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**Pam Weintraub** 2,500 words

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When the hospice nurse called on the morning of 2 April to tell me that my father had died at 7:38am, just two days after he was released from the hospital and seven hours after I arrived in town to see him, the world suddenly felt strange, half-formed. I recognized the shapes of things, but struggled to comprehend what I was seeing. I didn't realize how much of a pillar of my existence he was, until that pillar crumbled. Since the day I was born, he was a constant presence, even at 2,000 miles away – he lived in Maryland, I lived in New Mexico – and now he no longer existed. As much as my rational mind knew this to be true, to the rest of me it just didn't seem possible.

On the outside, I remained calm, quietly cycling through the unwanted tasks incumbent upon the eldest child of the bereaved: telling other family members, making arrangements, notifying government agencies, companies, organizations, the university where he was a librarian for 33 years. But on the inside, I was a churning maelstrom of emotions: sadness, confusion, anger, disbelief, fear, regret, guilt. At times in those first hours, days and weeks after his death, it was hard to breathe. I couldn't concentrate. I forgot things. Fatigue was a constant, no matter how much I slept. I came to understand what Joan Didion meant in *The Year of Magical Thinking* (2005), a chronicle of her grief over the loss of her husband, when she wrote: 'I realized for the time being I could not trust myself to present a coherent face to the world.'

This fog of grief, it turns out, is as common as grief itself. When the neurologist Lisa Shulman lost her husband to cancer nine years ago, 'there was some serious sadness, but that wasn't the main problem,' she recalls. 'It was the disorientation. I felt like I was waking up in a completely alien world. Because the whole infrastructure of my daily life was fundamentally gone.'

She found herself becoming lost in time, ending up in familiar places without knowing how she got there, she recalls. 'It's not simply a matter of discomfort or anxiety. It's frightening,' she says. 'Because you feel like, as Didion said long ago, you feel like you're going crazy.'

The idea of the five stages of grief, common in the Western world, doesn't help. It's become part of the zeitgeist that we go through these stages in turn, from denial to anger to bargaining to depression and finally to acceptance. The psychiatrist Elisabeth Kübler-Ross first proposed these five stages of grief in her book *On Death and Dying* (1969) as a way to describe the experience of people facing a terminal illness. Later, with the death and dying expert David Kessler, she extended the idea to explain the bereaved's response to loss in *On Grief and Grieving* (2005). But in recent years, psychologists and neurobiologists have come to realize that grief is far more complex and individualistic. The ravages of grief are many and varied. A bereaved person feels sad, of course, but they might also feel angry, irritable, tired, unmotivated, deflated, even bothered more than usual by noise. Like Shulman, a neurologist at the University of Maryland School of Medicine, they might question their identity, their place in the world.

The five stages of grief theory, it turns out, is not a particularly helpful way to think about bereavement. In fact, it can be harmful: if the way we feel doesn't fit the mold, we might think that there's something wrong with us – or with the people around us.

'Importantly, we may turn away from our instinct to do things that comfort us in the belief that there are right and wrong ways to behave,' Shulman writes in her book *Before and After Loss* (2018). 'But our experience of loss is personal and intimate. It doesn't lend itself well to generalization; it's as unique as we are.'

The study of the bereaved has revealed just how diverse people's experiences of grief are – but also some interesting patterns. In a remarkable study of depression in the bereaved, published in the *Journal of Psychiatric Research* in 2015, researchers monitored 2,512 people who had lost a spouse or child – once before and three times after the loss, over a span of 18 years. They found that, while 7 per cent had chronic depression that persisted throughout the study period, most of the participants – about 68 per cent – experienced only mild depression, or none at all. Meanwhile, 11 per cent reported dealing with depression before the death, but the depression eventually lessened over time, and 13 per cent experienced chronic grief – an onset of depression after the death.

