

Brain function, creativity, paranormal ideation and risk for psychosis

Results:

Compared to healthy controls, men with recent onset psychosis (ROP) have reduced anterior N100 amplitude, enhanced left temporal and frontal N200 amplitude and reduced left temporal and posterior P300 amplitude. Insight/judgement (IJ), rapport and depression are negatively associated with N200 amplitude implicating executive mechanisms. Reduced N200 amplitude in higher-depression ROP contrasts enhanced N200 in major depression, suggesting aetiological differences for depression between diagnoses. However, lower right anterior N200 in high-depression ROP is consistent with subclinical depression in healthy men. The relationship between right anterior N200 and depression in ROP did not persist after controlling for IJ. Thus, a contribution of intact IJ to depression in ROP is supported.

Psychomotor poverty is associated with reduced N100 amplitude. Lower left P300 is associated with total psychopathology. Various mechanisms found abnormal in ROP are also implicated in paranormal ideation (PI) including enhanced anterior N200 and reduced left- and anterior- P300 amplitude. However, in contrast to ROP, high-PI is associated with enhanced N100 amplitude which may represent a compensatory mechanism protecting against the onset of psychosis. On the other hand, paranoia/suspiciousness (PS) is associated with reduced anterior N100 and enhanced N200 in healthy men, but not women, supporting an association between PS and mechanisms implicated in negative symptoms. Results suggest the existence of a continuum of psychosis which is further supported by observed sex differences in the ERP-personality relationship reflective of those previously reported in schizophrenia. PI and PS may represent distinct risk factors for psychosis.

Published Works:

Poster presentations

Sumich A, Brammer M, Gordon E Brain Function, Paranormal Ideation, Mysticism and Risk for Psychosis. **Human Brain Mapping**, Budapest, January 2004: and **International Pharmacoelectroencephalography Congress**. Antwerp, Sept 2004

Sumich A, Differential Event-Related Potential Abnormalities in Men and Women with Subclinical Depression. **International Pharmacoelectroencephalography Congress**. Antwerp, Sept 2004 and **International Congress on Schizophrenia Research**. Savannah, April 2005.

Tunstall N, Sumich A, Kumari V, Heasman B, Gordon E, Brammer M (2005) Sex differences for ERPs associated with positive dimensions of schizotypy **International Congress on Schizophrenia Research**. Savannah, April 2005.

Heasman B, Sumich A, Kumari V, Tunstall N, Gordon E, Brammer M. Event Related Potentials during the Menstrual Cycle – implications for Schizophrenia. **International Congress on Schizophrenia Research**. Savannah, April 2005.

Oral presentations

Sumich A, (2004) Brain Imaging in Psychiatry. **International Association for Child and Adolescent Psychiatry and Allied Professions**, Berlin, August 2004.

Sumich A, (2004) Sex specific differences in information processing associated with psychiatric symptoms: Evidence from an international database. **International Pharmacoelectroencephalography Congress**. Anterwerp, Sept 2004

Manuscripts

Sumich, A., Kumari, V., Gordon, E., Tunstall, N., & Brammer, M. (2008). Event-related potential correlates of paranormal ideation and unusual experiences. *Cortex*, 44(10), 1342-1352. doi: 10.1016/j.cortex.2007.10.012.

Sumich A, Kumari V, Heasman B, Gordon E, Brammer M **Sex differences for event-related potentials in subclinical depression** (Submitted to Int J Psychophysiology)

Sumich, A., Harris, A., Flynn, G., Whitford, T., Tunstall, N., ..., & Williams, L. (2006). Event-related potential correlates of depression, insight and negative symptoms in males with recent-onset psychosis. *Clinical Neurophysiology*, 117(8), 1715-1727.

Sumich A, Kumari V, Heasman B, Arns M, Tunstall N, Gordon E, Brammer M. **Sex specific differences in EEG/ERPS relevant to depression, psychosis and pharmacotherapy: Evidence from an international database**. (Review: In preparation).

Sumich, A., Kumari, V., Heasman, B., Gordon, E., & Brammer, M. (2006). Abnormal asymmetry of N200 and P300 event-related potentials in subclinical depression. *Journal of Affective Disorders*, 92(2), 171-183.

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