

# The surprising impact happiness has on health, relationships and even the economy

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Credit: Bill Kuffrey/public domain

"Don't worry, be happy," the song tells us, and all of popular culture seems to chime in. For eons, humans have wrestled with how to find happiness.

In our fevered search, we've sought to avoid the wrath of angry gods (or sheer bad luck) and aspired to virtuous living. In more recent years,

we've churned out self-help books and online mantra generators.

In the United States, Thomas Jefferson penned the quest for happiness right into our founding documents. Does that make it a privilege or a right? Something we'd like to have or believe we ought to have? Perhaps the chase—the expectation of perfect happiness—may be a hindrance to finding it.

"The pursuit of constant happiness is doomed to failure," says psychologist and neuroscientist John Monterosso, a member of the Brain and Creativity Institute at the USC Dornsife College of Letters, Arts and Sciences. "Humans weren't meant to be happy all the time. As biological creatures, we're built to strive." Monterosso is part of a nexus of thinkers across academic fields at USC—from economics to gerontology, from psychology to religion—who investigate the complex and unexpected ways happiness manifests in our lives.

## **Happiness by any other name...**

It's interesting to note that in this hotbed of [happiness studies](#), researchers are reluctant to use the word. Quick to declare it "ambiguous," "fleeting," "simplistic" or "a matter of choice," they instead offer up terms like wellbeing, life satisfaction, flourishing, positivity or gratitude to describe a deep, meaningful feeling about life.

Why all the semantic hedging? Chalk it up to a lot of disagreement on how to define or even measure the concept.

Monterosso teaches a popular general education course at USC called "The Science of Happiness," which gets students to think scientifically about how scholars have struggled to define and study the emotion. "My first objective is to get everyone to realize they're confused about happiness, and it's not as simple as they thought," he says.

Among the topics up for discussion are happiness from within (mindfulness) and from without (drugs, work and play), as well as the issue of choices. For example, Monterosso often points out to students that sometimes more really does mean less: Research shows that having too many choices in your everyday life has unexpected downsides for happiness, whereas constraints and obligations have unexpected benefits.

Modern-day Americans think of happiness "as something we should be able to control and pursue," Monterosso says. But in many Indo-European languages, the word shares its linguistic roots with the word for luck, chance or happenstance. For much of human history, happiness may not have been something to achieve, but viewed rather as a circumstance determined by fate and four-leaf clovers.

Monterosso's own research focuses on addiction and the mind, including the brain's influential pleasure centers. "If you're impatient for happiness, if you chase it," he says, "you may wind up making decisions that are short-sighted." He encourages people to consider more far-reaching goals, like learning to play an instrument or appreciate art, which can open richer possibilities in the future.

After all, the concept of happiness has been evolving over the last 25 centuries or so. Plato believed that it stemmed from living a virtuous life. The 18th-century philosophers of the Age of Enlightenment called it an absolute right. And today's high-octane culture seems to associate happiness with both money and meaning.

## **Science of happiness: biology versus DNA**

There are hints that happiness is as much a question of biology as of philosophy. Can it be calculated and quantified by science? Darby Saxbe, assistant professor of psychology at USC Dornsife, draws a connection between well-being and the complex signals in our brains.

"Happiness is tricky," she says. "It can be motivated by more than one thing."

And, yes, those motivators include the vibrant chemical cocktail in our brains—hormones and neurotransmitters associated with feeling joy and contentment, including oxytocin, often referred to as the "cuddle hormone." It comes into play during massage, sex and breastfeeding. "One theory about oxytocin is that it exists to compel us to form close relationships," Saxbe says.

Two other well-known neurochemicals, dopamine and serotonin, play a role too. Dopamine, sometimes called the "motivation molecule," influences our emotions, focus and sensations of pleasure and pain. Low serotonin levels? You may be depressed. All of which leads some people to try duplicating these complex chemicals through external means—to get a dopamine boost from caffeine, alcohol or drugs, for example.

But these artificial means to happiness only go so far. "The answer isn't better living through pills," Saxbe says. "Our biology is a lot more plastic than we realize." Incorporating exercise, talk therapy, sleep, meditation, diet and meaningful social relationships into our lives can modify brain chemistry and trigger good spirits naturally. Even stress can make us happy in limited doses, says Saxbe, who studies cortisol, the stress hormone. Beneficial stress ("eustress") from experiences like getting married, taking a final exam or exercising can release endorphins, natural painkillers. And that may generate feelings of euphoria. "As humans, we're always trying to harness that biological system."

So, if our chemical makeup plays a part in feeling good, how about our DNA? Do human genes hardwire some people to be happier than others?

"We've known for a while that there's a genetic component to happiness, but until recently, we had identified only a few specific genetic

variants," says Daniel J. Benjamin, associate professor of economics at the Center for Economic and Social Research at USC Dornsife.

