Background: Obstructive sleep apnoea (OSA) is characterised by repeated collapse of the upper airway during sleep, causing hypoxia, frequent arousals and disruption to sleep architecture. OSA is more likely in people who are obese, smoke tobacco, and use alcohol and sedating medications – all these factors are more common in schizophrenia. OSA is likely to be under-diagnosed in schizophrenia as symptoms such as non-restorative sleep, depression and daytime somnolence may be attributed to chronic mental illness. OSA in the normal population is associated with cognitive deficits and poor cardiovascular health, both of which are common in schizophrenia, so comorbid OSA in schizophrenia may be exacerbating these problems. Treatment of OSA with continuous positive airway pressure (CPAP) reduces daytime sleepiness, and improves quality of life, cognitive function, and cardiovascular risk factors. There are no published studies of CPAP treatment of OSA in schizophrenia, so it is not known whether these benefits also occur in the patient population.

Methods: Previous research into OSA in schizophrenia has utilised subjective screening instruments and there are no large studies using polysomnography (PSG), the gold standard method to diagnose OSA. We undertook home sleep studies using polysomnography in 30 people with schizophrenia, treated with clozapine. Participants cooperated well and all studies were of good quality.

We treated 6 participants with severe OSA with CPAP. Treatment adherence was good with mean CPAP usage of 7.7 hours/night.

Results: We found that 14/30 (40%) of our participants with schizophrenia had OSA and 8/30 (27%) had severe OSA; twice the prevalence of severe OSA in the general population.

After six months CPAP treatment there was significant improvement in cognition, especially verbal memory, working memory and motor skills. Average weight loss was 7.2kg (SD 9kg) with a 12mmHg (SD 18) reduction in systolic blood pressure. Normal sleep architecture was restored: on average the percentage of the night spent in restorative slow wave sleep increased from 27.6% to 2%. OSA in the normal population is associated with cognitive deficits and poor cardiovascular health, both of which are common in schizophrenia, so comorbid OSA in schizophrenia may be exacerbating these problems. Treatment of OSA with continuous positive airway pressure (CPAP) reduces daytime sleepiness, and improves quality of life, cognitive function, and cardiovascular risk factors. There are no published studies of CPAP treatment of OSA in schizophrenia, so it is not known whether these benefits also occur in the patient population.

Discussion: Improved awareness of the high prevalence of OSA in schizophrenia and access to diagnostic screening by home PSG should ensure this important comorbid condition is not missed. CPAP treatment for OSA in people with schizophrenia is feasible and has the potential to improve both cognition and cardiovascular health, resulting in better functioning and reduced cardiovascular morbidity.

F166. LOW-GRADE INFLAMMATION IN FIRST-EPIsode PSYCHOSIS IS DETERMINED BY WAIST CIRCUMFERENCE INCREASE

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Background: There is evidence of low-grade inflammation in psychosis, as measured by the high-sensitivity C-reactive protein (hs-CRP). Significant weight gain is common during the first months of antipsychotic treatment. In the general population, overweight and obesity often lead to systemic low-grade inflammation. Lifestyle factors, such as smoking, can contribute to the pro-inflammatory changes. The metabolic changes in people with first-episode psychosis (FEP) taking place after the onset of psychosis can be especially harmful as these individuals are typically young and without major somatic illnesses. We aimed to study how the low-grade inflammation, measured by hs-CRP, develops in FEP and to clarify the effect of waist circumference increase in the inflammation.

Methods: The Helsinki Early Psychosis Study recruited FEP patients (age 18 to 40 years) attaining their first treatment for psychosis from the catchment area of the Helsinki University Hospital. We recruited 95 FEP patients and 62 controls. The inclusion criterion for the study was receiving a score of at least 4 in Unusual thought content or Hallucinations in the Brief Psychiatric Rating Scale - Extended (BPRS-E). Diagnoses of psychotic disorders according to the DSM-IV criteria were later verified using the Structured Diagnostic Interview for DSM-IV and reviewing all medical records. Substance-induced psychotic disorders and psychotic disorders due to a general medical condition were excluded. We measured the changes in hs-CRP, weight, waist circumference, glucose metabolism and lipids at baseline and at follow-ups of 2 and 12 months. We used linear mixed effects models to analyze the relationship between hs-CRP and waist circumference. In the model, we included a random intercept for each patient and, as fixed effects, we entered sex, time (days from baseline measurement), waist circumference and antipsychotic use at each assessment point, and baseline cigarette smoking.

