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Pain and Philosophy of the Mind

Pain patients can be difficult. They may be angry, mistrustful, anxious, and depressed. Clinicians may react to them with negative feelings—frustration, resentment, dislike—that undermine therapeutic dialogue. Pain patients also at times disagree with a physician's assessment or manifest idiosyncratic, unexplainable adverse events. Why do “more or less” similar patients, with “more or less” similar diagnoses, given “more or less” similar treatments, manifest radically different effects? What should we do when confronted with such unpredictability?

These challenging realities and the questions they provoke demand explanations that cannot be answered simply by conventional biomedical evidence. The issues they span comprise clinical practice, epistemology (the way we explain things), ontology (the way we think the world is), and phenomenology (the way we think we experience things). To confront them requires philosophical reflection and understanding beyond basic biomedical skills. This issue of *Pain: Clinical Updates* proposes that the problems confronted in philosophy of the mind are equally as relevant to critical medical reflection as those addressed in preclinical and clinical research. Philosophy of the mind has importance not only for clinicians seeking to improve daily practice, but for all those interested in understanding what pain is.

What Is Philosophy of the Mind?

Philosophy of the mind, like any other field of inquiry, is defined by the problems it deals with—in this case, mentality and its properties. Conventional wisdom leads us to think that mental and physical functions are distinct from each other and that the mind—the seat of conscious phenomena, thoughts, and of course pain—has little to do with objective neuroscience and everyday clinical routine. Nonetheless, many problems within the realm of philosophy of the mind differ only slightly if at all from those studied by neuroscientists, psychologists, and pain clinicians. What are some of these problems? First is the question, what is it to be a being with a mind? What conditions must a creature or system meet if we are to attribute to it a “mind” or “mentality”? Before we consider whether other species (animals) or electromechanical devices (robots) are capable of thoughts or pain, we need to have a reasonably clear idea of what mentality is, and what having thoughts or pain is all about.

Other problems concern specific mental properties or mental states. For example, what is the relative weighting of sensory and motivational components (such as aversiveness) in the experience of pain? Can there be pains of which we are not aware? A broader group of problems concerns the relations between mental and physical phenomena, collectively known as the “mind-body” problem.

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Simply stated, how can biological, physical systems come to have such states as thoughts, fears, and pains? Why should any subjective experience emerge from biomolecular processes? Finally, but equally important, is the problem known as “mental causation.” How can intention and mental experience generate subsequent mental states and behavior—“take on a life of their own”?

Let us try to answer some of these questions.

What is mentality? It depends. An uncontroversial characterization of the mind is as the seat of phenomena of thoughts and conscious experiences, such as pain. Disagreements emerge when one tries to frame a more precise definition according to whether one considers the mind as a thing (substance dualism), as the brain (physicalism), as behavior (behaviorism), or as a computing machine (functionalism).

The dualist view of persons, first formulated by René Descartes (hence known as Cartesian dualism), claims that there are two fundamentally irreducible kinds of substances in this world, namely mental (mind) and material (body), and that a human is a composite entity of these two. However, this view of mentality is no longer widely accepted. “Having” a (nonmaterial) mind is now considered to be more a figure of speech, as opposed to “having” something like brown eyes or a headache. There is no need to think of the mind as a special kind of object that we have or may lose, and it is less confusing if we use the term mentality to connote all that is characteristic of the mind.

Before we consider whether animals or robots are capable of thoughts or pain, we need to have a clear idea of what thoughts or pain are all about

The concept of mentality not only overcomes the problem of what type of substance the mind might be. When mentality is regarded as a capacity, property, or feature possessed by humans and some higher animals, this concept adds clarity to the understanding of conscious phenomena such as sensations, perceptions, and experiences. Let us then take the particular occurrence of pain and introduce the concept of supervenience to see how *being in* pain relates to its experience.

Mind-Body Supervenience

The supervenience of B upon A simply means that there cannot be a difference in A without there being a corresponding difference in B. If we suppose that a person is *in pain* (that is, he or she has a mental property of being in pain), the supervenience principle says that some physical property that the person has necessitates the person (causes him or her) to be in pain. In other words, pain always has a physical substrate or “supervenience base.” This construct of mind-body supervenience captures the idea that pain depends upon its neural substrate, such that mental properties depend on and are determined by the physical properties and events that give rise to them. More interestingly, the ease with which people in general accept this construct shows our strong intuitive attraction to mind-body supervenience, otherwise known as physicalism (or materialism).

