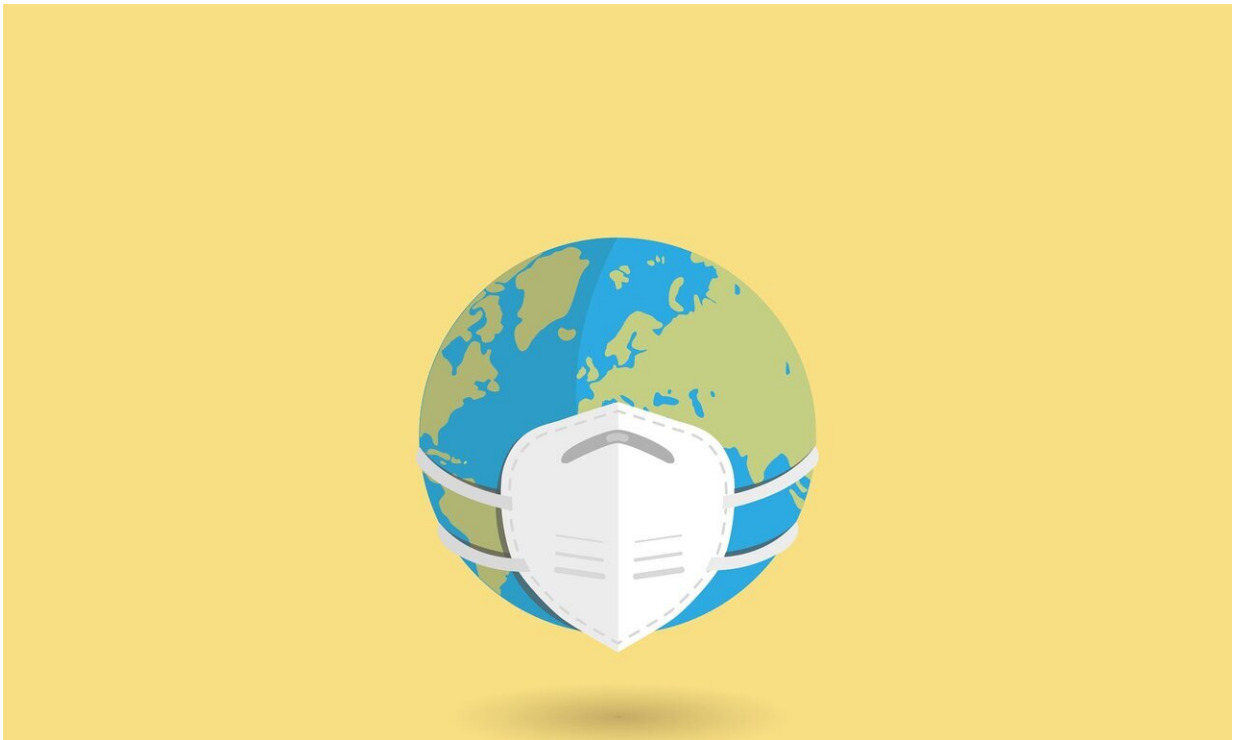


Pinpointing the impact of the COVID-19 pandemic with AI

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Fraunhofer IAO, the University Hospital Dresden and seracom GmbH joined forces to investigate the long-term impact of the COVID-19 pandemic using AI algorithms in a project called WIBCE. The results of the associated Germany-wide online survey indicate that younger people experience more psychological distress than older people, despite the

fact that their objective health risk is relatively low.

Social distancing, curfews and isolation—the day-to-day realities of the coronavirus [pandemic](#) are certainly affecting people and taking a toll on their social lives. A healthy mental state is an important protective factor that can also fortify the immune system and prevent disease. With this in mind, the Dresden University Hospital, seracom GmbH and the Fraunhofer Institute for Industrial Engineering IAO conducted an [online survey](#) to investigate the [health](#)-related, social, behavioral, and psychological impact of the COVID-19 pandemic.

Study examines long-term impact on mental health

This study aimed to identify specific groups of people which are especially burdened and vulnerable regarding their mental health during the COVID-19 pandemic. Therefore, the researcher investigated long-term trends by analyzing responses of 275 respondents with regular participations in the period from April to March 2020. This allows to investigate effects of the pandemic over an extended period rather than at one particular time, as would be the case with a one-off survey.

They used [machine-learning](#) (ML) algorithms to scrutinize the participants' responses and unravel hidden relationships between variables. "The fact that we were able to evaluate such large quantities of data with a reasonable amount of effort was all down to our AI methodology," says Doris Janssen, project manager at Fraunhofer IAO. Her colleague Katharina Lingelbach adds, "This project was a great opportunity for us to explore the ML algorithms' potential on real data."

AI algorithms pinpointed two groups of people—the resilient and the concerned

Some of the results were surprising and revealed two fundamentally different clusters among participants. The "untroubled" cluster is resilient. These people are coping well with the coronavirus pandemic. This cluster's average psychological well-being was comparable with pre-coronavirus reference values. These individuals convey the impression of being mentally resilient and stable. Around two-thirds of the investigated sample belong to this cluster. The "concerned" cluster comprises the other third. These people are strongly affected by the coronavirus pandemic—even without actually contracting the disease. They are experiencing greater [psychological distress](#) and significantly reduced mental health compared to pre-pandemic reference values. This group is more anxious and despondent about the situation.

Machine learning-based data evaluation to facilitate decision-making

The study provides evidence that younger people—particularly those with lower incomes and resources—struggle with relatively high levels of anxiety and depression during the coronavirus pandemic—and this despite the fact that they are exposed to a relatively low objective health risk. Society needs to take this group's worries seriously and address their concerns. The WIBCE study is an important barometer for policymakers. Machine learning methods help determine which individuals need more assistance. A personalized response to mental health issues could help people—especially those with chronic conditions—get the right support even at times when personal contact for medical therapy is limited.

More information: The study (in German) is free to download: [publica.fraunhofer.de/starweb/ ... bn:de:0011-n-6305986](https://publica.fraunhofer.de/starweb/...bn:de:0011-n-6305986)

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