

# How we discovered the link between childhood trauma, a faulty stress response and suicide risk in later life

9 January 2018, by Daryl O'connor



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When people experience stress, the adrenal glands that sit on top of the kidneys release a steroid hormone called cortisol. However, our [latest study](#) shows that people who have experienced high levels of trauma in childhood, and who have attempted suicide, tend to release less cortisol when put under stress. These findings build on [our earlier work](#) that showed that the stress response system may be "faulty" or "damaged" in people who have recently tried to take their own life.

Every 40 seconds a person dies by [suicide](#) somewhere in the world, making suicide a [global health issue](#). The causes of suicide are not well understood. For many years, researchers have been trying to uncover the risk factors for suicide in order to prevent deaths. Many [biological](#), [psychological](#) and social factors have been identified, but there are also many gaps in understanding why people try to end their lives.

We looked at whether [stress](#) and [childhood trauma](#) were related to the risk of suicide. Childhood trauma has been linked to a damaged or faulty stress response system in people with [depression](#)

later in life, but little is known about it in relation to suicide.

In our study, 160 people were grouped according to whether they had a history of previous suicide attempt, had thoughts of suicide but did not attempt suicide, or had neither attempted nor considered suicide (the controls).

Participants were asked to complete a questionnaire about emotional, physical and sexual abuse they may have suffered as a child or as a teenager, as well as emotional and physical neglect. They were then asked to complete a stressful task in the laboratory. We measured the participants' cortisol levels from saliva before and during the task.

Our analysis of the results showed that people who had attempted suicide in the past released low levels of cortisol when stressed compared with controls. The lowest levels were in people who had tried to take their own life within the past year. More alarmingly, those people who released lower cortisol when stressed in the laboratory reported higher levels of wanting to die – known as "suicide ideation" – four weeks later.

We also found very high levels of childhood trauma in people vulnerable to suicide, in particular in people who had previously made a suicide attempt. Nearly 80% of people who had attempted suicide had experienced at least one type of childhood trauma compared with less than 40% in those who had thought about suicide only, and less than 20% in the controls.

People who reported more than one moderate or severe type of childhood trauma released the lowest amount of cortisol during the stress test and during rest. Importantly, these effects were not

explained by current depression.

### **Glimmer of hope**

These findings suggest that the stress response system may be "broken" or impaired in people at risk of suicide. While this is concerning, the difference between the cortisol levels in people who had recently attempted suicide compared with those with a lifetime history are promising because they suggest that the stress response system may recover over time.

The reason these results are important is because people's ability to release cortisol when stressed has been linked to poor [mental control](#) (ability to inhibit or stop inappropriate or maladaptive behaviour and responses), emotional processing (ability to control emotions) and [risky behaviours](#) (such as drug taking, alcoholism and being impulsive) – all factors associated with suicide risk.

High levels of trauma in childhood and the associated stress may lead to excessive wear and tear of people's stress response system that may increase [suicide risk](#) later in life.

Our findings suggest that the amount of cortisol a vulnerable person releases when stressed may be an additional biological marker of suicide that could help identify those people at risk of suicide. For example, it might be possible to include a cortisol stress test as part of an assessment in people vulnerable to suicide.

Important next steps for prevention might involve developing suicide prevention treatments that restore [cortisol levels](#). These may involve psychological therapies, such as [mindfulness](#), that have been shown to hold great promise for improving health and well-being. Alternatively, a future avenue of research might look at whether pharmacological interventions, such as providing [cortisol](#) supplements, might help repair the [stress response](#) system in [people](#) vulnerable to suicide.

The Samaritans can be contacted in the UK on 116 123. In the US, the National Suicide Prevention Hotline is 1-800-273-8255. In Australia, the crisis support service Lifeline is on 13 11 14. Hotlines in

other countries can be found [here](#).

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