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ESSAYS/PERSONAL REFLECTIONS

Redefining pain

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INTRODUCTION

Medicine defines pain as a signal of physical injury to the body, despite evidence contradicting the tight linkage and despite the exclusion of vast numbers of sufferers who experience psychological pain. By broadening the definition to include both functionalist (or objectivist) and phenomenological (or subjectivist) features of pain, we would not only better accommodate the basic science of pain but would also recognize what is already appreciated by the layperson, that pain from diverse sources – physical and psychological – share an underlying felt structure.

BEYOND THE PHYSICAL

Pain has been traditionally considered a bodily or physical experience. It happens when the body has been injured. And it is precisely the injury, whether external (a visible wound on the surface of the body) or internal (damage to underlying tissues or organs), that is supposedly common to all varieties of pain.

The main problem with the prevailing view, however, is that it doesn't accurately reflect the facts. According to prominent physiologists, Ronald Melzack and Patrick Wall, the link between pain and injury is "highly variable" (Melzack & Wall, 1996). In the first place, there is often significant discordance between the degree of pain experienced and the severity of injury. There are occasions where pain is not felt despite serious injury (by soldiers on the battlefield and patients with congenital pain deficits) and conversely, there can be intense pain with minimal injury (the passing of a kidney stone). Second, there are many instances in which there is no connection at all, when our most sophisticated tests have been unable to pinpoint any damage to the body (e.g., migraine, fibromyalgia, and many other chronic pain conditions).

Our increasing understanding of the physiology of pain supports these clinical observations. Pain, we now know, is not a signal that goes from a damaged area of the body directly to the brain but one that can be influenced at various points along the way and can even be sounded in the *absence* of damage altogether. As Melzack and Wall, the creators of the gate-control theory of pain, have persuasively demonstrated, the sensation is not passively registered in the brain but actively perceived and processed by it. Moreover, the perception of pain varies among different people because of many factors over and above the presence or extent of injury, including: the size and activity of certain areas in an individual's brain, specific genes that determine pain thresholds, cultural determinants, and one's emotional state at the time of injury (people who are distracted tend to experience less pain, for example, and people who are anxious experience more pain) (Hampton, 2006).

In the 1970s a consensus group of pain specialists tried to revise (and broaden) our view of pain, incorporating the latest clinical and scientific data. They came up with what is now the most widely held definition of pain

> Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage (IASP, 1986).

Clearly the definition implies that pain can extend beyond the physical, that it can be triggered not only by actual injury but by the possibility of injury. But does the definition go far enough? Why bother preserving the connection to injury at all?

This brings us to the second major problem with traditional concepts of pain. The presence of injury is not only missing in certain "physical" instances of

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pain (e.g., migraine, lumbago, causalgia), it is also missing in another large category of pain experience that is completely ignored in most pain classifications: psychological pain.

Does a person who loses a child or spouse experience pain? We certainly speak as if this were so—a "we" that includes doctors as well as laypeople — just as we speak of pain in the setting of depression, schizophrenia, and anxiety as Sigmund Freud pointed out over a century ago (Freud, 1959). Is this just semantic confusion or are there in fact important similarities between physical and psychological pain states? And what about the psychological pain that routinely accompanies physical pain (and visa versa)? Are the feelings experienced by cancer patients (overwhelming fear, anxiety, and hopelessness) not pain but something else, what Eric Cassell and others have called suffering (Cassell, 1991)? A "something else" that can not only be just as bad as physical pain, but at times, even worse. We can observe this most poignantly in illness narratives written by patients who have experienced the entire pain spectrum, in Oliver Sacks's *A Leg To Stand On*, for example, Jean-Dominique Bauby's *The Diving-Bell and the Butterfly*, Audre Lourde's *Cancer Journals*, and Lucy Grealy's *The Autobiography of a Face*. For Grealy, the pain from bone cancer (and its treatment) paled in comparison to the pain of feeling ugly and alone – so much so that she frequently thought of killing herself to end the pain.

BROADENING THE DEFINITION

The problem with current definitions of pain is their focus on the objective features of pain at the expense of subjective ones, what pain tells us (its functional significance) rather than how it feels (its phenomenology). Yet what unites the many varieties of pain is not physical damage but a shared phenomenal experience. An ideal definition should be able to accommodate the subjective nature of pain *and* its biological significance. For this reason, I propose the following definition

> Pain is an aversive internal experience that threatens to destroy everything except itself.

Although the definition focuses on the felt characteristics of pain, it also preserves its function as a warning signal to the body.

Internal

Pain is felt to be more "inside and "private" than most other inner states because it is not connected to the external world in the same way our thoughts, emotions, and feelings are. Whereas we fear a terrorist attack, dream of exotic vacations, and fall in love with a beautiful person, pain has no such direct link to objects in the shared world. Even in cases where pain is associated with surface injury (and the agent of injury – e.g. a knife or boiling pot of water) the link is "highly variable." This disconnect between the subjective self and objective world (what philosophers call a lack of intentionality) leads to difficulties in expressing pain and, inevitably, isolation. Because pain is un-sharable, the sufferer feels alone (Biro, 2010).

Experience

Pain is not simply a sensation but a multidimensional experience. One can not have pain (except in pathological conditions) without responding to it: emotionally (e.g. becoming fearful), cognitively (e.g. assessing its threat and wanting to find its source). and behaviorally (wanting to scream and withdraw). If we don't feel compelled to respond in these ways – regardless of the presence of injuries that would normally elicit such responses – then we don't experience pain.

