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CRS0006

Brain developmental trajectories in offspring of parents with schizophrenia or bipolar disorder

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Abstract: Early diagnosis and intervention are essential for managing and improving long-term outcomes of severe mental illness, highlighting the need for reliable early biomarkers. This longitudinal study explores whether the development of the brain during childhood and adolescence differs between offspring of parents with and without schizophrenia or bipolar disorder. Moreover, we will assess if the age-dependent change over time in brain volume, cortical thickness and surface, structural network indices, and cortical gyrification are related to the presence and severity of psychiatric symptoms and level of IQ.

We obtained 286 T1-weighted MRI scans of 184 offspring (aged 8–18 years at baseline) of at least one parent diagnosed with bipolar disorder (n=78) or schizophrenia (n=52) and offspring of parents without severe mental illness (n=54); 102 offspring underwent a follow-up scan (on average 3.9 years between scans).

Group comparisons and the associations with clinical and cognitive measures were analysed with linear mixed-effects models. To correct for multiple comparisons, we applied a Benjamini-Hochberg false discovery rate (FDR) correction ($q=0.05$).

A significant effect of age was found on most of the included brain features, with suggestive evidence for subtle deviations in trajectories in the cortical thickness, structural network indices but not in gyrification index, sulcal depth, length and width or surface area in offspring of parents with schizophrenia. Interestingly, these deviations in brain development in schizophrenia offspring remained significant after taking the presence of a diagnosis or level of IQ into account. These findings suggest the aberrant brain development in familial high-risk youngsters is associated with being at familial risk and not with (also) being at clinical high-risk.

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Symposium

SP0001

Catalyst effect of human body odours in social anxiety treatment – a pilot study.

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Abstract: POTION is an EU funded project (No. 824153) within the Horizon2020 initiative that aims at understanding the nature of chemosignals in humans and their sphere of influence on social interaction. The emotional state of one person can be transmitted to another through volatile molecules contained, for example, in the sweat. These molecules, or chemosignals, are processed by the receiver who is not only able to identify the feelings of the sender but also to respond accordingly.

Within this project, we conducted a study with the aim of exploring the possible catalyst effects of body odour on social anxiety. We hypothesized that subjects exposed to human chemosignals, while undergoing mindfulness treatment, would show an enhanced reduction in anxiety symptoms in comparison to the control group (exposed to clean air).

To this aim, a study including 96 women aged between 18 and 35 years with symptoms of social anxiety was conducted. After recruitment, subjects were randomly allocated to one exposure group (happiness, fear or neutral human body odour or clean air) and followed a mindfulness intervention while being exposed to one of the odour or clean air. The same intervention was repeated twice, over two consecutive days. The main outcome was change in the State-Trait Anxiety Inventory (STAI) scores for which data was collected before and after treatment at each day. Mixed model analysis revealed significant changes in STAI scores in all groups during both days of trial. However, a greater decrease in anxiety symptoms was observed in subjects exposed to fear chemosignals during both days. A post-hoc comparison of the group exposed to clean air and the group exposed to fear chemosignals showed a trend level time x odour interaction during the second day of trial ($F(1,45)=3.74, p=0.07$).

In conclusion, our pilot study indicated a potential use of human body odours as a catalysts of social anxiety treatment. While the small sample size restricts the generalizability of our findings, the observed trends offer a promising foundation for future research.

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