someone else's pain.

Science has amply demonstrated that, when we are stressed, there are adverse consequences for our blood pressure, digestive tract, immune system and so on. This research shows that, when we are stressed, there are also adverse consequences for those stuck being around us.