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Why We Worry

Chronic worrying stems from a craving for control. But the more we fret, the less our bodies are able to cope with stress

By Victoria Stern

The young girl wanted to unburden herself about her problem. She told her doctor that she worried excessively and that she felt overwhelmed by these thoughts. One memory that she described to Douglas Mennin, director of the Yale Anxiety and Mood Services at Yale University, was particularly telling. Her grandmother had shared intense feelings about the recent passing of a good friend. As the young girl listened, her mind wandered to thoughts of her grandmother dying. The worry soon spiraled into concerns about the girl's own death. She became so disturbed, she cut short her visit to her grandmother and ran home.

Psychologists believe that worry, defined as a person's negative thoughts about a future event, evolved as a constructive problem-solving behavior [*see box on page 47*]. But excessive fretting—as happened with the girl—does more harm than good. Chronic worriers operate under the

misperception that their overthinking and attempts at controlling every situation allow them to problem-solve and plan for the future. Instead their thought pattern hinders cognitive processing and also causes overstimulation of emotion- and fear-processing areas in the brain. The hypervigilance that is the result can lead to cardiovascular problems, ultimately rendering the body unable to cope properly with stress.

People agonize about matters that rarely occur. Worriers nonetheless often report that they believe overthinking about a possible negative event prevented it from taking place.

An improved understanding of how excessive worry (the thought-driven aspect), which is linked with anxiety (the emotional element), affects our mental and physical functions can help us cope with this often self-induced foible.

Craving Control

Worry began to draw the attention of researchers about 25 years ago, when they started to fine-tune their understanding of the spectrum of anxiety-related pathologies. In the early 1980s psychologist Thomas Borkovec of Pennsylvania State University, a pioneer in this field, became interested in the trait while investigating sleep disorders. He found that intrusive cognitive activity at bedtime—worrying—was a factor in insomnia.

By 1990 Borkovec and his colleagues developed the Penn State Worry Questionnaire, a diagnostic tool that helped researchers show excessive fretting to be a feature of all anxiety disorders, especially generalized anxiety disorder (GAD). Psychologists revised the official psychiatric guidelines (then the *Diagnostic and Statistical Manual of Mental Disorders III)* to reflect this understanding, calling worry the cardinal feature of GAD and making chronic worry a recognized mental health problem. It is now known to affect 2 to 3 percent of the U.S. population, according to the National Institute of Mental Health.

Borkovec defined three main components of garden-variety worry: overthinking, avoidance of negative outcomes and inhibition of emotions. Mennin explains that worry piggybacks on humans' innate tendency to think about the future: "they crave control." He says "chronic worriers see the world as

FAST FACTS

Spiraling Out of Control

1» Worrying about the future is a natural tendency, but for some people it is a constant, unwelcome state of mind. These chronic worriers crave a sense of control they can never seem to find.

2» Spending too much time fretting actually undermines the body's ability to react to stress, weakening the cardiovascular system and disrupting normal emotional functioning.

3» When overworrying seriously threatens a person's health and happiness, drugs or psychotherapy can help.

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an unsafe place and want to fight this sense of unrest." Overworriers feel that fretting gives them this control, and they tend to avoid situations they can't have power over. In a 1995 study Borkovec found that people agonized about matters that rarely occurred. The participants, nonetheless, often reported that they believed the overthinking about a possible negative event had prevented it from taking place.

Unsurprisingly, worriers show increased activity in areas of the brain associated with executive functions, such as planning, reasoning and impulse control. In 2005 psychologist Stefan Hofmann of Boston University used an electroencephalogram (EEG) to measure activity in the prefrontal cortex, before and after 27 undergraduates were told to give a speech in public. He confirmed previous evidence that activity in the left frontal cortex increases for people who worry compared with those who do not, suggesting that the left frontal cortex plays a prominent role in worrying.

