

# Contagious Behavior

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On a fall morning in 1998, a teacher at a Tennessee high school noticed the smell of gas in her classroom and soon felt dizzy and nauseous. Some of her students then reported feeling ill as well, and they were transported by ambulance to a nearby hospital. As concerned staff and students watched them go, some of them started feeling sick, too.

That day, 100 people showed up in the emergency room with symptoms they believed to be associated with the exposure to gas at the school. But the illnesses could not be explained by medical tests. Extensive environmental tests conducted at the school concluded that no toxic source could be the cause, according to results published in the *New England Journal of Medicine*.

What occurred was real illness, although not caused by germs or fumes, according to Timothy F. Jones, lead author of the paper and deputy state epidemiologist at the Tennessee Department of Health.

“It was not an infection, but it was certainly transmitted,” Jones said.

It was a phenomenon known as *mass psychogenic illness*, in which symptoms are passed from person to person among people who are visible to one another.

“You get sick because you see someone else getting sick,” said Jones.

Mass psychogenic illness is an extreme example of the more general phenomenon of contagious behavior: the unconscious transmission of actions or emotions from one individual to another.

Our everyday lives are filled with examples of how we “catch” even subtle emotions and complex behaviors, such as happiness and anger, bulimic symptoms, and depression, from other people. Psychologists, anthropologists, and neuroscientists have studied how and why such contagion occurs.

Contagion appears to involve both biological and social processes. It is pervasive, and yet we are often unaware of the influence of other’s emotions and behaviors on our own — which is particularly striking because the consequences of contagious behavior can be significant.

## Do You Feel Like I Feel?

The contagious quality of mood and emotion has been perhaps the most widely studied of all the different forms of contagion. People are extremely good at picking up on other people’s emotions — both negative and positive — without consciously trying.

APS Fellow and Charter Member Elaine Hatfield, professor at the University of Hawaii and a pioneer in the study of emotional contagion, became interested in the topic when wondering how clinicians were being affected by their patients’ moods, particularly when patients were not articulating their feelings.

In the lab, she and her colleagues studied whether people catch the emotions of others, and to what extent they pay attention to explicit, verbal descriptions of feelings compared to nonverbal facial and postural cues as their source of emotional information.

In one study, participants watched a videotape of a target person describing a positive or negative memory. The tape continued to show the target as he viewed his own taped description. The target expressed surprise at the emotion showing on his face, and he felt very different than how he appeared on tape.

The participants then assessed the target's emotion, as well as their own. Hatfield and her team found that the participants rated the target's emotion largely based on his words. That is, if the target said he felt much sadder than he looked, participants rated him as quite sad.

However, when participants rated their own emotion, they were much more similar to the emotion expressed by the target's nonverbal cues. It appeared that the participants' mood was affected by the target — but they responded to his displayed emotion, not his stated one.

This suggests that if we think we begin to feel an emotion when interacting with another individual, it's quite possible that person is also feeling the same emotion.

“We're reflecting what they feel,” Hatfield said. “If we feel irritated at a client, the client is irritated at us or something else.”

Thomas Joiner, professor at Florida State University, has found that not only are negative moods contagious, but depressive symptoms — such as sleep problems and thoughts about death — also appear to spread over time.

Unfortunately, Joiner said, it's not a two-way street. While it would be wonderful if an individual's nondepressed mood could ease the mood of a depressed person, the direction of contagion doesn't usually go that way.

### Mood Rings

Still, the good news is that emotional contagion can be used constructively to promote behavior change.

Sigal Barsade, associate professor at the University of Pennsylvania, brought groups of participants into a lab to complete a simulated managerial exercise. The group included a research confederate who was either positive or negative, and who exerted high or low energy.

Examining both participants' self-reported mood and independent video coders' ratings, Barsade found that individuals grouped with the positive mood confederates became more positive over time, while those in the other condition became, as expected, more negative.

“We aren't emotional islands,” said Barsade. “People are sort of walking mood conductors and we need to be aware of that.”

