

# The upside of feeling down

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A chill wind chases you into the door of your local newsagent. Rain is drumming down outside. As you pay for your newspaper, you briefly notice a number of strange items on the checkout counter - a matchbox car, plastic toy animals and some trinkets that seem out of place in this shop.

As you brace yourself to head back out into the weather, a young woman approaches you. She introduces herself as a psychologist, explains that she's conducting research on memory and poses a surprise question: how many of the unusual objects on the checkout counter can you remember?

Our research team conducted just such a study recently: we did so under

carefully controlled conditions, repeatedly going to the same store at the same time of day, with the same checkout operator and the same objects placed in the same order on the counter. Customers were chosen at random.

You might expect that, on average, you'd get pretty much the same result each day. Yet our surprise question yielded a surprise answer: people performed much better on the [memory test](#) when the weather was unpleasant and they were in a slightly negative mood. On bright sunny days, when they were more likely to be happy and carefree, they flunked it.

So why should we be better at remembering everyday details when we are in a bad mood than when we are in a good mood? This is not a trivial question and it has important ramifications. A happy eyewitness, for example, may be less reliable in court than a sad one. Or would you perform better in an exam if you were feeling a little down?

Surprisingly, we still know relatively little about the subtle ways that feelings and moods influence how people think. Yet the fascinating interplay between thought and feeling - the rational and emotional ways of dealing with the world around us - has intrigued philosophers, writers, artists and ordinary people since the dawn of civilisation.

## **Fleeting moods can have profound influences**

Now a growing body of research is revealing that mild, fleeting moods can have profound influences on many everyday judgments.

Here's another example. We asked 120 university students to judge the truth or falsity of general knowledge trivia statements. Afterwards we revealed to them whether each item was true or not. Two weeks later, we got them back to the lab, divided them into three groups and showed

them short videos designed to induce either a happy, neutral or sad mood. Then we asked them to judge the truth of some of the trivia statements they'd seen earlier, plus some completely new ones.

Strangely, the group that had just watched the sad video performed better than the group who felt happy. Students in a bad mood were also markedly better at remembering whether the statements were true, based on the answers we'd given them just a fortnight earlier. Those in a happier mood had difficulty remembering and tended to think that any statement they'd seen previously was likely to be true. Worse still, happy students were also unreasonably confident - much more so than the sad group - that they were right.

How could this be? A simple downbeat shift in mood had improved memories and judgments, whereas a small upbeat shift had made them perform less well but, curiously, resulted in an unreasonable increase in confidence.

It is strange indeed that the one emotion we all seem to want to avoid - sadness - can be so beneficial and useful. Equally odd, perhaps, is that the pursuit of happiness - one of the "inalienable rights" famously set down by Thomas Jefferson in the United States Declaration of Independence - can sometimes lead our clever brains so astray.

Since Plato's time, many theorists have seen emotion as a potentially dangerous, invasive force that subverts rational judgment and action. This idea gained its most powerful expression in Freud's psychodynamic theories early last century. In this view, emotions can "take over" thinking and behaviour unless psychological resources are deployed to control them. When logic and reason deliver so many tangible benefits, why are we humans so prone to succumb to our feelings, throw caution to the wind, fall head over heels in love or get overwhelmed by despair? In short, what good are these seemingly irrational states of mind, and

why did our evolutionary heritage bestow them on us?

## **What is the point of sadness?**

More to the point, if being happy is such a universal goal why is the human emotional repertoire so heavily skewed towards negative feelings? Apart from happiness and surprise, four of the six deeply ingrained basic emotions identified in humans are negative ones: fear, anger, disgust and sadness. Fear, and anger and disgust have obvious evolutionary benefits, triggering a fight, flight or avoiding response. But what is the point of sadness?

We are only just beginning to understand how sadness often calls for a more careful, adaptive and ultimately effective thinking style.

Despite the undoubted power and ubiquity of feelings, moods and emotions were long neglected as a subject of scientific research. Three basic faculties of the trilogy of the human mind have dominated philosophy and empirical psychology in recent centuries: cognition (how we process information); conation (motivation and will); and affect (feeling and emotion). Affect remains the least understood.

Recent decades, however, have seen a kind of "affective revolution" in psychology, neuro-anatomy and physiology. A radically different view is emerging. Rather than being a dangerous force, the evidence suggests that emotion is a useful and even essential component of our capacity to respond to social situations.

In itself, that may seem self-evident but sadness remains a puzzle. Even though it is clearly bothersome and provides no obvious pleasurable benefit, it remains one of the most enduring and common emotional states. Throughout human history much effort has been expended in controlling sadness and dysphoria - the unpleasant, uncomfortable

moods. Indeed, helping us to manage negative feelings is the bread and butter of much of contemporary applied and clinical psychology.

