

SPECIAL ARTICLE

Puzzling Pain Conditions: How Philosophy Can Help Us Understand Them

Abraham Witonsky, PhD,* and Sarah M. Whitman, MD†

*Department of Philosophy and Religion, Rowan University, Glassboro, New Jersey; †Department of Psychiatry, Drexel University College of Medicine, Philadelphia, Pennsylvania, USA

ABSTRACT

Context. Pain is a complicated area of inquiry. To progress in our scientific understanding of the topic, it may be useful to learn how other disciplines are grappling with the subject. Philosophy is one discipline actively engaged in trying to understand pain.

Objective. We present one philosophical view of pain to help broaden the understanding of pain in those who are trained to look at it from a biomedical perspective.

Discussion. One current philosophical theory of pain is the *externalist perceptual theory of pain*. This theory states that pain is a form of perception and can be likened to other perceptions, for example, visual, tactile, etc. The way a pain *feels* can be explained as the relationship between this perception and some bodily damage occurring, and just as other perceptions can be mistaken, such as in a visual illusion, pain can also be inaccurate. We explore how the theory deals with puzzling conditions such as phantom limb pain, complex regional pain syndrome, and allodynia. We contrast this view with a competing theory of pain and briefly consider how these philosophical views may impact clinical medicine.

Key Words. Pain; Philosophy; Externalist Perceptual Theory of Pain; Perception; Phantom Limb Pain; CRPS

Introduction

There is no more lively sensation than that of pain; its impressions are certain and dependable, they never deceive . . .

Marquis De Sade

As we have learned, especially over the decades since the 1965 seminal work of Melzack and Wall [1], pain is a complicated area of inquiry. To progress in our scientific understanding of the topic, it may be useful to learn how other disciplines are grappling with it. Philosophy is one

discipline actively engaged in trying to understand pain. In light of this, we present one philosophical view of pain, namely an *externalist perceptual theory of pain*.

The *externalist perceptual theory of pain* states that pain is a form of perception and can be likened to other perceptions, for example, visual, tactile, etc. The way a pain *feels* can be explained as the relationship between this perception and some bodily damage occurring. We explain the theory and show how it deals with puzzling conditions such as phantom limb pain, complex regional pain syndrome, and allodynia. We contrast this view with a competing theory of pain and look at which theory better explains clinical pain conditions. Finally, we briefly consider how these philosophical views may impact clinical medicine.

Reprint requests to: Sarah Whitman, MD, 8627 Germantown Avenue, Philadelphia, PA 19118, USA. Tel: (267) 265-2082; E-mail: Sarah.Whitman@drexelmed.edu.

Our presentation is in the form of a dialog of a fictional case conference. Attending the case conference are three individuals: Mr. Laurenzo, a 20-year-old college student, who has had his entire arm amputated after an accident and now experiences phantom limb pain in his forearm; Dr. Ryan, the patient's pain specialist; and Professor Roberts, the patient's philosophy professor. We enter the dialog in the middle of the case conference.

The Dialog

Dr. Ryan: We've just finished looking at your case from a medical perspective. It's great that your philosophy professor is here to look at your situation from a philosophical perspective. How are you holding up, Mr. Laurenzo?

Mr. Laurenzo: I still have some pain, but I'm doing ok.

Dr. Ryan: I have no doubt that you're experiencing pain. Unfortunately, 80% of people who have had an amputation experience phantom limb pain [2].

Mr. Laurenzo: It's strange to feel like I still have an arm, and even stranger that it hurts in my forearm.

Dr. Ryan: We in the medical community are still learning about phantom limb pain. We'll continue with this case conference to see what light philosophy can shed on your condition.

Professor Roberts: Thanks for inviting me. I sympathize with your condition, Mr. Laurenzo. Although I can't add much to the previous part of the discussion—those NMDA receptors and anticonvulsants are new to me—perhaps my philosophical view about pain may make it easier for you to understand what's going on in your condition.

Dr. Ryan: What is your view, Professor?

Professor Roberts: It's called an *externalist perceptual theory of pain*. A good way to understand this view is to think about perception, as I believe that to have a pain is to perceive something in your body [3].

Mr. Laurenzo: When I think about perception, I think about seeing, smelling, hearing, tasting, and

touching. Are you saying that having pain is like these experiences?

