

Worried about the future? The science behind coping with uncertainty

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Living with uncertainty can be unnerving and anxiety-inducing, whether it's climate change, Brexit, exam results or simply waiting for a call. Fortunately there are ways to build resilience.

TWO minutes, 58 seconds. Two minutes, 59 seconds. Three minutes. One blue line or two? Our lives are full of moments where we hold our breath, waiting, our future in the balance. Whether it is three minutes for a pregnancy test, three months for an exam result or three years to find out what will happen with Brexit, time spent waiting for the news that could change everything can be filled with excitement and hope, or fear and anxiety.



Now though, we are starting to understand how our capacity for coping with such uncertainty varies, and the toll that not coping well can take on our physical and mental health. With that comes the revelation that our ability to tolerate periods living in limbo has actually decreased over the past few decades. That has profound implications for many aspects of our lives – from the medical advice we are given and choices we make about it to how we cope with times of personal struggle, political upheaval and even longer-term existential threats like climate change.

Thankfully there are ways to identify how tolerant we each are to spells of uncertainty that invade our lives, and methods we can use to manage and build resilience to them. It may be true that nothing in life is certain, but we can all learn how to traverse life's limbos better and emerge from them relatively unscathed.

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Limbo is, of course, the first circle of hell in Dante’s Divine Comedy. It is a place where people have no hope yet live in longing. It is described as a gloomy, dimly lit wood – dark, deep and foggy. What are first mistaken for cries of anguish are in fact sighs of sadness.

Not knowing isn’t nice. We are curious. We like to know what is going on, what might happen and what the long-term effects of our actions might be. Our brains are geared towards predicting the future; our very perception of the world is generated by combining memories of our past with information from our senses, to make an educated guess about what is about to happen. Experiencing uncertainty makes us feel very uncomfortable.

In fact, we find uncertainty so unsettling that people would rather know they are going to receive an electric shock than wait for the possibility of one. This was shown when researchers at University College London got people to play a computer game where snakes were hidden behind certain rocks. Each time participants found a snake, they got a small electric shock. The computer measured uncertainty using the players’ guesses and their stress response based on how much they sweated and their pupil size. People were more stressed if they were uncertain whether a shock was coming than if they knew they were definitely going to get zapped.

“It’s the state that uncertainty generates,” says Benjamin Rosser at Liverpool John Moores University in the UK. “If you’re in a situation where something bad is definitely going to happen, you know what you’re dealing with and you can start thinking about ways of coping. If you are in a situation where the outcome could be positive or negative, you’re in a preparatory frame of mind

and you're less prepared for either outcome." Think about a time of recession – in some ways it can be more stressful waiting for the possibility of lay-offs at work than just being told "you're sacked".



We all differ in our ability to cope with not knowing how things will turn out. Scientists call this trait our "intolerance of uncertainty". Where we sit on a spectrum of intolerance affects how we experience everyday situations, from waiting for a bus to waiting for news of a loved one in hospital. "It means that in life's ambiguous scenarios, two people with the same information can react in two completely different ways," says Rosser.

Say your partner should have been back from work 20 minutes ago. Those with a low intolerance of uncertainty will assume they are stuck in traffic. A person with a high intolerance of uncertainty might immediately think they have been involved in an accident and worry until they arrive home.

Of course, sometimes having a high intolerance of uncertainty is a good thing, says Michel Dugas at Concordia University in Montreal, Canada. "There are certain jobs where it's a benefit. Obviously, you don't want your air traffic controller to say, 'well I don't know what's going to happen, but that's OK.'" Equally, if you are a detective or a brain surgeon, a high intolerance for uncertainty is critical for some aspects of the job.

But for the most part, an extreme dislike of the unknown is undesirable. It can provoke fear, anxiety and a perception of vulnerability. People who are less tolerant of uncertainty will engage in "safety behaviours", says Dugas. "These are strategies that prevent undesirable outcomes in our future – phoning your partner all the time to check in with them, is a prime example."

While some safety behaviours allow us to minimise uncertainty and the associated anxiety, too many, paradoxically, just make things worse. "Safety behaviours in the absence of a realistic threat are actually maladaptive," says Dugas.

This has been demonstrated in a lab experiment. Healthy people were told to engage in daily safety behaviours to prevent the spread of germs – washing their hands every time they touch a door handle, for instance. At the end of a week, they showed increased avoidance in contamination-related tests, and overestimated contamination threats. Too many safety behaviours mean that we never learn that uncertainty isn't always dangerous, and if you never have to experience negative outcomes, you never realise how good you might actually be at coping with them, says Dugas.

It is hard to put a figure on exactly how many people have extreme intolerance to uncertainty – it isn't in psychiatry's diagnostic manual as a condition in its own right. Instead, it is what doctors call a "vulnerability factor" for other conditions, such as generalised anxiety disorder. It is the most important factor contributing to whether people develop anxiety disorders in the first place, and whether they persist. These disorders affect 1 in 20 people.



