

Ewwwwwwwwww!

The surprising moral force of disgust

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"Two things fill my mind with ever renewed wonder and awe the more often and deeper I dwell on them," wrote Immanuel Kant, "the starry skies above me, and the moral law within me."

Where does moral law come from? What lies behind our sense of right and wrong? For millennia, there have been two available answers. To the devoutly religious, morality is the word of God, handed down to holy men in groves or on mountaintops. To moral philosophers like Kant, it is a set of rules to be worked out by reason, chin on fist like Rodin's thinker.

But what if neither is correct? What if our moral judgments are driven instead by more visceral human considerations? And what if one of those is not divine commandment or inductive reasoning, but simply whether a situation, in some small way, makes us feel like throwing up?

This is the argument that some behavioral scientists have begun to make: That a significant slice of morality can be explained by our innate feelings of disgust. A growing number of provocative and clever studies appear to show that disgust has the power to shape our moral

judgments. Research has shown that people who are more easily disgusted by bugs are more likely to see gay marriage and abortion as wrong. Putting people in a foul-smelling room makes them stricter judges of a controversial film or of a person who doesn't return a lost wallet. Washing their hands makes people feel less guilty about their own moral transgressions, and hypnotically priming them to feel disgust

reliably induces them to see wrongdoing in utterly innocuous stories.

Today, psychologists and philosophers are piecing these findings together into a theory of disgust's moral role and the evolutionary forces that determined it: Just as our teeth and tongue first evolved to process food, then were enlisted for complex communication, disgust first arose as an emotional response to ensure that our ancestors steered clear of rancid meat and contagion. But over time, that response was co-opted by the social brain to help police the boundaries of acceptable behavior. Today, some psychologists argue, we recoil at the wrong just as we do at the rancid, and when someone says that a politician's chronic dishonesty makes her sick, she is feeling the same revulsion she might get from a brimming plate of cockroaches.

"Disgust was probably the most underappreciated moral emotion, the most unstudied one," says Jonathan Haidt, a psychologist at the University of Virginia. "It's become politically much more relevant since the culture wars of the 1990s, and so within the broader renaissance of moral psychology disgust has been a particularly hot topic."

Psychologists like Haidt are leading a wave of research into the so-called moral emotions – not just disgust, but others like anger and compassion – and the role those feelings play in how we form moral codes and apply them in our daily lives. A few, like Haidt, go so far as to claim that all the world's moral systems can best be characterized not by what their adherents believe, but what emotions they rely on.

There is deep skepticism in parts of the psychology world about claims like these. And even within the movement there is a lively debate over how much power moral reasoning has – whether our behavior is driven by thinking and reasoning, or

whether thinking and reasoning are nothing more than ornate rationalizations of what our emotions ineluctably drive us to do. Some argue that morality is simply how human beings and societies explain the peculiar tendencies and biases that evolved to help our ancestors survive in a world very different from ours.

A few of the leading researchers in the new field met late last month at a small conference in western Connecticut, hosted by the Edge Foundation, to present their work and discuss the implications. Among the points they debated was whether their work should be seen as merely descriptive, or whether it should also be a tool for evaluating religions and moral systems and deciding which were more and less legitimate – an idea that would be deeply offensive to religious believers around the world.

But even doing the research in the first place is a radical step. The agnosticism central to scientific inquiry is part of what feels so dangerous to philosophers and theologians. By telling a story in which morality grows out of the vagaries of human evolution, the new moral psychologists threaten the claim of universality on which most moral systems depend – the idea that certain things are simply right, others simply wrong. If the evolutionary story about the moral emotions is correct, then human beings, by being a less social species or even having a significantly different prehistoric diet, might have ended up today with an entirely different set of religions and ethical codes. Or we might never have evolved the concept of morals at all.

The moral emotions model has another radical implication as well. It means morality is not, as the Buddha and St. Augustine said, a way to curb our animal desires: It's simply an outgrowth of that same animal nature.

Human beings are uniquely squeamish creatures. Even if we eat meat, we're willing to ingest only a minuscule proportion of the world's edible animal species. We're repelled by unfamiliar grooming habits, physical contact with strangers, and even our own bodies – their odor and hair, their adipose tissue and shed skin cells, and every bodily fluid except tears. Not to mention the quease-tinged aversion many people feel toward manipulating genes or cross-dressing or whole categories of sexual activity.

