

ScienceTalk

# Positivity can strengthen immunity

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In the laboratories of Carnegie Mellon University some years ago, 95 men and 98 women volunteered to have live cold and flu viruses sprayed directly into their noses.

Yet, not everyone succumbed to these viruses. Only 32.1 per cent of those infected by the virus developed a full-blown clinical illness, and 18.7 per cent of these volunteers did not develop an infection at all.

What distinguished those who were more susceptible to the virus from those who were less?

After accounting for a list of relevant factors, such as prior immunity levels to the virus and overall physical health, the researchers found that those who were less susceptible to the flu virus had one key distinguishing attribute – they exuded greater positivity in their daily lives.

The current Covid-19 outbreak has generated a wave of fear and uncertainty. To minimise infection and transmission of this coronavirus, experts have advised the public to wash their hands frequently, avoid unnecessary face touching, cough and sneeze into tissue paper, and wear a mask when unwell.

Seeking even more protection against the virus, some have adopted additional measures, such as consuming vitamin C daily in a bid to boost immunity.

Yet others have even turned to non-scientific, dubious measures, such as consuming large quantities of garlic and rinsing their noses frequently with a saline solution.

Few, however, have considered that they may also boost their immunity through psychological means – specifically, through inculcating positivity.

Psychoneuroimmunology research has consistently demonstrated that one's feelings can exert a very real impact on the immune system. While feelings of fear and worry can spur a person to adopt crucial preventive actions, such as stepping up personal hygiene, experiencing these negative emotions in excessive amounts over prolonged periods of time can cripple the immune system.

Specifically, studies have shown that negative emotions can induce the production of stress-related hormones that interfere with the immune regulation system.

On the other hand, studies have shown that positive emotions, such as optimism and calmness, can stimulate the production of Immunoglobulin A – a special type of antibody that fortifies the mucus membranes which line the respiratory tract, for example, against bacteria and viruses – and facilitate white blood cell production. White blood cells guard the body against bacteria and viruses.

It is thus important for one to be mindful of negative emotions, to channel them towards constructive behaviour, prevent them from spiralling out of control, and balance them out with some positivity.

In our own study published in Scientific Reports, fostering positive emotions such as gratitude, amidst stressful life events, can serve to buffer their negative impacts on blood-circulating interleukin-6 levels – a biomarker indicative of one's

physical health.

Instead of wallowing in fear and panic, it is much more beneficial for one's health and immunity to adopt a sense of cautious optimism.

Here, we suggest five simple steps that can help to reduce crippling fear and breed a constructive sense of cautious optimism.

## 1. BE MINDFUL OF YOUR FEAR AND ANXIETY LEVELS

Awareness of your own feelings is the crucial first step in allowing you to take charge of your own emotions.

Take the short questionnaire below, which is based on established guidelines, to find out if you are experiencing excessive amounts of fear and anxiety:

- Are your fearful and anxious feelings hindering you from functioning normally in your life activities, such as concentrating properly at work or in school?
- Are your fearful and anxious feelings causing significant levels of distress to yourself and people around you?
- Are you panicking a lot more than people around you?
- Are you engaging in non-constructive behaviour that is harmful to yourself and/or others, such as stockpiling excessive amounts of food items and/or masks?

If you have answered yes to most or all of these questions, you may be experiencing excessive amounts of fear and anxiety.

## 2. REGULATE YOUR FEAR AND ANXIETY LEVELS

Studies have shown that taking a

few minutes each day to practise mindfulness meditation can promote greater awareness and control over one's emotions.

There are free guided mindfulness meditation apps available for download in both the Google Play Store and Apple's App Store.

Taking breaks and partaking in relaxing activities, such as exercising, reading books or playing games, and maintaining a healthy social support network through keeping in touch with friends and family over instant messaging and video calling can also be helpful in maintaining a calm state of mind during this stressful period.

## 3. CHANNEL YOUR FEARS AND WORRIES TOWARDS CONSTRUCTIVE BEHAVIOUR

Apart from modulating emotions through engaging in the suggested activities above, you can also manage your fear and anxiety levels by adopting constructive, preventive measures.

Fear fundamentally stems from a perception of threat in the environment. Studies have shown that engaging in behaviour that reduces such threat perception can help to contain one's feelings of fear and anxiety.

In the context of the current Covid-19 outbreak, this could mean washing your hands more frequently or even sharing masks and hand sanitisers with others who need them.

However, as you engage in behaviour to ease fear and anxiety, it is imperative to keep a critical watch over your actions, actively discerning which types of actions are objectively targeted at disease

prevention and which types of actions would only escalate negativity.

Otherwise, overwhelming feelings of fear and anxiety can potentially cloud judgments and precipitate non-constructive behaviour, such as hoarding of food and mask supplies and even racial discrimination.

## 4. KEEP CALM AND STICK TO THE FACTS

To prevent negative emotions from spiralling out of control, try to maintain an objective and level-headed orientation towards the situation.

It is important to focus on the facts, rather than the often-emotive descriptions in opinion statements.

Endeavour to critically verify all information sources before considering and/or sharing them, to prevent spreading false information that stokes fear unnecessarily.

## 5. NEVER LOSE HOPE THAT THINGS WILL GET BETTER

Lastly, endeavour to adopt a positive mindset by keeping faith that it is a matter of when, not if, the situation improves.

Time and time again, the country has overcome difficult outbreaks (for example, Sars and H1N1 influenza). While it is important not to be complacent because of these past victories, it is equally important not to lose hope and sink into despair.

Channelling one's fears and worries into constructive, preventive actions and keeping up a spirit of positivity that these difficult times can be overcome give society the best fighting chance against any possible infection.

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Mr Sean Lee (top) and Dr Andree Hartanto

point out that studies have shown positive emotions can stimulate the production of Immunoglobulin A – a special type of antibody that fortifies the mucus membranes which line the respiratory tract, for example, against bacteria and viruses – and facilitate white blood cell production, boosting immunity.