Professor Roberts: Yes. Consider visual experiences, for example. When you have a visual experience, something looks a certain way to you. The way that something looks to you may or may not reflect the way something really is. Your visual experience is *accurate* when the way something looks to you reflects the way it really is. Your visual experience is *inaccurate* when the way it looks to you doesn't reflect the way it really is.

Mr. Laurenzo: Can you give an example of visual experiences being accurate and inaccurate?

Professor Roberts: Sure. Suppose you are having a visual experience of two lines on a piece of paper, which appear to be unequal in length. Your visual experience would be accurate if you were indeed looking at two unequal lines on a piece of paper. However, your visual experience could be inaccurate. This can happen in two different ways: either what you see exists, but is different than the way it looks, or what you see doesn't exist at all. The former is the case of an illusion. For example, you could be looking at the Muller-Lyer illusion, in which the two lines look to be of different lengths, when in fact they are equal in length, as Figure 1 shows. The latter is the case of a hallucination, in which you see two lines, when in fact there are no lines.

Mr. Laurenzo: And you think that when someone has a pain, his pain is like a visual experience in that it can be either accurate or inaccurate?

Professor Roberts: That's right. I believe that when you have a pain, you're feeling something in your body. But the way you feel this something may not reflect the way it really is. Your pain is accurate when the way it feels to you reflects the way it really is. Your pain is inaccurate when the way it feels to you doesn't reflect the way it really is.



Figure 1 The Muller-Lyer illusion.

Dr. Ryan: I can see how a visual experience can be accurate or inaccurate. This is because we can distinguish between the way something looks and the way it really is. But can we make this distinction with respect to pains?

Professor Roberts: I believe so, and I believe that Mr. Laurenzo's phantom limb pain demonstrates how [4]. Mr. Laurenzo, you feel something painful in a certain way, namely as if there's something painful *in your forearm*. But is this feeling accurate? Obviously not. You don't have a forearm, so the way your forearm feels to you can't be the way it really is.

Mr. Laurenzo: Ok. I'm beginning to understand how a pain can be accurate or inaccurate. If you're having an accurate pain, the location in your body where you're feeling something is where it's really located. I'm having an inaccurate pain because I'm feeling as if there's something in my forearm, but that's not where it really is.

Professor Roberts: That's right. To avoid any confusion, let me make it clear that although I think your pain is inaccurate about where something is located, I don't think you're mistaken about your belief that you're *feeling* something in your forearm. Consider again the comparison I made to visual experience. Just as you could have an inaccurate visual experience without being mistaken in your belief that you're having a visual experience, you could have an inaccurate pain, without being mistaken in your belief that you're feeling something painful.

Mr. Laurenzo: I'm glad you cleared that up, because I thought you might be suggesting that I didn't have pain.

Professor Roberts: Absolutely not. You definitely feel something painful in your forearm. The issue is whether your feeling is inaccurate.

Dr. Ryan: Something bothers me about the term "inaccurate" that you've chosen to describe Mr. Laurenzo's pain. Why don't you just say that Mr. Laurenzo *believes* that his pain is located in his forearm, and that his *belief* is false? I've always thought that beliefs, not pains, are what are true or false, or accurate or inaccurate.

Professor Roberts: Well, I don't think that Mr. Laurenzo *believes* there is something painful in his

arm, so it wouldn't be correct to say he has a false belief.

Mr. Laurenzo: That's right. I don't *believe* that I have a pain in my forearm. How could I? I know that I don't have a forearm. However, I do feel something painful in my forearm.

Dr. Ryan: I now see why you say that pains are like visual experiences in that they can be accurate or inaccurate. But what is this something in your body that pains are reflecting?

Professor Roberts: I believe that when you have a pain in a certain part of the body, your pain is reflecting some sort of physical disturbance in that part of the body [5]. In other words, when you have a pain in a certain part of your body, you feel or experience some sort of physical disturbance in that part of the body. This physical disturbance, such as tissue trauma, is external to or separate from the feeling of pain.

Dr. Ryan: You say that when a person is in pain he feels some sort of physical disturbance. But my patients don't say that they're feeling some sort of physical disturbance—they say that they're feeling pain. Unless you're a neuroscientist, it's unlikely that you'd even know what's occurring as far as pain-related neural activity, for example.

