



Press Release

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Tracking mental health over the COVID-19 pandemic

Philadelphia, October 26, 2022 – When the world shut down in March of 2020 because of the COVID-19 pandemic, people the world over experienced profound psychological stress to varying degrees. Now, [a new study](#) takes advantage of the unique situation and longitudinally studied the demographic, neurobiological, and psychological factors that contributed to individuals' risk or resilience to mental health disruptions related to the stress.

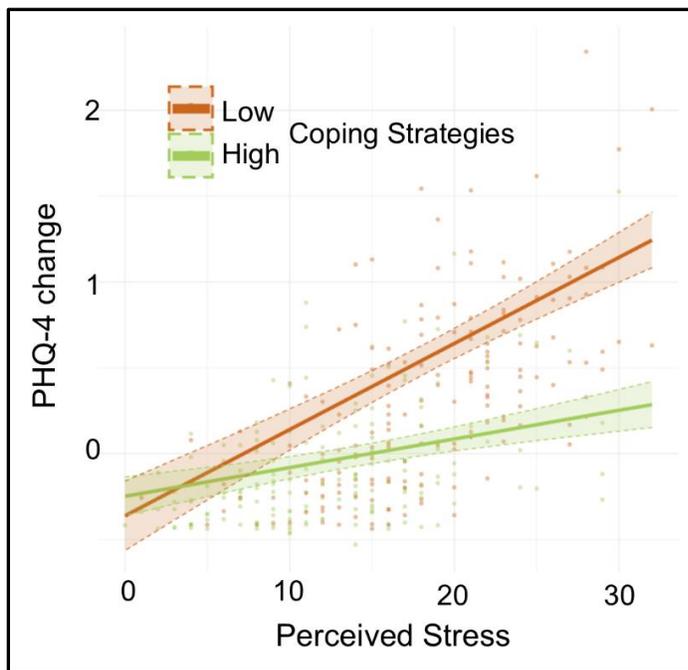
The study appears in [Biological Psychiatry: Cognitive Neuroscience and Neuroimaging](#), published by Elsevier.

While “resilience” is a broad term with many connotations, the authors describe it as the ability of an individual to resist the negative impacts of illness, stress, or trauma, in line with a [recently proposed definition](#). Psychological factors, such as coping abilities, help people protect themselves from harmful experiences and are associated with resilience to trauma.

The researchers assessed data from over 2,000 participants collected as part of the Barcelona Brain Health Initiative. They analyzed the change in participants' anxiety and depression symptoms from two years before to during the first year of the pandemic. The researchers analyzed the data to identify participants with resilience, which they defined here as the lack of development of anxiety or depression over the pandemic.

Before the pandemic, all participants reported normal or mild symptoms, and in terms of measures of resilience, reported medium-high coping skills and low-to-moderate stress levels. Across the sample, scores reflecting depressive and anxiety symptoms increased, particularly in women, but the changes were mediated by individual differences in coping skills and perceived stress.

Resilience has also been linked in previous studies to structural and functional characteristics of specific brain areas and circuits, including the default mode network (DMN), which is associated with mind-wandering activity. To examine these influences, the researchers made use of brain imaging data that had been collected on over 400 participants before the pandemic. The data showed that brain connectivity within the DMN explained much of the individual resilience and the psychological influences on mental health.



Caption: The association between change in symptoms of anxiety and depression (PHQ-4; vertical axis) and perceived stress (horizontal axis) is modulated by individual coping strategies (Credit: *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*).

David Bartrés-Faz, PhD, from the University of Barcelona and a senior author of the study, said, “Our findings show that psychological aspects such as coping strategies should be considered within the context of each individual biological complexity. We found evidence of how the specific configurations of brain networks (such as the DMN) were meaningful to understand responses to stress – even years later – in the context of the COVID-19 pandemic. Therefore, the combination of individual psychological factors and specific biological substrates can predict the risk of vulnerability to anxiety and depression symptoms during a prolonged stress factor.”

Cameron Carter, MD, Editor of *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*, said of the study, “While we are in the early stages of being able to characterize brain network function and relate it to individual differences, the results of this study strikingly suggest that the state of the DMN, known to be associated with social and emotional processing as well as self-referential memory, may provide contextual support during stressful experiences that may contribute to healthy coping and better mental health outcomes.”

Notes for editors

The article is “Functional brain connectivity prior to the COVID-19 outbreak moderates the effects of coping and perceived stress on mental health changes. A first year of COVID-19 pandemic follow-up study,” by María Cabello-Toscano, Lúcia Vaqué-Alcázar, Gabriele Cattaneo, Javier Solana-Sánchez, Ivet Bayes-Marin, Kilian Abellaneda-Pérez, Dídac Macià-Bros, Lúcia Mulet-Pons, Cristina Portellano-Ortiz, Miquel Angel Fullana, Laura Oleaga, Sofía González, Nuria Bargalló, Jose M. Tormos, Alvaro Pascual-Leone, and David Bartrés-Faz (<https://doi.org/10.1016/j.bpsc.2022.08.005>). It appears as an Article in Press in *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*, published by Elsevier.

The article is openly available at [www.biologicalpsychiatrycnri.org/article/S2451-9022\(22\)00188-4/fulltext](http://www.biologicalpsychiatrycnri.org/article/S2451-9022(22)00188-4/fulltext).

Copies of this paper are available to credentialed journalists upon request; please contact Rhiannon Bugno at +1 254 522 9700 or BPCNNI@sobp.org. Journalists wishing to interview the authors may contact David Bartrés-Faz at dbartres@ub.edu or +34 934039295, or Alvaro Pascual-Leone at apleone@hsl.harvard.edu.

The authors' affiliations and disclosures of financial and conflicts of interests are available in the article.

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