Trying too hard to be in command of a given situation or their own thoughts may backfire when worriers are instead overrun with repetitive apprehensions. Research shows that the more we dwell on negative thoughts, the more those threats feel real and the more they will repeat in our skulls, sometimes uncontrollably.

In 1987 Daniel M. Wegner, a psychologist at Harvard University, found that when people were told not to think about a white bear, they tended to mention it about once a minute. In the experiment, Wegner left a participant in a room with a microphone and a bell and asked the volunteer to talk freely about any topic. At one point, he interrupted the person's monologue and told him to continue talking—but this time, *not* to think of a white bear. If the subject did think of a white bear, he had to ring the bell. On average, people rang the bell more than six times in the next five minutes and even said "white bear" out loud several times.

"By trying to put a worry or a thought out of our mind, it only makes the worry worse," Wegner says. "Just like when a song gets stuck in your head, you think you ought to be able to get rid of it, but you only end up making it stick more by trying to push it away." Two mental processes may be at play here, according to Wegner. First, by consciously looking for distractions from the white bear (or your nagging worry), you remain somewhat aware of the undesired thought. The second reason suppression fails is that often you are making an unconscious effort to catch yourself thinking of the forbidden thought, ultimately sensitizing your brain to it.

Two emotion-processing areas of the brain are

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Are You an **Unhealthy Worrier?**

As Robert Leahy, director of the American Institute for Cognitive Therapy, writes in *The Worry Cure* (Harmony, 2005), 38 percent of people say they worry every day, and more than 19 million Americans are chronic worriers.

Take the quiz below to give you a sense of how much you worry. This quiz is an abridged version of a standard worry questionnaire called the Worry Domain Questionnaire, which breaks down worry into five categories—relationships, lack of confidence, aimless future, work and finances—to help pinpoint the areas that cause the most worry.

I worry that ...
Not at all (0)
A little (1)
Moderately (2)
Quite a bit (3)
Extremely (4)

___ I cannot be assertive or express my opinions.
___ My future job prospects are not good.
___ I'll never achieve my ambitions.
___ I will not keep my workload up-to-date.
___ Financial problems will restrict holidays and travel.
___ I have no concentration.
___ I am unable to afford things.
___ I feel insecure.
___ I cannot afford to pay my bills.
___ My living conditions are inadequate.
___ Life may have no purpose.
___ I don't work hard enough.
___ Others will not approve of me.
___ I find it difficult to maintain a stable relationship.
___ I lack confidence.
___ I will lose close friends.
___ I am unattractive.
___ I might make myself look stupid.
___ I haven't achieved much.
___ I make mistakes at work.

Results: If you scored 52 points or higher, you may have an unhealthy amount of worry in your life. It might be helpful for you to try some self-relaxing tips [*see box on next page*] or talk to your doctor. —*V.S.*

Relax! Here's How

Robert Leahy offers six simple tips and tricks you can use to cope with the stresses of everyday life.

1. Identify productive and unproductive worry
First, determine whether your worries will help you find practical solutions to a dilemma. If "yes, my worries can be constructive," write a to-do list with explicit steps to help solve the problem. If the answer is "no, my worries are not helping me," use some of the techniques below to help deal with unproductive worries.

2. Keep an appointment with your worries
Write down your unproductive worries throughout the day and set aside a chunk of time, say 6 to 6:30 P.M., dedicated specifically to thinking about them. By 6, "you may find you're not interested in those worries anymore," Leahy says. "Many people find that what they thought they needed an answer to earlier, they don't care about later in the day."

3. Learn to accept uncertainty
Worriers have a hard time accepting they can never have complete control in their lives. Leahy says that quietly repeating a worry for 20 minutes ("I may never fall asleep" or "I could lose my job") reduces its power. "Most people get bored by their worries and don't even make it to 20 minutes," he notes.

4. Be mindful
Mindfulness, a technique based on Buddhist teachings, preaches staying in the present moment and experiencing all emotions even when they are negative. Leahy explains there are ways to be mindful throughout your day, while deeply immersed in your favorite song or in conversation with friends. Try living in the now by practicing deep breathing. Let your body relax and the tension in your muscles melt away.

