

Paediatric Acquired Brain Injury: An Interpretative Phenomenological Analysis

Sian Hocking, Phil Yates, Anna Adlam

Objective: Paediatric acquired brain injury (pABI) can lead to an array of long term physical, cognitive, emotional, and behavioural difficulties. Due to the long-term sequelae of more severe pABI, it presents a significant challenge to the child's family. Studies have suggested that social support can positively impact psychological adjustment following a stressful life event, and can aid personal resilience. There remains limited qualitative investigation of subjective family and parental adjustment experiences following pABI. Researchers have argued for future research that include the experiences of parents who have children younger than 16 years old, and are able to shed light on the individual experiential journey of parents. The current study used interpretative phenomenological analysis (IPA) to explore the experiences of adjustment and social support of parents of children with pABI.

Participants and Methods: Purposive sampling was used to recruit 10 participants who were individually interviewed.

Results: Five superordinate themes emerging from the data were identified: 1) Lives changed forever, 2) Sense of self, 3) Interaction with services, 4) The psychological experience, 5) Coping and adjustment.

Conclusions: The findings suggested that psychological defence mechanisms, personal resilience and characteristics, cognitive strategies, and support from others all played a role in facilitating the adjustment of parents. However, social support was not a consistent facilitator of coping amongst the participants in this study. Relevant literature and implications for future research and clinical practice will be discussed.

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Emotion regulation in Schizophrenia. Neurofeedback applications as assessed by EEG and optical imaging

Michela Balconi, Maria Elide Vanutelli

Objectives: Research on Schizophrenia (S) revealed abnormal electroencephalographic activity (EEG) in schizophrenic patients and anomalies in brain responsiveness, as revealed by neuroimaging measures. However, no integration of these methods is usually applied to test the emotional deficit in S. The present pilot study applied Neurofeedback (NF) technique to restore the "unbalance cortical activity" in S in response to emotional stimuli, and applied functional near-infrared spectroscopy (fNIRS) and EEG co-registration to analyze: a) the initial (T0) anomalous prefrontal activity (main delta band); b) the NF application during a training protocol of five weeks (T1); c) the NF efficacy in term of balanced cortical activity (T2).

Participants and methods: 8 patients have been randomly assigned to either control (3 patients, C), or neurofeedback group (5 patients, N).

Results: The initial evidence of an unbalanced prefrontal activity within the left/right hemisphere (higher delta) was verified in T0. Nevertheless, no anomalous behavior was observed in S about the explicit evaluation about stimuli emotional valence.

Conclusions: NF treatment effect in T2 was observed for N group in comparison with C group: indeed in T2 the anomalous responsiveness to emotional cues was modulated as shown by both EEG and fNIRS measures.

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Influence of education on cognitive and functional performance in patients with schizophrenia

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Objective: The aim of this research is to analyze whether educational attainment predicts cognitive and functional scores in patients with schizophrenia.

Participants and Methods: A sample of 116 patients (Mean age = 40 ±9.62, 63% men) with diagnosis of schizophrenia (93 paranoid subtype and 23 other subtypes) was selected from consecutive referrals to the Psychosocial Rehabilitation Center of Benito Menni Hospital (Valladolid, Northwest Spain). All participants completed a standardized protocol to assess cognitive and functional performance which consisted of K-Bit, Trail Making Test (TMT), stroop, verbal fluency, digits (forward and backward), digit symbol-coding, symbol search and the Health of the Nation Outcome Scale (HONOS). Multiple regression (MR) analyses were used to test the relationship between education and cognitive-functional scores after controlling the effect of age, sex and severity of the symptoms.

Results: Education showed a significant correlation (range = 0.17-0.28, p <.05) with cognitive scores (digits, speed processing, stroop, phonological and semantic fluency) and HONOS behavioural (r = -0.23) and clinical (r=-0.22) subscales. MR analyses indicated that education predicts significantly cognitive and functional scores, even when age, sex and clinical severity were introduced as covariates in the models. The highest explained variance was associated with verbal fluency and speed processing tasks.

