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The yuck factor: The surprising power of disgust

From politics to commerce to sex, the "forgotten emotion" of disgust can affect you in subtle ways

By Alison George



Take the test: “How easily disgusted are you?”

DAVID PIZARRO can change the way you think, and all he needs is a small vial of liquid. You simply have to smell it. The psychologist spent many weeks tracking down the perfect aroma. It had to be just right. “Not too powerful,” he explains. “And it had to smell of real farts.”

It’s no joke. Pizarro needed a suitable fart spray for an experiment to investigate whether a whiff of something disgusting can influence people’s judgements.

His experiment, together with a growing body of research, has revealed the profound power of disgust, showing that this emotion is a much more potent trigger for our behaviour and choices than we ever thought. The results play out in all sorts of unexpected areas, such as politics, the judicial system and our spending habits. The triggers also affect some people far more than others, and often without their knowledge. Disgust, once dubbed “the forgotten emotion of psychiatry”, is showing its true colours.

Disgust is experienced by all humans, typically accompanied by a puckered-lipped facial expression. It is well established that it evolved to protect us from illness and death. “Before we had developed any theory of disease, disgust prevented us from contagion,” says Pizarro, based at Cornell University in Ithaca, New York. The sense of revulsion makes us shy away from biologically harmful things like vomit, faeces, rotting meat and, to a certain extent, insects.

Disgust’s remit broadened when we became a supersocial species. After all, other humans are all potential disease-carriers, says Valerie Curtis, director of the Hygiene Centre at the London School of Hygiene and Tropical Medicine. “We’ve got to be very careful about our contact with others; we’ve got to mitigate those disease-transfer risks,” she says. Disgust is the mechanism for doing this – causing us to shun people who violate the social conventions linked to disgust, or those we think, rightly or wrongly, are carriers of disease. As such, disgust is probably an essential characteristic for thriving on a cooperative, crowded planet.

Yet the idea that disgust plays a deeper role in people's everyday behaviour emerged only recently. It began when researchers decided to investigate the interplay between disgust and morality. One of the first was psychologist Jonathan Haidt at the University of Virginia in Charlottesville, who in 2001 published a landmark paper proposing that instinctive gut feelings, rather than logical reasoning, govern our judgements of right and wrong.

Haidt and colleagues went on to demonstrate that a subliminal sense of disgust – induced by hypnosis – increased the severity of people's moral judgements about shoplifting or political bribery, for example (*Psychological Science*, vol 16, p 780). Since then, a number of studies have illustrated the unexpected ways in which disgust can influence our notions of right and wrong.

In 2008, Simone Schnall, now at the University of Cambridge, showed that placing people in a room with an unacknowledged aroma of fart spray and a filthy desk increased the severity of their moral judgements about, say, whether it's OK to eat your dead pet dog (*Personality and Social Psychology Bulletin*, vol 34, p 1096) "One would think that one makes decisions about whether a behaviour is right or wrong by considering the pros and cons and arriving at a balanced judgement. We showed this wasn't the case," says Schnall.

Perhaps it's no surprise, then, to find that the more "disgustable" you are, the more likely you are to be politically conservative, says Pizarro, who has studied this correlation. Similarly, the more conservative that people are, the harsher their moral judgements become in the presence of disgust stimuli.

Together, these findings raise all sorts of interesting, and troubling, questions about people's prejudices, and the ways in which they might be influenced or even deliberately manipulated. Humanity already has a track record of using disgust as a weapon against "outsiders" – lower castes, immigrants and homosexuals. Nazi propaganda notoriously depicted Jewish people as filthy rats.

Now there is empirical evidence that inducing disgust can cause people to shun certain minority groups – at least temporarily. That's what Pizarro acquired his fart spray to explore. Along with Yoel Inbar of Tilburg University in the Netherlands and colleagues, he primed a room with the foul-smelling spray, then invited people in to complete a questionnaire, asking them to rate their feelings of warmth towards various social groups, such as the elderly or homosexuals. The researchers didn't mention the pong to the participants, who were a mix of heterosexual male and female US college students.