Her own experience inspired Shulman, who studies Parkinson's disease, to investigate the neurology of grief as a way to understand what was happening to her. In her book, which interweaves her grief story with the science of bereavement, she notes that grief is a universal

human experience that our brains have evolved to manage. Over millennia of collective loss, the brain has developed a sophisticated strategy to help us endure bereavement and, eventually, to heal, says the psychologist Natalia Skritskaya. 'Grief is a natural reaction,' she says. 'However unsettling, and however strange those reactions are, there are good reasons for them.'

Grief has such a powerful effect on us, I learned, that it rewires the brain: the limbic system, a primal part of the brain controlling emotions and behaviors that ensure our survival, takes center stage, while the prefrontal cortex – the center of reasoning and decision-making – retreats to the wings.

'From an evolutionary standpoint, we are strongly hardwired to respond to something that is a threat,' Shulman says. 'We oftentimes don't think of a loss of a loved one as a threat in that way, but, from the perspective of the brain, that's the way it is literally perceived.'

**Like a stern nurse imposing bed rest, the brain suppresses the control centers of decision-making and planning**

That perception of threat means that our survival response – 'fight or flight' – kicks in, and stress hormones flood the body. The work of the psychologist Mary-Frances O'Connor at the University of Arizona and others has found heightened levels of the stress hormone cortisol in the bereaved.

While the cortisol is flowing fast, the brain remakes itself – at least temporarily – to help us endure the trauma of grief. In the weeks after a loss, the brain, like a stern nurse imposing temporary bed rest for itself, suppresses the control centers of higher functions, such as decision-making and planning. At the same time, Shulman says, areas involved in emotion and memory work overtime, gatekeeping which emotions and memories get through. Brain scans of the bereaved show that grief activates parts of the limbic system – sometimes referred to as the 'emotional brain'. Among the limbic regions impacted are the amygdala, which governs the intensity of emotions and threat perception; the cingulate cortex, involved in the interplay between emotions and memory; and the thalamus, a sort of relay station that conveys sensory signals to the cerebral cortex, the brain's information-processing center.

'To sustain function and survival, the brain acts as a filter sensing the threshold of emotions and memories that we can and cannot handle,' Shulman writes in her book. There is little we can do to change this response, she adds, though we wouldn't necessarily want to; it's essential for adjusting to the loss. 'We're at the mercy of this whole process, basically,' Shulman says.

So my inability to form coherent sentences or remember what I opened the refrigerator to get is nothing to be worried about, Skritskaya assures me; my brain has simply powered down my thinking to enable me to tolerate the loss. The tradeoff is fuzzy cognition – what I've come to describe to friends as 'grief brain'.

'Grief takes up a lot of bandwidth in the brain,' Shulman writes in her book. 'Odd behavior and incoherence are expected consequences of the brain's protective responses following emotional trauma.'

Just as the body knows what to do to heal a wound, the brain knows what to do to heal itself after a loss. But that healing takes time, Skritskaya says: 'It requires kindness and being gentle with yourself.'

How long grief lasts varies from one person to another. For some people, the pain of loss can pass within a few weeks or months, while others might still feel deep sorrow a year later.

If the grief is too intense for too long, though, it can become problematic, recent research suggests. If there's a preoccupation with the loss that lasts more than a year, treatment might be needed to help the bereaved come back to themselves, many psychologists now believe. The condition, called prolonged grief disorder or complicated grief, is included in the latest volume of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*, which psychologists and psychiatrists use to diagnose clients.

That's not to say that if someone is still grieving deeply on the 366th day after a loss, their bereavement has suddenly become disordered. 'There's some arbitrariness to that [one-year] time point,' says Skritskaya, who is also a researcher at the Centre for Complicated Grief at Columbia University in New York. 'It's a balance between making sure we don't pathologise normal reactions, but then also that we do give attention to people who seem to be struggling and need more help – those who are having a more intense experience.'

