Why do Breakups "Hurt?"

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Abstract

A common phrase surrounding relationships is a "painful breakup." From an outside perspective, it doesn't seem these people are experiencing a physical pain stimulus, but few people would disagree with the description of pain. Certain responses to both painful and emotional situations have been very similar in different individuals, and the ultimate question is, "why?" Some other examples of emotional stress include embarrassment and frustration and emotional reactions to these instances have been similar to those expressed when experiencing pain. The purpose of this research is to identify certain similarities and differences in the way the brain and body process physical pain and emotional stress. Are there physiological similarities? What is happening in the body? How are the signals in the brain similar and/or different? By looking at existing data on these subjects, this study aims to answer these questions and explain why breakups "hurt." By evaluating the data and physiological and psychological explanations, this can help answer the question of whether or not an individual is experiencing actual pain or something else. If coping mechanisms exist, those may also be revealed on a mental health level.

Introduction

From any perspective, pain and emotions seem to go hand in hand. When you smash your finger, you cry or get angry, and when you are heartbroken, it feels as if someone punched you. These sensations may differ from person to person, but there definitely seems to be a connection. Some people have argued that there would be no physical pain without emotions. Similarly, there is also the thought that emotions may determine how we sense pain. To better understand how the two may be connected, we must first understand what pain and emotions are and how they affect the body. By examining the way pain and emotions are processed in the brain and how different people experience pain, one would hope to answer the question of why breakups and emotional distress are considered painful. Also, by comparing the experience of pain between different groups of people, there may come a clearer understanding of how emotions affect the way we sense pain and how we react and recover from different emotional stress. This has huge implications for mental health and wellbeing, as well as physical health. Some questions to consider would be: Why can emotions be painful?, Why do different people feel pain differently?, Can physical pain be linked to emotional pain?, and, ultimately, Why are breakups painful, and how might one move past it?

What is Pain?

Pain was previously thought to be a result of overstimulation of receptors. For example, touching something could become painful if you press really hard, or a warm

feeling becomes painful when it gets too hot. In the 17th century, Descartes proposed a theory that pain had its own specific pathway and receptors. It was not until the 20th century that this theory was adopted.[9] However, there are many more aspects to pain, and the specificity theory was eventually proven wrong and. Pattern theories came after that, and then came the gate control theory. This theory was the first to incorporate the central control processes of the brain, and this will be explained more later.[9]

Physical, or sensory pain is defined by the International Association for the Study of Pain as "An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage."[11] Pain has a lot of elements and most people have experienced it in one way or another. Probably the most common example of pain would be acute or nociceptive pain such as a pinch or a cut. However, there is also chronic or neuropathic pain, and as we will discuss, emotional or non-physical pain.[11] Another aspect of pain is that it is personal and subjective. Each person will experience pain in a different way, depending on various physical and emotional factors. Certain things like age, gender, ethnicity, and previous pain experience all contribute to an individual's perception of pain.

Pain also serves a lot of functions in the body. It is most prominently a signal that something is wrong in the body, and this could be an injury or a disease. Pain can also trigger reflexes, such as pulling a hand off a stove, that help avoid further injury, and it promotes healing through rest.[9] There are also other types of pain which are not as beneficial, and those include phantom limb pain, and chronic pain. There

are explanations for these types of pain, but there doesn't seem to be a reason why we might experience them.

The components of pain signaling are consistent, even though the actual perception and response may differ from person to person. This seems to be where emotional regulation steps in to contribute to the regulation of pain and pain-related behavior.

Pain Signaling and Regulation

As previously stated, it wasn't until the 20th century that the specificity theory of pain was considered legitimate. This theory, proposed by Descartes in the 17th century, influenced experiments in anatomy and physiology until recently. Once pain was determined to be a direct-line system with specific receptors, it was also viewed as very rigid and limited to this projection system. In fact, as recently as the 1950s, there were attempts to treat chronic pain through neurosurgical lesions.[9]

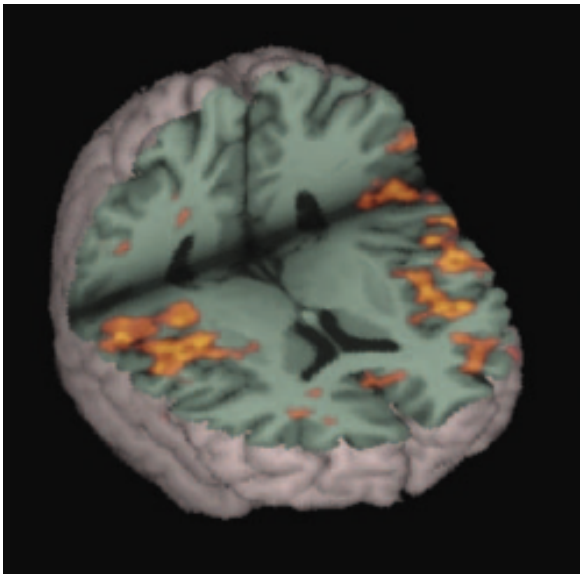

Figure 1: fMRI image showing changes in blood flow in the brain areas responding to painful stimulus in a conscious patient (Renton, 2008).[11]