As a "genoeconomist," Benjamin incorporates genetics into economics. In 2016, he led an international group of more than 190 scientists in 17 countries who analyzed the genomes of nearly 300,000 people. Their findings pinpointed three genetic variants linked to subjective well-being (how we think and feel about our lives), along with other variants linked to depression and neuroticism.

Having the "happiness" variants may mean you have a sunnier disposition, but you aren't doomed to despair without them. They represent a small percentage of the differences found in our individual DNA profiles. And, Benjamin cautions, finding a genetic aspect to happiness is just part of the picture.

"Genetics is only one factor that influences these psychological traits," he says. "The environment is at least as important, and it interacts with the genetic effects." It's what many liked to debate as a "nature versus nurture" argument, but Benjamin points out that scientists now understand that nature and nurture are so intertwined that one cannot be understood in isolation from the other.

## **The economics of emotional satisfaction**

Take a global perspective on happiness and you'll soon find that America isn't alone in this obsession.

In 2016, the U.S. and the 34 other countries in the Organisation for Economic Co-operation and Development vowed to redefine national success, measuring it in more well-rounded way than sheer financial wealth. They committed to measure how well countries "put people's well-being at the center of governments' efforts." And Bhutan adopted

its own socioeconomic measure called the Gross National Happiness Index in the 1990s. While the scale hasn't fixed all the country's problems, it earned the mountainous kingdom a lot of attention.

The United Nations now celebrates International Happiness Day. Since 2012, the U.N. has issued a "[World Happiness Report](#)" that ranks more than 150 countries by their citizens' satisfaction levels, as measured by gross domestic product (GDP) per capita, as well as several health and social variables, including social support, generosity, life expectancy and corruption.

In the latest report, Finland took the top spot, followed by Norway, Denmark, Iceland, Switzerland, the Netherlands and Canada. The U.S. fell to 18th, down four places from 2017 and five from the year before.

Angus Deaton, a Nobel Prize winner and Presidential Professor of Economics at USC Dornsife, has uncovered one surprising group of Americans who comprise an increasingly unhappy part of the U.S. population.

Deaton was working on a study of happiness and suicide with economist Anne Case of Princeton University in 2015 when they discovered that suicides in the U.S. were increasing among middle-aged men and women.

They looked deeper into the Center for Disease Control and Prevention's statistics and uncovered another startling fact. For white men and women with no more than a high school education, mortality rates have been on the rise since the 1990s. The primary causes weren't cancer and heart disease, as you might expect. Instead, people are dying from drug overdose, suicide and alcoholism—a trend that the researchers began to call "deaths of despair."

Public health organizations and the media have been talking about the opioid crisis in America for some time. With their broader view, Case and Deaton have changed the conversation. "If we're right, it's because the economy is just not working for a large swath of the population," he says.

In an earlier, also highly publicized study, Deaton and psychologist Daniel Kahneman of Princeton University found that the higher the income, the greater a person's everyday "emotional well-being." But that held true only up to an annual income of \$75,000. After that point, more money might buy a satisfied life, but not necessarily a happy one.

USC economist Richard Easterlin, a pioneer of happiness economics, has been telling people for decades that happiness is a more valid measure of a country's well-being than its GDP. He believes focusing on other factors such as health, work satisfaction and family relationships could help spark more holistic public policy.

"Traditional economic measures like GDP neglect important dimensions of well-being, such as health, work satisfaction, family and relationships," says Easterlin, a University Professor and professor of economics at USC Dornsife.

Since the mid-1970s, he has argued that a higher rate of economic growth in a country is not linked to a greater sense of well-being among its citizens. "Over time, happiness does not increase when a country's income increases," Easterlin explains.

Instantly controversial, this "Easterlin Paradox" has been contested by other economists. Easterlin has returned to the question several times. Most recently, in a 2016 paper, he says his critics reach a different conclusion because they don't focus on long-term trends in happiness. For almost seven decades, from 1946 to 2014, "happiness in the U.S. has



been flat or even negative, despite a tripling of real GDP," Easterlin says. After examining data in 43 countries, he found that nations that grew their GDP more over time saw no statistically significant higher growth of happiness among their residents.

The conclusion led him to probe deeper. "As I looked at more and more evidence, I saw that social programs contributed to people's happiness," he says. With income inequality worsening in the U.S., policies that support such programs as health, child and elder care "can reduce the differential between the better-off and the lesser-off, and raise overall happiness."

## **Good mood, good health**

USC researchers are busy upending other stereotypes and assumptions. Like the idea that [older people](#), faced with decreasing years of life and declining health, are sad. Not so, says Arthur Stone, professor of psychology, economics and public policy and director of the Center for Self-Report Science at USC Dornsife, where the search is on for better ways to measure and understand well-being.

Generally speaking, happiness improves from about middle age onward, he says, though he avoids using the "H-word" whenever possible. "Happiness is difficult because it's ambiguous," he says, "and, by itself, isn't a useful measure."

He prefers the term "subjective well-being." It has a scientific edge because it can be broken down into three components—how satisfied you are with your life, so-called hedonic experience (feelings of happiness, sadness, anger, stress and pain) and how meaningful your life feels.