But as we have seen, sadness is not without its uses. Many researchers now believe that evolutionary pressures probably shaped the development of all emotional responses, including sadness, in a way that is highly sensitive to situational demands. What is more surprising, as our research shows, is that moods such as sadness seem to operate by spontaneously triggering information-processing strategies that best suit the needs of different social situations.

Much recent research on the functions of mood and emotion has focused on the benefits of positive states of mind. It has been variously suggested that feeling good promotes creativity, flexibility, co-operation, integrative thinking, successful negotiation, work motivation, relationship satisfaction and a host of other desirable outcomes. In contrast, most experimental and clinical psychology has emphasized the need to limit, control and avoid negative states of mind. Yet if feeling sad is so universally undesirable, why is it so surprisingly ubiquitous?

## **Sadness may promote a more attentive, accommodating thinking style**

Mounting evidence suggests that negative moods, such as sadness, may promote a more attentive, accommodating thinking style that produces superior outcomes whenever a cognitive or social task requires detailed, externally oriented, inductive thinking.

So it is not too far-fetched to suggest that in our early evolutionary history such wired-in emotional reactions were likely to provide distinct survival advantages. Individuals who detected and responded most rapidly and effectively to social and environmental challenges, for

example, would be more likely to fare better than those who did not. Negative emotions such as fear, disgust or anger were obviously useful in the precarious ancestral environment, preparing individuals for flight, fight or avoidance in the face of danger. Sadness, as we have found, has a more subtle effect: it triggers a more attentive, cautious thinking style that focuses attention on the outside world.

Feelings and moods can also profoundly influence the content of thinking and memory, by making it easier to remember related thoughts and ideas. People in a happy mood are more likely to selectively remember happy, cheerful episodes from their past and those in a sad mood remember more bad experiences. We have also found that couples who are in a good mood see their relationship conflicts in far more lenient, optimistic terms. Temporary sad mood has the opposite effect - problems are interpreted in a more pessimistic manner.

More importantly, moods can influence not only what we think but also the process of cognition, that is, how we think.

Early studies suggested that positive moods simply lead to lazier, more superficial processing strategies whereas negative moods trigger a more effortful, systematic, analytic and vigilant processing style. These differences were originally explained in terms of differences in motivation and effort between happy and sad individuals. In effect, if you were happy and wanted to stay that way you'd be more likely to avoid effortful thinking, but if you were sad you'd put more effort into feeling better.

More recent theories, however, suggest a more complex pattern. Feelings not only influence how much effort you put into thinking but also the style of processing you use. Positive and negative moods seem to prepare us to adopt thinking strategies that best fit the situation.

Happy mood seems to lead to a greater reliance on pre-existing knowledge and ideas - applying what we already know. Happy people often adopt a more open, creative and inclusive thinking style, use broader categories, show greater mental flexibility and can perform just as effectively on secondary tasks.

In contrast, sadness produces the opposite pattern of paying greater attention to new, external information. Sad people use a more accommodative, bottom-up and externally-focused processing strategy where attention to situational information drives thinking. These contrasting processing styles can be equally vigilant and effortful, yet produce very different outcomes. Thus, both positive and negative emotions can provide advantages in the right circumstances.

Let's look closer at the experimental evidence for the subtle cognitive advantages of feeling bad.

## **Happy people tend to make snap judgements**

One early clue came from a study looking at how mood influences our perceptions of other people. It found that people in happy moods tend to make snap judgements based on first impressions. Those in a sad mood, however, paid balanced attention to both positive and negative signals from other people. In short, sadness tends to improve the accuracy of your person perception.

Another intriguing finding was that happy people selectively chose to read sad rather than happy articles before carrying out a demanding or difficult social task, such as meeting a stranger. Thus, we seem to adopt subconscious strategies to reduce euphoria to fit the requirements of the situation.

Much of what we know about the world is second-hand knowledge.

Deciding whether to accept or reject social information is critical in everyday life. Accepting invalid information as true (false positives or excessive gullibility) can be just as dangerous as rejecting information that is valid (false negatives or excessive scepticism). Many factors can sway our credibility judgements - the quality of the information, prior knowledge of it and cues we take from our informants, such as whether we find them attractive. But in recent experiments my colleagues and I have found that moods also have a significant influence on accepting or rejecting information.

Factual scepticism involves evaluating claims against objective evidence: some claims, of course, are plainly open to checking but in practice others are difficult to test (that power lines cause leukaemia, for example, or that the CIA murdered President Kennedy).