For this purpose, pain sensation can be generalized into three basic categories of motor response, emotional and behavioral response, and somatosensory

processing. The motor response accompanying pain would be like a reflex or the action taken to avoid or acknowledge the pain stimulus. Emotional and behavioral response would be how the body responds emotionally, like crying, overall mood, and motivation to even respond or suppress. Somatosensory processing deals more with the what and where of the stimulus to identify the type and location on the body. This would tell the difference between a pinch on the arm and a kick to the shin. Somatosensation would also detect the intensity and aids in relating to past experiences. Brain regions responding to a painful stimulus are shown in Figure 1. In a later study, these categories are listed as pain sensation, cognition, and emotion. These were a bit more confusing to understand, and, for this purpose, the previous three are relatively easier to relate.

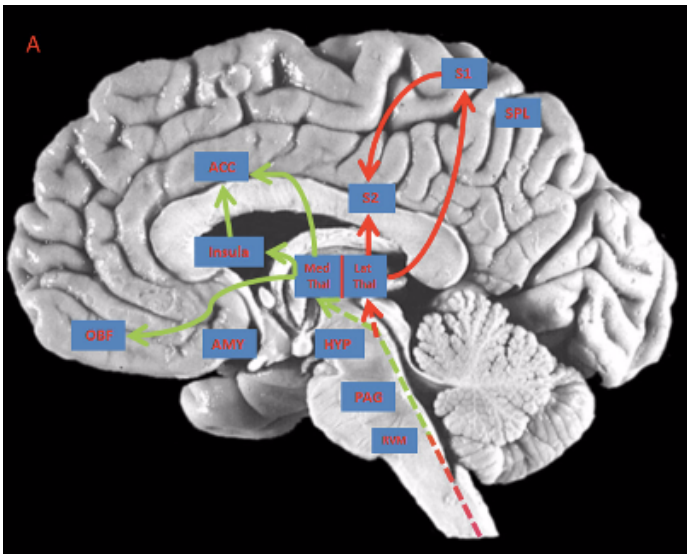

Figure 2: This figure represents the lateral (red) and medial (green) systems in the brain responsible for the processing of painful stumuli. They control the somatosensory and emotional responses, respectively (Fabbro and Crescentini, 2013).[5]

Figure 2 shows two of these pathways as they are reflected in the brain. The red pathway is the lateral system that is responsible for detecting location, intensity, duration, etcetera, of the pain stimulus. The green pathway represents the medial system which involves the limbic system which is responsible for emotional processing.[5]

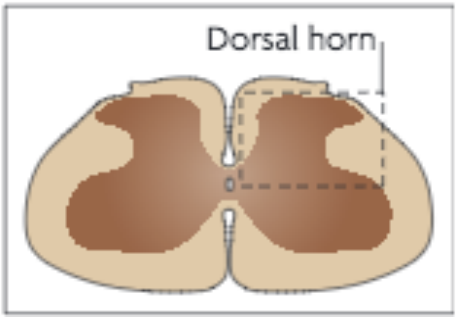

Figure 3: Transverse depiction of the spinal cord. Dorsal horn indicated (Todd, 2010).[15]

The lateral system consists of projections from the spinothalamic pathways to the lateral thalamic nuclei and the primary somatosensory areas of the parietal cortex. The spinal cord plays a large role in the processing and transmission of nociceptive signals, primarily in the dorsal root ganglia and the dorsal horn (shown in Figure 3).[15] This system also determines the motor response or reflex, known as the nocifensive reflex. The mechanical pain stimulus travels from the primary afferents (initial neurons sending signals to the brain) to the dorsal root ganglia which send the signals to the area of the dorsal horn corresponding to the body area. From here, secondary, or second-order neurons cross the midline of the spinal cord to ascend to higher brain regions via the anterolateral column of the spinal cord.[15]

The medial system consists of the medial thalamic nuclei and the limbic system. The main structures are the anterior cingulate cortex (ACC), the orbitofrontal cortex (OFC), the anterior insula, and the parietal operculum, and all these areas are depicted in Figure 2 above. The limbic system is the main area for emotional response. Not surprisingly, the feelings most associated with pain are suffering and distress. The medial system is a bit more complicated and less direct than the lateral system and shows how the various brain regions can contribute to an individual's response to pain.

