

The threat of contagion can twist our psychological responses to ordinary interactions, leading us to behave in unexpected ways.



By David Robson

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Rarely has the threat of disease occupied so much of our thinking. For weeks, almost every newspaper has stories about the coronavirus pandemic on its front page; radio and TV programmes have back-to-back coverage on the latest death tolls; and depending on who you follow, social media platforms are filled with frightening statistics, practical advice or gallows humour.

As others have already reported, this constant bombardment can result in [heightened anxiety, with immediate effects on our mental health](#). But the constant feeling of threat may have other, more insidious, effects on our psychology. Due to some deeply evolved responses to disease, fears of contagion lead us to become more conformist and tribalistic, and less accepting of eccentricity. Our moral judgements become harsher and our social attitudes more conservative when considering issues such as immigration or sexual freedom and equality. Daily reminders of disease may even sway our political affiliations.

The [recent reports of increased xenophobia and racism](#) may already be the first sign of this, but if the predictions of the scientific research are correct, they may reflect much deeper social and psychological shifts.

The behavioural immune system

Like much of human psychology, these responses to disease need to be understood in the context of prehistory. Before the birth of modern medicine, infectious disease would have been one of the biggest threats to our survival. The immune system has some amazing mechanisms to hunt and kill those pathogenic invaders. Unfortunately, these reactions leave us feeling sleepy and lethargic – meaning that our sickly ancestors would have been unable to undertake essential activities, like hunting, gathering or childrearing.



Infectious disease has been shaping our evolution for millions of years, altering our psychology as well as our physiology (Credit: Getty Images)

Fears of contagion lead us to become more conformist and less accepting of eccentricity. Our moral judgements become harsher and our sexual attitudes become more conservative

Being ill is also physiologically expensive. The rise in body temperature during a fever, for instance, is essential for an effective immune response – but this results in a 13% increase in the body’s energy consumption. When food was scarce, that would have been a serious burden. “Getting sick, and allowing this wonderful immune system to actually work, is really costly,” says Mark Schaller at the University of British Columbia in Vancouver. “It’s kind of like medical insurance – it’s great to have, but it really sucks when you have to use it.”

Anything that reduces the risk of infection in the first place should therefore have offered a distinct survival advantage. For this reason, we evolved a set of unconscious psychological responses – which Schaller has termed the “[behavioural immune system](#)” – to act as a first line of defence to reduce our contact with potential pathogens.

The disgust response is one of the most obvious components of the behavioural immune system. When we avoid things that smell bad or food that we believe to be unclean, we are instinctively trying to steer clear of potential contagion. Just the merest suggestion that we have already eaten something rotten can lead us to vomit, expelling the food before the infection has had the chance to take root. Research suggests that we also tend to more strongly remember material that triggers disgust, allowing us to remember (and avoid) the situations that could put us at risk of infection later on.

Since humans are a social species that evolved to live in big groups, the behavioural immune system also modified our interactions with people to minimise the spread of disease, leading to a kind of instinctive social distancing.

These responses can be quite crude, since our ancestors would have had no understanding of the specific causes of each disease or the way they were transmitted. “The behavioural immune system operates on a ‘better safe than sorry’ logic,” says Lene Aarøe at Aarhus University in Denmark. This means the responses are often misplaced, and may be triggered by irrelevant information – altering our moral decision making and political opinions on issues that have nothing to do with the current threat.

Conform or leave

Let’s first consider our general attitudes to cultural norms – and the people who break them.



The disgust response has evolved as one way that we avoid things that might make us ill, like a food or drink that has gone off (Credit: Getty Images)

Various experiments have shown that we become more conformist and respectful of convention when we feel the threat of a disease. Schaller first primed participants to feel threatened by infection, by asking them to describe a time when they had previously been ill, and [then gave them various tests that measured their tendency](#) to conform. In one test, he presented students with a proposed change to the university's grading system, for example – they could vote by placing a penny in a jar marked “agree” or “disagree”. A heightened sensitivity to disease led the participants to follow the herd and place their penny in the jar with the highest number of coins. They were swayed by popularity rather than going against the grain with their own opinion.

When asked about the kinds of people they liked, meanwhile, participants who were worried about illness also tended to prefer “conventional” or “traditional” individuals, and less likely to feel an affinity with “creative” or “artistic” people. Apparently any signs of free thinking – even invention and innovation – become less valued when there is the risk of contagion. In explicit questionnaires, they are also more likely to agree with statements such as “breaking social norms can have harmful, unintended consequences”.

Those primes might seem to be rather distant from the TV and online coverage we are all facing today. But researchers at the University of Hong Kong have also primed people with scenes from the film *Outbreak*, which might more closely resemble some of the news reports today; the [evocative images of a pandemic led them to value conformity and obedience over eccentricity or rebellion](#).