Conclusions: Our findings suggest that higher levels of education ameliorates cognitive and functional impairment in patients with schizophrenia.

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Executive functioning in Dual-Diagnosis

Judith Duijkers, Constance Vissers, Jos Egger

Objectives: In mental health, the term dual-diagnosis (DD) is used for the co-occurrence of Substance Use Disorder (SUD:

alcohol/drugs) with another mental disorder. These co-occurring disorders can have a shared cause, and can cause/intensify each other's expression. Forming a threat to health and society, DD is associated with relapses in addiction-related behaviour and a destructive lifestyle. This seems due to a failure to control impulses and to maintain adequate self-regulatory behaviour. Impaired executive functioning (EF) is taken as underlying factor for several

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mental disorders. Studies on EF in dual-diagnosis are limited in amount and frequently methodological issues are encountered like unclear abstinence periods.

Participants and Methods: In the current study, 30 patients with DD (psychotic, mood, developmental, or personality disorder with SUD) and 30 healthy controls were examined, with comparable intelligence and age. Patients with DD were abstinent for 14.5 weeks on average.

Results: Preliminary results show delayed information processing-speed and impaired word-fluency for the DD group as compared to healthy controls. Furthermore, on other EF tasks involving inhibition (Approach-Avoidance/Stroop) patients with DD are impaired and a trend is present for impairment of shifting (a.o. Wisconsin Card Sorting Task). Remarkably, decision-making performance (a.o. Cambridge Gambling Task) does not differ compared to healthy controls.

Discussion: Patients with DD might not take sufficient time to utilize EF abilities. More research zooming into the diversity of EF is necessary to deepen insight and test findings. Detailed insight in the strengths-weaknesses profile can lead to tailored treatment indications, pointing out which aspects need training.

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Methodological quality and clinical relevance of meta-analyses on cognitive deficits in psychiatry: a systematic review

Caroline East-Richard, Alexandra R.-Mercier, Danielle Nadeau, Caroline Cellard

Objective: Several meta-analyses evaluating the impact of psychiatric disorders on neuropsychological functioning have been published but the methodological quality of these meta-analyses is still unknown. The main objective of this systematic review was to assess methodological quality of these meta-analyses in order to provide guidelines for clinical research and for clinicians about the valid inferences that can be drawn.

Methods: A literature search was conducted to identify all meta-analyses of cognitive deficits in psychiatry published between 1970 and 2015. There was no restriction for age and the following psychiatric disorders were considered: mood disorder, psychotic disorder, autism spectrum disorder, attention deficit hyperactivity disorder, anxiety disorder. Methodological quality assessment of these meta-analyses was done using the R-AMSTAR (Revised Assessment of Multiple Systematic Reviews), which provides a rating ranging from 11 to 44 points.

Results: A total of 106 meta-analyses were included. R-AMSTAR mean score was 23.28 points (SD= 3.78; range= 15-33), which indicates moderate quality. Few meta-analyses used guidelines such as PRISMA and MOOSE. Therefore, gold standards for meta-analyses are not often considered in research methodology and when reporting results.

Conclusions: Confidence about the quality and the clinical relevance of the conclusions in meta-analyses is essential since clinicians often based their practice on such evidence-based conclusions. Therefore, many important aspects such as publication bias and scientific quality of included studies should be considered when performing meta-analyses in order to draw valid conclusions in research and in clinical settings.

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Neurocognitive intra-individual variability in mood disorders: effect on attentional response time distributions

Peter Gallagher, Jeevan Barn, Andreas Finkelmeyer, Andy Bradley, Stuart Watson, Nicol Ferrier, Hamish McAllister-Williams

Objective: Impaired sustained attention is a frequently reported feature of major depressive disorder (MDD) and bipolar disorder (BD). The aim of the present study was to further explore the utility of characterising response time (RT) distributions from attentional tasks, to examine more precisely the profile and extent of attentional intra-individual variability (IIV) in mood disorders.