## **We asked people to judge the probable truth of urban legends**

To test how mood influences the way ambiguous claims are assessed, we asked participants who were induced into positive, neutral and negative moods to judge the probable truth of a number of urban legends and rumours. Mood did have a significant influence on their scepticism, but only for claims that were new to them, suggesting that familiarity is an important factor. So a follow-up experiment explicitly manipulated the familiarity of a variety of factual claims taken from trivia games. Some were familiar to the participants and some were entirely new.

Participants induced into a positive mood by watching suitably emotive videos simply rated familiar items as more credible. Negative mood in turn produced greater overall scepticism.

A second kind of scepticism, interpersonal scepticism, concerns the acceptance or rejection of messages and signals we get from other



people that are by their very nature ambiguous and not open to objective validation. Deciding whether a smile or a denial is genuine, for example, involves this kind of credibility judgment.

Negative moods might produce more critical and sceptical judgments, while happy people may accept interpersonal messages at "face value", as genuine and trustworthy. In one experiment we asked participants to assess photographs of positive and negative facial displays: as predicted, we found that people in a sad mood were significantly less likely than those in the neutral or happy condition to accept facial expressions as genuine. Curiously, happy participants were more confident in their judgment. In another study the six basic emotions - anger, fear, disgust, happiness, surprise and sadness - were used as targets. Once again, negative mood reduced and positive mood increased people's tendency to accept the facial displays as genuine.

But does bad mood also improve people's ability to detect deception? To explore this, we staged a theft: students were instructed to either steal or leave in place a movie ticket in an empty room, unobserved by anyone. Next, they were all told to deny the theft, regardless of their guilt. We then interrogated them and asked happy or sad participants to accept or reject the targets' videotaped statements. Those in a positive mood were more likely to accept denials as truthful. Sad participants not only made significantly more guilty judgments but were significantly better at correctly detecting the guilty targets. Again, this is rich material for the legal profession when the potential influence of mood on a jury, for example, might conceivably sway its assessment of a key witness.

## **People who are sad by nature may be better at detecting some types of lies**

These findings are also consistent with some earlier claims about so-

called "depressive realism" and more recent findings that people who are sad by nature - known as dispositionally dysphoric - might have an advantage at detecting specific types of lies, such as false reassurances.

Interpreting the behaviour of others is a critical and demanding cognitive task in everyday life, yet people tend to be pretty poor at it: they pay disproportionate attention to the most conspicuous information in the focus of their attention - the actor - and fail to adequately process information about the situation that often determines what people do. So, do good or bad moods influence our accuracy in such interpersonal judgements?

We would expect that sad people show greater accuracy in their judgement of others' behaviour. Several laboratory and real-life experiments have examined this issue. In one study we asked people to read an essay written by a student advocating a popular or unpopular position (for or against nuclear weapons testing). They were told either that the writer had freely chosen the topic or had been assigned to write it. Happy people were more likely to believe that the essay represented the writer's real attitude, even when the topic was assigned. Sad mood reduced this bias: unhappy people were more accurate and were less likely to make incorrect judgements about the writers of the assigned essays.

Similar results have also been obtained in real-life field studies, showing that a sad mood produces more accurate judgments and a better recall of details.

## **Happy people are more confident, despite being less accurate**

Paradoxically, it is happy people who are more confident in their

judgments despite them being less accurate. We clearly underestimate the effect of mood on our performance when dealing with complex social information. Taken together, the experimental results add weight to a positive evolutionary explanation for sadness.

Whatever the reason for the pervasiveness of sadness, its impact on our lives and on our life performance is significant. A key issue is its effect on memory, as the introductory example hinted.

Memory is notoriously fallible and many a stray detail gets incorporated into recall of events, and one can be convinced of its accuracy even when it is plainly false. In a series of experiments we found that happiness promoted and sadness inhibited the incorporation of false details into eyewitness memories. We found that mood may influence eyewitness memory in several ways: when the event is first witnessed; when misleading information is encountered later on; and when the information is retrieved.

In one study we showed participants pictures of two scenes - a car crash and a wedding party. An hour later, allegedly as part of an unrelated study, the same participants were induced to feel happy or sad (by recalling happy or sad events from their past). They then completed a short questionnaire about the scenes they saw earlier. Some questions contained planted, misleading information, such as: "Did you see the overturned car next to the broken guard rail?" (there was no guard rail) or, "Did you see the fireman holding a fire hose?" (there was no fire hose). After a further interval, the accuracy of their eyewitness memory for the scenes was tested. Receiving misleading information reduced eyewitness accuracy, especially in a positive mood. Surprisingly, negative mood almost completely eliminated this common "misinformation effect". The memories of happy people were far more likely to be contaminated while negative mood seemed to provide a defence against such contamination - sad people thought more carefully

about what they had seen.