Moral vigilance

Why would the behavioural immune system shift our thinking in this way? Schaller argues that many of our tacit social rules – such as the ways we can and can't prepare food, the amount of social contact that is and isn't accepted, or how to dispose of human waste – can help to reduce the risk of infection. “Throughout much of human history, a lot of norms and rituals serve this function of keeping diseases at bay,” Schaller says. “Folks who conform to those norms served a public health service, and people who violated those norms not only put themselves at risk but affected others as well.” As a result, it's beneficial to become more respectful of convention in the face of a contagious outbreak.



Even thinking about a situation like a pandemic can make people value conformity over eccentricity (Credit: Getty Images)

The same logic may explain why we become [more morally vigilant](#) in an outbreak. Studies have shown that when we fear contagion, we tend to be harsher when judging a breach of loyalty (such as an employee who badmouths his company) or when we see someone who fails to respect an authority (such as a judge). Those particular incidents would do nothing to spread disease of course, but by flouting convention, they have given a signal that they may break other more relevant rules that are there to keep disease at bay.

Even extremely subtle reminders of illness can shape our behaviours and attitudes. Simply asking people to stand next a hand sanitiser triggered [one study's participants to express more conservative \(with a small "c"\) attitudes](#) associated with a greater respect for tradition and convention.

In the same study, a reminder to wash their hands led participants to be more judgemental of unconventional sexual behaviours. They were less forgiving of a woman who was said to masturbate while holding her childhood teddy bear, for example, or a couple who had sex in the bed of one of their grandmothers.

Fear of outsiders

Besides making us harsher judges of the people within our social group, the threat of disease can also lead us to be more distrustful of strangers. That's bad news if you're dating. In both online profiles and face-to-face meetings, Natsumi Sawada at McGill University in Canada has found that we form worse

first impressions of other people if we feel vulnerable to infection. Further research has shown that [conventionally less-attractive people are judged especially harshly](#) – perhaps because we mistake their homely features for a sign of ill health.

Our heightened distrust and suspicion will also shape our responses to people of different cultural backgrounds. According to Schaller, this may arise from those fears about non-conformity: in the past, people outside our group may have been less likely to observe the specific prescriptive norms that were meant to protect the population from infection, and so we feared that they would unwittingly (or deliberately) spread disease. But today, it can result in prejudice and xenophobia.



Reports of racism toward people of Asian heritage have surged during the coronavirus pandemic (Credit: Getty Images)

Aarøe, for instance, has found that [fear of disease can influence people's attitudes to immigration](#). She emphasises this is part of the behavioural immune system's "better safe than sorry" approach. "It's a misinterpretation" of irrelevant cues that occurs "when the evolved mind meets the multiculturalism and ethnic diversity of modern times, which was not a recurrent phenomenon for most of our evolutionary history," she says.

Coping with Covid-19

The influence of the behavioural immune system varies from individual to individual; not everyone would be affected to the same degree. "Some people have a particularly sensitive behavioural immune system that makes them react extra-strongly to things that they interpret as a potential infection risk,"

says Aarøe. According to the research, those people would already be more respectful of social norms and more distrustful of outsiders than the average person, and an increased threat of disease would simply harden their positions.

We do not yet have any hard data on the ways that the coronavirus outbreak is changing our minds – but the theory of the behavioural immune system would certainly suggest that it's probable. Yoel Inbar, at the University of Toronto, argues that it would be a relatively moderate shift in overall opinion across the population, rather than a huge lurch in social attitudes.

He found some evidence of social change during the 2014 Ebola epidemic, which became a fixation of the international news: in a sample of more than 200,000 people, [implicit attitudes to gay men and lesbians appeared to dip slightly during the outbreak](#). “It was a natural experiment where people are reading about disease threats a lot, and it did look like it shifted attitudes a little.”

With the forthcoming US elections, it's natural to question whether any of this might influence people's preferences for different candidates or their reactions to certain policies. Schaller speculates that it could play a small role, though he is sceptical that it will be an overriding factor. “The more profound effects may not have anything to do with [the behavioural immune system] but more directly to do with the perception of just how well government officials are or are not responding to the situation,” he says.

Even if these psychological shifts do not change the result of the election at the national level, it is worth considering how they influence our own personal reactions to the coronavirus. Whether we are expressing a conformist opinion, judging another's behaviour or trying to understand the value of [different containment policies](#), we might question whether our thoughts are really the result of rational reasoning, or whether they might have been shaped by an ancient response that evolved millennia before the discovery of germ theory.

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<https://www.bbc.com/future/article/20200401-covid-19-how-fear-of-coronavirus-is-changing-our-psychology>