

## W0031

**Psychopathology in Adults with Autism Spectrum Disorder and Intellectual Disability**

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**Background:** A review describing the mental health needs of adults with autism spectrum disorder (ASD) and intellectual disability (ID) published just over 10 years ago found that those with ID and ASD were more vulnerable to psychiatric disorders than adults with ID who did not have comorbid ASD (Underwood, Tsakanikos & McCarthy, 2010). **Method:** An overview of psychopathology presenting in adults with ID and autism including the relationship of challenging behaviours to psychiatric disorder will be summarised. A review of key papers published from 2009 to 2021 was also undertaken. The focus of the search was on assessment, diagnosis and management so as to be relevant to clinical practice. **Findings:** There was only one paper identified describing a new structured diagnostic tool for use with adults with ID and ASD. The majority of the new evidence focused on interventions both psychological and pharmacological. Two brief case vignettes will be presented to illustrate the diagnostic and treatment challenges. **Conclusion:** The past decade has produced a small increase in the evidence base on the mental health needs of adults with ID and ASD. However more evidence on effective interventions is required. Underwood L, Tsakanikos E & McCarthy J. (2010). Mental health of adults with autism spectrum disorders and intellectual disability. *Current Opinion in Psychiatry*, 23, 421-426.

**Disclosure:** No significant relationships.

**Keywords:** Psychopathology; intellectual disability; Autism Spectrum Disorders

## W0032

**Multidisciplinary Approach in Diagnosing Patients with Mental Health and Intellectual Disability**

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It is possible to properly diagnose and treat a person with intellectual disability and mental health problems, but it requires a lot of work on the part of a doctor, nurse, professional medical care, proper rehabilitation and cooperation with a speech therapist, psychiatrist and many others. To improve the functional capacity of this person, it requires the help of a wide variety of professionals to meet their needs. One of the examples of interdisciplinary cooperation in this area is the "Circles of Support" program implemented by the Polish Association for People with Intellectual Disability in Poland. Support circles assume the creation of a group of supporters around a person with a disability, in accordance with their needs, combining formal (family doctor, psychiatrist, psychologist, personal assistant, social worker, therapist, lawyer) and

informal support (family, friends, acquaintances, neighbors), salesperson in your local store). The support is strictly focused on the needs of a person with a disability, and according to their individual preferences, it is fully inclusive. This goal can be achieved by preparing a person with a disability and the environment in a way that enables them to function safely in their local community based on the concept of supportive circles. The only way to build a system of care for people with intellectual disabilities and their relatives is to rely on networks of connections - people and institutions, on their real commitment and on working out mechanisms supporting the empowerment of people with disabilities - in life, physical, financial matters.

**Disclosure:** No significant relationships.

**Keywords:** intellectual disability; interdisciplinary support; mental health

**Research****fNIRS: a View between Current and Future Perspectives in Psychiatric Research**

## W0033

**Feasibility of fNIRS in Children with Developmental Coordination Disorder**

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**Introduction:** Balance deficits are heterogeneous among children with Developmental Coordination Disorder (DCD). Balance performance depends on different balance domains, each associated with specific underlying neurological systems. In DCD, any of these domains can be affected, but the control mechanisms are poorly understood. The mirror neuron system (MNS) seems to play a key-role in DCD-related deficits. To understand the role of MNS as a control mechanism underlying the balance deficits, simultaneous registration of cortical MNS activity while performing balance tasks is imperative. Therefore, a protocol for combining real-time registration of cortical MNS activity during functional balance tasks in children with DCD, CP and TD is introduced. **Methods:** Children with DCD, CP and TD (n=108) aged 5-10yr perform preselected tasks of the Kids-BESTest, representing specific balance domains (mixed design): leaning with eyes closed (stability limits/verticality), single-leg-stance, alternate stair touching (anticipatory balance), in-place response, compensatory stepping backward (reactive balance) and walking over obstacles (gait stability). Simultaneously, functional Near-Infrared Spectroscopy (fNIRS) monitors cortical activity involving the MNS: premotor, inferior and

superior parietal cortex and supplementary motor area. An 8-8-optode bundle, making 22 channels, targets this region of interest. Outcome measures are: (de)oxygenated hemoglobin concentration changes per task per channel. Results: In this ongoing research, the protocol was already feasible in 19 children ( $7.52 \pm 1.19$ ). Conclusion: Simultaneous registration of cortical MNS activity (fNIRS) and Kids-BESTest scores will help increase the understanding of the control mechanisms underlying the heterogeneous balance problems in DCD. Consequently, first steps are made to confirm whether DCD shows deviant or delayed development.