## **Sad people had better recall of a tense scene**

Looking at pictures is one thing, but what about when you are directly involved in witnessing a tense scene? In another experiment, students in a lecture theatre witnessed a staged five-minute aggressive encounter between a lecturer and a female intruder. A week later these eyewitnesses received a mood induction, and were given a similarly loaded questionnaire, with planted false information (*italicised*, as follows): "Did you see the lecturer removing his microphone, as the woman wearing a light jacket moved towards him?" and "Can you remember the young woman fiddling with her scarf as the lecturer gave her something from his wallet?". A final test of eyewitness memory showed that those in a happy mood while receiving the misleading information were far more likely to report it as true, while sadness all but eliminated this source of memory error. It seems that sadness improved memory by promoting the ability to discriminate between correct and misleading details. Happiness, on the other hand, had a detrimental effect.

We also wondered whether people can suppress the impact of their moods when instructed to do so, something that is very important in legal situations where jurors and witness are often "warned" about various distortions.

In a third study, we showed participants short videotapes of a robbery in a convenience store and a wedding scene. After the usual wait and mood induction, some were instructed to disregard and control their emotional state before doing the questionnaire. Overall, those who were told to suppress their emotions fared no better or worse than the others (although some individuals seemed better able to do this).

We predicted that sadness could also have other benefits in interpersonal communication, for example when it comes to trying to influence others, due to the more concrete, factual and systematic thinking style that goes with negative moods. As far back as Aristotle, theorists have contended that concrete arguments tend to be interesting and well recalled. Can negative mood, directing attention to concrete, external information, also have a beneficial effect?

We tested this by inducing participants to feel good or bad after viewing short happy or sad films, and then asking them to produce persuasive arguments for or against an increase in student fees and Aboriginal land rights. They came up with an average of seven arguments and the quality and persuasiveness of each argument was rated by two trained raters blind to the manipulations. Those in a negative mood created arguments that were of significantly higher quality and more persuasive - mainly because they contained more specific, concrete details. We repeated the experiment with different participants, and different issues - with the same result.

But the ultimate significance of these findings depends on whether the arguments produced by happy and sad participants indeed differ in actual persuasive power. To test that, we exposed a naive audience of 256 undergraduate students to the arguments produced by our happy or sad participants. We found that, indeed, the arguments produced by sad people were actually more successful in producing a real change in attitudes, and especially so when they advocated a popular position over an unpopular one.

## **Sad people made better arguments and were more persuasive**

Can bad mood also help when we try to persuade somebody directly? In

one study, happy or sad participants had the task of persuading another student through a series of emails to volunteer for a boring experiment. Sad people had again done much better, and produced more effective messages.

So, we have learned that sadness has some surprising benefits for thinking. By producing a more careful, concrete and externally oriented thinking style, it can improve memory, guard us against confusing true with misleading details and can also reduce errors of judgement. Negative mood also makes us less gullible: it helps us to be more sceptical about accepting ambiguous factual claims; and it improves communication by helping to create well-reasoned and persuasive arguments.

Of course, the upside of sadness is a matter of degree: intensive or prolonged sadness and grief - such as depression - can cause us to lose our grip on rational thought and on our judgement for hours, days and even months on end. Depression is plainly a very different state, but temporary and mild sadness does seem to result in some unexpected benefits in how we think and process complex information.

## **Are memories and judgements biased by how you feel at the time?**

We clearly have strong evidence that mild sadness can improve thinking on some tasks. But do we really know why this occurs? Evolutionary explanations offer a promising answer to this question. We have learned a lot in recent years about the way feelings influence memory, thinking and judgments. Our findings are broadly consistent with the notion that over evolutionary time, feelings work as adaptive, functional triggers to elicit information processing patterns that are appropriate in a given situation.

Of course, any phenomenon claiming to be evolutionary in origin needs to be culturally universal. Although few explicitly cross-cultural studies have so far been carried out there is reason to believe that these effects, like most fundamental cognitive phenomena, are not culture dependent. The fact that the same pattern emerges in a variety of different cognitive tasks, using a variety of mood-induction procedures, and in different subject populations suggests that the effect is robust and universal.

This new knowledge about the cognitive consequences of not being too happy may have interesting applications. Mood and feelings are a critical factor in industrial and organisational settings. Are memories, thinking, judgments and persuasive messages subtly biased by how employees feel at the time? Managing successful relationships and resolving personal conflicts also involves a great deal of feeling and emotion. Does the thinking of couples depend on how they happen to feel at the time? The legal system is also heavily based on memories, judgments and interpretations.

There is now solid evidence that moods and feelings do indeed play an important role in many everyday situations. It is an intriguing possibility that the key to successful work performance or rewarding intimate relationships may sometimes require us not to be too happy.

Provided by University of New South Wales ([news](#) : [web](#))

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