The positive-emotional-contagion groups experienced increased cooperation, less conflict, and improved

perceived performance compared to those in the negative condition.

In fact, the group emotional experience was so powerful that in some groups the participants ended up exchanging phone numbers after the study, according to Barsade.

“It’s critical that people understand emotional contagion is not just a self-contained phenomenon that ends with the ‘catching’ of the emotion,” she said. “This contagion then influences our cognition and behavior — and we often don’t even realize the process is happening.”

### Mechanisms of Contagion

There are multiple paths through which contagion can occur, and several processes interact to produce the phenomenon.

On a biological level, we are built to mimic others. Recent research shows that humans, like monkeys, have certain types of neurons that fire when simply watching someone else carry out an action, even when we ourselves are not doing the same thing. Such neurons help prime us to understand and identify with other people.

Say, for instance, you are sitting at home intently watching a football game on television, and you really like the team’s quarterback. When he makes a long pass, you would likely show some electrical signal in our own arm as well, according to APS Fellow and Charter Member John Cacioppo, director of the Center for Cognitive and Social Neuroscience at the University of Chicago. You’ve identified with that player and, as part of that, you have an actual physiological reaction to his action.

“Synchrony is necessary in social animals,” said Cacioppo, a past member of the APS Board of Directors. “This synchrony is fundamental to not only having that emotional back and forth, but also to basic correspondence. One really does resonate physiologically.”

Physiologic mimicking occurs with facial expressions, and is often so subtle that we ourselves don’t even realize we’re doing it, but it is important to our social interactions.

### Laugh and the World Laughs With You

“Essentially the bottom line is that people, in almost a monkey-see monkey-do kind of way, are wired up to imitate others’ faces and voices,” said Hatfield.

Such seems to be the case with laughter, considered a particularly contagious behavior. Laughter is highly stereotyped — it is generally similar across people — and hard to interrupt mid-stream. Once it starts, it has a tendency to run its course to completion, according to Robert Provine, a professor at the University of Maryland-Baltimore County.

We appear to have an almost automatic laugh reaction in response to others’ laughter — think laugh tracks on television shows — and it’s hard to laugh while alone. His research shows that we are 30 times more likely to laugh in the presence of other people than by ourselves.

In fact, laughing alone can serve as an alert to others that a person may not be in touch with reality, according to Provine. Imagine the villain on television who laughs maniacally to himself. Generally we

are much better at inhibiting laughter than producing it on command.

“Laughter is a social relationship between people,” said Provine. “The essential ingredient is another person.”

Imitating others’ behavior is only part of what makes emotion contagious. According to one theory, we infer our emotion from our expressions and behaviors. We smile, therefore we must be happy.

Alternatively, we may use the emotions and behaviors of others as a means of social comparison, to gauge how we should be feeling and acting in a particular situation.

Matching others may also be one way to show empathy, or just “I like you,” according to Hatfield.

Researchers have brought couples into the lab and observed their behavior. Those who like each other behave more similarly. Conversely, “if a couple is out of sync, they don’t like each other as much,” said Cacioppo.

#### Infection or Selection

One question that arises in conducting work on contagion among individuals who already know each other, such as roommates or couples in a romantic relationship, is whether individuals who are already more similar to each other in affect tend to seek each other out — a selection effect — rather than truly being “infected” by the other person’s moods.

Both processes appear to occur: People do tend to seek out those who are more similar to them, but they are also influenced by others’ emotions and actions.

“People who are similar will think and interpret the information similarly,” said Thomas Sy, assistant professor at California State University Long Beach, who studies how leadership status affects group emotions and productivity. The same action, like crossing one’s arms, might be interpreted very differently by people who work in a corporate setting versus a clinical one.

In Sy’s studies on group behavior, he finds that not only do individuals’ moods shift toward their leader, but that the variation in emotion between group members decreases over time. Individuals end up feeling not just better or worse, but more similar to each other.