Aversive

Pain, Elaine Scarry has suggested, is a negative experience, a feeling of "againstness" (Scarry, 1985). It is at the same time a "something" being against one and a "something" one must be against. This is why we respond to pain by turning away or wanting to turn away – aversive is from the Latin, *avertere*.

Threatens to Destroy

Although physical injury is a common cause of pain, it is not the only cause. There may be emotional or psychological "damage" in the case of depression or grief. Or there may be the anticipation of such damage. Therefore, as Cassell rightly recognized, pain is better understood as a threat to the integrity of the person (Cassell, 1991). Pain hurts because something inside the person hurts (physically or emotionally) and/or because it alerts us to the possibility of hurt, or more hurt, or even of extinction. It is precisely this threat that gives the experience its biological (i.e. functional and adaptive) significance. Pain urges us to respond (to move the body and the mind) in order to protect ourselves. That is true for the pain we feel upon getting to close to the fire (retracting the hand) as well as the pain we feel when we lose a loved one (withdrawing emotionally).

Overshadows Everything Except Itself

Pain quickly overshadows everything in its wake – other people, the world around us, and ultimately

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our selves (*both* our bodies and minds)—so that when we're in pain, there is *nothing* but the pain. This world- and self-negating aspect also contributes to the isolation sufferers feel.

Only by focusing on the felt characteristics of pain could we bring together the different varieties of pain, which laypeople do instinctively but the professionals do not. The inwardness and isolating aspect of pain; its experiential layering that combines sensation, emotion, cognition and behavioral responses; its aversive nature and threat to our world and selves – these characteristics are present in shingles and arthritic pain just as they are in migraine and fibromyalgia and just as they are in depression and grief. Naturally, depending upon the cause of pain, they may be present in different proportions and at different intensity levels, yet always present.

BENEFITS OF REDEFINITION

The major benefit of broadening the definition of pain is inclusiveness. By continuing to privilege pain caused by injury, we downplay pain unconnected to injury. If there is no physical cause, then there is no pain. This de-legitimizes the pain of patients with chronic pain syndromes (70 million Americans according to some estimates) and psychiatric illness (depression alone affects close to 20 million Americans each year). Because their pain is not always acknowledged, in many cases not believed, such patients spend much of their time trying to validate their experience. And when they are unsuccessful, patients feel increasingly isolated, which, in turn, exacerbates their pain. Not surprisingly, patients with chronic pain and psychological pain (those with psychiatric illness as well as those in grief) are at higher risk for suicide than those with physical pain (Schneidman, 1999).

A second benefit of redefinition is its compatibility with both the language of laypeople and the most recent developments in basic science research. Since Descartes, scientists have spent much time characterizing primary pain pathways from the periphery of the body to the brain, focusing on myelinated A-δ and unmyelinated C fibers that respond to noxious physical stimuli. But we are now learning that there are other ways to trigger pain. Studies using functional MRI scans have demonstrated that noxious emotional stimuli – such as feeling excluded and alone or losing a loved one – can bypass sensory pain centers in the brain (in the somatosensory cortices) and directly activate affective pain centers (in the anterior cingular and insular cortices) (Eisenberger et al., 2003; Gundel, 2003). The affective pain centers are responsible for generating the felt experience of pain captured in my definition. No doubt, this is why we feel (and speak) of emotional and physical pain in similar ways. One hopes that researchers will soon begin to elucidate these alternate pain pathways and identify the psychological "nociceptors" and/or chemokines responsible for triggering them.

Finally, by emphasizing the felt experience of pain, physicians are in a better position to alleviate pain. Even in the presence of physical damage – one cause of pain among many – there may be more needed than surgery or medication. Just as for those who suffer from chronic pain and depression and grief, we must be aware that part of the painfulness of pain is its insularity and loneliness, its all-consuming-nature, and its threat to obliterate everything in its wake, and we must be prepared to respond to these critical aspects – whether by narcotics and other traditional interventions or with gestures and words and other forms of expressive therapy.

CODA TO DEFINITION

Although not strictly part of pain's phenomenology, we should include a coda to our definition

> Pain is an all-consuming internal experience that threatens to destroy everything except itself *and can only be described metaphorically.*

People in pain commonly have difficulty expressing themselves because of the experience's disconnection from the external world on the one hand, and because of our limited knowledge of the interior world of our bodies on the other. This is why the inexpressibility is more conceptual than linguistic in origin – it is not that we do not have enough words in our vocabulary to describe pain, but rather that the content of the experience is so blurry, so hard to pin down (Biro, 2010). As such, we are forced to resort to indirect methods of thinking and speaking. We think of pain in terms of more knowable (and expressible) entities, most commonly weapons (and/or their characteristics). A pain is said to be sharp or stabbing (like a knife).

It is important to acknowledge these semantic and conceptual difficulties, which challenge not just ordinary people but language professionals, our greatest speakers and writers. It is also important to acknowledge the solution to these difficulties – namely, metaphor. Because there is no literal language of pain, we are forced to be more imaginative and "literary." That is true for sufferers who must be urged to describe their pain metaphorically, and for healthcare providers who must

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be urged to listen to their patient's "unscientific" language.

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