Professor Roberts: In saying that a person in pain is feeling a physical disturbance, I'm not saying that she would describe or conceptualize her feeling *as* a physical disturbance. However, just because this person doesn't describe or conceptualize it that way, it doesn't follow that this person is not feeling a physical disturbance. To understand this point, consider what's going on when you watch TV. The image on the TV screen is made of thousands of pixels, and when you see the image on the screen, you're seeing these pixels. However, it doesn't follow that you're aware of the image *as* pixels. Similarly, you're feeling a physical disturbance when you're in pain. You're just not necessarily aware of it *as* a physical disturbance.

Mr. Laurenzo: And you also said that this physical disturbance is external to or separate from the feeling of pain? What does this mean?

Professor Roberts: Let's go back again to the analogy of a visual experience. When you have a visual

experience of, say, a tree, the tree is external to or separate from your experience of it. The tree and your visual experience of it are not the same. Likewise, when you have a pain, your feeling of pain and the disturbance that causes it are not the same. This is why the theory is called an *externalist* perceptual theory of pain—the disturbance that you feel when you're in pain is *external* to or separate from the pain itself. You might want to mull that over for a minute.

Mr. Laurenzo: Let me get this straight. Suppose I injure my foot by stepping on a nail, and I feel something painful where the injury is located. According to your externalist perceptual view, what I feel that is painful is a physical disturbance in my foot brought on by my stepping on a nail, and this physical disturbance is external to the feeling of pain itself.

Professor Roberts: Exactly. And your pain would be accurate if the way you feel the disturbance is the way the disturbance really is.

Mr. Laurenzo: So you would say that the pain in my forearm is inaccurate. I have no forearm, so there can't be a disturbance in it. But if there's no disturbance in my forearm, then what am I feeling in my forearm?

Professor Roberts: You could still be feeling a disturbance as if it were in your forearm, even when there is no disturbance there. When your arm was amputated, a lot of damage at the stump was created. I believe that if the damage in the stump of your arm is what causes you to feel pain in your forearm, then you're feeling this damage, but you're feeling it as if it's in your forearm.

Dr. Ryan: I see. There really is a disturbance in Mr. Laurenzo's stump, but Mr. Laurenzo may be feeling this disturbance as if it were in his forearm.

Professor Roberts: That's correct. If Mr. Laurenzo's phantom limb pain in his forearm is caused by a disturbance in his stump, then his pain is inaccurate about the location of this disturbance, and this means that his pain is like a visual illusion: he perceives some physical disturbance, but the physical disturbance he perceives is not the way it really is.

Dr. Ryan: Your view is consistent with some of the scientific evidence about phantom limb pain.

When we anesthetize the stumps of people with phantom limb pain, we notice that sometimes their phantom limb pain goes away [6]. This suggests that the damage in the stump sometimes does cause phantom limb pain.

Mr. Laurenzo: Another example of pain that's inaccurate about the location of the disturbance might be the pain of a heart attack. When my dad had a heart attack, he felt pain going down his left arm and up into his jaw.

Dr. Ryan: Yes, that also happens in other medical conditions, for example, pain from a gall bladder problem radiating into the shoulder.

Professor Roberts: Those are *referred sensations*—that is, sensations felt in a part of the body different from where the disturbance is. So they're also inaccurate about the location of the disturbance.

Dr. Ryan: Let's go back to the phantom limb pain again. Sometimes when we anesthetize the stumps of people with phantom limb pain, the pain doesn't go away [6]. This suggests that the damage in the stump doesn't always cause the phantom limb pain. How would your view account for this?

Professor Roberts: One possibility is that what is being felt is a disturbance that occurred in the past. I'm sure you're aware of *pain memories* [7].

Dr. Ryan: Yes, indeed. A number of people with phantom limb pain report that the pain that they feel in their phantom limbs is the same pain they felt at some point prior to the removal of their limbs. I remember one such patient who sprained her ankle ice-skating as a child. Several years after spraining her ankle, she got into a motorcycle accident and had to have her leg amputated. It was quite strange when, after the amputation, she reported feeling the same pain in her ankle that she had had after spraining it.

Professor Roberts: Your example nicely confirms what I believe to be true about pain memories, namely that they're caused by some past disturbance to the body. I believe that information about this disturbance somehow gets stored in the brain, and then it's re-experienced as a result of some new disturbance to the body, such as an amputation. When this information about the past disturbance

is re-experienced, the person feels it as if it's occurring in the present. But this feeling is inaccurate, because the disturbance actually occurred in the past.