For the physicalist, taking aspirin to ease your headache affirms that the only way you can affect your headache is to alter chemical reactions within the neural base on which the headache supervenes. Thus, experiences are reduced to and equated with physical properties. The view that every pain corresponds to a physical event is termed “reductive” or “eliminative” physicalism, since it reduces every experience to its physical constituents and eliminates anything that cannot be explained by physical science. Less restrictively, “nonreductive” or “token” physicalism views pains in general as physical events but leaves room for the idea that there may not be a specific, purely physical process to explain each and every pain. Yet the problem remains that physicalism, whether eliminative (“you are nothing but your synapses”) or token (“you are ultimately your synapses”), has great difficulty in explaining mental states such as pain, that have a qualitative character philosophers call “qualia” (singular: “quale”). Can physicalism discover a neural correlate of the subjective conscious experience, explicate the neurobiology of meaning, and answer the question: “Why does pain hurt”?

Consciousness and Mind

Consciousness frequently is referred to as a state of “awareness,” being “awake,” or in Cartesian terms “thinking.” In each of these instances, consciousness is the central and crucial feature of mentality. Without consciousness there is no mentality, and without mentality there is no capacity to experience the world as we do. But although we are conscious beings (subject consciousness), we are equally conscious *of* things, states, or facts (state consciousness). Consciousness “*of*” anything is known in philosophy as “intentionality” (from Latin *intendere*, which means “to point at”). This term signifies the capacity of the mental state to “point at” or to be about, or to stand for, or represent something *beyond* itself. For example, the words of this text are formed from an inherently meaningless series of ink marks. They have meaning only as constructed by the interested reader. By analogy, the inherent intentional content of pain as a singular subjective conscious experience can be only investigated by exploring and discovering the “aboutness” of it (i.e., its meaning). Exploring brain states (e.g., pain perception) that create intentional behaviors is not enough because the brain changes itself in accordance with the intentional consequences of these sensory perceptions.

Challenging realities and questions in everyday pain practice demand explanations that transcend conventional biomedical evidence

In philosophy of mind, the most difficult challenge today (the “hard problem”) is to explain conscious experience and specifically the subjective singular experience (e.g., the “hurt” of pain). There is a gap in the explanation between mind and brain, inner and outer, private and public, objective and subjective, and the physical world and consciousness. This gap is acknowledged in the claim that facts about the physical world can never satisfactorily explain conscious experiences. Historically, this explanatory gap has been approached in three different

ways. One is to say consciousness is simply there; we cannot doubt it, since by doubting it we doubt our very existence. This Cartesian philosophical stance does not recognize an explanatory gap, since it states that all is constructed in the mind and there is in fact no separate world “out there.” This position, of course, creates other problems, such as if all is in my mind (solipsism), how can it ever seem that I have access to other minds? The Cartesian answer is that no observations can ever provide evidence for what is *really* going on, since what is going on is solely defined by and accessible to only the person experiencing it.

A second (natural, positive) stance toward consciousness is to say that one day it will be clearly explained within the framework of science. We need to know more about how the brain works, about the computations carried out within it, about behavioral and environmental interactions, and once these details are filled in, the explanatory gap will finally close, solving the hard problem.

The third stance, a combined and still-evolving scientific-philosophical approach favored by the author, is to acknowledge the hard problem and view its solution as lying outside current scientific orthodoxy. Despite the fact that everybody knows intuitively that pain hurts, neuroscience today is incapable of explaining (*knowing*) why this is so. To bridge this gap, a new approach is needed. This approach (referred to by some as the “enactive” approach) posits that cognitive science, with its array of new concepts, models, and experimental techniques that advance knowledge of the mind beyond earlier stages of psychology and philosophy, has lost its grounding in the human subjective experience. This loss has created an unbridgeable chasm between the subjective mental state of the whole person and the subpersonal cognitive routines implemented in the brain. This breach between mind and meaning, subjectivity and consciousness is not trivial. It impedes progress in understanding consciousness in general and pain in particular.