Participants and Methods: The Attentional Network Test (Fan J, et al. 2002. *Journal of Cognitive Neuroscience*, 14, 340-347) was administered to 100 healthy controls and 110 patients with a mood disorder (46 BD and 64 MDD patients). Measures of IIV, including individual standard deviation (iSD) and coefficient of variation (CoV), were derived for each participant. Ex-Gaussian (and Vincentile) analyses were used to characterise the RT distributions into three

components: mu and sigma (mean and standard deviation of the Gaussian portion of the distribution) and tau (the 'slow tail' of the distribution).

Results: Compared to healthy controls, iSD was increased significantly in all patient samples. Ex-Gaussian modelling indicated a significant increase in tau in BD (Cohen's $d=0.84$, $p<0.001$), with an increase in mu ($d=0.76$, $p<0.001$), sigma ($d=0.76$, $p<0.001$) and tau ($d=0.68$, $p<0.001$) in depressed MDD patients compared to controls.

Conclusions: Increased cognitive variability may be a core feature of mood disorders. These data highlight the utility of applying measures of IIV to characterise neurocognitive variability and the great potential for future application.

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Cognitive endophenotypes of affective and non-affective psychosis

Evi Gkintoni, Eleftherios Pallis, Panos Bitsios, Stella Giakoumaki
Objective: Cognitive deficits are reliable endophenotypic markers of schizophrenia and bipolar disorder (BD). BD patients with history of psychosis perform poorly compared with BD patients without family history of psychosis in several cognitive domains, thus resembling schizophrenia patients. In this study, we examined the cognitive profile of unaffected first-degree relatives of patients with schizophrenia or BD with history of psychosis.

Participants and Methods: Participants were 66 unaffected first-degree relatives of schizophrenia patients (SUNr), 36 unaffected first-degree relatives of BD patients with history of psychosis (BDUnr) and 102 age-, sex- and education-matched controls. They were tested for cognitive function and general psychopathology.

Results: The SUNr group had higher Depression and Somatization and the BDUnr group had higher Anxiety compared with the controls (all P values <0.005). After taking into consideration the differences in psychopathology, we found that both relatives' groups performed poorly compared with the controls in visual memory, control inhibition, working memory, cognitive flexibility and abstract reasoning (all P values <0.005). Only the SUNr group had poorer verbal fluency compared with the controls ($P<0.001$) and they also performed worse than the BDUnr group in visual memory and processing speed (all P values <0.01).

Conclusions: Control inhibition, working memory, cognitive flexibility and abstract reasoning are reliable endophenotypic markers of affective and non-affective psychoses as both relatives' groups were equally impaired in these cognitive domains. Visual memory, verbal fluency and processing speed deficits are more specific to schizophrenia as they were found only or mainly in the SUNr group.

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Evaluation of the efficacy of Sociocognitive and Neurocognitive Training dedicated for patients with anorexia nervosa

Julia Jeschke, Ewelina Wilkos, Dorota Kulakowska, Katarzyna Kucharska

Objective: Patients with AN experience difficulties in social cognition and neurocognition functioning during the course of the disease. The aim of this research was to evaluate the efficacy of original intervention - Sociocognitive and Neurocognitive Training in improving these impairments.

Participants and Methods: Research group: Patients hospitalized at the Department of Children and Adolescents Psychiatry, diagnosed with anorexia nervosa (AN) got an assessment of neurocognitive and social cognition functioning before and after the Sociocognitive and Neurocognitive Training programme. The study included patients diagnosed with AN (according to ICD-10; DSM-V), age variety 14 - 20 y.o, of Polish origin, right-handed, unrelated, with at least a basic education and within the intellectual norm. Exclusion criteria from the study was a brain damage, impaired hearing or sight, and alcohol or drug misuse/dependence. The control group of healthy subjects (n = 40) was recruited from school students.

The training programme is built of 20 sessions, conducted in the period of 10 weeks. Programme consists of 2 parts: neurocognitive therapy and social cognition therapy, 10 sessions each.

Results: Preliminary results show an improvement in neurocognitive and social cognitive functioning, both in performance in the final assessment using test batteries, as well as in the evaluation written by patients themselves.