5. Reframe your worry
What happens if a worry comes true? Could you survive losing your job or being dumped? Reframing how you evaluate disappointments in life can take the sting out of failure, Leahy says. Create a positive spin by asking yourself what you have learned from your bad experiences. Make a list of things for which you are grateful.

6. Put worries in perspective
Examine past worries. Do you have a hard time remembering what they are? Very likely this means that those worries never came true or that you were able to cope and forget, Leahy says. —*V.S.*

also involved in worry: the anterior insula and the amygdala. A 2008 *Psychological Science* study that used functional MRI found that when participants anticipated losing a significant amount of money in the future, activity increased in their anterior insula. That area not only becomes more active in response to worry, but the inclination to worry is also reinforced, because people believe that the act helps them avoid potential losses. The researchers concluded that sometimes, when it comes to making daring monetary decisions, overthinking may turn out to be a good thing.

In 2009 Jack Nitschke, a clinical psychologist at the University of Wisconsin–Madison School of Medicine and Public Health, reported using fMRI to measure activity in the amygdala while GAD patients and healthy subjects viewed pictures of items that were negative (for instance, mutilated bodies) or neutral (say, a fire hydrant). A few seconds before seeing the images, patients received a cue to let them know whether to expect a negative or neutral photograph. Although GAD and healthy subjects experienced no difference in amygdala activation when shown either type of picture, GAD patients displayed unusually high levels of amygdala activity to both negative and neutral *cues*—suggesting that merely anticipating the possibility of something negative in the future recruits specific neural circuitry, Nitschke says.

Stunted Emotions

Although worry hijacks aspects of our emotional circuitry, chronic worriers seek to control their emotions—and their fretting does tend to numb emotional responses. For instance, it is fairly well established that damage to the frontal lobe—which, as the Boston University study showed, has been demonstrated to be more active in worriers who are thinking about the future—is associated with blunted, or an absence of, emotions.

In another emotion-damping mechanism, several studies have confirmed that excess fretting reduces activity in the sympathetic nervous system in response to a threat. This branch of the nervous system normally allows the body to react quickly to impending danger by accelerating breathing and also increasing heart rate to oxygenate muscles to fight or flee.

In one classic study from 1990 Borkovec showed by observing heart rates how worry can dull emotional reactions. He found that people with anxiety about public speaking did not experience variations in their heart rate when relaxing, remaining neutral (that is, neither worrying nor relaxing) or engaging in worry before viewing scary images. After seeing

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the images, however, subjects in the worry group displayed significantly less variation in heart rate than those in the neutral or relaxed condition, despite reporting feeling more fearful.

At the same time, worry hinders a person's physical reaction to a threat by amplifying activity in the parasympathetic nervous system. When working properly, this part of the nervous system quiets the body as it recovers from a stressful experience. I experienced this system in operation when I participated in a study in Mennin's laboratory at Yale.

Fretting can tax the body and promote cardiovascular problems. Worry is associated with an elevated resting heart rate and low heart rate variability.

The scene was a lone arm suspended in midair. A hand carrying a razor started slicing it. Blood seeped out of the wound as the razor dug deeper, exposing a mass of blood and cartilage. I wanted nothing more than to look away.

Amelia Aldao, the Ph.D. student conducting the experiment, wanted to measure my physiological reaction to various film segments, each one meant to elicit a distinct emotion (for instance, disgust in the case of the mutilated arm).

Aldao recorded with electrocardiography how I dealt with a variety of emotions (this Yale study was the first to expand beyond fear), removed the electrodes from my body and led me into the adjacent room. She did some quick calculations on her computer and out popped a few of my stats. Good news. My heart rate variability was high, and my average heart rate measured about 58 beats per minute. These values indicated that my heart could cope well with intense emotions.

