

Event-related potentials of temperament traits in ADHD and conduct disorder

Results:

The aim of this study was to understand brain function involved in symptoms and temperament traits of ADHD and conduct disorder. The project includes 80 adolescent boys into the study (30 healthy individuals, 30 boys with ADHD, 20 boys with conduct disorder). We also made use of an international database of 245 children and adolescents to investigate maturational changes in brain function.

A structured clinical interview was used to diagnose developmental problems including Attention Deficit and Hyperactivity Disorder (ADHD), oppositional defiant disorder (ODD) and Conduct Disorder (CD). A number of techniques were used to measure brain function including electroencephalography, event-related potentials and neuropsychology measures. Brain function assessment was performed using brain resource company techniques (www.brainresource.com). We also used several self and parent report instruments to measure symptoms and temperament traits, in particular we were interested in callous/unemotional traits, emotional intelligence, affective problems, pragmatic language impairment, hyperactivity, impulsivity, and aggression. Data from this project have been presented in poster and oral form at the Applied Neuroscience Conference, May 17-20, 2007. Two manuscripts have been submitted, to *Developmental Neuropsychology* and to *The Journal of Child Psychology and Psychiatry*. The first of these studies investigates sex differences in the ontogenetic development of N200 and P300 components of the event-related potential. The second observes neurodevelopmental differences between healthy and behaviourally problematic adolescents, and investigates the relationship of involved mechanisms to clinical scores. Further publications from this dataset are in preparation.

Published work

Sumich, A., Sarkar, S., Dadds, M., Kelesidi, K., Taylor, E., & Rubia, K. (2012). Electrophysiological correlates of CU traits show abnormal regressive maturation in adolescents with conduct problems. *Personality and Individual Differences*, 53(7), 862–867.

Sumich, A., Sarkar, S., Hermens, D., Ibrahimovic, A., Taylor, A., & Rubia, K. (2012). Sex differences in brain maturation as measured using event-related potentials. *Developmental Neuropsychology*, 37(5), 415-433. doi:10.1080/87565641.2011.653461

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