In an [influential paper](#) published in *The Lancet* in 2014, Stone and



Deaton, longtime collaborators, concluded that in high-income English-speaking countries, people are least satisfied with life in middle age, around age 50. They're most satisfied in their 20s and in their 70s and 80s. In fact, by the early 70s, the sense of well-being bounced back to late-teen levels or beyond.

The question is, why does happiness rebound as we age? One theory holds that as people get older, they begin seeing the horizon and it changes their perspective. "They start to focus on what's more important to them," Stone says, "and become more selective about how they interact with the world." For many, that means spending fewer hours at work and more time with close friends and family, which can have a direct impact on feeling more fulfilled.

Depression and life stress have been linked with premature death and disability as well as heart disease, diabetes and other chronic disorders. On the flip side, Stone and Deaton have found a strong possibility that well-being acts as a protective factor for health—a kind of force field of happiness.

Mara Mather, professor of psychology and gerontology at the USC Leonard Davis School of Gerontology, came to similar conclusions from another angle—something she terms the "positivity effect."

In a [recent study](#), Mather gathered a group of older adults with an average age of 69 and young people with an average age of 20. She asked some of them how they'd adjust their lives if they had only six months to live. She asked the others what they would change if they knew they'd live to 120. Both groups then viewed 70 pictures. Those with less time remaining could better recall and describe pictures showing a positive scene (people smiling and hugging, for example) than images depicting a negative scenario.

"Aging looks like it would be depressing, but based on scientific assessments of daily emotions, the outlook tends to become more positive and less negative," says Mather, who directs USC's Emotion & Cognition Lab.

To understand why, Mather and her colleagues dove into one of the brain's components known as the amygdala, part of the temporal lobe associated with emotion. In experiments conducted with young and senior study subjects, they showed images that would elicit positive or negative feelings. In older people, the amygdala lit up equally in response to positive and negative images. But in younger adults, it activated more when they looked at negative images than with positive ones.

Why the difference? Mather suspects it's about priorities, which can shift as people feel they have less time left in life. Young people still are seeking out information to improve their future well-being, while older people "are focusing on the present moment and trying to optimize their emotional experience," she says. They're priming themselves to feel good about life.

Mather is currently researching heart rate variability, the time interval changes between heartbeats. Greater fluctuation is a sign that a heart can better tolerate stress. "When people are happy," she says, "you can see a stronger oscillation in the heartbeat variations than when they're angry or sad." All of which reinforces the importance of that mind-body connection.

## **Don't worry, be social**

Neuroscientist Glenn Fox is a staunch believer in the power of the mind to enact change. He acknowledges that happiness can be a "wonderful, savorable feeling," but considers it to be fleeting.

Instead, he's all about gratitude.

As the head of design, strategy and outreach for the Performance Science Institute in the USC Marshall School of Business, he studies the neurobiology of gratitude and teaches a course called "The Science of Peak Performance." There the talk centers less on happiness and more on gratitude and mindfulness, as well as suffering.

"Gratitude is a powerful motivator, a really important emotion to get to the next level," he says. By contrast, "seeking happiness is not always the way toward high performance or living deeply."

Data from two of his recent studies show that gratitude lowers the heart rate and that it relies on neural networks associated with social bonding and stress relief. That may explain why grateful feelings lead to health benefits over time.

Even so, Fox concedes that gratitude is on a continuum with happiness. "Lots of research says that grateful people are happy people."

So, what to make of this talk about happiness and well-being? For Mather, one lesson is "making more of the present moment."

Deaton believes in taking a big-picture view. "The Greeks thought you couldn't tell if someone is happy or not while they're young, because you had to look at the totality of their life," he says.

And someone's happiness might include more than their own contentment. The quality of our relationships—"the well that keeps giving"—may be a better predictor of long-term well-being than happiness, Fox says. Feeling disconnected from friends, family and community is a recipe for feeling down.

He is backed up by other USC experts, as well as by what science knows about evolution. "We are social and cultural creatures," Monterosso says. "People may be able to survive on their own in 2018, but in our evolutionary history, the prospects for a human in isolation were downright bleak. We evolved to depend on deep social ties for our happiness."

Studies have shown that at the end of your days, feeling you've lived the life worth living "was based on how deep your loving relationships were," adds Varun Soni, vice provost for campus wellness and crisis intervention and dean of religious [life](#) at USC.

Matters of health and well-being are paramount in Soni's mind. "The science of happiness can be directly connected to love and community," he says. He favors the term "flourishing" over happiness because it acknowledges suffering and cultivates resiliency.

"Happiness can come and go, but flourishing endures." Happiness is often seen as a reward earned after achieving external milestones. But a great job, nice salary and international fame may not add up to true fulfillment. "You don't have to have any of those things and you can be happy, or you can have all those things and not be happy," Soni says.

Most of all, he believes, "[happiness](#) is not a state we're in or not. It's a choice we make for our lives."

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