Why Do We Grieve?

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Grief is a puzzling emotion. At face value, it is entirely logical – almost all of us can empathise with the emotional impact of losing a close relative. On the other hand, grief represents a biological enigma, since it is hard to imagine any evolutionary advantage that might be conferred by the emotional turmoil and mental paralysis that often accompanies the grieving process. Why, then, does grief appear to be a ubiquitous experience across human cultures?

The benefit of grief

One potential explanation for the existence of grief as an emotion in adults is that it may be an unavoidable consequence of beneficial emotions during childhood. In infancy, the loss of a close relative, even temporarily, leads to signs of grief – most obviously, uncontrollable tears. This process, of course, has huge evolutionary advantages: reuniting mothers with their lost children, or summoning aid from other family members or even unrelated individuals. A compelling argument for the existence of grief in adults may therefore be that it is a 'carry over' from youth: during childhood, we cry to bring back family members who have been lost temporarily, but as adults we are unable to turn off this emotion when we lose family members permanently.

The cost of grief

Although the grieving process may be beneficial from an evolutionary perspective, there is no doubt that on an individual level it comes at great cost. Individuals experiencing grief show strong activation of regions of the brain associated with both physical and emotional pain and often describe the trauma of loss as a very physical one – the stereotypical pain of heartbreak. This emotional impact triggers profound and often long-lasting physiological symptoms too. Immediately after bereavement, most people show a significant increase in the stress hormone cortisol, which typically lasts for at least six months. This, in turn, impacts on multiple organs: raising blood pressure and heart rate, interfering with sleep patterns and impairing the function of critical immune cells. It is therefore perhaps unsurprising that bereaved individuals are themselves more likely to die in the months following their loss, with overall mortality rising by more than 10% in grieving individuals relative to closely matched controls. Mortality from cardiovascular issues in particular rises significantly following bereavement – a poignant reminder of the risks of literally 'dying from a broken heart'.

Grief pathologies

Given that grief itself is a debilitating process, determining the point at which 'normal' grief becomes pathological is extraordinarily difficult. There is no rule book which dictates when someone should stop crying over a lost relative, nor how deeply the loss of a parent or grandparent should be felt. However, it is clear that for some people the grieving process can last for an extended period and impact strongly on their ability to return to normal life after bereavement.

Little is known about this condition, known as 'prolonged grief syndrome', although small scale brain imaging studies seem to indicate the involvement of an area of the brain called the nucleus accumbens. Counterintuitively, this region is known to be involved in the brain's reward pathways, in which it acts to positively reinforcing behaviours that are important for survival. This has led to the suggestion that prolonged grief may arise, in part, from an extended yearning for the person who has been lost – an inappropriate activation of the reward pathway that drove our 'cry for help' as infants. However, the factors that lead to this response or, importantly, what we may be able to do to avoid it, remain unknown.

Grief in non-human animals

The concept of bereavement and grief feels like a uniquely human attribute, but in fact there is now considerable evidence that we are not alone in experiencing this emotion. Our closest relatives, chimpanzees, regularly display behaviours that we would associate with the grieving process in humans, such as carrying recently-deceased family members with them, or losing appetite following a bereavement. There are also clearly documented cases of orca (killer whale) mothers carrying the bodies of their stillborn calves for extended periods, despite the obvious difficult of doing so in the open ocean. And African elephants have been recorded not only apparently 'mourning' deceased member of their herd but, remarkably, revisiting the site of their remains months or even years later in a way that is disconcertingly similar to the way in which we visit the graves of loved ones. We will probably never be able to understand whether the emotional response of these animals represents true 'grief', but the fact that such similar behaviours occur primarily in species that are known to have complex social structures is probably indicative of the critical role that grief plays in maintaining group bonds in the face of loss.

Grief in the robot era

Almost all of us instinctively understand the emotional consequences arising from the loss of loved ones: we don't have to have children or siblings of our own to understand that their death would have a profound impact. Most of us also recognise that the concept of bereavement also applies (albeit usually in a reduced way) to non-human companions, such as a much-loved family pet. Some of us can also recall the pain of losing a childhood teddy or favourite toy – an emotion that may feel like grief even though the object that has been lost was never alive. Consequently, it is perhaps unsurprising that our increasingly technology-dependent lives are presenting us with new challenges in dealing with grief.

Many of us are increasingly reliant on robots for help around the house: to cut the lawn or clean the floor. Often we anthropomorphise these technical assistants; giving them names or perhaps adding human-like features like eyes or hands. And then, when they break, we feel sadness – perhaps not 'grief' in the fullest sense, but definitely a sense of loss.

Increasingly, we are likely to see the boundaries between the 'real world' and the virtual world begin to blur, including when it comes to grief. Millions of us now interact daily with AI-driven bots; often for professional advice, but sometimes for social interaction or even friendship. When these bots disappear – perhaps because the parent company withdraws technical support – this relationship comes to an abrupt end. And, as with human friendships, this bereavement can lead to significant feelings of grief. As we move towards a world in which chatbots, robots and digital assistants will be a ubiquitous feature of most of our lives, there will be a pressing need for us to learn more about how best to manage this most visceral of emotions.

Further Reading

If you are grieving and would like help or advice, try www.mind.org or Get help with grief after bereavement or loss - NHS

For more on the **evolution of grief**, try: The Evolution of Grief, Both Biological and Cultural, in the 21st Century | Scientific American or Is there a reason for grief? - Scienceline

Buckley et al (Physiological correlates of bereavement and the impact of bereavement interventions - PMC) provides a good scientific review of the **physiological impacts of grief**.

There is a recent detailed review on **prolonged grief disorder** available here: Prolonged Grief Disorder: Course, Diagnosis, Assessment, and Treatment - PMC

BBC Future has published a very readable article on **grief in non-human animals** here: Why some animals appear to mourn their dead - BBC Future

And for a thought-provoking discussion of 'griefbots' and their implications, try this short film from the BBC: Tech Now - BBC Reel