Along with the sensation and processing of the pain stimulus, the brain and spinal pathways are able to regulate the sensation. Figure 4 shows the areas of pain regulation in the brain. The limbic system is also implicated in the regulation of pain through structures such as the anterior cingulate cortex (ACC), the insula, the orbitofrontal cortex (OFC), the amygdala (AMY), and the thalamus (Thal) and hypothalamus (HYP) which project to the periaqueductal grey (PAG).[15] The PAG projects to further brain regions which aid in the modulation of pain sensation.

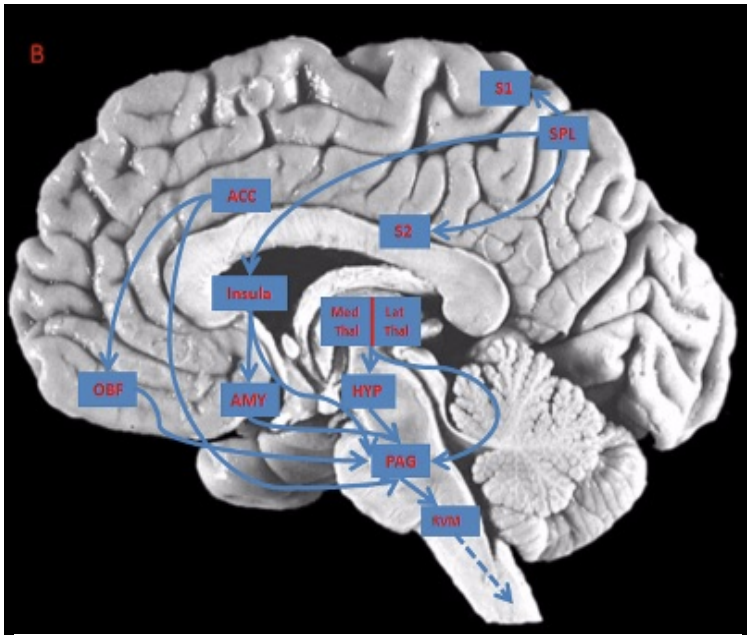

Figure 4: The descending regulation and modulation of pain (Fabbro and Crescentini, 2013).[15]

In short, these are the brain regions associated in the sensation and modulation of pain. There are several neurotransmitters that are involved in the transmission of the signal which include substance P, histamine, serotonin, and prostaglandins. Modulation of pain by use of pain killers and NSAIDs (nonsteroidal anti-inflammatory drugs) happens by reducing the synthesis of prostaglandins. Anandamide, an endogenous (produced in the body) cannabinoid, prevents the release of histamine. The memory of pain happens partly due to the C-fibers in the

periphery.[15] Memory of pain can act in emotional regulation and alter the sensation of pain, as well. Finally, the continued activation of pain fibers, as in chronic pain, can cause sensitization, and this actually increases the sensation of pain.

Emotions

Sociologically, emotions are experiences of involvement. The type, incidence, and expression are all determined by emotional regulation. Emotional regulation is a process through social interaction and determined by how a person will modify his or her emotions based on how others react to them.[1] For example, if a person grows up in a family that encourages the expression of emotions, he or she may be more prone to expressing emotions. If this person were to grow up in a family where emotions were seen more as weakness, he or she may then learn to hide their emotions. So, emotional regulation is learned through an active process that the person is aware of and makes a conscious effort to perform. If a person learns that crying is unacceptable, they may make every effort to make sure they do not cry. Once regulation has been learned, it can become like second nature and it may not continue to be as much of an effort. Emotional regulation has implications in the pain experience, but there are also emotions that we are not consciously aware of. Australian sociologist, Jack Barbalet, calls these emotions "backgrounded emotions," and they are beyond emotional control or regulation, and they have implications in theory choice and trust.[1]

Some people have argued that emotions are essential to human life, and we may not be considered human without them. I would argue that there is no living, functioning human being who is devoid of emotion. From my understanding, emotion is involved in everything we do and is retained in our memory. If a person were to become devoid of emotion or comatose, it seems that society subconsciously, or consciously, considers that person less human. They are unable to interact and express emotions and are outwardly capable of merely functioning as a body. However, this does not mean they are unable to hear or process information and react to it, we just can't see it, but it may be retained in the person's memory if he or she is to regain consciousness.

The actual study of emotions in sociology is only about 35 years old, but emotions have been considered "…a central dynamic in human behavior, interaction, and social organization…"[16] The previous concern with emotions was largely on a macro scale, and many sociologists neglected to assess emotions on an individual level. Further, many sociologists refuse to acknowledge possible evolutionary theory surrounding emotions and natural selection. However, sociobiologists and evolutionary psychologists have looked into the connection further in relation to culture. When it comes to culture, there is a lot of interaction between its many aspects, so it isn't entirely clear whether emotions create culture or if culture constructs emotions.[16] As will be shown, emotions are generated in the brain, so there is evidence that emotions would exist even if humans showed no culture. Also, there

is evidence that emotional regulation is learned through social interaction, but that does not determine the emotion, only the individual expression.

