

Exposure to great outdoors boosted mental health during pandemic

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People exposed to more green space during the first year of the COVID-19 pandemic reported significantly less depression and anxiety, according to new University of Colorado Boulder research published March 2 in the journal *PLOS One*.

The study also found that, at a time when [mental health](#) problems soared

due to financial woes, supply shortages and nonstop news coverage of the virus, people sought solace in the great outdoors, with one-third spending more time there than they did pre-COVID.

"This research shows how critical it is to keep parks and green spaces open in times of crisis," said senior author Colleen Reid, an assistant professor of geography in the Institute for Behavioral Science. "It also shows that, as a [public health measure](#), more effort should be made to put in green spaces and make them accessible."

For the study, the authors presented about 1,200 Denver-area residents with a 30-minute survey gauging their mental health and their perceptions of green space near their home, including: how much there was, whether they could see it, whether it was accessible, how much they used it and its quality. They also collected aerial satellite imagery to objectively quantify greenery in respondents' neighborhoods.

The survey ran from November 2019 to January 2021.

Once COVID-19 emerged and lockdowns ensued, Reid added additional questions, providing a rare opportunity to also look at how the pandemic influenced mental health over time and what was most stressful about it.

"Not surprisingly, we found that the pandemic impacted mental health negatively," said co-author Emma Rieves, a master's student in the Department of Geography. "But we also found that green space could have a powerful protective effect, even at a time of such extraordinary stressors."

Supply shortages and job losses stressed people out

Surprisingly, the study found no association between being diagnosed with COVID and having poor mental health. But respondents reported

that having symptoms, no diagnosis and no way to test was distressing.

Those who lost income or felt they were working in an unsafe environment were also more likely to be stressed or depressed, while the strongest source of [mental health problems](#) was a fear of supply shortages (including toilet paper and food).

People who spent a lot of time scrolling the internet looking at the news reported poorer mental health. In contrast, merely having abundant green space nearby, as measured by [satellite images](#), was associated with lower depression scores.

To get the most benefit out of nearby green space, the study found, people had to get out and use it. Those who used green space most had significantly lower anxiety and depression.

"There are many dimensions of green space, and our study looked closely at how these dimensions impact mental health," said Rieves, noting that policymakers often rely solely on objective measures, like satellite images or proximity to parks when assessing whether to invest in more greenery in a community.

On a satellite image, Rieves points out, a large patch of greenery could actually be a weed-filled lot. A 'nearby park' could be on the other side of a busy highway.

"It's not just about being able to see trees from your home. The amount, quality and accessibility of that green space matters," said Rieves.

Many public agencies closed public green spaces, including neighborhood playgrounds and [national parks](#), at the onset of the pandemic for fear that the virus could be easily spread via surfaces. Once parks reopened, with places like gyms, bars and churches still

closed, Coloradans flocked to the outdoors: 33% of respondents reported spending more time in parks or on trails than the year before.

The 'biophilia hypothesis'

The study adds to a growing body of evidence suggesting that green space can have a measurable impact on health.

According to one theory, known as the 'biophilia hypothesis,' humans innately tend to seek connections with green spaces, where the calming environment influences stress hormones in a way that promotes healing and fends off disease.

"The idea is that we have evolved with nature, and only in the recent past have we been living in the concrete jungle," said Reid.

One famous 1984 study even found that when hospital patients had rooms with a window looking out on green space, their wounds healed faster and they required less pain medication than those looking out on a brick wall.

Reid cautioned that correlations between green [space](#) and health have been scrutinized, in part because people with higher incomes and, thus, better access to healthy food and health care may also be more able to afford to live near [green spaces](#).

To address that, Reid's study took sociodemographic factors into account, along with the many unique circumstances that have emerged during COVID.

After controlling for all the factors, the benefits still remained clear: "Spend more [time](#) outside," Rieves said. "Pandemic or no pandemic, it's good for your mental [health](#)."

More information: Perceptions of green space usage, abundance, and quality of green space were associated with better mental health during the COVID-19 pandemic among residents of Denver, *PLOS One* (2022). [DOI: 10.1371/journal.pone.0263779](https://doi.org/10.1371/journal.pone.0263779)

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