

How emotional pain can really hurt

By Vivienne Parry
Radio 4's The Pain Of Emotion

Love really does hurt, just as poets and song lyric writers claim.

New brain scanning technologies are revealing that the part of the brain that processes physical pain also deals with emotional pain.

And in the same way that in some people injury can cause long-lasting chronic pain, science now reveals why some will never get over such heartbreak.

Emotional pain can take many forms; a relationship break-up or social exclusion, for example.

But it does not get any more extreme than losing a loved one, as Scottish broadcaster Mark Stephen did.

In July 1995 he was driving a tractor while hay-making and accidentally hit his young daughter. She died shortly afterwards.

Mark's grief was overwhelming, he says.

If you listen to people who are damaged emotionally, they will often translate their pain into physical similes

Professor David Alexander, Aberdeen Centre for Trauma Research

"When people talk about a broken heart, that for me was where it was seated, just below your sternum.

"It feels like your heart is leaking and you can't run away from it because you are the source of that pain."

Thinking he would go mad with grief, he sought help from David Alexander.

Professor Alexander is director of the Aberdeen Centre for Trauma Research. He led the psychiatric team that first responded to the Piper Alpha oil-rig disaster.

Since then, he has been involved in helping survivors of many disasters including the Asian tsunami, the war in Iraq and, most recently, the earthquake in Pakistan.

He also managed to get Mark Stephen through his darkest days.

'My guts are aching'

Professor Alexander is not surprised about the link between physical and emotional pain:

"If you listen to people who are damaged emotionally, they will often translate their pain into physical similes: 'My head is bursting, my guts are aching' and so on. The parallel is very strong."

But medical research has tended to concentrate on physical pain.

Neuroscientist Mary Frances O'Connor at the University of California, Los Angeles (UCLA) is one of the scientists who have propelled emotional pain up the research agenda.

"We're at a very new time when we can use technologies to look at the brain and the heart," she says.

Naomi Eisenberger at UCLA has shown which parts of the brain are active when we feel emotional pain.

She devised an intriguing computer game in which participants were deliberately made to feel left out.

Simultaneous brain scanning revealed that the pain of being socially rejected was processed in much the same way in the brain as physical pain and in the same area, the anterior cingulate cortex.

'Complex grief'

Why should physical and emotional pain be linked in this way?

Social relationships are crucial to our survival as a species. In dangerous situations, a lone human is in peril whereas a group may survive.

"The social attachment system is piggy-backed onto the physical pain system to make sure we stay connected to close others," says Naomi Eisenberger.

"Being wrenched from another or rejected by a group is painful, so we avoid it."

There is an increased risk of dying in the six months after bereavement

Professor Martin Cowie, Brompton Hospital

Physical pain warns us not to do something, walk on a broken ankle for instance. And emotional pain too can be a warning - "don't go near that sort of man again", "avoid women like her".

But sometimes physical pain can become chronic, long outlasting its original purpose, and emotional pain is the same.

Mary Frances O'Connor calls it "complex grief" and it occurs in about 10% of people after bereavement.

"They experience a lot of bitterness and anger, that their future is senseless. They don't adapt with time as others do."

There is a very strong suspicion that people who are not adapting to bereavement are also those who experience the greatest levels of physical pain.

But can we die from a broken heart?

Martin Cowie is professor of cardiology at the Brompton Hospital. He is very sure of the answer: "Yes, we can."

"There is an increased risk of dying in the six months after bereavement and it's particularly marked amongst men."

The bereaved are much more likely to be involved in accidents, which is perhaps understandable, but also to die from heart attacks and stroke. The hormones involved in the stress of bereavement make these events more likely.

This knowledge makes it essential to identify and treat those whose emotional pain is likely to become chronic, causing debilitating depression or even death.

The Pain Of Emotion will be broadcast on Monday, 21 July, 2008 at 2100 BST on BBC Radio 4, and for seven days on [BBC iPlayer](#).

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