

Papers

First-episode psychosis and direction of wave propagation at 1 Hz in the EEG

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Background: EEG measures of power and phase synchrony are related to symptom factors in subjects with first-episode psychosis (FEP). This study uses a new dynamical measure that detects event-related episodes of long-wavelength activity in the EEG.

Methods: Data were acquired from 56 subjects with FEP and 112 matched controls. Positive and Negative Syndrome Scale was used to calculate three-factor scores for reality distortion (RD), psychomotor poverty (PP) and disorganization (Dis). EEG was measured during an auditory oddball task at 26 electrodes. The spatial patterns of phase gradients across the scalp were assessed using three orthonormal basis functions: anterior-posterior, peripheral-central and right-left. Correlations of the relative phases with each of the basis functions are denoted rAP, rPC and rRL, respectively.

Results: The FEP group had greater values of rAP at ~1 Hz than the controls, and rAP at ~1 Hz correlated with PP, $r = -0.57$. The FEP group had greater values of rRL at ~1 Hz than the controls, and rRL at ~1 Hz correlated with RD, $r = 0.55$ and Dis, $r = 0.53$.

Conclusions: In the approximately 1-Hz range, the FEP group showed directional differences in wave propagation, compared with controls. The greater tendency of the subjects with FEP to engage in right to left wave propagation was indicative of higher scores for RD and Dis. The lesser tendency of the subjects with FEP to engage in posterior to anterior wave propagation was, however, related to lower scores for PP. Differences for FEP in the global coordination of cortical inactivation are directly related to symptom clusters.

Psychotic-like experiences in a community sample of adolescents: associations with distress, depression and functioning

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Background: Previous studies have shown that young help-seeking people with psychotic-like experiences (PLEs) are at ultrahigh risk of developing a psychotic disorder. However, not all people with PLE go onto developing a psychotic disorder. It is important to identify whether some PLEs are more likely to progress to frank psychotic disorder than others and whether there are any associated features that make progression more likely.

Methods: We carried out a community survey of year 10 students. Sixty secondary schools were approached to participate in the study, 34 consented. All year 10 students attending these schools were invited to participate. Students were administered the Community Assessment of Psychotic Experiences (CAPE), the Centre for Epidemiologic Studies Depression Scale (CES-D) and the General Health Questionnaire-12 (GHQ-12). These self-report questionnaires measure psychotic symptoms, depressive symptoms and level of functioning. A sample of 883 students completed the survey.

Results: PLEs were highly prevalent in the sample. Nearly all participants (99.1%) reported that they had experienced one or more PLEs at least 'sometimes'. Nearly one third of the sample endorsed at least half of the items. PLE data were factor analyzed, and the associations of psychotic subtypes and distress, depression and functioning level were examined. These data will be presented.

Conclusions: This is one of the first studies that found that PLE is commonly experienced in a community sample of adolescents. Further research is needed to explore the significance of this finding.

Stability of psychotic-like experiences over 6 months in a clinical sample of non-psychotic young people

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Background: Psychotic-like experiences (PLEs) increase the risk of schizophrenia and other psychotic disorders, yet are common in the community. Not everybody who experiences PLEs develops a psychotic disorder. It is important to understand the way in which the presence of PLEs is a risk factor for the development of a psychotic disorder. The aims of this study

were 1) to determine the prevalence of PLEs in a clinical sample of non-psychotic young people; 2) to investigate the stability of these PLEs over a 6-month period and 3) to examine the associations between PLEs, psychiatric morbidity and psychosocial functioning.

Methods: Consecutive referrals to a youth psychiatric service ($n = 140$) were assessed to measure PLEs, psychiatric morbidity and psychosocial functioning. These assessments were undertaken at the time of referral, 3 and 6 months. The PLE data were factor analyzed to determine whether there were different subtypes of these experiences. The associations between PLEs, psychiatric morbidity and psychosocial functioning were also examined.

Results: Almost all of the sample (98.6%) reported experiencing at least one of the PLEs at least 'sometimes' in their lifetime. PLEs were also highly prevalent at 3 and 6 months. Three subtypes of PLEs were identified: bizarre experiences, persecutory ideas and magical thinking. Bizarre experiences and persecutory ideas were associated with poor functioning.

Conclusions: Bizarre experiences and persecutory ideas may be more malignant forms of psychotic symptoms as they are associated with current disability and may confer increased risk of development of full-blown psychotic disorder.

Investigating the 'trill of suspirality': thought disorder as an emergent property of conversational interaction

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Background: Formal thought disorder is an important although not pathognomonic clinical feature of schizophrenia. The clinical and neurocognitive literature on thought disorder, although vast, is limited to the extent that it draws on a model of thought that can be traced to the English Enlightenment and Locke's theory of ideas and their associations, itself based on his clinical experience and the influence of Newton's physics of atoms and forces. We propose an alternative model that draws on recent work in linguistics. By giving greater emphasis to the interactional aspects of language, it enables a sharper focus on thought disorder as an emergent property of conversation.

Methods: Conversational interaction between patients with identified thought disorder and psychiatrist is analyzed. The analysis focuses on agency as it manifests in the management of turn taking (drawing on conversational analytic techniques) and in transitivity structures within clauses (drawing on systemic functional grammar).

Results: Patients are accomplished agents in the management of their part of turn taking. However, in representing themselves as agents in language, they transfer their agency onto other phenomena in their lived world, including inanimate objects and objects that are coined through neologisms.

Conclusions: This novel method of investigating thought disorder as fraught conversational interaction provides for the possibility of sharpening the definition of thought disorder as a construct, with attendant benefits both for clinical detection and for neurobiological research.

Association of cytokines and cognitive functioning in the elderly general population

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Background: The relationship between cytokines as markers of systemic inflammation and cognitive decline in the elderly has been established, whereas little knowledge has been gained as to whether domains of cognitive functioning are affected by cytokines. This study is to investigate the associations between circulating cytokines and specific neuropsychological domains of cognitive functioning (memory, processing speed and motor function) and general cognitive function (MMSE) in healthy elderly individuals.

Methods: In a cross-sectional study of 369 community-dwelling elderly subjects, we examined the relationship between serum interleukin (IL)-1beta, sIL-4R, IL-6, IL-8, IL-10, IL-12 and tumor necrosis factor-alpha concentrations and cognitive performance using an extensive cognitive test battery.

Results: Multivariate analysis showed that increased serum concentrations of IL-8 were associated with poor performance in the memory and speed domain and in motor function. Serum concentrations of IL-1beta, IL-6 and IL-10 were associated with impairments in specific domains of cognitive functioning, but these effects disappeared after Bonferroni's correction for multiple testing. Global cognitive functioning, as measured with MMSE, was not affected by cytokine levels.

Conclusions: This study suggests an association between circulating IL-8 concentrations and cognitive dysfunction in the elderly. An interaction between this cytokine and glial cells may help explain the pathophysiological mechanisms leading to cognitive impairment in our study group.