

FENS 2020 Virtual Forum

11-15 July 2020

Organised by the Federation of European Neuroscience Societies (FENS)
Hosted by the British Neuroscience Association (BNA)

12th FENS FORUM OF NEUROSCIENCE

<https://forum2020.fens.org/>

PRESS RELEASE

EMBARGOED UNTIL MONDAY 13 JULY 2020, 17:00 BST

THE STRESSFUL EFFECTS OF COVID AND URBAN LIVING ON THE BRAIN

The disruption caused by COVID19 has necessitated physical and social distancing strategies with profound impact on mental health and loneliness. Social isolation deprives us of the contact with each other that is essential for well-being and health, explained **Professor Andreas Meyer-Lindenberg from the Central Institute of Mental Health, Mannheim, Germany** today (Monday 13 July). Efforts to minimise the spread of the coronavirus pandemic have brought into sharp focus the impact of the stress of enforced isolation on the brain.

While the long-term effects of previous pandemics on well-being were fortunately limited, the scale of this year's pandemic combined with its profound economic and social effects mean that we must all be vigilant for adverse impacts on mental health.

Mental health and mental illness are influenced by the interactions between genetic and environmental risk factors. Psychiatrist Professor Meyer-Lindenberg has been investigating what happens in the brain of someone exposed to these risks and what makes us more vulnerable or resilient.

"Humans are social creatures and so social isolation is a form of chronic stress which has a negative impact on hormonal and immune systems leading to mental and physical illness, such as cardiovascular disease," he said in a lecture at the FENS Virtual Forum of Neuroscience.

In the field of social neuroscience, researchers are finding out more about the part of the brain called the cingulate cortex that is critically involved in the regulation of stress, emotions and fear. "The bigger our social networks, the better we can cope with adverse situations. The size of these networks predicts the size of the cingulate cortex, which becomes bigger" said Professor Meyer-Lindenberg. The cingulate cortex interacts with the amygdala, a key area signalling negative emotions, and the hippocampus that processes memories. This circuit is strongly impacted by risk genes for psychiatric disorders such as depression.

At any time, about one third of Americans and around one quarter of Europeans feel lonely which can lead to a higher risk of depression, suicide and dementia. About one quarter of those affected have a higher risk of dying of any cause. Conversely, those with a big social network have a reduced risk of dying by around 50%.

One of the biggest determinants of how big our networks are is whether we live in the city or the country. It has been known for decades that the mental health of city dwellers is worse. People living in cities are 20% to 40% more likely than to develop anxiety or mood disorders than people who live in the country, particularly those who are poor and disadvantaged or migrants struggling to make a new life for themselves. The stress of living in a city could cause lasting alterations in brain circuits involved with the regulation of emotion.

How does this environment impact on the way our brains function? These questions have for many years been a major interest for Professor Meyer-Lindenberg, long before the outbreak of coronavirus. In two studies published in 2019^{1,2} results showed that access to green spaces improves the sense of well-being in city dwellers.

In the first part of a study, 33 healthy young adult living in Mannheim had their movements tracked using smartphone technology that were assessed along with their emotional state. The research team detected a correlation between the amount of time they spent in parks and green spaces with emotional well-being. The next stage was to extend the same technique to 52 young adult city dwellers who then had a brain scan to monitor their responses to angry or fearful facial images. The neuroimaging results linked the benefit of being in green spaces to brain activation during the processing of negative social-emotional cues. The results of this study contribute to a growing body of evidence that is revealing the value of the experience of nature on mental health.

“We are learning more about which environmental components influence brain structures that could protect against mental illness or increase the risk,” said Professor Meyer-Lindenberg. “We know that the brain responds positively to green space, so giving all people equal access to parks and nature within cities is important, if challenging. Our desire for green space could have evolutionary roots when humans naturally sought an area with trees, water and fertile land on which to live.”

By 2050, two-thirds of the global population is expected to live in cities due in part to world economies, climate change and migration. “The rapid urbanisation has far-reaching implications for society, public health and policy makers, and therefore also provides great opportunities to improve the human environment,” he concluded.

END

Plenary Lecture PL05: Neural mechanisms of environmental risk for psychiatric disorders

Contact

FENS Press Office and all media enquiries:

Elaine Snell, Snell Communications Ltd, London UK
tel: +44 (0)207 738 0424 or mobile +44 (0)7973 953794
email: elaine@snell-communications.net

NOTES TO EDITORS

Andreas Meyer-Lindenberg Professor Doctor, Translational Neurosciences, Central Institute of Mental Health, Mannheim, Germany <http://fakultaet.umm.de/medical-faculty-mannheim/research/focus-areas/translational-neurosciences/members/andreas-meyer-lindenberg/>

Further Reading (Meyer-Lindenberg)

Neural correlates of individual differences in affective benefit of real-life urban green space exposure. Tost, H., et al. *Nat Neurosci* 2019 22(9): 1389-1393. **DOI: 10.1038/s41593-019-0451-y**

Nature and mental health: An ecosystem service perspective. Bratman, G. N., et al. *Sci Adv* 2019. **5(7): eaax0903. DOI: 10.1126/sciadv.aax0903**

The 12th FENS Virtual Forum of Neuroscience

As a consequence of the COVID-19 pandemic, the FENS Forum 2020 will be held entirely virtually.

The FENS Forum of Neuroscience is the largest basic neuroscience meeting in Europe, organised by the [Federation of European Neuroscience Societies](#) and hosted by the [British Neuroscience Association](#). It will attract around 5,000 international delegates. FENS was founded in 1998. With 44 neuroscience member societies across 33 European countries, FENS as an organisation represents 20,000 European neuroscientists with a mission to advance European neuroscience education and research.