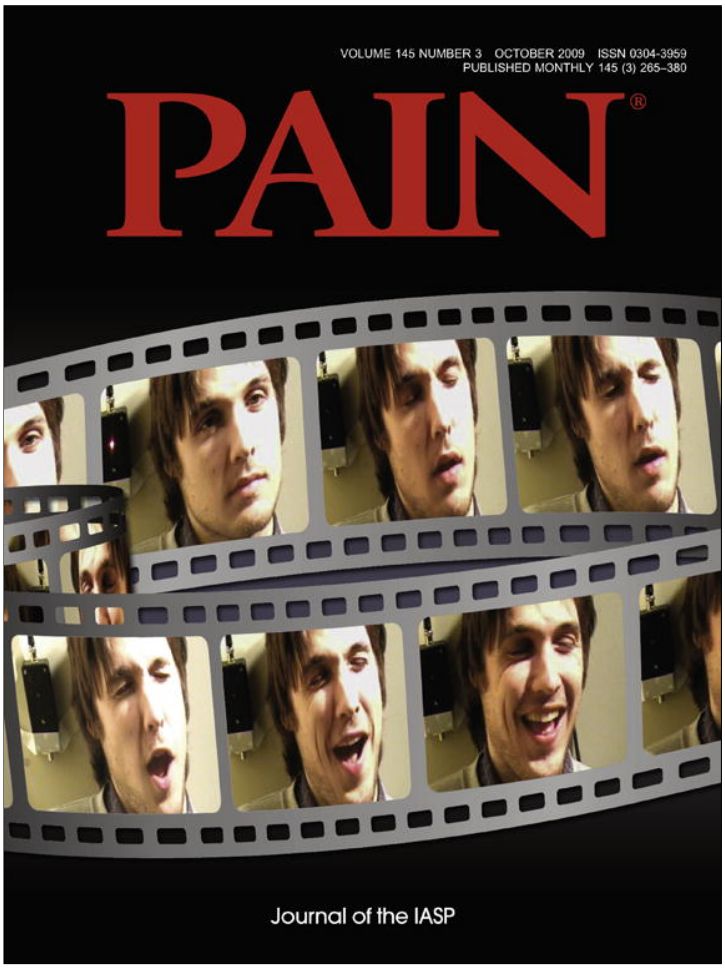

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Empathy, sympathy and the perception of pain

Pain serves evolved protective functions not only by warning the suffering person, but also by impelling expressive behaviors that attract the attention of others [2].

The idea, put forward by van Rysewyk, that empathy necessitates the capacity to separate perceptions from aversive self-oriented responses makes a lot of sense. In most definitions of empathy, there is at least a modicum of self-other awareness to distinguish oneself from others, as well as the capacity to regulate one's own emotional arousal [1,3,4,8]. Unfortunately, many recent neuroimaging experiments ignore, or at best overlook the complexity of the empathy construct and equate somato-sensory resonance with empathy and sympathy. There is a problem with equating empathy with vicarious emotion because the latter does not convey insight into another's internal state and does not account for any other-oriented motivational state that characterizes empathic concern.

The evolutionary more recent cognitive aspects of empathy and sympathy are closely related to processes involved in theory of mind, self-regulation, and language. These cognitive abilities that are unique to our species are layered on top of phylogenetically older social capacities and emotions. I have argued elsewhere that the capacity for two people to resonate with each other emotionally, prior to any cognitive understanding, is the basis for developing shared emotional meanings, but is not enough for mature empathic understanding and sympathetic concern [3,5]. Such an understanding requires forming an explicit representation of the feelings of another person, which necessitates additional computational mechanisms beyond the emotion sharing level, as well as self-regulation to modulate negative arousal in the observer [4,6].

I concur with van Rysewyk that the regulation of internal emotional states and processes is particularly relevant to the modulation of vicarious emotion and the experience of empathy and sympathy. Support for this notion comes from work in developmental psychology, which indicates that sympathy is strongly related to effortful control, with children high in effortful control showing greater empathic concern [11]. A number of studies conducted on children found that individual differences in the tendency to experience sympathy versus personal distress vary as a function of dispositional differences in individuals' abilities to regulate their emotions [7]. Well-regulated children who have control over their ability to focus and shift attention are hypothesized to be relatively prone to sympathy regardless of their emotional reactivity. This is because they can modulate their negative vicarious emotion to maintain an optimal level of emotional arousal. In contrast, children who are unable to regulate their emotions, especially if they are dispositionally prone to intense negative emotions, are found to be low in dispositional sympathy and prone to personal distress [7]. Cognitive neuroscience documents that the understanding of emotions and feelings of others, and the regulation of our own feelings are associated with activation of brain regions in the medial, lateral and orbitofrontal cortices [6,9,10]. These regions are connected with, but do not overlap with those involved in emotion sharing and somato-sensory resonance.

The study conducted with Makiko Yamada shows that the early (and unconscious) processing of pain perception of others cannot be seen as the unifying source of all empathic feelings [12]. Future research is warranted to determine how interpersonal, dispositional, and motivational factors influence the primitive aspect of resonance. This is crucial to understanding the conditions in which empathy and caring will be expressed.

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