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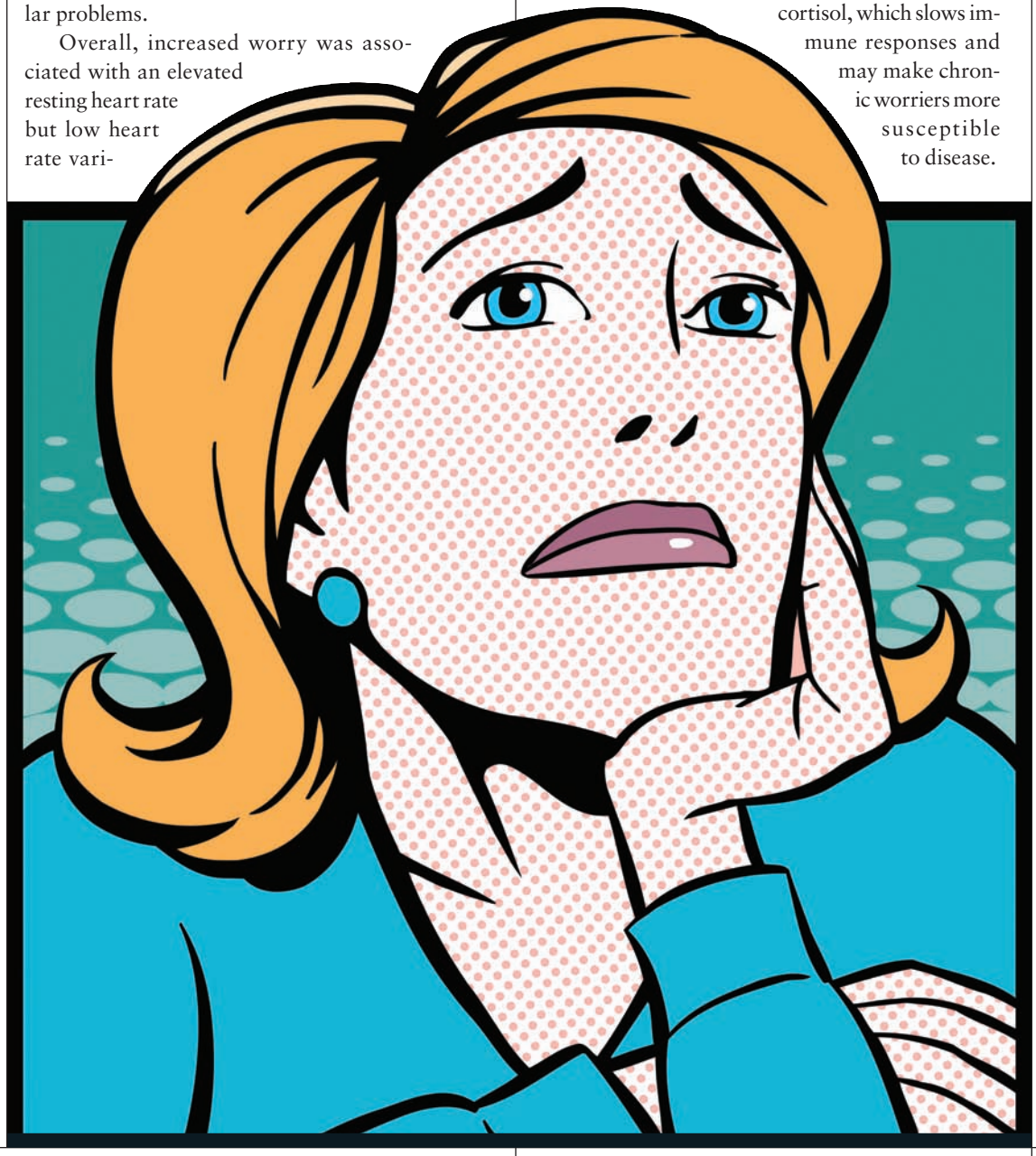
In contrast, by consciously trying to be ready for the worst, worriers are actually compromising their body's ability to react to a truly traumatic event. In 2006 researchers at Columbia University, the National Institute on Aging and Leiden University in the Netherlands reviewed more than two dozen studies and found that overworrying can tax the body and promote cardiovascular problems.