Another aspect of emotion is cognition. As stated earlier, when it comes to backgrounded emotions, there doesn't seem to be any way to regulate them, so they would be followed by cognition.[16] As for other emotions, it is unclear as to whether or not cognition comes before or after the emotion is expressed. This is a larger area of study when it comes to factors affecting ideal decision-making. As far as the study of emotions goes, there is a lot more research and evaluation on sociological levels. There is no question that they are regulated physiologically, to an extent, but there is no clear answer as to how much emotions are hard-wired or learned.

Emotional Processing

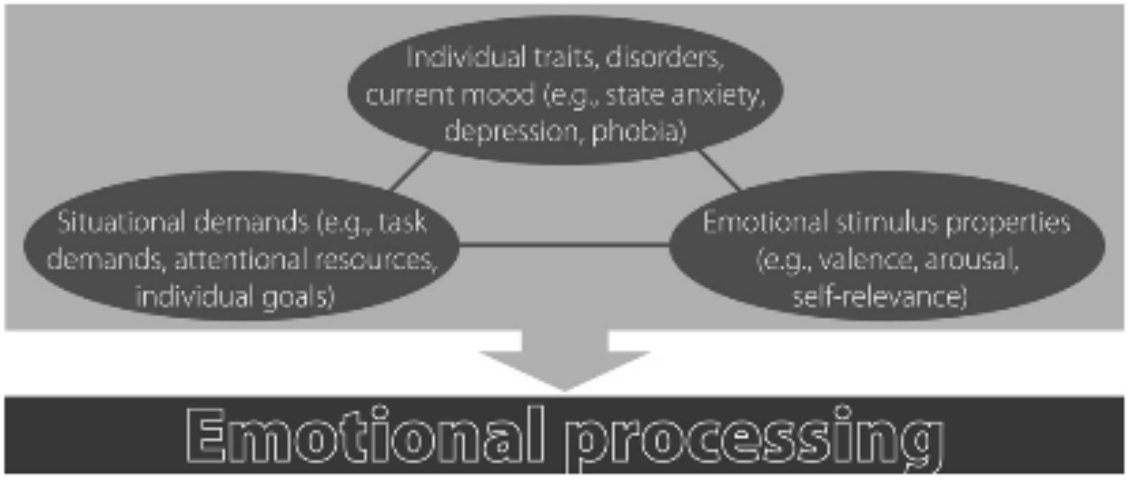

Figure 5: Three of the variables that contribute to the expression of emotions are shown above. Each can be alone or they can build off of one another to impact the interference (Okon-Singer et al, 2013).[10]

Although emotions and the study of emotions are largely psychological and sociological, there are still physiologic events that occur when experiencing emotions. Along with the specific brain areas regulating emotions, there are three variables that also contribute to the way emotions affect behavior or are expressed. Stimulus properties, individual characteristics, and task demands and attention all impact emotional expression, and are shown in Figure 5.[10]

In short, stimulus properties refers to the type of stimulus and desired outcome. This can be the emotion that it is trying to evoke (happy, sad, neutral), perceived relevance they obtain, perceived valence, and evoked arousal. The different stimuli influence the behavioral and neural reactions. Task demands and attention aims to show that emotional responses can affect the ability to perform a task, depending on the amount of attention given to the reaction. This suggests that emotions have an effect on the orienting system which involves sub-cortical regions like the superior colliculus and thalamic pulvinar nucleus, and frontal and parietal regions. Individual characteristics refers to the individual person and his or her individual traits, ability to process emotions, emotional disorders, etcetera.[10]

The main brain areas that contribute to the processing and expression of emotions are the limbic system. The hypothalamus is the main homeostatic regulator in the autonomic nervous system with ties to endocrine, emotional, and somatic systems. Stimulating the hypothalamus can produce vasodilation, feeding behavior and other events that can be associated with maintain the body's environment.

However, the hypothalamus is also highly implicated in drives and emotional behavior, as stimulating overlapping areas can elicit rage, sleep, and sexual behavior.

As shown with pain, the limbic system is highly active in emotions. Much of the system is labeled and shown in Figures 2 and 3, but for emotions, the hippocampus and amygdala are of particular interest. The areas relating to these two brain structures are part of the limbic system and nearly form a complete ring in the brain. The hippocampus plays a huge role in memory and forming new memories. It also projects back to the hypothalamus via the fornix, and they are two structures in what is known as the "Papez circuit" along with the cingulate gyrus, mammillary bodies, and the anterior nucleus of the thalamus. Structures later found to be part of the circuit are the orbital and medial prefrontal cortex, portions of the basal ganglia, the mediodorsal nucleus of the thalamus and finally the amygdala. This circuit, especially the amygdala, plays a large role in emotional experience and expression.

