

Neuroscience

The more we lie, the easier it is for our brains to be increasingly more deceitful

Brain scans showed the amygdala responds when we lie, but that this response lessens the more we lie

By

24 Oct 2016



Credit **Dmitry Fisher** / iStock

There is no such thing as a harmless lie. One self-serving lie leads to another, and the lies get bigger and bigger. This could be blamed on a reduction in guilt, or some other emotionally linked behavioural adaptation. But a study published today in *Nature Neuroscience* claims to prove it is almost definitely down to our brains becoming desensitised to some kind of negative emotion associated with the lie.

“Let’s take Lance Armstrong as an example,” said lead author on the paper, PhD candidate in experimental psychology at University College London, Neil Garrett. “Is it the case that the first time he decided to cheat on the Tour de France he felt really, really bad about this, but the more he did it the less bad he felt and the more he was able to engage in this behaviour in the future?”

This was exactly the kind of behavioural pattern Garrett and colleagues looked at in their study.

A total of 80 participants took part in an experiment in which they were asked to estimate how many pennies were in a jar. The participants were paired up and placed in a variety of different scenarios. In one condition, a participant was told that they and their partner would receive a reward based on accuracy. In other scenarios, purposefully underestimating or overestimating how many pennies were in the jar would either benefit a participant at their partner’s expense, or benefit their partner at their own expense.

Volunteers began to exaggerate their estimates as a result. And while these small lies were taking place, a functional MRI scan showed a strong response in their amygdala – an area of the brain linked to emotional behaviours and motivation. The basic find of the study was that the more exaggerated the responses became, the less the amygdala responded. The amygdala was most responsive when the prospective reward was for an individual’s own benefit - so the brain activity was linked largely to self-serving lying.

“The greater the drop in sensitivity, the more a person increased their lying the next opportunity they got,” the team explained in accompanying notes.

The study, Garrett said, suggests “the act of telling lies actually reduces the brain’s emotional response to dishonesty and encourages us to tell bigger lies in the future”.

“One analysis showed a decrease in brain activity actually predicted subsequent increases in dishonesty. It is the first empirical evidence that dishonest behaviour escalates when it’s repeated - it suggests that reduced emotional brain responses can explain this willingness to deceive and it highlights the potential dangers of engaging in small acts of dishonesty because these can escalate to much larger ones further down the line.”

Co-author on the paper and [former WIRED Health speaker Tali Sharot](#) of UCL told WIRED the brain activity could be to do with “something you feel based within yourself” - perhaps a form of guilt based on our own moral code; or related to “conflicts with social morals”.

The authors do emphasise that we cannot know, for now, exactly what type of emotion is being induced when they see the amygdala respond - any reference to guilt or other negative emotions is purely speculation. We just know that the amygdala responded when the participant lied, and that that response lessened the more they lied. The authors were also careful to ensure participants did not feel ‘watched’.

“We made a point of making them feel like they were not being watched whilst they did the experiment,” Garrett told WIRED. “In addition, we set up the scenario so that dishonesty was a private choice for the participant and was not something we could seemingly tell just from their responses - for instance, just by seeing you advise £30 for a jar there is no way anyone can know if this is an act of dishonesty or not. As far as the participant was aware, if they acted dishonestly it was a private decision and we would not be able to know.”

It's hard to tell whether the same findings would be replicated over a long period of time, however. It's one thing to suggest an individual could tell a lie on one day, and then weeks later be engaging in increasingly serious and bigger lies; and quite another watching a participant exaggerate about the number of pennies in a jar over the course of an hour-long experiment.

Both Sharot and Garrett are interested in whether these findings could be replicated when adapting to other behaviours, however, from risk-taking to violence. "We could also see whether this can tell us how to nudge away from dishonesty," Sharot told WIRED, "perhaps by enhancing an emotional response".

"There are lots of exciting possible avenues for future research such as exploring measures that can halt escalation and whether emotional adaptation plays a role in escalating other types of behaviour we find aversive," Garrett told WIRED.

Accompanying information on the paper does emphasise that it's not all bad news for humanity: "First, people were much more likely to lie when it also benefited someone else rather than just themselves. Second, people could have lied much more than they did, but did not, and lost money for it."

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