### Most bereaved people vacillate between actively grieving and moving through the obligations of daily life

People who lost loved ones to violence, or had a very close relationship to the deceased, tend to be more vulnerable to complicated grief, a 2019 study by researchers in the Netherlands and the US found. While it can be easy to assume that prolonged grief is simply a form of depression, and can be treated the same way, it's not. The same study notes that complicated grief is distinct from depression, and from post-traumatic stress or anxiety, though there is some overlap in symptoms, such as a diminished sense of self and social isolation. Other research has found that cognitive decline is more pronounced in people with complicated grief.

Cases of complicated grief are rare, though; only about 10 per cent of bereaved people will develop the disorder, according to a 2017 study by researchers at Aarhus University in Denmark. Most bereaved people vacillate between actively grieving and moving through the obligations of daily life with some semblance of normality.

This oscillation between sorrow and kind-of-OK describes my own experience. While working on this essay, for example, at times I was able to enter states of flow – extended periods of unfettered, focused writing – much as I could before my father's death. But at other times,

often in the same work session, I was overcome by despair and an acute awareness of my father's absence from the world, an incomprehensible erasure. When thoughts of him surfaced, either wending their way into my consciousness of their own accord or through the trigger of an email from a friend or family member, an unbidden memory, even a letter from the hospice center, there was nothing I could do but stop and let the sobs come.

It's like my primal brain knows exactly what I need and will make sure I get it.

Indeed, researchers now recognize that the vagaries of grief, however unpleasant, are a way of helping the brain, mind and body cope with the loss – and, eventually, adapt to the new reality of life without a loved one.

Gradually, in 'the process of dealing with loss, coming to terms with that world where you don't want to be', grief becomes more integrated into the bereaved's everyday life, rather than a dominant force in it, says Judith Murray, a psychologist with the University of Queensland in Australia.

'That's the incredible power of healing from grief,' she says. 'We've got this idea that you get over your grief, but it becomes a part of who we are.'

With the cerebral cortex back at the helm and a return to higher-level thinking, the mind is able to spend more time reflecting on the loss and the relationship, and grappling with the meaning of it all can lead to positive growth. Loss can inspire people to examine life more deeply than they did before, and foster a greater awareness of their own fragility and a stronger sense of purpose, Shulman writes in her book. She cites a 2004 study that found that loss can lead to positive growth in a number of different ways: a new sense of priorities and a greater appreciation of life; better relationships; feeling stronger; a tendency to see new possibilities; and spiritual development. In her own life, Shulman found that journaling helped her to process her grief. In reflecting on her loss, she found meaning in it.

Not everyone experiences such growth after a deep loss, however. For some, the consequences can diminish their own health – and even hasten their own demise. Writing in the journal *Psychosomatic Medicine* in 2019, O'Connor notes that multiple studies have found increased rates of mortality among bereaved people. My dad might be yet another sad example of grief contributing to a premature death. Four months before he passed, his wife died, and his health deteriorated. When he finally went to the hospital, the doctors eventually diagnosed the source of the pain that had left him bedridden: he had developed severe stomach ulcers. I can't know for sure, but my last conversations with him in the months before his death have left me with a deep suspicion that his own grief and loneliness contributed to his rapid demise.

Even for those who navigate the rough rapids of grief without falling overboard, grief never recedes completely. A 1995 study found that two to 15 years after bereavement, people who'd

lost a child or a partner reported lower overall satisfaction with their lives – but greater coping skills.

Understanding the neurological underpinnings of my grief, and that growth often follows it, is a comfort – though I know any growth I gain from my father's death is a long way off. For now, I'm tending to the emotions that arise as they come, (mostly) without judgment, and seeking comfort from supportive friends and immersion in the ponderosa pine forests near my home.

An email I received the other day from my father's oldest friend, who knew him for 70 of his 79 years, gives me hope for a future in which this irrevocable loss no longer feels so potent, when my neural pathways re-order themselves once again and my 'grief brain' yields to a new reality, and a new way of remembering.

'When we lose a friend, we have grief accompanied by fond memories,' he wrote. 'Eventually fond memories push the grief into the background. I'm waiting sadly, but patiently.'