The amygdala received input from a lot of sensory modalities including sight, sound, touch, smell, and taste. It also receives input from the cingulate cortex and the insula about emotional comfort and discomfort. Projections from the amygdala reach the cerebral cortex and the hypothalamus. The amygdala is important for emotional aspects of learning and processing aggressive behavior. In the 1950s, John Dower showed that removing an amygdala from rhesus monkeys changed their behavior to be more aggressive and fearful. Recently, the anterior cingulate cortices

and medial prefrontal cortex have been shown to play a role in fear and anxiety and regulation of generally negative emotions.[4]

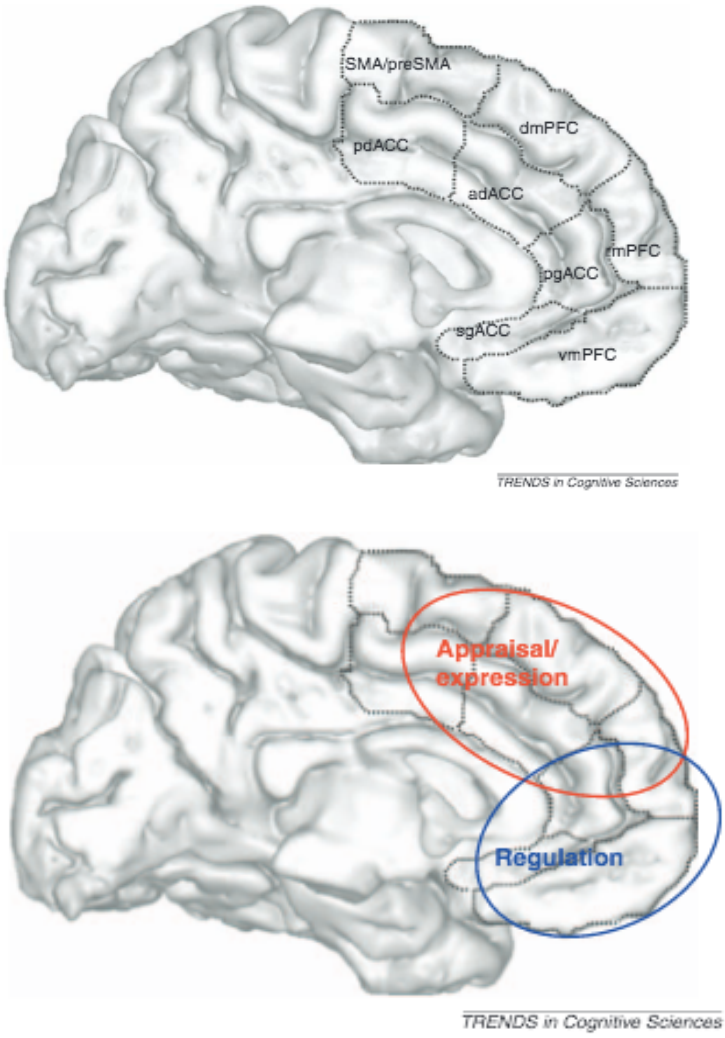

Figure 6: The top image shows the various sections off the anterior cingulate cortex (ACC) and the medial prefrontal cortex (mPFC). The bottom image shows the functional areas of the two that correspond to appraisal and expression and regulation of negative emotion (Etkin et al., 2011).[4]

As you can see, these areas are outside of the "ringed" limbic system, but they have been shown to contribute to the processing of negative stimuli, as are associated with emotional distress and breakups. These regions have a lot to offer with the question of why breakups hurt, as they are activated by direct pain experience and empathy for others who are experiencing pain. Figure 6 shows the breakdown of the

regions of the ACC and the mPFC and a graphical representation of where the appraisal and regulation are processed.[4,3] The ACC has been shown to be activated in the evaluation and response to others exhibiting painful behavior. The particular study used dynamic expressions instead of images and compared brain responses to expressions of pain and neural expressions. The ACC was shown to be activated in response to pain in others, and bold activation in the ACC and PFC represented pain evaluation.[3] Lesions in the ACC have also been shown to help chronic pain, so the relation seems to span across emotional and pain processing.[4]

The Experience of Pain

> "If you are distressed by anything external, the pain is not due to the thing itself, but to your estimate of it; and this you have the power to revoke at any moment,"
>
> – **Marcus Aurelius** (Meditations) 167 A.C.E.

Each person will experience pain differently. Whether physical, emotional, or both, pain is very personal and subjective and can change over time. As discussed, there are three main components to pain signaling, and two are devoted to identifying and reacting. From the information here, it is safe to say that pain is an experience, as opposed to simply a sensation. Various studies have shown the connection between

pain and emotional processing in many ways, and the anatomy and physiology of the brain has proven more complicated and interconnected than previously thought.

