

We demonstrate the association between Alzheimer's biomarkers and symptoms of anxiety and depression during the confinement due to Covid-19

- **The research has been led by the Barcelonaβeta Brain Research Center (BBRC), research center of the Pasqual Maragall Foundation, and participated more than nine hundred people without cognitive impairment from the ALFA Study, which has the support of the "la Caixa" Foundation**
- **The results, published in *Neurology*[®], indicate a relationship between disease-related risk markers, such as amyloid beta protein or neuroinflammation, and increased symptoms of anxiety or depression.**
- **The analysis also explored the role of stress and lifestyle changes (sleep, food, drink, smoking habits and medication use) during this period, as well as socio-demographic factors such as differences of sex/gender and the mental health of caregivers.**

Barcelona, X X, 2022. Alzheimer's disease risk markers such as beta amyloid protein or neuroinflammation are related to the increase in symptoms of anxiety and depression during the confinement due to Covid-19. This is one of the main results of a study led by the research center of the Pasqual Maragall Foundation, the Barcelonaβeta Brain Research Center (BBRC).

The study, which was published in *Neurology*[®], the medical journal of the American Academy of Neurology, analyzed the negative impact of the confinement of Covid-19 on mental health in cognitively healthy people and carried out with 921 participants of the ALFA Study, promoted by the "la Caixa" Foundation. Of the total number of participants, results with biomarkers of Alzheimer's disease were analyzed for 254 people. The research has also had the collaboration of the University of Gothenburg, the Center for Neurodegenerative Diseases in Hong Kong, the Pompeu Fabra University, the Hospital del Mar Medical Research Institute and the CIBER for Frailty and Healthy Aging (CIBERFES), among others.

The research has studied, through regression models of multivariate analysis, the association between biomarkers related to Alzheimer's and socio-demographic factors as well as the results of the HADS questionnaire (Hospital Anxiety and Depression Scale) during confinement and before. In a previous assessment, the majority of study participants had standard levels of anxiety and depression and instead during confinement 16.6% of participants suffered an increase in anxiety, while 9.9% report

depressive symptoms. According to previous studies, this increase is considered clinically significant, and could have an impact on the quality of life of the participants.

The cohort participating in the study, enriched by risk factors, has made it possible to establish the basis of a possible association between the pandemic and Alzheimer's: the results indicate a relationship between risk markers related to the disease, such as the protein beta amyloid and neuroinflammation, and the increase in anxious and depressive symptoms during confinement. This association is important because it may imply a worse clinical prognosis in people at risk of Alzheimer's after the pandemic.

During the preclinical stage of Alzheimer's, there is an increase in symptoms of anxiety and depression that can accelerate the progression of the disease. To this fact we must add that, during the Covid-19 pandemic, these symptoms have increased on a global scale, with long-term consequences for the mental health and cognitive deterioration of vulnerable groups. "In this context, it was relevant to investigate the possible association between symptoms of anxiety and depression during the confinement resulting from Covid-19, and the biomarkers of Alzheimer's disease", explains **Müge Akinci, BBRC researcher and lead author of the study**

Gender, a risk factor

Research has also explored the role of stress and lifestyle changes (sleep, eating, drinking, smoking habits and medication use) during this period, as well as socio-demographic factors such as sex/gender differences and the mental health of caregivers. Differences have been observed between men and women regarding the hours of sleep during confinement and food consumption, as well as differences between caregivers and non-caregivers.

Anxiety and depression pose an increased risk of developing cognitive impairment and Alzheimer's disease, and the prevalence observed in this study is higher among women. On the HADS scale, women scored higher than men for both anxiety and depression symptoms.

"In general, the results support the link between neuropsychiatric symptoms and the load of beta amyloid in the brain in the preclinical stage of Alzheimer's, especially in the case of women," declares **Dr. Eider Arenaza-Urquijo, study researcher and team leader at the BBRC**. *"They show modest but significant changes and, therefore, it is appropriate that they be taken into account in the clinical field",* she concludes.

The findings of this study open the door to future research on the consequences of the pandemic on the mental health and clinical prognosis of people who are in the preclinical stage of this disease.

Bibliographic reference

Akinci, Müge; Peña-Gómez, Cleofé; Operto, Gregory, et al., 'Pre-pandemic Alzheimer disease biomarkers and anxious-depressive symptoms during the COVID-19 confinement in cognitively unimpaired adults', *Neurology*, August 2, 2022. DOI: <https://doi.org/10.1212/WNL.0000000000200948>

About Alzheimer's disease

Every 3 seconds a new case of dementia is diagnosed in the world, and it is estimated that 50 million people currently suffer from it, in most cases due to Alzheimer's. This figure translates into more than 900,000 people affected in Spain. With life expectancy on the rise, if no treatment is found to prevent or slow the course of the disease, the number of cases could triple by 2050, and reach epidemic proportions, as pointed out by latest *World Alzheimer Report 2018* published by *Alzheimer's Disease International*.

About the Barcelonaβeta Brain Research Center and the Pasqual Maragall Foundation

The Barcelonaβeta Brain Research Center (BBRC) is the research center of the Pasqual Maragall Foundation, promoted by the "la Caixa" Foundation since its creation, dedicated to the prevention of Alzheimer's disease and the study of the cognitive functions affected in healthy and pathological aging.

The Pasqual Maragall Foundation is a non-profit organization that was born in April 2008, as a response to the commitment made by Pasqual Maragall, former mayor of Barcelona and former president of the Generalitat de Catalunya, when he publicly announced that he had been diagnosed with Alzheimer's disease. The Foundation's mission is to promote research to prevent Alzheimer's and offer solutions that improve the quality of life of affected people and their caregivers.

Communication Department of the Pasqual Maragall Foundation:

Barcelonaβeta Brain Research Center

Jaume Aguilar

jaquilar@fpmaragall.org

699 561 448

Press Office (ATREVIA)

Andrea Gutiérrez

agutierrez@atrevia.com

618 763 014

Communication Department of the "la Caixa" Foundation

Andrea Pelayo

apelayo@fundaciolacaixa.org

618126685