Mr. Lorenzo: And what are your thoughts about my pain being a hallucination?

Professor Roberts: If your pain is not caused by a disturbance in your stump, it may be a hallucination. I would describe a pain hallucination as an experience of a disturbance when no disturbance outside of your central nervous system exists.

Mr. Lorenzo: In other words, a pain hallucination is inaccurate about the existence of a disturbance outside the central nervous system.

Professor Roberts: Yes. And I believe that a pain memory is just a special type of hallucination. There is no current disturbance causing a person to feel pain, as is true for all hallucinations, but there was a disturbance that caused the pain at some time in the past.

Dr. Ryan: I know of another condition in which someone can feel pain without actually having some disturbance in the body that causes the pain. It's called "CRPS," complex regional pain syndrome. Although this syndrome usually develops in an injured limb, in some cases, no precipitating disturbance can be identified.

Professor Roberts: I haven't heard of this condition before. I would say that a person who suffers from CRPS without any peripheral disturbance in his body is having hallucinatory pain, pain that is inaccurate about the existence of a peripheral disturbance.

Dr. Ryan: What's also interesting about CRPS is that when people get this condition as a result of an injury, the amount of pain they feel often seems to be out of proportion to the injury.

Professor Roberts: In that case, I would say that the pain is inaccurate about the amount of disturbance that's going on in the body. This form of CRPS is not a case of pain that is a hallucination, but rather it's another case of pain that is an illusion, one with respect to the amount of disturbance.

Dr. Ryan: Now that I'm thinking about strange pain conditions, I should mention allodynia. This

is when a person feels pain as a result of some stimulus that doesn't normally cause a painful feeling. For example, I had a patient who dreaded the breeze from a ceiling fan because it felt like sandpaper on her skin.

Professor Roberts: I would say that a person with allodynia has pain that is inaccurate about the kind of disturbance in the body. The person feels one kind of disturbance, but what is actually causing the feeling is a different kind of disturbance, which typically doesn't cause feelings of pain in people without this symptom.

Dr. Ryan: Apparently, pain can be inaccurate in many ways.

Professor Roberts: Yes. When someone has phantom limb pain, his pain is inaccurate about either the *location* of the disturbance, if the nerve damage in the stump is causing the pain, or about the *existence* of a disturbance, which is a hallucination. In pain memory, a special type of hallucination, the disturbance occurred sometime in the past. The pain of someone with CRPS is inaccurate either about the *existence* of disturbance, if no precipitating disturbance occurred, or about the *amount* of disturbance, if the pain is greater than usual for the disturbance. When someone has allodynia, his pain is inaccurate about the *kind* of disturbance.

Dr. Ryan: Your theory talks about how pains may be inaccurate. But your examples are all "abnormal" pains. Can't "normal" pains also be inaccurate? For example, isn't the hot sensation of the pain of a neuropathy inaccurate, since there is nothing hot?

Professor Roberts: Perhaps. Let's take a look. It is true that there's nothing actually burning a patient in neuropathic pain. I believe that "burning" is simply used as a metaphor. When a person says that her pain is burning, we understand this to mean that the pain feels like the sensation she has when she experiences something burning her body. What would tell us if the pain is accurate or not is if the physical disturbance that occurs when someone has a neuropathy is the same type of disturbance that occurs with a burn. If so, then I'd say the pain is accurate.

Dr. Ryan: What if the disturbance is not the same type of disturbance?

Professor Roberts: Then I'd say that this "normal" pain condition is inaccurate, in the same way that allodynia is inaccurate about the type of disturbance.

Dr. Ryan: Your externalist perceptual theory of pain fits nicely with these puzzling pain conditions. Do any philosophers disagree with your view?

Professor Roberts: Yes. According to the externalist view, when you're in pain you're experiencing something, and what you're experiencing is some bodily disturbance, which is external to the experience itself. In contrast, the opposing view, which is sometimes called a *nonrepresentational view of experience*, believes that when you're in pain, you're experiencing something, but what you're experiencing is the experience itself [8].

Mr. Laurenzo: What does it mean to experience the experience itself?

Professor Roberts: Let's return to the analogy of a visual experience. Suppose you're visually experiencing a red apple on a table, but, because of the lighting conditions, it looks purple, not red. The apple isn't purple, but what is?