Without consciousness there is no mentality, and without mentality there is no capacity to experience the world as we do

Let’s illustrate this difficulty by considering one’s experience of a subjective sharp toothache caused by an exposed nerve in a molar. The toothache, not the condition of the molar, is the salient mental event. Thus, the question of evidence of the toothache (the subjective) is inappropriate because it is self-evident. It need not be based on inference or mediated by other beliefs or prior knowledge. On the other hand, knowledge of the condition of the molar is based on evidential third-person knowledge (e.g., the dentist’s inspection of the tooth or interpretation of an x-ray). Given that subjectivity is a key feature in any conscious experience including pain, the method by which to investigate absolute and immediate knowledge (*I know I am in pain*) must be from a subjective stance. Recognition of the authoritativeness of first-person knowledge does not inexorably lead us to the Cartesian stance, but it does argue that the asymmetry between first- and third-person knowledge can be overcome only by a new scientific framework.

Complexity and Emergence to Close the Explanatory Gap

Ontology (the way we think the world is), phenomenology (the way we think we experience things), and epistemology (the way we explain things) are intimately linked. Biomedicine as practiced in the West is improperly imbued with methodology that is deductive and nomological (from Greek *nomos*, meaning “laws”). The natural phenomena we term diseases are “explained” by reductive theories and vice versa. Understanding the theoretical basis of a disease is deemed sufficient to explain the entire phenomenon of having the disease. For example, we say that pneumonia is caused by the bacterium *Streptococcus pneumoniae*, hence the pneumonia *is* (in essence) *S. pneumoniae* and the bacterium *is* (in essence) the pneumonia.

A new subjectivist, interpretive, phenomenological stance is needed in order to capture the complexity of pain

These objectivist postulates presuppose many things. First, that there is only one reality and that by dividing and studying its parts, the whole can be understood. Second, that the knower can stand outside what is to be known and not influence what is observed (positivism). Third, that the knower’s own values and meanings can be suspended. Fourth, that an event that comes before another can be said to cause that event (determinism), and last, that explanations from one time and place can be generalized to other times and places (inference).

These postulates of the objectivist attitude of science may be true for pneumococcal pneumonia, but when they are applied to phenomena of consciousness (e.g., pain), they do not hold. Pain follows C-fiber activation. But we cannot say that pain *is* C-fiber activation, nor that pain *is* C-fiber activation *and* central sensitization *and* spinothalamic tract activation *and* insular cortex activation, and so on. Pain *is* pain, and in order to investigate it, I suggest that a subjectivist approach is more appropriate. This approach accommodates the facts that there are multiple realities forming an interconnected whole (complexity), that the observer and the observed are interdependent (as in quantum theory), that values mediate and shape what is understood (phenomenology), and that events shape each other by multidirectional relationships across time and space (chaos theory and emergence).

It is clear that Western biomedicine as taught, practiced, and researched has evolved very strongly in the tradition of empiricism, realism, materialism, and positivism. The search for universal truth and laws (in our case the truth about the nature of diseases) has been a fruitful one. However, when applied to persons with pain, this ideology, with its expectation that patients will follow deterministic paths and that pain in one patient will normatively predict pain in another, simply does not match clinical reality. Pain cannot be separated from the person experiencing it, and the human experience cannot be omitted from a scientific explanation of how the mind works. Therefore, a new subjectivist, interpretive, phenomenological stance is needed in order to capture the complexity of the patient’s narrative experience.

Conclusion

In order to explain a complex phenomenon such as pain, we first need to clarify the current tangled mess of related concepts that we find in the literature. “Hard science” (like explaining neural correlates of pain) can be conceptually easy, whereas explaining how a physical system could cause us to experience anything (let alone pain) is philosophically difficult. The problem of pain is considered a “hard” problem because the pain experience apparently resists any functional characterization. Granted, pain has typical input conditions (tissue damage, nociceptor activation) and typical behavioral outputs (avoidance, learned helplessness). But clinicians and researchers alike are inclined to believe, and the IASP Task Force on Taxonomy affirms through its definition, that what makes pain “pain” is that it is an aversive experience—that is, it hurts. This qualitative phenomenal aspect of pain seems not to be explained by simply delineating its neural substrate.