The quote above, by Marcus Aurelius, was written long before emotions were even thought to be involved in the experience of pain, and while it seems almost plausible now, it still isn't quite that simple. As recently as the 1950s, chronic pain was thought to be a psychological disorder instead of a biological one. If someone were to complain about back pain and have no indication of disease, he or she would be sent to a psychiatrist.[9] The recent inclusion of past experience, attention, anxiety, and more have done a lot for the understanding of the pain experience and individual subjectivity.

Pain is a different experience for everyone across age and gender, and a study from 2010 shows how it can vary between women with rheumatoid arthritis. Women were exposed to sensory pain and also evaluated based on emotional regulation and intensity.[12] Both emotional regulation and emotional intensity were shown to help regulate the pain behavior, proving a connection between the two. The pain-induction was standard with participants placing hands in buckets of ice water held at a constant temperature and the immersion time was recorded. Another interesting form of pain is phantom limb pain, and the therapy which uses a mirror. Phantom limb pain can be explained physiologically through cortical remapping, but the ability of the mind to stop the pain by convincing the body it has been touched or moved is remarkable. Mirror box therapy is not the placebo effect, which also can work to cure pain, but the patient knows the limb, a hand for example is missing, but the pain can

be stopped by placing the hand in the mirror box and tricking the brain into thinking it is the missing hand.

The placebo effect and mirror box therapy don't deal with emotions, but they do deal with using the mind to cure pain. This suggests that pain is mental as well as physical, but there isn't a clear line as to where one stops and the other begins. Based on the different experiences of pain, Marcus Aurelius may have been onto something way ahead of its time. However, the evolutionary benefits of pain response indicate that humans are not meant to be totally devoid of pain. Pain allows us to identify noxious stimuli and assess pain for the appropriate response. Emotional pain can serve to activate homeostatic mechanisms, but the prolonged effect could be detrimental to the body, leading to actual physical harm. Humans are also able to imagine episodes of distress and react accordingly, expressing emotions such as anxiety in anticipation of an event that may or may not happen.[5]

Even knowing all of this, the experience of pain can be generalized to the motor, somatosensory, and emotional response, but it cannot be assessed for quantity or quality for more than one person, or even then. Pain is an experience that, at this time, cannot be anticipated or predicted for anyone, due to the subjectivity and physiological differences in each of us, and it can change every time, even if the stimulus remains the same. That being said, the experience of pain seems to be dynamic and changes with age, experience, the situation, and more, and that further implies the impact of the emotional aspect.

Emotional Impact on Pain

There are a lot of components to pain, and emotions always seem to accompany it. However, as discussed, emotions seem to be more than just a byproduct of pain, but more of a regulator or contributor. The psychological aspect of pain is evident, but difficult to quantify, as there isn't a lot of physical evidence of the effects. That being said, there has been quite a bit of research done to explore this connection and the role of emotional regulation in the experience and control of pain. Specifically, in regards to pain, emotions and pain have can reciprocally impact one another. For example, depression and anxiety can increase the risk of chronic pain, and chronic pain may lead to anxiety and depression or other negative emotions.[7, 14]

Both the pain and emotional pathways are subject to individual states and experiences. With the amygdala and anterior cingulate cortex, in particular, being involved in both systems, it makes sense that the two would be connected. Empathy is also interesting since it involves no personal pain or emotional distress, but the brain is activated as if there were. Since empathy seems to be based heavily on experience, there is a question of whether or not people with a congenital insensitivity to pain would be able to feel empathy for those who were showing pain expression.

A review from 2009 asked this very question: could people without the ability to feel sensory pain (congenital insensitivity to pain or CIP) experience emotional pain or empathy?[2] This particular study was focused on empathy and the ability to experience pain by seeing it happen without ever having known the sensation. Some of the results of this study are shown in the Figure below.