Animals aren't burdened by such feelings. Many species have strong preferences about what they eat, but dislike is not disgust. "You might avoid food for different reasons – you wouldn't eat a rock, you wouldn't eat a food that's unpalatable or boring," says Paul Bloom, a Yale University psychologist who has studied disgust as well as the emergence of moral beliefs in young children. "But disgusting food has a certain property, it gives rise to a distinct facial reaction, distinct worries about what it has come into contact with. You wouldn't eat arsenic and you wouldn't eat a dog turd, but even though eating arsenic is worse for you, the dog turd gives rise to the distinct response."

Researchers describe disgust as a bundle of simultaneous sensations and reactions: We experience revulsion and we physically distance ourselves from the offending object. We feel nauseated and our heart rate lowers. And as Charles Darwin noted, we involuntarily make an expression that seems designed to both ward off odors and expel what we have just eaten – we scrunch our nose, open our mouth, and stick out our tongue.

The origins of disgust remain somewhat mysterious, but it may have first arisen when the diet of our hunter-gatherer forebears began to contain more meat – rotten meat is much more dangerous than rotten vegetables, and even today we're

far more disgusted by things that come from animals than things that come from plants. But because disgust worked so well at getting people to steer clear of certain dangerous food – as well as the outward signs of contagious disease in other people (sores, pus, and the like) – Haidt and others hypothesize that as human society grew more complex, disgust also began to serve a social function.

Partly through biological selection, partly as a taught behavior, disgust became a disciplinary mechanism to steer us away from dangerous behaviors. Understanding that betrayal or child rape is wrong is one thing, but actually being sickened by it is a more powerful form of social control.

The facial expression triggered by disgust, the distinctive grimace psychologists call the "gape," also took on a new purpose. Originally a purely protective measure, it became a social cue: a visible signal of disgust at both bodily and behavioral transgressions, and an unmistakable warning to the transgressors themselves.

"The disgust response gets pulled into these higher moral domains having to do with social rules," says Daniel Kelly, a philosopher at Purdue University and author of a forthcoming book on morality and disgust.

And because it is serving a different purpose than the one it evolved for, there are occasional mismatches between the things that elicit disgust and our response, places where the instinct leads people to react in ways that they can't easily explain or defend.

The father of modern disgust research is a psychologist named Paul Rozin. In a series of studies in the 1980s and 1990s that read like hidden-camera pranks, he set out to see how powerful the emotion was, and what exactly it was about disgusting things that repelled us. A professor at the University

of Pennsylvania, Rozin served people cups of juice that a sterilized cockroach had been dropped into and offered others chocolate fudge shaped like dog poop. He asked whether subjects would wear a thoroughly laundered sweater that had once belonged to Adolf Hitler. In all those instances, most people refused, even though they knew the cockroach and sweater were clean and that the fudge was in fact fudge. They just felt disgusted.

According to Rozin, the power of our disgust reaction leads us to a sort of magical thinking. "The sense of contamination is what's so interesting," Rozin says. "When the cockroach touches something, we feel like something of the cockroach actually enters it."

More recent work has turned to the role disgust plays in attitudes about right and wrong. For example, Bloom, working with the psychologists David Pizarro and [Yoel Inbar](#) at Cornell University, found that people who score higher on a disgust sensitivity scale (sample question: "I try to avoid letting any part of my body touch the toilet seat in a public restroom, even when it appears clean") also tend to be more likely, all else being equal, to believe that gay marriage and abortion are wrong.

Studies by other psychologists suggest an unconscious mental link between immorality and actual dirt and infection. In a much-noted 2006 study, Chen-Bo Zhong and Katie Liljenquist found that thinking of a past immoral deed made people want to clean their hands with a disinfectant wipe, and that doing so actually made them feel better afterward about their transgression. Zhong and Liljenquist called it the "Macbeth effect," after the guilt-stricken hand washing of Lady Macbeth.