Reeking of prejudice

While the whiff did not influence people's feelings towards many social groups, one effect was stark: those in the smelly room, on average, felt less warmth towards homosexual men compared to participants in a non-smelly room. The effect was of equal strength among political liberals and conservatives (*Emotion*, vol 12, p 23). This finding is consistent with previous studies showing that a stronger susceptibility to disgust is linked with disapproval of gay people.

In another experiment, making western people feel more vulnerable to disease – by showing pictures of different pathogens – made them view foreign groups, such as Nigerian immigrants, less favourably (*Group Processes & Intergroup Relations*, vol 7, p 333).

“It’s not that I think we could change liberals to conservatives by grossing them out, but sometimes all you need is a temporary little boost,” says Pizarro. He points out that if there happened to be disgust triggers in or around a polling station, for example, it could in principle sway undecided voters to a more conservative decision. “Subtle influences in places where you’re voting might actually have an effect.”



To an extent, many politicians have already come to the same conclusions about disgust’s ability to sway the views of their electorates. In April this year, Republicans made hay of a story about President Barack Obama eating dog meat as a boy, which was recounted in his memoir. The criticism of Obama might have seemed like the typical, if surreal, electioneering you would expect in the run-up to a presidential election, but the psychology of disgust suggests that it would have struck deeper with many voters than the Democrats might have realised.

Other politicians have gone further when employing disgust to win votes. Ahead of the primaries for the 2010 gubernatorial election in New York state, candidate Carl Paladino of the Tea Party sent out thousands of flyers impregnated with the smell of rotten garbage, with a message to “get rid of the stink” alongside pictures of his rivals. While Paladino didn’t manage to beat his Democrat opponent in the race to be governor, some political analysts believe his bold tactics and smelly flyers helped him thrash rivals to win the Republican nomination against the odds.

At the same time as the role that disgust plays in politics was emerging, others were searching for its effects in yet more realms of life. Given that disgust influences judgements of right and wrong, it made sense to look to the legal system.

Sometimes disgust is arguably among the main reasons that a society chooses to deem an act illegal – necrophilia, some forms of pornography, or sex between men, for example. In court, disgusting crimes can attract harsher penalties. For example, in some US states, the death penalty is sought for murders with an “outrageously or wantonly vile” element.

Research led by Sophieke Russell at the University of Kent in Canterbury, UK, holds important lessons about how juries arrive at decisions of guilt and sentencing – and possible pointers for achieving genuine justice in courts. She showed that once people feel a sense of disgust, it is difficult for them to take into account mitigating factors important in the process of law, such as

the intentions of the people involved in a case. Disgust also clouds a juror's judgement more than feelings of anger.

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It is for these reasons that philosopher Martha Nussbaum at the University of Chicago Law School has argued strongly to stop using the “politics of disgust” as a basis for legal judgements. She argues instead for John Stuart Mill's principle of harm, whereby crimes are judged solely on the basis of the harm they cause. It is a contentious view. Others, such as Dan Kahan of Yale Law School, argue that “it would certainly be a mistake – a horrible one – to accept the guidance of disgust uncritically. But it would be just as big an error to discount it in all contexts.” Besides, disgust could never be eliminated from trials, because this would mean never exposing the jury to descriptions of crimes or pictures of crime scenes.

Beyond the courtroom, psychologists searching for disgust's influence have found it in various everyday scenarios. Take financial transactions. It's possible that a particularly unhygienic car dealer, for instance, could make a difference to the price for which you agree to sell your vehicle. Jennifer Lerner and colleagues at Carnegie Mellon University showed that a feeling of disgust can cause people to sell their property at knock-down prices. After watching a scene from the film *Trainspotting*, in which a character reaches into the bowl of an indescribably filthy toilet, they sold a pack of pens for an average of \$2.74, compared with a price of \$4.58 for participants shown a neutral clip of coral reefs. Curiously, the disgusted participants denied being influenced by the *Trainspotting* clip, and instead justified their actions with more rational reasons.

Lerner, now at Harvard, calls it the “disgust-disposal” effect, in which the yuck factor causes you to expel objects in close proximity, regardless of whether they are the cause of your disgust. She also found that people were less likely to buy something when feeling disgust. Perhaps this is why, aside from public health campaigns, there is little evidence of product advertisers using disgust as part of their marketing strategies.

