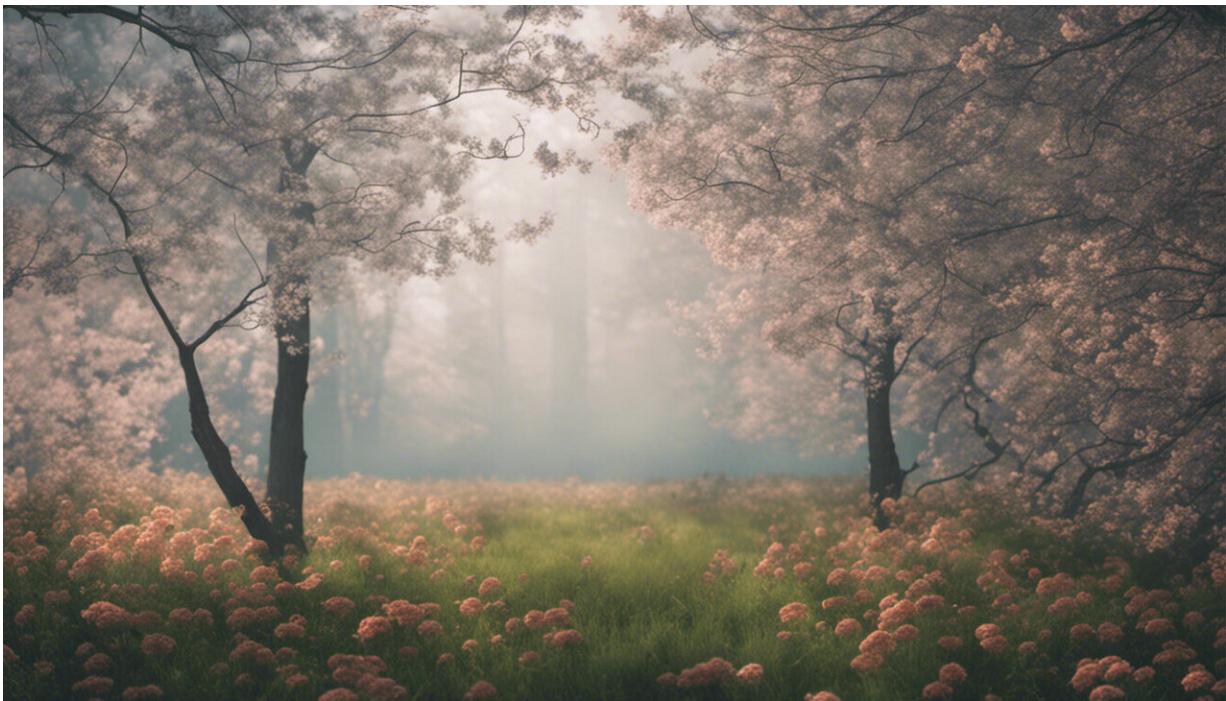


Whether you followed lockdown rules may have been influenced by your genetics, according to new research

May 23 2022, by Lude Franke, Patrick Deelen and Pauline Lanting



Credit: AI-generated image ([disclaimer](#))

All over the world, people suffered the influence of the COVID-19 pandemic on their well-being. However, the impact was not the same for everyone. We know physical health and mental health are affected partly by [environmental factors](#), for example the COVID-19 pandemic, but

partly by nature (genetics).

The COVID-19 pandemic was an unique opportunity for researchers and the [scientific community](#) came together to form the [COVID-19 host genetics initiative](#) collaborating on research. Whole communities were suddenly and simultaneously exposed to both the virus and the [social changes](#) needed to adapt to government lockdowns.

[We have investigated](#) the interaction between genetics and the impact of the pandemic on individuals' well-being over time. We found that people's trust in authority over lockdown was linked to their genetics, and that it also steadily became more important for their happiness over the course of the pandemic in 2020.

The data was collected from [27,537 participants](#) from the [Lifelines](#) study, which has followed 167,000 individuals from multiple generations in the three northern provinces of the Netherlands (Drenthe, Friesland, Groningen) since 2006.

The study collects detailed information and biological samples from its participants. We sent questionnaires asking participants whether they have had COVID-19, about their [general health](#) and medication use, social demographics such as income and education, well-being and lifestyle.

Genetics and COVID

Many behavioral and psychiatric traits are known to be influenced by parts of our DNA. For instance, there are [102 known ways](#) different arrangements of DNA can increase the risk of depression. For our analyses, we gave each participant a so-called polygenic score that reflected how likely they were to have a specific trait, based on their DNA (their [genetic predisposition](#)), and compared this to their responses

in the questionnaire.

Scores like this can't predict behavior of individuals, but they can be used to see if groups of people with different genetic predispositions respond differently when faced with [adversity](#). For example, people who were genetically more likely to have high life satisfaction, reported a higher quality of life in the questionnaires, as expected.

In total, we found 288 questionnaire responses could be linked to the participants' genetics. In particular, we found trust in government and willingness to comply with COVID-19 lockdown rules were closely connected with participants' genetic predispositions.

How the influence of genetics changed

We first sent out the questionnaire weeks after COVID-19 was first detected in the Netherlands and kept sending the same questions throughout the pandemic at least once a month. This allowed us to compare the influences of the polygenic scores at different time points.

We found that the genetic contribution towards well-being was not static but could change over time.

The most pronounced effect of participants' genetics was for the trait of high life satisfaction. Here we found that over the course of the pandemic genetics became more important and the impact of external factors decreased.

There are multiple explanations for this effect. The [social isolation](#) imposed by the COVID-19 containment measures meant people had less control over [environmental factors](#) that could affect their quality of life. Alternatively, it might also be the case that some [genetic factors](#) result in a resilience to stress allowing some people to better handle the prolonged

psychological effects of the pandemic.

Our results demonstrate the importance of [incorporating longitudinal data](#) to study psychiatric diseases and other psychological traits so we can better understand how to help people with these conditions.

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