Worry hinders a person's reaction to a threat by amplifying activity in the parasympathetic nervous system, which quiets the body as it recovers from a stressful experience.

Overall, increased worry was associated with an elevated resting heart rate but low heart rate variability. Excessive worriers and GAD patients experienced lower heart rate variability during periods of worry; in other words, their hearts returned to a resting rate more slowly than those of healthy worriers did.

Prolonged periods of stress even weakened participants' endocrine and immune function. Some studies reported that excess worry is linked to elevated levels of the stress hormone cortisol, which slows immune responses and may make chronic worriers more susceptible to disease.



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The Benefits of Worry

If worry is an integral part of what makes us human, can it also serve a positive function? Psychologist Graham Davey of the University of Sussex in England was one of the first experts to suggest potential plus sides to worry. In a 1994 study Davey explored a range of consequences stemming from this natural tendency; he found people reported that although fretting can make things worse, it can also be constructive, helping to motivate them to take action, resolve problems and reduce anxiety.

More recent research supports the idea that elevated levels of worry can improve performance. In 2005 psychologist Maya Tamir, then at Stanford University, showed that neurotic students were more likely to believe that increasing their level of worry when working on a cognitively demanding task, such as a test, would allow them to excel. Worrying before the test indeed helped the more neurotic individuals do better, whereas the pretest level of worry did not particularly influence the overall experience or outcomes for the less neurotic participants.

Not only can worry benefit performance, but it may also encourage action. A 2007 study in the journal *Cognition and Emotion* revealed that smokers may be more convinced to quit if they worry about the risks of smoking. The promising results prompted the study authors to suggest potential strategies, such as having doctors remind smokers about the downsides, capitalizing on the worry-motivation relationship to encourage smokers to dispense with cigarettes.

Although it is difficult to determine the precise line between healthy, beneficial worry and unhealthy, detrimental worry, Michel Dugas, a psychologist at Concordia University in Montreal, likes to think of worry as a bell curve whereby moderate levels are associated with improved functioning, but excess levels are associated with a decline in performance.

Christine Calmes, a postdoctoral fellow at the VA Capitol Mental Illness Research, Education and Clinical Center in Baltimore, believes that successful people operate a little higher on the worry scale. As long as fretting doesn't get the better of someone, it can work to his or her advantage. "It's all about how people cope with the worry," Calmes says. "If it's incapacitating, then it's not okay. But if worrying motivates people to go above and beyond—put in longer hours, attend to details that others may miss—then it's a good thing." —*V.S.*

Seeking Solutions

Everybody worries now and again [*see box on page 43*], but if it becomes a pathology, assistance is available. First-line treatments for generalized anxiety disorder currently include drugs and a form of psychotherapy called cognitive-behavior therapy (CBT).

Antidepressants such as Zoloft and Prozac may also help by boosting levels of serotonin, a brain-signaling chemical that enhances mood, sexual desire, memory and learning. Doctors may prescribe antianxiety drugs such as Valium and Xanax. These drugs inhibit a neurotransmitter called GABA, which can dull feelings of anxious arousal and thus a person's desire to worry.

Drugs do not remedy the underlying psychological problems, but CBT may bring relief. Therapists teach patients to detect early cues of unhealthy worry and integrate techniques into their daily life to revise these negative thought patterns. CBT also includes a relaxation component to soothe the muscle tension associated with excess worry.

Gaining deeper insight into how people manage their thoughts about the future will help even healthy worriers cope with the stresses and concerns they confront in everyday life [*see box above*]. The key for most of us is not letting our worries become problems themselves. M

(Further Reading)

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