**T26. VISUO-TACTILE TRANSFER AND AUDIO- VISUAL INTEGRATION IMPAIRMENT AS A NEW VULNERABILITY MARKER IN CHILDREN-AT-RISK OF SCHIZOPHRENIA, BIPOLAR DISORDER OR RECURRENT DEPRESSIVE DISORDER**

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**Background:** Major psychiatric disorders (MPD) such as schizophrenia, bipolar disorder and recurrent major depression have shared neurodevelopmental vulnerability due to early neuronal and sensory defect as revealed by sensory and cognitive endophenotypes observed in our cohorts (e.g. Gagné et al., Schizophr. Res., 2019). There is considerable evidence that a harmonious self-development - known to be disrupted in MPDs - requires a synchronized multisensory perception and an adequate integration of sensory afferences (e.g. tactile, visual, auditory and proprio / interoception) with cognition. Early impairment in intermodal transfer (IMT) and multisensory integration (MSI) may jeopardize a stable and unified self’s and world’s representation and then would undermine self-development and represent a risk factor for MPD. IMT is the capability to transfer a percept coming exclusively from a sensory modality (e.g. tactile) to another modality (e.g. visual). MSI is the ability to integrate sensory inputs from different modalities (e.g. visual and auditory) to have a better information processing. This study shows that impairment in IMT/MSI may be a vulnerability marker in children genetically at-risk.

**Methods:** Sample: Forty-four offspring (21 girls) of patients suffering from a MPD and thus genetically at-risk for MPD (GatR) aged from 9–15 years (mean age = 12 years) were recruited from the cohort study INTERCEPT through the HoPE program of the CIUSSS de la Capitale-Nationale. Twenty-five controls (19 girls) with no family history of MPD and no DSM-V disorder aged from 9–15 years (mean age = 12.87) were recruited using advertisements or control bank.

IMT Task:
Each condition has 12 trials and the shapes are hidden from sight during palpation.
- T-T condition: The subject has to palpate a 3D target shape for 10s and must then recognize it by touch from among a distractor.
- T-V condition: The subject has to palpate a 3D target shape for 10s and must then recognize it visually from among a distractor.

MSI Task: - Simple reaction time (RT) task comprising 80 trials with unimodal stimuli (Auditory OR Visual) and 40 trials with AV (Auditory and Visual simultaneously) multimodal stimuli presented randomly.
- The Race model calculates the expected response probability for each RT knowing that AV RT could not be shorter than the shorter unimodal RT, if the sensory modalities are indeed separated channels (no MSI).
- RTs shorter than those predicted by the Race model (best unimodal RT) are presumed to show multisensory facilitation which reflects MSI. The percentage of AV facilitation (AV – Race) is calculated for each reaction time.

**Results:** IMT task: When compared to controls, GatR were impaired in the three conditions (T-T: 9.77 vs. 10.32, T-V: 9.89 vs. 9.96, V-T: 9.11 vs. 9.92) with significant impairments both for T-T (t(60.53) = 2.18, p = 0.017) and V-T (t(57.28) = 2.33, p = 0.012) conditions. MSI task: GatR showed a deficit in MSI for almost all RT ranges (except for a peak at 185 ms), while control participants showed MSI facilitation for ranges from 150 to 200 ms.

**Discussion:** Developmentally genetically high-risk children would show significant impairments both in IMT and MSI that might enter into the group of indicators of brain dysfunctions, or risk endophenotypes, that both children at risk and adult patients carry (Palca et al., Schizophr. Res., 2016; Mazziade, New Eng J Medicine, 2017). In addition, the two tasks would be valid and sensitive to the early sensory alterations in self-development. Finally, the battery is brief, user-friendly and playful for children.

**T27. COGNITIVE RESERVE IN CHILD AND ADOLESCENT OFFSPRING OF PATIENTS DIANOSED WITH SCHIZOPHRENIA OR BIPOLAR DISORDER**

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**Background:** Cognitive Reserve (CR) is defined as the ability of the brain to cope and deal with pathological or pathological brain injuries. In the field of psychiatry, higher levels of CR have been associated with lower levels of psychotic symptoms, higher psycho-social functioning and higher cognitive performance, suggesting that CR should be considered as a protective factor (Barnett et al., 2006; Amoretti et al., 2016). This study aims to compare CR levels in a sample of adolescents and young adult offspring of patients with schizophrenia or bipolar disorder who are at high risk of developing these disorders (HR) and compared them with a group of healthy controls (HC). We also assess the utility of CR in predicting clinical and cognitive variables.