Mr. Laurenzo: I would say that the color purple is a property of your visual experience.

Professor Roberts: That's exactly what some philosophers believe. They think that the purple color that you're aware of is a property—not of the apple, an object external to your mind—but rather of your visual experience, a state of awareness inside your mind. I disagree with these philosophers, but let's stick with their view for a minute. So in this visual experience analogy, you'd say that you're aware of a property of your visual experience. Now consider an experience involving pain. Suppose you step on a nail, and this causes a pulsating disturbance in your foot. However, because of some drugs you've taken, this pulsating disturbance doesn't seem to you to be throbbing; rather, it seems to you to be a constant ache.

Mr. Laurenzo: So, the pulsating property would belong to the physical disturbance in my foot. Would the nonrepresentational view hold that this aching property that I'm aware of belongs to my pain experience?

Professor Roberts: Correct. The nonrepresentational view says that when you're in pain, you're experiencing the experience itself, and this means that the aching property must belong to the pain itself, a state of awareness in the mind. But remember, in contrast, my externalist theory of pain says that when you're in pain, you're experiencing a bodily disturbance that is external to your pain.

Dr. Ryan: Why don't you agree with this nonrepresentational view when it comes to pain?

Professor Roberts: Mostly because the theory doesn't accord with how things seem to us. Whether your foot is either aching or throbbing, it seems that the aching or throbbing is *experienced* as a feature of something going on in the foot, not as a feature of the experience of pain itself [5]. I believe the same is true for visual experience. When you have a visual experience of a red apple, what seems to have the color? Is it the apple, an object external to your mind, or is it your visual experience of the apple, a state of awareness inside your mind?

Mr. Laurenzo: The property of color seems to belong to the apple, not to the visual experience [9]. But in the previous case of the apple that appears purple, where is the purple if it belongs neither to the apple nor to my visual experience of it?

Professor Roberts: I believe it doesn't belong to anything. You see, I believe that you're simply having an *inaccurate* visual experience; your visual experience doesn't reflect or represent the way the apple really is. Your visual experience reflects or represents the apple as being purple, when in reality it's red. This means that your visual experience *misrepresents* the true color of the apple.

Mr. Laurenzo: I think I get it. I'd be aware of what my visual experience is representing, or in this case, misrepresenting, not aware of the visual experience itself.

Professor Roberts: Exactly, and I believe that an experience of pain is just like a visual experience in that it represents something external to the experience itself. Pain reflects bodily disturbance, and reflects this either accurately or inaccurately. So we can return to our example of you stepping on a nail and being aware of something aching,

when the disturbance is in reality pulsating. You're having an experience that inaccurately represents the pulsating disturbance in your foot.

Dr. Ryan: I agree that with regard to visual experience, it seems incorrect to say that you're experiencing the visual experience itself. In fact, it seems strange to say that visual experiences—as opposed to apples—can have colors! and I'm used to thinking of a visual experience as a state that can accurately or inaccurately represent things. I also agree that when you're in pain, it seems to you that you're experiencing something going on in your body, not the experience of pain itself. But I don't normally think of pain as a state that can be accurate or inaccurate.

Professor Roberts: I think that there are two good reasons for why this is the case. For one, we don't typically care about whether our pains are accurate or not [10]. We just want to get rid of them. Secondly, it's much more difficult to determine whether a pain is accurate or not, than it is to determine whether a visual experience is accurate or not. With a visual experience, you can check with others or in some cases, you can use your other senses. But how do you tell whether a pain such as allodynia or CRPS is accurate? You can't rely on anyone else's report, nor can you use any of your other senses to check [11].

Dr. Ryan: Your externalist theory is certainly consistent with how pains seem to us. And it has an additional advantage in that it treats pain as just another perceptual experience, such as vision, hearing, etc., which we are familiar with. I used to think of pain as a state that just felt a certain way. But now that I think of pain as a type of perceptual experience, I see that it can be accurate or inaccurate, as it represents things external to itself. And this provides a framework for understanding all sorts of puzzling pain conditions that I see in clinical practice.

Professor Roberts: I believe that this understanding will also help you discuss these pain conditions with your patients who have them.