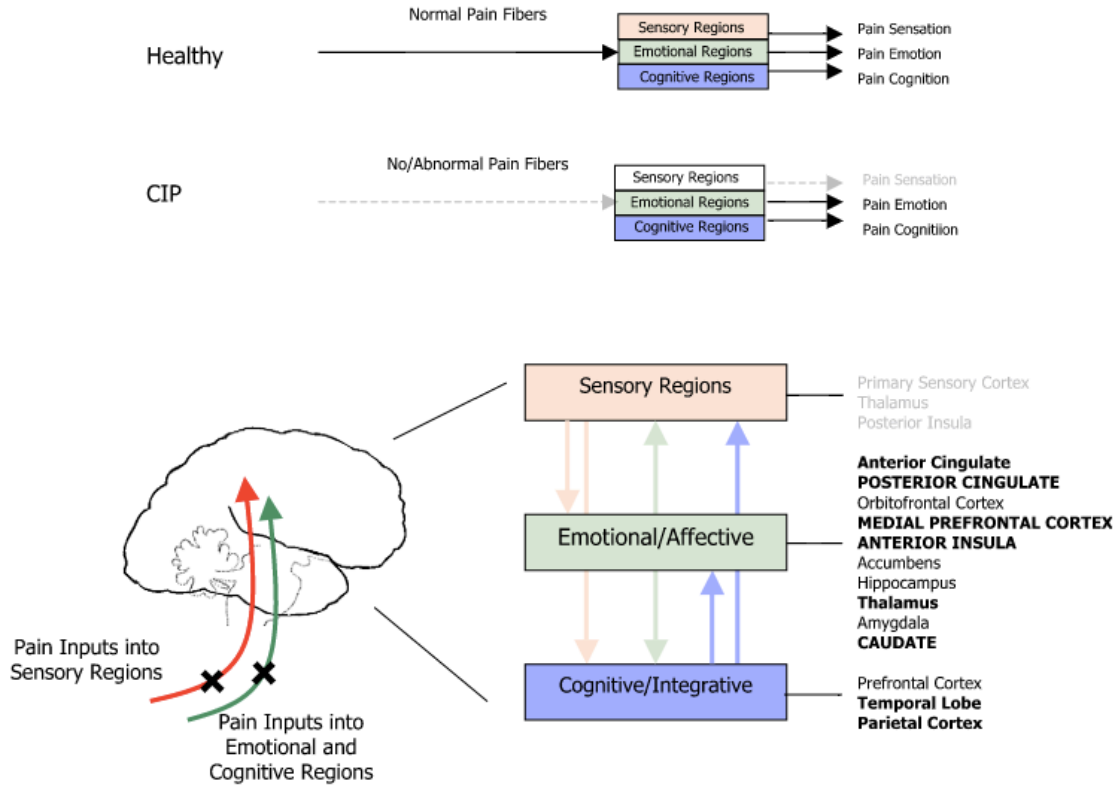

Figure XX: This image shows the difference in healthy and CIP brains in pain processing. CIP brains were able to experience all associated emotional experiences, but not sensory pain. The bottom image shows actual results of the study. All words in all capitals are specific to the CIP group (Borsook and Becerra, 2009).[2]

The results here indicate that the pathways of emotions and pain are separate, but connected. This also shows that emotions and empathy have a significant impact on the sensation and experience of pain since those who were unable to sense pain

could still "cognitively appreciate the concept."[2,7] This shows a clear distinction between the two pathways, but does not negate the fact that they are interconnected.

Brain structures that are linked to both pain modulation and affective processing are the periaqueductal grey (PAG), amygdala, anterior cingulate cortex (ACC), the anterior insula, and the prefrontal cortex.[5,17] The PAG has been shown to have anti-nociceptive properties, but it has also been shown to increase pain stimuli when the person was more anxious prior to the pain stimulus.[17] Emotions have also been shown to regulate pain through endorphins. For example, if a person is happy or euphoric and releases endorphins, this could reduce the perception of physical pain.[7]

In general, the evidence is there to suggest and show the relationship between emotional and pain processing. Through research with CIP individuals, the two pathways have also been shown to function independently from the other, suggesting we may not have total emotional control over physical pain, and we may not even have total emotional control over emotional pain. Things like loss and grief are not as easily regulated, but have shown to improve over time, and there is not a clear evolutionary explanation for the pain of loss.

Mental Health and Dealing with Emotional Pain

After all of the research into pain and the physiology of the experience, it is clear that mental health is a huge contributor to pain and quality of life in general. Having grown up in a world where mental illness is heavily stigmatized and not

discussed, it is clear to me now that we need a lot more education when it comes to mental health and coping. There have been many trends in recent years when it comes to diet and exercise and physical health in general, but there is still a huge hole when it comes to mental health education.

A review from the College Student Journal in 2011 evaluated breakup distress in university students, and found many troubling resulting behaviors. As one might imagine, there were a lot of negative emotions related to breakup distress ranging from anger to anxiety and sleep disturbances.[6] This is troubling due to the mental and physical impacts this may have on the individual. Lack or sleep or inadequate quality of sleep can have many negative physiological effects on the body, and this can prolong and even elicit illness such as depression, anxiety, and compromise immune health. To clarify, the scope here is mainly with rejection grief, and not necessarily loss. The two can be tied since they do have very similar responses, but to avoid confusion or misinformation, emotional distress here will be limited to rejection since there are different reactions and variables. As an example, a feeling of betrayal or embarrassment may not be associated with the death of a loved one, but these are highly implicated in the impact of rejection. However, the study did try to find a correlation between breakup distress and complicated grief, and there were several similarities.