“It makes a lot of sense that if I want to be part of this group, I will think and act and behave — and in this case feel — like the rest of my group members,” said Sy.

Our experiences over the years also help build scripts, or routines, that we tend to then perform in a particular situation. When a script is enacted, it triggers a set of behaviors with a high degree of automaticity, according to Raymond Novaco, professor of psychology and social behavior at the University of California, Irvine, whose research focuses on anger and aggression.

In the case of road rage, repeated exposure to other people’s behavior on the roads may form a script that aggression is appropriate when driving.

“The contagion notion is diffusion,” said Novaco. “Part of the spreading is that it makes salient various scripts for aggressive behavior on the roadways.”

But road “rage” may be a misnomer. Anger — an emotion — can be a trigger for aggression, defined as an act intended to harm, but need not be present for the behavior to occur.

This is likely to be the case in general: Changes in emotion may impact behavior but behavioral contagion can occur without emotional contagion.

Yet the very basic underlying process between emotional and behavioral contagion may be the same. Our facial muscles twitch, and we infer that we are happy. We see someone looking ill, we feel our internal bodily sensations — perhaps our heart is beating rapidly or we’re breathing shallowly because we’re anxious about the situation — and we interpret these signs that we are about to pass out because we also took in the gas fumes.

#### Communicable Dis-ease

There are a number of personality and situational factors that both strengthen and weaken the likelihood that contagion will occur.

Although we are wired to respond to other people, there is also a tremendous amount of variability in individuals’ ability to transmit their emotions to others. More outgoing and expressive individuals tend to be better transmitters, or more successful at having you feel what they feel, according to Hatfield.

Think about the person in the office who is hard to feel happy around when he or she is upset. That person may not criticize or denigrate you, but you might start feeling miserable nonetheless. Chances are this individual communicates feelings very strongly, perhaps by scowling or sighing deeply. By noticing that person’s mood, consciously or not, one may be more likely adopt it.

This expressiveness can be taught, said Cacioppo. And, we can still be affected even if we know that people are intentionally trying to influence us, as in the case of cheerleaders at a pep rally.

On the other side, more easily infected people tend to be more observant of others, and may be of lower status in the situation.

“You have to actually pay attention to the person to be able to clue in to what’s going on,” said Barsade.

There are also conditions under which contagion is more likely to spread.

Disinhibitory situational factors, such as anonymity and ease of escape, can increase the likelihood of a behavior’s occurrence — especially those that are typically considered inappropriate, like aggression, which people typically try to minimize — according to Novaco.

Despite the pervasive nature of contagion, we often don’t attribute changes in mood or behavior to the people around us. Barsade explicitly asks her participants after experiments what factors they think might have influenced their performance. Hardly anyone mentions the moods of other people.

Awareness may be important, however.

“The person who’s aware can start to control it, modulate it,” said Sy. “Some people are able.”

If parents have a bad day at work, they may be able to consciously tell themselves they shouldn’t let the interaction with the boss affect how they treat their children.

“If they’re not aware of that and they go home and they don’t know it’s the boss that caused it, they might shift that blame to their kids,” said Sy. “When it’s conscious, you have a better chance of controlling how it’s going to impact you.”

However, we are surprisingly bad at controlling emotions, according to Hatfield; and even when we can modulate our moods we tend to be able to do so only in spurts.

Hatfield cites the example of being with family during the holidays. You can remain pleasant with your family and resist feeling irritable for a couple of hours, but after that you’ll probably be yearning for the hotel where you can take a nap.

However, if one continues to remain in that stressful situation, “people start getting tired, and then start mimicking other people’s behavior. It’s a surprisingly short time.”

Rooted in biology but supported by social and situational factors, contagion – whether of nausea or of happiness – is a powerful process and an almost unavoidable fact of being human.

On the other hand, if people want to avoid being infected, what’s an easy way to try and foil the attempt?

“Be oblivious,” said Hatfield. “Fifteen-year-old boys are great at it.”