So, armed with all this knowledge about the psychology of disgust, is it possible to spot and overcome the subtle triggers that influence behaviour? And would we want to?

Some would argue that instead of trying to overcome our sense of disgust, we should listen to our gut feelings and be guided by them. The physician Leon Kass, who was chairman of George W. Bush's bioethics council from 2001 to 2005, has made the case for the “wisdom of repugnance”. “Repugnance is the emotional expression of deep wisdom, beyond reason's power to fully articulate it,” he wrote in his 2002 book *Life, Liberty and the Defense of Dignity*.

Still, is it really desirable for, say, bad smells to encourage xenophobia or homophobia? “I think it's very possible to override disgust. That's my hope, in fact,” says Pizarro. “Even though we might have very strong disgust reactions, we should be tasked with coming up with reasons independent of this reflexive gut reaction.”

For those seeking to avoid disgust's influence, it's first worth noting that some people are more likely to be grossed out than others, and that the triggers vary according to culture (see “Cheese

and culture”). In general, women tend to be more easily disgusted than men, and are far more likely to be disgusted about sex. Women are also particularly sensitive to disgust in the early stages of pregnancy or just after ovulation – both times when their immune system is dampened.

The young are more likely to be influenced by the yuck factor, and we tend to become less easily disgusted as we grow old. This could boil down to the fact that our senses become less acute with age, or perhaps it is simply that older people have had more life experience and take a more rational view of potential threats.

If they so choose, it is possible for anybody to become desensitised to disgusting things by continued exposure over time. For example, while faeces is the most potent disgust trigger, it’s amazing how easy it is to overcome it when you have to deal with your own offspring’s bowel movements. And psychologists have shown that after spending months dissecting bodies, medical students become less sensitive to disgust relating to death and bodily deformity.

Pizarro suspects that there may also be shortcuts to overriding disgust – even if the tips he has found so far may not be especially practical for day-to-day life. One of his most recent experiments shows that if you can prevent people from making that snarled-lip expression when they experience disgust – by simply asking them to hold a pencil between their lips – you can reduce their feeling of disgust when they are made to view revolting images. This, in turn, makes their judgement of moral transgressions less severe.

Happily, our lives are already a triumph over disgust. If we let it rule us completely, we’d never leave the house in the morning. As Paul Rozin, often called the “father of the psychology of disgust”, has pointed out, we live in a world where the air we breathe comes from the lungs of other people, and contains molecules of animal and human faeces.

It would be wise not to think about that too much. It really is quite disgusting.

Cheese and culture

On a recent summer's day, a stench filled *New Scientist's* London office. It smelled like sweaty feet bathed in vomit, or something long past its sell-by date. Soon its source became clear: someone had returned from Paris with a selection of France's finest soft cheeses. How can something that smells revolting be so delicious?

For a start, no matter how potent, smells can be ambiguous. We need more information to tell us whether something really is revolting or not.

"With smell, the meaning is based on context much more so than with vision," says smell researcher Rachel Herz, author of the book *That's Disgusting*. In other words, a vomit smell in an alley beside a bar will immediately conjure up a mental picture of a disgusting source, but exactly the same aroma would evoke deliciousness in a fine restaurant, she says.

The stinky cheese also illustrates the power of culture over our minds. Westerners have learned that cheese is a good thing to eat – a badge of cultural distinction, even. This explains why rotten shark meat is a delicacy in Iceland, says Herz, and the liquor chicha, made from chewed and spat-out maize, is a popular drink in parts of South America. Food choices mark out who is part of our group – hence the strong religious taboos about pork which have endured long past the time when consuming it carried a serious risk of food poisoning.

The influence of culture on disgust isn't limited to food. Kissing in public is seen as distasteful in India, whereas Brits are more revulsed by mistreatment of animals. Christian participants in one study even experienced a sense of disgust when reading a passage from Richard Dawkins's atheist manifesto *The God Delusion*. As Herz says: "To a large extent, what is disgusting or not is in the mind of the beholder."

Many things probably transcend cultural influence, however. Using a selection of disgusting images, Valerie Curtis at the London School of Hygiene and Tropical Medicine discovered a universal disgust towards faeces, with vomit, pus, spit and a variety of insects following close behind in the revulsion stakes. Delicious, these are not.

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