Worst-case scenario

So how can you work out how well you deal with uncertainty? You could use a scale developed by Dugas and his colleagues, in which you decide to what extent you agree with 27 statements such as "It's unfair that life is uncertain" (see "How much do you fear uncertainty?", for a short version).

How much do you fear uncertainty?

Circle the number that best corresponds with how much each of the statements below is characteristic of you. A higher score indicates a higher intolerance of uncertainty

	Not at all	A little	Somewhat	Very	Entirely
1. Unforeseen events upset me greatly	1	2	3	4	5
2. It frustrates me not having all the information I need	1	2	3	4	5
3. Uncertainty keeps me from living a full life	1	2	3	4	5
4. One should always look ahead so as to avoid surprises	1	2	3	4	5
5. A small unforeseen event can spoil everything	1	2	3	4	5
6. When it's time to act, uncertainty paralyzes me	1	2	3	4	5
7. When I am uncertain I can't function very well	1	2	3	4	5
8. I always want to know what the future has in store for me	1	2	3	4	5
9. I can't stand being taken by surprise	1	2	3	4	5
10. The smallest doubt can stop me from acting	1	2	3	4	5
11. I should be able to organise everything in advance	1	2	3	4	5
12. I must get away from all uncertain situations	1	2	3	4	5

SOURCE: CARLETON, HORTON, & ASHBRIDGE, 2007

Another technique that therapists use is called a “catastrophising interview”, in which you are asked to consider a current worry, such as the outcome of a job application. They then ask you what it is that worries you about this situation. You might say you need the extra money. They would then ask you what worries you about that. “What if I can’t pay my rent?” you say. They ask you what worries you about that. “Where would I borrow the money from? What if I default on my credit card? Would my children have to move schools?”

“We continue to drill down into the details of your worry until we get to the bottom of it,” says Frances Meeten, a psychologist at the University of Sussex, UK. “We note how many ‘what if’ scenarios you generate from your initial worry, how many future negative outcomes you imagine. The more you have, the higher your intolerance of uncertainty.” Normally, this test is used

before and after an intervention to see whether it is working, says Meeten, rather than using it to figure out how uncertainty might affect your life.

Many factors can influence how uncertainty affects us. “It’s like any other personality trait,” says Dugas. “There’s an interplay between our traits and our life experience. If I’m quite intolerant of uncertainty but my life is extremely predictable, I won’t have any problem. If my life is chaotic, I might experience severe anxiety from the same level of intolerance.” (See “Paralysed by the unknown“)

There are, however, wider medical implications of intolerance of uncertainty. “It’s influential for all kinds of health outcomes,” says Paul Han at the Maine Medical Center Research Institute.

For a start, your doctor’s personal uncertainty threshold has huge implications for your health. For instance, women are more likely to end up with a vaginal birth after a previous caesarian section if their doctor has a low intolerance of uncertainty. This trait also makes doctors more likely to offer a new genetic test, prescribe generic drugs, adopt a cutting-edge therapy and feel comfortable talking to patients about grief and loss.

However, doctors who are more intolerant of uncertainty are more likely to recommend a pregnancy termination following abnormal results from prenatal genetic tests, and are less willing to use newer therapies, such as cognitive behavioural therapy, for eating disorders. Doctors may also give different advice depending on how well they think their patients can cope with uncertainty – in some cases even withholding information or not offering interventions with uncertain outcomes.

Your own intolerance of uncertainty can also affect health outcomes. For instance, people who have a high tolerance of uncertainty have better emotional well-being after a cancer diagnosis and experience less distress after receiving genetic test results. It is also associated with a better quality of and less irritability in people with epilepsy, as well as lower language impairment and fewer motor symptoms in Parkinson’s. On the other hand, a high intolerance may make people more likely to adhere to their medication.

Paralysed by the unknown

The impact of an extreme intolerance of uncertainty can range from everyday worry to severe anxiety to, at its worst, a coma-like state. In 2016, researchers in Sweden reported on a rise of resignation syndrome, or “uppgivenhetssyndrom“, among child and adolescent asylum seekers facing deportation.

More than 400 cases have been reported in which children fall into depression, then gradually withdraw into a stupor until eventually they require a feeding tube and no longer respond to even painful stimuli.

This particular state appears to be specific to Swedish refugees, although it exists in similar forms throughout the world, appearing as a reaction to sudden periods of uncertainty. The encouraging news is that, in the Swedish cases, the resolution of uncertainty – “restoration of hope to the family”, in the words of researchers who studied the phenomenon – was enough to start a process of full recovery.

It also affects people’s ability to cope with particular treatment regimes, says Han. Sometimes, men with localised prostate cancer can choose a “watch and wait” approach, whereby they have regular scans rather than immediate treatment that can have side effects including incontinence and impotence. This approach means enduring long periods of limbo between scans. Several men in this position, who spoke to New Scientist confidentially, described this choice as one of the most difficult decisions they’d ever had to make – and one that sometimes caused a rift with loved ones, whose ability to cope with uncertainty differed from their own.