Thinking about our patients’ embodied subjectivities draws us closer to them

If neuroscience lacks the expressive resources even to talk about pain as a quale, how can it explain why pain correlates with a neural state and how this neural state gives birth to a subjective experience? It seems then that the explanatory gap cannot be bridged and that the understanding of pain as a type of phenomenal consciousness lies outside the scope of current neuroscience. The strategy I suggest, inspired by current themes in philosophy of the mind, is that complexity theory, including the emergence of progressively higher levels of order and function during the aggregation of simpler units, is the most appropriate one for constructing a future research program in pain. First, a multilevel explanation must be constructed (e.g., higher order of perception and higher order of thought theories by Searle). When one comes to notice pain (a first-order perception) one also becomes “conscious of it”, and so the first-order thought of pain becomes a higher-order introspective state. Second, current theories must be scrutinized for their ability to provide insight into the levels of biological organization of pain in the brain (e.g., the experiential-phenomenological approach described by Price and Aydede). Understanding the nature of pain depends on recognizing not only the subjectivity of the sufferer, but also that of the investigator who becomes a subject of her own study and draws on the introspection of her own experiences (intersubjectivity). Third, we must apply the growing body of knowledge from current experimental studies of consciousness. For example, Penrose and Hameroff view “qualia” (“what it’s like to be”) as the essence

of consciousness, including pain, and identify these with quantum mechanical processes at the level of the cytoskeleton of neuron and glial cells. Finally, the third-person perspective of neuroscience, with its descriptions of neural correlates of pain, needs to be augmented by first- and second-person perspectives (ecological phenomenology) including patient-family and patient-doctor relationships. As we become more sophisticated in thinking about our patients and their embodied subjectivities, we will not only move closer to them within the narrative dyad, but also enhance our ability to answer their fundamental question: “Doctor, why does my pain hurt?”

This text is based upon the author’s PhD thesis, *Why Does Pain Hurt? Husserlian Phenomenology as a Method to Investigate the Experience of Pain*.

Bibliography

- Aydede M (Ed). Pain: New Essays on Its Nature and the Methodology of Its Study. Cambridge, MA: MIT Press, 2005.
- Blackmore S. Conversations on Consciousness. Oxford: Oxford University Press, 2005.
- Carruthers P. Consciousness: Essays from a Higher-Order Perspective. Oxford: Oxford University Press, 2005.
- Chalmers D. The Conscious Mind: In Search of a Fundamental Theory. Oxford: Oxford University Press, 1996.
- Churchland PM. Matter and Consciousness: A Contemporary Introduction to the Philosophy of Mind. Cambridge, MA: MIT Press, 2001.
- Feser E. Philosophy of the Mind. Oxford: Oneworld Publications, 2005.
- Goldman AI. Simulating Minds: The Philosophy, Psychology, and Neuroscience of Mindreading. Oxford: Oxford University Press, 2006.
- Gray J. Consciousness: Creeping up on the Hard Problem. Oxford: Oxford University Press, 2004.
- Matthews E. Mind: Key Concepts in Philosophy. London: Continuum, 2005.
- Revonsuo A. Inner Presence: Consciousness as a Biological Phenomenon. Cambridge MA, MIT Press, 2006.
- Thompson E. Mind in Life: Biology, Phenomenology and the Sciences of the Mind. Cambridge, MA: Harvard University Press, 2007.

*Alex Cahana, MD, DAAPM, FIPP, MAS
Postoperative and Interventional Pain Program
Departments of Anesthesiology and Clinical Neuroscience
Geneva University Hospital
24 Rue Micheli-du-Crest
1211 Geneva, Switzerland
Tel: +41 22 382 7403; Fax: +41 22 372 7511
Email: alex.cahana@hcuge.ch*

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International Association for the Study of Pain • 111 Queen Anne Avenue North, Suite 501, Seattle, WA 98109-4955 USA
Tel: +1-206-283-0311 • Fax: +1-206-283-9403 • email: iaspdesk@iasp-pain.org

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