**Methods:** Participants were 85 HR and 45 HC. A CR proxy was calculated based on premorbid IQ, socio-occupational attainment and social activities. Clinical assessment included: the Structured Interview forProdromal Symptoms (SOPS), the Young Mania Rating Scale (YMRS) and the Hamilton Depression Rating Scale (HDRS). Neuropsychological assessment included: Working Memory, Processing Speed, Verbal Memory, attention and executive functioning. A factorial analysis was conducted in order to obtain a single CR measure. Differences between groups in CR...
were assessed via MANCOVA and linear regressions were conducted to check the effectiveness of CR in predicting clinical and neuropsychological variables.

**Results:** No significant differences were observed in age or gender between HR and HC groups. Socioeconomic status was lower in HR subjects (F=8.100, p=0.005). CR was significantly lower in the HR group than in the HC group (F=17.522, p<0.001). Moreover, the CR proxy was able to correctly classify 72.7% of the sample as either HR or HC. Our proxy was able to predict the following clinical variables in the HR group: negative CR (F=9.269, p=0.002), and total CR (F=7.290, p=0.009) prodromal symptoms, the YMRS (F=11.597, p=0.001) and the HDRS (F=12.761, p<0.001).

In terms of neuropsychological variables, RC predicted WM (F=9.738; p=0.003), PS (F=4.557; p=0.037) and verbal memory (immediate (F=6.999; p=0.010) and delayed recall (F=10.990; p=0.002) in the HR sample.

**Discussion:** HR subjects have lower CR than controls. CR is associated with clinical and neuropsychological variables. To our knowledge no previous studies have assessed CR in high risk samples. Nevertheless, studies conducted in adult first episode psychotic samples have shown an association between CR and the severity of symptoms.

**T28. BENEFITS AND HARMs OF ANTIPSYCHOTICS IN THE TREATMENT OF CHILDREN AND ADOLESCENTS WITH SCHIZOPHRENIA: A SYSTEMATIC REVIEW AND META-ANALYSIS**

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**Background:** Childhood and adolescent schizophrenia is a severe and debilitating disorder associated with long-term impairments in functioning, poor physical health, and reduced life expectancy. Compared with adult-onset schizophrenia, childhood and adolescent schizophrenia may be a more severe disorder, negatively influencing social, cognitive and psychological development, educational achievements and life-long occupational functioning. Therefore, treatment of childhood and adolescent schizophrenia is highly important and presents a major therapeutic challenge. The aim of this systematic review and meta-analysis was to assess whether antipsychotics (APs) have different clinical benefits and harms profiles in acute treatment of childhood and adolescent schizophrenia.

**Methods:** We conducted systematic review and meta-analysis of randomized placebo-controlled trials (RCTs) assessing efficacy and adverse effects of APs in acute childhood and adolescent schizophrenia to compare clinical benefits and harms. An electronic search was conducted without language restrictions using Embase, Scopus, MEDLINE/PubMed, the Cochrane library, and the US National Institutes of Health clinical trials registry (http://www.clinicaltrials.gov). The electronic search was supplemented by a hand search of reference lists of relevant studies and reviews. The primary efficacy outcome examined was treatment response. The primary safety/tolerability was assessed based on discontinuation due to adverse event.

**Results:** Ten studies were selected, comprising of 2,271 patients across eight active interventions (aripiprazole, asenapine, lurasidone, olanzapine, paliperidone, quetiapine, risperidone, and ziprasidone) and placebo. The mean intervention duration was 6.4 weeks (range 6-8 weeks). Lurasidone, asenapine and risperidone had significantly higher response rate (RR=1.54, 95% CI=1.21 to 1.95, p<0.001; RR=1.38, 95% CI=1.02 to 1.83, p=0.035; and RR=1.71, 95% CI=1.39 to 2.11, p<0.001, respectively) compared with placebo.

These three antipsychotics also had significant single digit numbers needed to treat (NNT = 5.4, and 8, respectively). All APs did not significantly separate from placebo in discontinuation rate due to adverse event compared with placebo (RR = 0.47 to 5.42). Aripiprazole had the significant number needed to harm (NNH = 25). On a two-dimensional graph plot of efficacy and safety/tolerability, lurasidone showed the most desirable profile for the risk/benefit tradeoff balance among all antipsychotics.

