

Empathy and Pain Sensation

Okay. Now I have tried to break this down into very simple things—emotion, attention—but usually we are working with much more complex psychological states. Empathy is one that's an important state that's actually been studied quite a bit using brain imaging. And what's been found is that empathy, your empathetic state at the time you receive pain, alters the way you feel pain. And empathy itself, even in the absence of pain, can activate some of the circuitry involved with pain. This was the first study of this of Singer in 2004 where they had young women lying in the scanner and then they presented—well, they gave pain to the subject that was in the scanner, and they got what I showed you before, activation of the anterior cingulate insular cortex, but also in the primary and secondary somatosensory cortices. But then they gave pain to the women's boyfriend, who's standing in front of her while she's in the scanner, she's watching her boyfriend or husband get pain, and what we see is that her brain, even though she's not getting any physical pain herself, is getting a profound activation in both the cingulate cortex and insular cortex as she watches her boyfriend or husband get pain. They tried this with men and it didn't work! [laughter] So this is a whole area of study, but when you do these kinds of studies and then you correlate it with how much empathy a person is feeling, in fact, the more empathy they're feeling, the more you get these activations in the brain.

So in our lab, what we did is we said if you're getting these activations like this when you're feeling empathy, how does this affect your own pain processes? You're already cranking up part of the system that's important for your pain processing, so does that affect the way you feel pain when you get pain yourself? And in fact, we found that it did. We did kind of a complicated experiment where we had somebody just look at a neutral scene and we gave them pain, a thermode on their arm, and then we had them watch videos of a confederate that either was telling this story about how his girlfriend was killed in a car accident, it was a very convincing sad story, or we had the same confederate tell another group of people how he had duped this blind person at a 7-Eleven out of getting the right change. And he'd go there every day, and he would somehow move the money around so he would manage to not pay what he's supposed to be paying and he said he didn't really feel badly because there was just too much accommodation for people with disabilities anyway, and so he was not a very likable character. People didn't feel empathy for him, and then they had pain while they were watching him get pain, whether or not they felt empathy or didn't. And what we found is that when they were watching him, when they were feeling empathy for him—in the case where he was the nice guy—and then you gave them various heat temperatures, 42, 44—here's the pain range, these are non-pain—that in the pain range, the people that were feeling empathy had higher pain ratings than the people that didn't feel empathy for him. So it's important, I think, for health care professionals in that when you see people suffer all the time, what does that do to your own state of empathy? You have to kind of turn it down in order to continue working with people that are suffering, I mean it's an interesting philosophical issue. But in fact, these types of states do alter the way you're processing your own pain.