**Disclosure:** No significant relationships.

**Keywords:** Developmental Coordination Disorder; brain imaging; Pediatric; movement science

### W0034

#### Using fNIRS to study Mother-Child Brain-to-Brain Synchrony in Typical and Atypical Contexts

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A potential avenue of investigating the caregiver-infant relationship lies in caregiver-infant synchrony, which refers to the coordinated interplay of behavioural and physiological signals reflecting the bi-directional attunement of one individual to the other's psychophysiological, cognitive, emotional and behavioural state. Here, we aim to study how early naturalistic caregiver-infant interactions give rise to caregiver-infant attachment, which influences physiological and psychological processes by modulating brain sensitivity. Furthermore, we aim to study how caregiver-infant bond shapes neural pathways involved in socio-emotional regulation in typical and atypical contexts. We present new evidence from fNIRS hyperscanning studies, where we measured simultaneous caregiver (mothers,  $N=30$  and fathers  $N=38$ ) and child brain activity ( $N=70$ ). From the mother-child hyperscanning study (Azhari et al., 2019; 2020; 2021), we have found that higher levels of parenting stress are correlated to lower mother-child brain-to-brain synchrony, especially in the areas of the medial left prefrontal cortex. Additionally, maternal anxious attachment (Azhari et al., 2020a) also correlated in lower mother-child synchrony in the frontal and medial left prefrontal regions. These areas contain structures implicated in the inference of mental states and social cognition, highlighting the role of psychological factors such as parenting stress and attachment style in the influence of caregiver-infant bond formation during naturalistic interactions. From the combined mother- and father-child free play sessions (Azhari et al., 2020b), behavioural data revealed that parenting stress and caregivers' recall of their past bonding experiences their own parents interact with each other to influence the eventual quality of dyadic interaction with their child.

**Disclosure:** No significant relationships.

**Keywords:** Mother-child; fNIRS; Hyperscanning

### W0035

#### NIRS Hemodynamic Response to Methylphenidate in Children with Attention Deficit Hyperactivity Disorder: First Administration, Titration Phase and Associations with Clinical Severity.

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**Introduction:** Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterized by lack of self-regulation and deficits in organizing behaviors in response to emotional stimuli. Methylphenidate (MPH) is one of the most effective psychostimulant drugs for ADHD, however, a possible predictive utility of brain hemodynamic data related to MPH administration and its relation to clinical symptomatology is still not clear. To address these questions, we used Near Infrared Spectroscopy (NIRS) technology, a non-invasive optical technique that allows to investigate the effect of psychopharmacological treatment on cortical hemodynamics.

**Methods:** Twenty children with ADHD underwent a three-waves study and 25 healthy controls were recruited at W1. At W2 children with ADHD received first MPH administration and at W3 they reached the titration phase. At each phase children performed - during NIRS recording - an emotional continuous performance task with visual stimuli of different emotional content. Clinical data were also collected at W1 and W3. We investigated the relationship among the difference between NIRS activation at W2 and W1 (Delta1) and W3 and W2 (Delta2), for each subject, task condition and brain region. Lastly, we investigated correlations between the Delta1 and clinical symptomatology indexes at W1 and between Delta2 and clinical data at W3.

**Conclusions:** Our study results suggest that hemodynamic changes in right prefrontal region probably induced by first MPH administration could predict hemodynamic changes related to MPH titration phase. These biological indexes could be associated to clinical evidences related not only to core ADHD symptoms but also to affective correlates.

**Disclosure:** No significant relationships.

**Keywords:** methylphenidate; adhd; Near Infrared Spectroscopy (NIRS)