Contending with the unknown can place great strain on relationships, says Dugas. When couples with a high intolerance of uncertainty have difficulties, they might leave each other immediately rather than wait and see what might happen, he says. Or people have difficulty developing relationships in the first place, because they aren’t prepared to go through that initial period of uncertainty – will they call, do they like me, should I ask them out to lunch? “This makes them very hesitant to form relationships, and when they do make the effort, they want too much certainty about the future from the start, which scares the other person off.”

The good news is that our discomfort with the unknown can be manipulated, so we can learn how to boost our resilience. In one experiment, students were told to read a story in which the main character had either a high or low intolerance of uncertainty and try to put themselves in that person’s mindset. Their own intolerance of uncertainty was then tested. After the manipulation, the group reading about a character who is more rattled by uncertainty generated far more steps in subsequent catastrophising interviews about their own real worries.

In the real world, you need to treat your intolerance of uncertainty as you would a phobia, says Dugas. “If you’re scared of dogs, we’d expose you to them slowly and carefully to help you develop the understanding that most dogs are not dangerous. The same holds true for intolerance of uncertainty.”

To cure people’s fear of uncertainty, we get them to experiment with their safety behaviours, says Dugas. He describes one person who was overanxious about her son going out by himself. She made him call her as soon as he left the house and stay on the phone while he was on the bus, until he reached his friend’s house. Dugas encouraged her to let her son hang up when he got on the bus and call back when he arrived. The next time the son just called when he arrived, then finally didn’t call at all. “There’s no magic bullet, it’s about putting ourselves in a situation where we can learn that uncertainty isn’t dangerous, and we know this leads to a decrease in anxiety over time.”

Minimising safety behaviours without outside intervention isn't easy. "It's not impossible, but it's difficult," says Dugas. "Safety behaviours are really sneaky, they're hard to identify and we mostly don't realise we're doing them."

Silver linings

We are using safety behaviours more and more, though. Over the past two decades, our intolerance of uncertainty has increased significantly, according to Nicholas Carleton at the University of Regina in Canada and his colleagues. Their recent analysis of 52 studies of students showed that intolerance went up by about a fifth between 1994 and 2014.

The team believes cellphones and internet access, which both grew rapidly over the same period, might be to blame – increasing safety behaviours by offering us immediate access to emergency services, loved ones and information that isn't always helpful. "Cellphones nourish our safety behaviours," says Dugas. To practise what he preaches and minimise his own safety behaviours, he doesn't own a cellphone. "You know what, nothing awful has happened yet," he says.

There are strategies to help you cope with uncertainty that don't involve ditching your phone or resorting to professional help (see "How to build resilience when life is in limbo"). Throwing yourself into an engrossing task can provide a welcome distraction and make time pass more quickly, for instance. And practising mindfulness meditation can help keep you in the moment, stopping you from agonising about future outcomes.

Don't forget that a degree of intolerance can be useful, however. It helps to lower your expectations. Bracing for the worst can minimise the impact if bad news arises, but timing is everything. To avoid unnecessary worry, you need to assume the best for as long as possible before bracing for the worst towards the end of the wait, says Kate Sweeny at the University of California, Riverside.

Finally, it may be helpful to concentrate on finding the silver lining in any potential bad news. In the 2016 US presidential election, Hillary Clinton supporters who preemptively looked for the good in Donald Trump being elected were less shattered when he won, Sweeny found. But be cautious, this strategy can backfire: Trump supporters who tried to find an upside to Clinton winning were less thrilled when their candidate did.

Alongside the everyday uncertainties that we face, many of us are living in a particularly uncertain time. In the UK, Brexit has loomed large for more than three years, putting the future of the country in the balance. Could the perpetual uncertainty about the nation's ties with the European Union be causing the population harm?

"With Brexit there's an enormous amount of uncertainty, so you might find there are more people having to deal with more uncertainty and more anxiety as a result," says Dugas. "But it might go the other way and make people less anxious, because they go on with their life even though they are experiencing more uncertainty. They realise they can cope with this big, long-term limbo, so the small things are also easier to cope with."

Deal or no deal, pass or fail, two blue lines or one – one thing is for certain: uncertainty isn't going away. If you need to build some extra resilience to it, Meeten has some final advice: Instead of weighing yourself down with worry or trying to problem-solve every eventuality, try sitting with that uncertainty for a while. You'll see that, most of the time, nothing particularly bad happens. And talk to others about how they cope. "Taking a step back and realising that your way of dealing with uncertainty isn't set in stone, that others might not feel the same way about that same situation, that it's a personal perspective that is changeable, is one of the strongest messages we can give people."

How to build resilience when life is in limbo

Make a note of “safety behaviours” you rely on to cope when you don’t know how things will turn out. Then attempt to reduce these little by little.

Challenge yourself to let your uncertainty play out without using any safety behaviours.

Assume the best for as long as possible; only brace for the worst at the end of the wait.

Distract yourself to pass the time more quickly.

Practise mindfulness meditation to keep yourself grounded in the present.

Find a silver lining in case the awaited outcome is negative.

Talk to others about how they cope with uncertainty; try to take their perspective.

Sit with your uncertainty for a short time and see what happens.