**Discussion:** Results from this meta-analysis illustrate that there are significant differences in benefits and harms among APs in the treatment of childhood and adolescent schizophrenia. Medications choice needs to be carefully evaluated to achieve optimal clinical benefit while minimizing burden of side effects for the patients.

**T29. CHILDHOOD PSYCHOPATHOLOGY ACROSS 12 YEARS PREDICTS ADULT PSYCHOTIC-LIKE EXPERIENCES: A PARALLEL TWO-PART PIECEWISE LATENT GROWTH CURVE MODEL**

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**Background:** The prevalence of childhood psychopathology fluctuates across the lifespan, yet studies often adopt linear growth curve models (LGM) of estimation that assumes constant linear growth and do not account for the comorbidity between internalizing and externalizing behaviors in predicting later psychosis. This study tests whether internalizing and externalizing behaviors in early childhood (4-9 years) and adolescence (11-16 years) are best modelled by a two-part parallel piecewise growth model (2-PGM) or a single LGM (4-16 years) and whether specific developmental periods better predict psychotic-like experiences (PLEs) in adulthood (18 years).

**Methods:** Parent-rated child’s psychopathology on the Strengths and Difficulties Questionnaire (Goodman, 2006) at ages 4, 6, 8, 9, 11, 13, and 16 years from the Avon Longitudinal Study of Parents and Children were first modelled by a parallel LGM, then a 2-PGM, to predict clinician-rated adult PLEs. Models were re-run controlling for confounds assessed prior to age 4 years (i.e., child’s gender, verbal IQ, socioeconomic status, maternal education, prior diagnosis of mental health issues, and stressful life experiences at 42 months).

**Results:** Considering internalizing and externalizing problem behaviors in tandem, a 2-PGM fit the data better than a LGM (CFI/TLI = .97/96, ²²(129) = 781.63, p < .001, RMSEA = .033, 90%CI [.031-.035], WRMR = 1.32, N = 4717). Controlling for confounds, internalizing symptoms at baseline (b = .130, p = .004) and changes (b = .196, p < .001) in early childhood best predicted adult PLEs, but not changes in adolescent internalizing/externalizing symptoms. Females were more likely than males to be in the definite/suspected PLEs group at 18 years (b = .078, p = .006). Findings suggest that maternal reports of internalizing problem behaviors, particularly in primary school years, provide predictive utility of clinician-assessed PLEs.

**Discussion:** Using a 2-PGM technique may better identify important developmental windows of assessment and intervention for PLEs than LGM. Findings have important theoretical and practical implications for mental health research.

**T30. PREDICTORS OF INTERNALIZED MENTAL HEALTH STIGMA IN A HELP-SEEKING SAMPLE OF ADOLESCENTS AND YOUNG ADULTS EXPERIENCING EARLY PSYCHOSIS: THE ROLES OF PSYCHOSIS-SPECTRUM SYMPTOMS AND FAMILY FUNCTIONING**

Joseph DeLuca*, LeeAnn Shan2, Samantha Jay3, Samantha Redman2, Emily Petti2, Alicia Lucksted2

**Background:** The prevalence of childhood psychopathology fluctuates across the lifespan, yet studies often adopt linear growth curve models (LGM) of estimation that assumes constant linear growth and do not account for the comorbidity between internalizing and externalizing behaviors in predicting later psychosis. This study tests whether internalizing and externalizing behaviors in early childhood (4-9 years) and adolescence (11-16 years) are best modelled by a two-part parallel piecewise growth model (2-PGM) or a single LGM (4-16 years) and whether specific developmental periods better predict psychotic-like experiences (PLEs) in adulthood (18 years).

**Methods:** Parent-rated child’s psychopathology on the Strengths and Difficulties Questionnaire (Goodman, 2006) at ages 4, 6, 8, 9, 11, 13, and 16 years from the Avon Longitudinal Study of Parents and Children were first modelled by a parallel LGM, then a 2-PGM, to predict clinician-rated adult PLEs. Models were re-run controlling for confounds assessed prior to age 4 years (i.e., child’s gender, verbal IQ, socioeconomic status, maternal education, prior diagnosis of mental health issues, and stressful life experiences at 42 months).

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**Discussion:** Using a 2-PGM technique may better identify important developmental windows of assessment and intervention for PLEs than LGM. Findings have important theoretical and practical implications for mental health research.