Issues like abortion and gay marriage, of course, intimately implicate the body, so it's less surprising that disgust would

play a role. But other researchers have found the emotion at work in more abstract moral judgments.

In a study published early last year in the journal *Science*, a team led by Hanah Chapman, a psychology PhD student at the University of Toronto, looked at disgust and unfairness. Test subjects who played a game and considered the results unfair, the researchers found, reacted with the exact same instinctive facial expression as those exposed to more straightforwardly disgusting stimuli. Unfairness, it seems, can disgust us.

"People don't make that facial expression in anger," Chapman says, "It's really limited to disgust."

Haidt has done studies in which he primed people to feel disgusted and then asked them to judge the morality of certain actions. In one study, he had some of his unfortunate test subjects respond to four vignettes related to moral judgment while sitting in a room that had been infused with an ammonium sulfide "fart spray." The stink, he found, made them harsher judges, not only of body-related questions like whether first cousins should be able to have sex and marry, but whether people should drive to work when they could walk or whether a movie studio should release a morally controversial film.

In another study, Haidt found an even more dramatic result. Using posthypnotic suggestion, he got his subjects to experience a flash of disgust at neutral words ("take" for half of the experimental group, "often" for the others). They then read a short description of a thoughtful, open-minded student council president named Dan. If the description contained their disgust word, however, the subjects took a deep dislike to Dan, and found reasons to condemn his behavior and justify their aversion, reasons that had no connection to the description they had read – "Dan is a popularity-seeking snob,"

one said. "It just seems like he's up to something," said another.

To Haidt, all of these results buttress his belief that moral reasoning is simply an after-the-fact story we create to explain our instinctive emotional reactions, in this case a strongly held but arbitrary feeling of disgust. "Moral reasoning is often like the press secretary for a secretive administration – constantly generating the most persuasive arguments it can muster for policies whose true origins and goals are unknown," he wrote in a 2007 paper in *Science*.

Plenty of psychologists and philosophers are not yet willing to consign moral reasoning to press-secretary status, however. Developmental psychologists in particular have long studied how children and adolescents learn moral behavior, and they tend to be skeptical of claims that behavior is driven by emotions like disgust. To them, arguments like Haidt's wildly overgeneralize from a few suggestive studies.

"What is it that people do day in and day out? They're talking, deliberating, evaluating," says Melanie Killen, a development psychologist at the University of Maryland. In other words, she argues, they're really reasoning. "This is not something only philosophers do. There is tons and tons of evidence in the development literature of the ways that moral reasoning manifests in moral judgments."

To separate out emotion and reasoning as Haidt does, critics charge, simply makes no sense; the two are part of the same tangled process. And Killen points out that much of what Haidt looks at are taboos, some of which can just as easily be understood as beliefs about societal norms as true moral judgments. Even if disgust shapes those social considerations, she says, there's no evidence that it plays a role in broader moral debates.

"Incest, eating your dog – these are not the moral issues of today. The moral issues of today are the Gulf oil spill, the Iraq war, women's rights in the Mideast, child malaria in Africa," she says.

Even among disgust researchers, there are some, like Bloom and Pizarro, who have yet to be convinced that the emotion can shape more abstract moral decisions. "We're obviously disgusted at immoral acts that involve blood or vomit, corporeal things," says Bloom. "It would be more interesting if it turns out that people with high disgust sensitivity have a very different feeling about the tax code."

Haidt concedes that the field is still new, but he sees more and more evidence backing him up. A 2007 study he helped run found that people shown a film about American neo-Nazis not only reported feeling disgusted, but their throats constricted as if they were going to gag and their heart rates dropped. Anger, the other emotion people reported feeling, would have raised their heart rates.

But to David Pizarro, the most interesting – and perhaps most important – question to answer is how flexible disgust is, how much it can change. Fifty years ago, many white Americans freely admitted to being disgusted by the thought of drinking from the same drinking fountain as a black person. Today far fewer do. How did that change? Did their sense of disgust ebb as they spent more time in integrated restaurants and workplaces and buses, or did they find ways to actively suppress their feelings? Pizarro isn't sure, but he'd like to find out.

"So much of this work has just started that there's not a whole lot that's been done," he says. "I think the question is ripe for studying right now."