Dr. Ryan: I'd love to continue with this discussion, but unfortunately we're running out of time. So let me sum up your externalist theory of pain. When a person feels something painful in a certain part of the body, the person is feeling some sort of physical disturbance in that part of the body, and

this physical disturbance is external to the feeling. Moreover, pains are like perceptual experiences in that they may be accurate or inaccurate. The feeling of something painful is accurate if the way the person feels the disturbance reflects the way the disturbance really is. The feeling of something painful is inaccurate if it doesn't reflect the way the disturbance really is.

Professor Roberts: Well put. Let me also add that, as we've seen today, pain may be inaccurate about where in the body the disturbance occurs, how much disturbance is occurring, what kind of disturbance is occurring, and even if any disturbance is occurring.

Dr. Ryan: I've found this case conference to be quite interesting. I want to thank both of you for attending. I especially want to thank Professor Roberts for presenting his externalist perceptual theory of pain.

Discussion and Conclusion

The goal of this introductory dialog is to present one aspect of the interface between philosophy and pain medicine. Some readers may simply be interested in how another discipline thinks about pain. Additionally, the externalist perceptual theory of pain can provide pain medicine practitioners with a vocabulary to more clearly discuss pain. This may apply to dialogs with both patients and colleagues. By the time a patient sees a pain medicine practitioner, he has often seen at least several other physicians, in several other specialties, in an effort to get an accurate diagnosis and receive adequate pain treatment. Unfortunately, too frequently a patient is told at one or more of these visits that his pain is "psychological," or exaggerated, or that there is no reason for the pain. When he reaches a pain medicine practitioner, one goal is that the patient gains an understanding of his pain. Using terms such as those used in the theory presented in this article may help achieve this goal. For example, in a patient with chronic pain, using the term "inaccurate" pain, with an analogy to vision, may help communicate that, while the patient feels pain, the pain is mistakenly indicating there is ongoing tissue damage when there isn't any. This may help decrease a patient's anxiety regarding what pathological processes are occurring, and may help the patient better understand the therapeutic recommendations being made. Likewise, it is often extremely helpful for

the pain medicine doctor to emphasize that, even if the pain is “inaccurate,” the patient’s complaints of pain are very much believed.

The theory may also help some pain medicine terms be used more accurately. For example, the term “hallucination” is used to describe a visual or auditory experience when no external object or sound is present. In contrast, “illusion” is used when an external object or sound is present, but the way it is experienced is not the way it really is. In pain, however, there is no comparable objective stimulus, external to the body, which can be assessed to determine whether the pain is a hallucination or an illusion. For example, if a patient has phantom limb pain, no one can tell simply by, say, looking, if this pain is caused by a central nervous system disturbance (hallucination) or a stump disturbance (illusion). But a distinction between hallucination and illusion can still be important. For example, in the case of ulnar nerve entrapment which progresses on to CRPS, it would be clinically useful to determine whether pain symptoms were maintained primarily by peripheral nerve irritation (illusion) or more so by central nervous system changes (hallucination). In the former, rest of the arm might be expected to be more helpful, whereas in the latter, progressive use of the arm might be more indicated. One can ask, however, that in pain cases, if the only difference between a hallucination and an illusion is whether the stimulus is in the central versus peripheral nervous system, respectively, if this dividing line is at least somewhat artificial.

Clarification of pain medicine terms might be useful in two ways. The first is that it may lead directly to various clinical hypotheses. One example relies again on the hallucination/illusion distinction. Would *hallucinatory* pain respond better to antipsychotic medication than *illusory* pain? The literature to date on the use of neuroleptics in pain describes small, nonblinded case studies, and so the efficacy of these medications is not well established [12–14]. Hallucinatory pain is not distinguished from illusory pain in the clinical studies reviewed. Attention to this distinction might be helpful in investigating the types of cases in which antipsychotic medication is helpful. A second benefit relates to the difficulty our field experiences in establishing “appropriate standardized, reliable diagnostic criteria” for pain syndromes, for example, CRPS. This has been a barrier to studying and treating pain [15]. The language used in this article may prompt some clarification in types of pain that will be clinically useful.

How can pain medicine benefit from learning about a philosophical view of pain? This article is meant to open up possibilities and start a dialog. We have suggested only a few areas in which pain medicine may benefit from a deeper knowledge of the philosophical study of pain, and anticipate that more could be generated. It is our hope that building more bridges between the two disciplines will enrich each.

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