Can a mathematical equation really be the formula for happiness?

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She must be good at maths. Credit: Thephotographymuse, CC BY

What makes people happy? Finding a definitive answer to this question could certainly make someone very rich (butwhether that would in turn make them happy is another matter). The problem is that happiness is especially slippery. While we know much about the consequences of happiness – that it can improve our health and well-being and how we get on in the world – much less in known about its causes, let alone how

to guarantee its appearance.

Making happiness a goal, for example, often has counter-productive consequences that ultimately lead to less happiness overall. Finding happiness is, for many, akin to divining water: when we do find it we are often at a loss to explain how it happened.

In an attempt to provide insight to the happiness conundrum, a group of researchers from London recently published a mathematical formula in PNAS that predicts people's subjective ratings of their happiness from moment to moment. Drawing on models of how we respond to reward, they showed that people feel happy when they experience momentary rewards, and that the influence of such rewards quickly decays over time.

A decision-making task was given to 26 study participants in which they had to make choices winning or losing a monetary reward while also being asked about their happiness at that moment. Neural activity in their brains were also monitored using functional MRI from which a computational model linking self-reported happiness to recent rewards and expectations was created. The researchers then tested this model on more than 18,000 participants in a smartphone app game called "What makes me happy?" and said their equation could be used to accurately predict how happy people would be while playing the game.

A question of expectation

Most interestingly, however, was the finding that rewards alone are not the best predictor of happiness. The most powerful predictor of happiness was whether or not people's expectations relating to those rewards were exceeded. As the authors surmise, the findings suggest, "happiness is a state that reflects not how well things are going but instead whether things are going better than expected".

So what does this tell us about happiness and how to find it? Well, it suggests two things. First it shows that happiness is leveraged from the same basic reward processing capacities that we share with all animals, yet it is our (probably uniquely human) capacity to predict and reflect on rewards that is most important for happiness.

It also shows that relative rewards are most important for happiness – even gaining nothing can be rewarding when the alternative was a potential loss. This concurs with previous work showing that pain itself can be experienced as pleasant when it is provided as an alternative to more intense pain.

Managing our expectations may, therefore, be the best way to promote happiness: if we expect nothing and gain something we will be happier than if we expect what we get, or worse expect more than what we get.

And a failure to live up to it

This is consistent with the sage advice that psychologists have been offering their patients in various forms of psychotherapy for many years. Much of the depression seen by psychologists in their consulting rooms appears to be the result of people's expectation that they should always be happy. For these individuals depression is experienced as a failure to be happy and, most importantly, a failure to live up to their expectations of how life should be.

So is this the whole story? Is happiness simply the result of well-managed expectations? Although personal expectation has been consistently shown as a critical factor in determining happiness, I suspect there is more.

We are social creatures, and our emotions are experienced and expressed in social contexts. Whether or not we have the capacity to self-regulate

our expectations about happiness, we may still be influenced by the surrounding social context. Asking people to reduce their expectations about happiness is a tall order when they are surrounded by a culture which places a premium on feeling happy. From television advertising to self-improvement gurus and even government endorsed national campaigns happiness has become the gold standard of success.

In our own research, my colleagues and I have found that quite apart from people's own expectations regarding happiness, it is the perceived expectations of others that play a critical role in determining how people respond to their negative emotional experiences. When we think that others expect us to be happy and not sad we feel bad about ourselves when we do inevitably feel sad, leading to increased depression and lower satisfaction with life.

So can happiness be predicted by a mathematical formula? As with just about anything I am sure it can, and the work of lead author Robb Rutledge and colleagues provides many important insights into the causes of happiness.

Whether people are able improve their own levels of happiness by managing these causes is perhaps a more complex problem; one that is influenced by the ways in which happiness is culturally valued and whether the lack of it is socially accepted.

Source: The Conversation