

# Progressive cortical thinning might identify children at risk of developing psychotic spectrum symptoms

By Dr. Jessica Edwards

Offspring of patients with schizophrenia or bipolar disorder have an increased risk of developing these conditions.<sup>1</sup> However, our capacity to predict the long-term outcomes of these at-risk individuals is limited. Now, researchers in Spain have investigated whether longitudinal changes in brain structure differ in individuals at high familial risk who develop psychotic spectrum symptoms, compared to those who do not and to low-risk controls.

“Our early observations suggested that at baseline, offspring of patients with schizophrenia exhibit subtle reductions in cortical volume compared to offspring of patients with bipolar disorder and to low-risk controls”,<sup>2</sup> explains lead author Gisela Sgranyes. “Here, we wanted to see if this reduction changes over time, and if so, how such structural brain changes correlate with the symptom trajectory”.

The team recruited 79 offspring (aged 6-17 years) of patients with schizophrenia or bipolar disorder (high-risk), and 49 low-risk controls. They then performed clinical, cognitive and neuro-imaging assessments at baseline and at 2 and 4-year follow-up. They found that 20 of the high-risk offspring developed psychotic spectrum symptoms during the follow-up period; 5 of the low-risk individuals developed these symptoms and were excluded from the imaging analyses. Over the follow-up period, the high-risk individuals who developed psychotic spectrum symptoms showed a greater level of cortical thinning in the occipital lobe, compared to both high-risk participants who did not develop these symptoms and low-risk controls. Additionally, these individuals had a smaller total brain surface area and grey matter volume at baseline than both comparison groups.

“To have immediate translation to clinical practice, our findings will need to be validated in a large, external sample”, explains Dr Sgranyes. “However, these data do suggest that information that can be obtained from brain MRI scans might help identify high-risk individuals who are likely to develop psychotic spectrum symptoms”. Going forward, the researchers would like to examine whether these findings are also relevant to youth who develop psychotic symptoms during adolescence, regardless of familial risk. Then, we might be well-positioned to stratify familial high-risk individuals according to their risk of progression to disease, and to implement early, tailored interventions.



## Referring to:

Sgranyes, G. et al. (2020), *Brain structural trajectories in youth at familial risk for schizophrenia or bipolar disorder according to development of psychosis spectrum symptoms*. *J. Child Psychol. Psychiatr.* doi: 10.1111/jcpp.13321.

## References:

- <sup>1</sup> Lichtenstein, P. et al. (2009). *Common genetic determinants of schizophrenia and bipolar disorder in Swedish families: a population-based study*. *Lancet* 373, 234-239. doi: 10.1016/S0140-6736(09)60072-6.
- <sup>2</sup> Sgranyes, G. et al. (2015), *Gray matter volume decrease distinguishes schizophrenia from bipolar offspring during childhood and adolescence*. *J. Am. Acad. Child Adolesc. Psychiatry*. 54, 677-684.e2. doi: 10.1016/j.jaac.2015.05.003.