

# Study shows that chronic grief activates pleasure areas of the brain

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## **Findings could change how health professionals treat the disorder**

Grief is universal, and most of us will probably experience the pain grief brings at some point in our lives, usually with the death of a loved one. In time, we move on, accepting the loss.

But for a substantial minority, it's impossible to let go, and even years later, any reminder of their loss — a picture, a memory — brings on a fresh wave of grief and yearning. The question is, why? Why do some grieve and ultimately adapt, while others can't get over the loss of someone held dear?

Reporting in the journal *NeuroImage*, scientists at UCLA suggest that such long-term or "complicated" grief activates neurons in the reward centers of the brain, possibly giving these memories addiction-like properties. Their research is currently available in the journal's online edition.

This study is the first to compare those with complicated and noncomplicated grief, and future research in this area may help psychologists do a better job of treating those with complicated grief, according to Mary-Frances O'Connor, UCLA assistant professor of psychiatry and lead author of the study.

"The idea is that when our loved ones are alive, we get a rewarding cue from seeing them or things that remind us of them," O'Connor said. "After the loved one dies, those who adapt to the loss stop getting this

neural reward. But those who don't adapt continue to crave it, because each time they do see a cue, they still get that neural reward.

"Of course, all of this is outside of conscious thought, so there isn't an intention about it," she said.

The study analyzed whether those with complicated grief had greater activity occurring in either the brain's reward network or pain network than those with noncomplicated grief. The researchers looked at 23 women who had lost a mother or a sister to breast cancer. (Grief is very problematic among survivors of breast cancer patients, particularly among female family members who have increased risk based on their family history). They found that, of that number, 11 had complicated grief, and 12 had the more normal, noncomplicated grief.

Each of the study participants brought a photograph of their deceased loved one and were shown this picture while undergoing brain scanning by functional magnetic resonance imaging (fMRI). Next, they were scanned while looking at a photograph of a female stranger.

The authors looked for activity in the nucleus accumbens, a region of the brain most commonly associated with reward and one that has also been shown to play a role in social attachment, such as sibling and maternal affiliation. They also examined activity in the pain network of the brain, including the dorsal anterior cingulate cortex and the insula, which has been implicated in both physical and social pain. They found that while both groups had activation in the pain network of the brain after viewing a picture of their loved one, only individuals with complicated grief showed significant nucleus accumbens activations.

Complicated grief can be debilitating, involving recurrent pangs of painful emotions, including intense yearning, longing and searching for the deceased, and a preoccupation with thoughts of the loved one. This

syndrome has now been defined by an empirically derived set of criteria and is being considered for inclusion in the DSM-V, the psychiatric manual for diagnosing mental disorders.

O'Connor, who is a member of UCLA's Cousins Center for Psychoneuroimmunology, cautions that she is not suggesting that such reveries about the deceased are emotionally satisfying but rather that they may serve in some people as a type of craving for the reward response that may make adapting to the reality of the loss more difficult.

Source: University of California - Los Angeles

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