Some of the findings of this study suggest that breakup and emotional distress can be predicted, in a way, based on the individual's perspective on the situation. Females were generally shown to have higher Breakup Distress Scale scores, and

those with the higher scores were usually the ones who were broken up with, or they reported less time since the breakup or were not in a new relationship.[6]

Emotional regulation has also been shown to have an impact on perceived pain and suicidal ideation.[12,13] The women with high emotional repair in the first study had a higher pain tolerance than the others with low emotional repair[12], and the Israeli soldiers with low emotional regulation had higher suicidal ideation.[13] Of course, since emotional regulation is learned and individual, the work environment could also have a huge impact on the ability to learn how to properly and effectively regulate emotional distress and increase emotional repair. Again, depression can also affect the ability to process emotions and recover from emotional stress. Many people with depression report chronic pain, but the pain doesn't always precede the depression.[7]

Finally, after learning about the connections between pain and emotions, it is important to learn how to deal with it. Practice and awareness of mental states and emotional behavior can help individuals learn how to more effectively manage emotional and mental pain, and this could also help to reduce the impact of physical pain. Some of the ways to try and recognize and manage mental health are as follows.

First, the most important thing you can do for your mental health is listen to your body. Poor sleep quality, irregular eating habits, irritability, anxiety, and depression, among other things can all be indicators that something is wrong and could get worse.[8] Loss of libido and loss of emotional investment can also be signs of mental stress. Another way to help yourself is to talk about it. If you feel it in yourself

or see it in others, it could be a good idea to talk about it with someone you trust or with the other person. You can also ask those you are close to to give you feedback on your behavior as to whether or not it is abnormal or worrisome. If someone does have depression, or is suspected to, it is the best idea to see a trained mental health professional to help guide them through the dysfunctional thinking.[8]

Something that is very prevalent in mental health is the aversion to getting help. Due to stigma and fear of being judged, many people will not seek help when they need it. This can lead to larger problems like clinical depression and anxiety. From the data and information here, mental health should be a priority since it impacts so many bodily processes and can help improve quality of life when treated properly.

Discussion

By evaluating the research, it is easy to come up with more questions than answers, but it is clear that emotions and pain are significantly connected. It also seems that mental health has a huge impact on overall physical health and wellbeing, even though it is not always made important to society. The connection between chronic pain and prolonged mental stress such as depression and anxiety was particularly troubling since there doesn't seem to be great treatments for either of these.

If there is nothing else to be gleaned from this review, it would be extremely beneficial to recognize the need for mental health awareness and education. The

brain is extremely interconnected and the various brain areas serve multiple purposes. That being said, emotional distress can send signals to other areas and activate homeostatic mechanisms that don't necessarily need to be running. This has huge implications in chronic pain and anxiety and other negative emotions.

The overlapping processes in the brain between emotions and pain suggests that they are meant to interact with one another, and emotional pain is another indicator to the body that something is wrong. This is why it can activate the homeostatic mechanisms in the body in an attempt to ease the pain. In application, I do hope this serves to promote mental health awareness and legitimacy since it has huge effects not only emotionally, but also physically.

Conclusion

From the research conducted, each of the questions asked at the start of this review have been answered in one way or another.

Why can emotions be painful? Based on the information provided, the interconnecting brain regions and the ability to anticipate situations may contribute to the feeling of pain in emotional distress. Also, anxiety can heighten the pain sensation which could indicate the body knows or can guess what is coming, causing a sensation of pain.

Why do different people feel pain differently? This question was thoroughly answered by looking at the way we process emotions and experience pain. Previous

experience, mental state, situation, gender, age, and more contribute to an individual's experience of pain.

Can physical pain be linked to emotional pain? Yes. The brain areas alone indicate a strong connection between pain and emotions, and the reciprocal relationship between chronic pain and negative emotions is very telling, as well. It is also interesting to see how our brains process empathy and the reactions of others to pain, and when that happens, the brain responds as if we ourselves are in physical distress.

Why are breakups painful, and how might one move past it? Ultimately, there doesn't seem to be a definite answer to this question, but there are clues as to why it might me. The distress of rejection shows a lot of similarities to loss and mourning, and these can lead to depression and anxiety, especially if someone has low emotional repair. Anticipating pain may also be a reason breakups are painful. This could mean there is anxiety about the breakup and the person expects pain, heightening the sensation of physical pain.

That being said, breakups could be painful for a myriad of reasons, but emotional regulation seems key since it is also individual. For instance, a breakup being more painful for one person may be because he or she has a different emotional regulation, and a person who seems unaffected my just have learned to regulate differently. Finally, through it all, pain and emotional distress seems to be relatively manageable when treated properly. It may be time to stop criticizing and stigmatizing

emotional distress and pay it the attention it deserves for the role it plays in holistic health.

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