

Developmental and genetic correlates of brain function in children at high - and low-risk of developing schizophrenia

Results:

We have developed a feasible and cost-effective method of identifying children who may be at high-risk for the development of schizophrenia spectrum disorders because they present multiple putative antecedents of schizophrenia. Our method involves screening community samples of children aged 9-12 years, using child and caregiver questionnaires, to identify children who experience the antecedents, including (i) psychotic-like experiences (PLEs), (ii) a social, emotional, or behavioural problem, and (iii) a delay/abnormality in speech and/or motor development. We have screened 8,000 children and 1,500 of their caregivers, with 9.4% of children (13.4% boys, 5.8% girls) presenting the triad of antecedents. Only longitudinal follow-up of the children can establish the degree to which experiencing these antecedents predicts later schizophrenia, but we have established that these children are characterised by several features that are observed in adults with schizophrenia: (1) the prevalence of antecedents is elevated among African-Caribbean and Black African individuals in the UK, as is the prevalence of schizophrenia; (2) preliminary data indicate that the children present a reduction in the amplitude of the error-related negativity event-related potential component, generated in the anterior cingulate, that indexes internal monitoring of behaviour; (3) the children present impaired intellectual and cognitive function (including working memory, executive function, and verbal memory); and (4) the children present involuntary dyskinetic movement abnormalities. We are currently following the development of the children longitudinally in order to establish how strongly and specifically the antecedent triad predicts schizophrenia.

Published works:

Peer-reviewed journal articles:

- Cullen, A. E., Fisher, H., Roberts, R. E., Pariante, C. M., & Laurens, K. R. (revision under review). Daily stressors and negative life events in children at risk for developing schizophrenia. *British Journal of Psychiatry*. (Accepted 28.11.2013)
- Dickson, H., Cullen, A. E., Reichenberg, A., Hodgins, S., Campbell, D. D., Morris, R. G., & Laurens, K. R. (2014). Cognitive impairment among children at-risk for schizophrenia. *Journal of Psychiatric Research*, 50, 92-99. doi: 10.1016/j.jpsychires.2013.12.003
- Dickson, H., Calkins, M. E., Kohler, C., Hodgins, S., & Laurens, K. R. (2013). Misperceptions of facial emotions among youth aged 9-14 years who present multiple antecedents of schizophrenia. *Schizophrenia Bulletin*. doi: 10.1093/schbul/sbs193
- Bruggeman, J. M., Stockill, H. V., Lenroot, R. K., & Laurens, K. R. (2013). Mismatch negativity (MMN) and sensory auditory processing in children aged 9–12 years

- presenting with putative antecedents of schizophrenia. *International Journal of Psychophysiology*, 89(3), 374-380. doi:10.1016/j.ijpsycho.2013.05.008
- Cullen, A. E., de Brito, S. A., Gregory, S., Murray, R., Williams, S., Hodgins, S., & Laurens, K. R. (2013). Temporal lobe volume abnormalities precede the prodrome: A study of children presenting antecedents of schizophrenia. *Schizophrenia Bulletin*, 39(6), 1318-1327. doi:10.1093/schbul/sbs128
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- Cullen, A. E., Dickson, H., West, S. A., Morris, R., Mould, G. L., Hodgins, S., Murray, R., & Laurens, K. R. (2010). Neurocognitive performance in children aged 9 – 12 years who present putative antecedents of schizophrenia. *Schizophrenia Research*, 121(1-3), 15-23. doi: 10.1016/j.schres.2010.05.034
- Laurens, K. R., Hodgins, S., Mould, G. L., West, S. A., Schoenberg, P. L., Murray, R., & Taylor, E. (2010). Error-related processing dysfunction in children aged 9-12 years presenting putative antecedents of schizophrenia. *Biological Psychiatry*, 67(3), 238-245. doi: 10.1016/j.biopsych.2009.07.030
- Laurens, K. R., West, S. A., Murray, R., & Hodgins, S. (2008). Psychotic-like experiences and other developmental antecedents of schizophrenia in children aged 9-12 years: A comparison of ethnic and migrant groups in the United Kingdom. *Psychological Medicine*, 38(8), 1103-1112. doi: 10.1017/S0033291707001845
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Book chapters:

- Laurens, K. R., Hodgins, S., Taylor, E. A., & Murray, R. M. (2011). Is earlier intervention for schizophrenia possible? Identifying antecedents of schizophrenia in children aged 9-12 years. In A. S. David, P. McGuffin, & S. Kapur (Eds.), *Schizophrenia: The Final Frontier* (chapter 2; pp. 19-32). London: Psychology Press.

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Areas of interest:

Schizophrenia, Prevention and early intervention, Child and adolescent development;
Developmental psychopathology

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