

## THE SCIENCE OF EMOTIONAL PAIN: WHY IT HURTS JUST LIKE PHYSICAL PAIN

**Author's Name:** Acsah Regulas <sup>1</sup>

**Affiliation:**

1. Assistant Professor, Dept. of Pediatric Nursing, Suyog College of Nursing, Mysore. India.

**Corresponding Author Name & E-Mail:** Acsah Regulas, Acsahregulas1234@gmail.com

### ABSTRACT

*Pain is often thought of as a purely physical experience, but science has revealed that emotional pain activates the brain in much the same way as physical pain. Heartbreak, rejection, and grief are not just metaphorical wounds; they can cause real, measurable distress in the body, often leading to symptoms that mimic physical illness.*

**Keywords:** Pain, Emotional, Physical

## INTRODUCTION

Pain is often thought of as a purely physical experience, but science has revealed that emotional pain activates the brain in much the same way as physical pain. Heartbreak, rejection, and grief are not just metaphorical wounds; they can cause real, measurable distress in the body, often leading to symptoms that mimic physical illness.

### How the Brain Processes Emotional Distress

Neuroscience has shown that emotional pain and physical pain share common neural pathways. The brain does not distinguish between a broken bone and a broken heart as much as one might think. Studies using functional MRI (fMRI) scans have demonstrated that when a person experiences social rejection or emotional distress, the same brain regions—primarily the anterior cingulate cortex (ACC) and the insula—light up as when experiencing physical pain.

A landmark study conducted by Eisenberger, Lieberman, and Williams (2003) at UCLA used fMRI scans to observe brain activity in participants who experienced social exclusion during a computerized ball-tossing game called Cyberball. The researchers found that the ACC, a region associated with the distress of physical pain, was activated when participants were rejected. This provided strong evidence that the brain processes social and emotional pain in a similar way to physical pain.

**Dr. Naomi Eisenberger**, one of the researchers, explained,

“These findings suggest that social pain is processed by some of the same neural circuits that process physical pain, which is why rejection can literally feel like a punch to the gut.”

### *The Connection between Heartbreak and Actual Physical Symptoms;*

Emotional distress, especially heartbreak, can manifest in the body in various ways. When someone goes through the loss of a loved one, a breakup, or intense grief, the body releases stress hormones such as cortisol and adrenaline. These hormones can lead to:

- Increased heart rate
- Chest pain
- Digestive issues
- Insomnia
- Weak immune system

## BROKEN HEART SYNDROME: A MEDICAL REALITY

One of the most striking examples of emotional pain causing physical symptoms is Takotsubo cardiomyopathy, commonly known as Broken Heart Syndrome. This condition, first described in Japan, occurs when extreme emotional stress—such as the loss of a loved one—causes the heart’s left ventricle to temporarily weaken and balloon out, mimicking the symptoms of a heart attack.

A well-documented case involved Joanie Simpson, a Texas woman who experienced chest pain and was rushed to the hospital, where doctors initially suspected a heart attack. However, tests revealed no blocked arteries, and instead, she was diagnosed with Broken Heart Syndrome. Just the day before, she had lost her beloved pet dog.

**Dr. Abhishek Maiti**, the cardiologist who treated her, said,

*“The emotional connection we have with others, whether people or pets, is incredibly powerful. The heart does not just respond to cholesterol and blood pressure—it responds to grief and love too.”*

## REAL-LIFE INCIDENTS OF HEARTBREAK LEADING TO PHYSICAL DECLINE

### 1. Debbie Reynolds and Carrie Fisher (2016)

One of the most tragic and well-known incidents of emotional pain affecting physical health occurred in Hollywood legend Debbie Reynolds, who passed away just one day after her daughter, actress Carrie Fisher, died from a cardiac arrest.

**Reynolds’ son, Todd Fisher**, later said,

*“She wanted to be with Carrie. She said, ‘I miss her so much, I want to be with Carrie,’ and then she was gone.”*

Doctors speculated that Reynolds may have suffered from Broken Heart Syndrome, as she had no significant prior health issues.

### 2. A Mother’s Grief Leading to Death

In another case, a 58-year-old woman in Italy was diagnosed with stress cardiomyopathy after her son died unexpectedly. She had no history of heart disease but developed acute heart failure shortly after receiving the tragic news. Her doctors noted that her emotional distress had directly triggered her heart complications.

## WHY EMOTIONAL PAIN CAN BE WORSE THAN PHYSICAL PAIN

Many people report that emotional pain lingers far longer than physical pain. This is because while a physical wound may heal, emotional wounds can be retriggered by memories, places, or even certain songs. A 2010 study published in Proceedings of the National Academy of Sciences found that

reliving a painful memory activates the brain's pain-processing centers just as intensely as the original experience.

**Dr. Edward Smith**, a cognitive neuroscientist, explained,

“Unlike physical pain, which heals with time, emotional pain can be reactivated indefinitely by remembering the event, making it feel as raw as the day it happened.”

## CAN PAINKILLERS HELP EMOTIONAL PAIN?

Interestingly, since emotional pain and physical pain share neural pathways, some researchers have found that painkillers like acetaminophen (Tylenol) can help relieve emotional distress. A 2010 study led by **Dr. C. Nathan DeWall** at the University of Kentucky found that participants who took acetaminophen daily reported less emotional hurt over time compared to those who took a placebo.

However, experts caution against using painkillers as a way to cope with emotional distress, emphasizing that therapy, social support, and self-care are healthier ways to process pain.

## CONCLUSION

Science has proven that emotional pain is not merely a psychological experience but a physical one too. The brain and body respond to heartbreak, rejection, and grief in ways that can be just as debilitating as a physical injury. Understanding this connection can help society take emotional distress more seriously and encourage better support systems for those suffering from loss, trauma, or social exclusion.

As **Dr. Naomi Eisenberger** puts it,

“If we treated emotional pain with the same urgency as physical pain, we could prevent a great deal of suffering.”

## REFERENCES

1. Bear, M. F., Connors, B. W., & Paradiso, M. A. (2020). *Neuroscience: Exploring the Brain* (4th ed.). Wolters Kluwer.
2. Purves, D., Augustine, G. J., Fitzpatrick, D., Hall, W. C., LaMantia, A. S., Mooney, R., Platt, M. L., & White, L. E. (2018). *Neuroscience* (6th ed.). Sinauer Associates.
3. Kandel, E. R., Schwartz, J. H., & Jessell, T. M. (2021). *Principles of Neural Science* (6th ed.). McGraw-Hill.
4. Kolb, B., & Whishaw, I. Q. (2019). *Fundamentals of Human Neuropsychology* (8th ed.). Worth Publishers.



5. Baumeister, R. F., & Bushman, B. J. (2020). Social Psychology and Human Nature (5th ed.). Cengage Learning.
6. LeDoux, J. (2015). Anxious: Using the Brain to Understand and Treat Fear and Anxiety. Viking Press.
7. Panksepp, J. (1998). Affective Neuroscience: The Foundations of Human and Animal Emotions. Oxford University Press.
8. Sapolsky, R. M. (2017). Behave: The Biology of Humans at Our Best and Worst. Penguin Press.
9. Eisenberger, N. I., & Lieberman, M. D. (2004). Social Pain: Neuropsychological and Health Implications of Loss and Exclusion. APA Press.
10. Sternberg, R. J. (2019). Cognitive Psychology (7th ed.). Cengage Learning.