Results: At baseline, FEP patients (mean age 26.1 years) had higher insulin resistance, total and LDL cholesterol, apolipoprotein B and triglyceride levels than controls. However, baseline weight and waist circumference, hs-CRP, fasting glucose and HDL cholesterol were similar between patients and controls. A robust change in anthropometric measures and inflammation was evident among patients by 12 months. Hs-CRP was significantly higher in patients at 12-month follow up than at baseline (baseline hs-CRP 0.67 mg/l, IQR 0.33–2.54; 12-month 1.73 mg/l, IQR 0.49–4.21; Wilcoxon signed-rank p = 0.007). When at the baseline the prevalence of overweight or obesity was 30% (28/94) in patients with FEP, by 12 months the prevalence was 59% (35/59) (McNemar’s test p < 0.001). The proportion of patients gaining ≥ 7% of baseline weight was 68% (40/59). The median weight gain among patients was 9.6 kg (IQR 1.5–13.6 kg), and the waist circumference increase 6.0 cm (IQR 2.0–13.0 cm). In the mixed effects model waist circumference (p < 0.0001) and sex (p = 0.014) were significantly associated with hs-CRP level.

Discussion: We detected a significant elevation in hs-CRP in people with FEP during the first treatment year. The rise in hs-CRP was determined by waist circumference increase. Patients with FEP are in a marked risk of developing abdominal obesity and subsequent low-grade inflammation during the first year of treatment. Prevention of the early metabolic changes in first-episode psychosis is important, as abdominal obesity and inflammation are associated with increased risk of cardiovascular events and mortality.

F167. ACCESS, UNDERSTAND, APPRAISE AND APPLY TO / OF HEALTH INFORMATION AND HEALTH LITERACY IN INDIVIDUALS AT-RISK FOR PSYCHOSIS: A SYSTEMATIC REVIEW

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Background: Numerous studies suggest that health literacy (HL) plays a crucial role in maintaining and improving individual health. Furthermore, empirical findings highlight the relation between levels of
a person’s HL and clinical outcomes. So far, there are no reviews, which investigate HL in individuals at-risk for psychosis. The aim of the current review is to assess how individuals at risk of developing a first episode of psychosis gain access to, understand, evaluate and apply risk-related health information.

Methods: A mixed-methods approach was used to analyze and synthesize a variety of study types including qualitative and quantitative studies. Search strategy, screening and data selection have been carried out according to the PRISMA criteria. The systematic search was applied on peer-reviewed literature in PUBMED, Cochrane Library, PsycINFO and Web of Science. Studies were included if participants met clinical high risk criteria (CHR), including the basic symptom criterion (BS) and the ultra-high risk (UHR) criteria. The UHR criteria comprise the attenuated psychotic symptom criterion (APS), the brief limited psychotic symptom criterion (BLIPS) and the genetic risk and functional decline criterion (GRDP). Furthermore, studies must have used validated HL measures or any operationalization of the HL’s subdimensions (access, understanding, appraisal, decision-making or action) as a primary outcome. A third inclusion criterion comprised that the concept of HL or one of the four dimensions was mentioned in title or abstract. Data extraction and synthesis was implemented according to existing recommendations for appraising evidence from different study types. The quality of the included studies was evaluated and related to the study results.

Results: The search string returned 10587 papers. After data extraction 15 quantitative as well as 4 qualitative studies and 3 reviews were included. The Quality assessment evaluated 12 publications as “good”, 9 as “fair” and one paper as “poor”. Only one of the studies assessed HL with as primary outcome. In the other studies, the five different subdimensions of HL were investigated as a secondary outcome respectively mentioned in the paper. “Gaining Access” was examined in 18 of the 22 studies. “Understanding” has been assessed in 7 publications. “Appraise” was examined in 9 studies. “Apply decision making” and “Apply health behavior” were investigated in 1 of 8 studies. Since none of the included publications operationalized neither HL nor the subdimensions of HL with a validated measure, no explicit influencing factors could be found.

Discussion: Qualitative and quantitative evidence indicates that subjects at-risk for psychosis describe a lack of understanding about their state and fear stigmatization that might lead to dysfunctional coping strategies, such as ignoring and hiding symptoms. Affected subjects are eager to be informed about their condition and describe favoured channels for obtaining information. The internet, family members, school personnel and GPs play a crucial role in gain access to, understand, evaluate and apply risk-related health information. The results clearly highlight that more research should be dedicated to HL in individuals at risk of developing a psychosis. Further studies should explore the relation between HL and clinical outcomes in this target population by assessing the underlining constructs with validated tools.

F168. PSYCHOTIC EXPERIENCE AND ADOLESCENT BRAIN TRAJECTORY: EVIDENCE FOR STRUCTURAL ALTERATIONS IN DOPAMINERGIC REGIONS

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Background: Psychotic Experiences (PE) are often reported by children and adolescents and have a bidirectional association with mental disorders, both increasing subsequent risk for mental disorders and being more frequently reported among subjects with a current psychiatric diagnosis. The brain developmental trajectories associated with PE in children and adolescents and how PE may evolve to a full blown mental disorder remain largely unknown. We assessed PE effect on subcortical and cortical measures over a 3-year follow-up in a community cohort of children and adolescents.

Methods: This study is part of the Brazilian High-risk Cohort, a multi-site longitudinal study. A total of 2,512 youths (6–12 years old, mean age at baseline 9.7 years, SD = 1.92; 53.1% male) completed the baseline assessment and 2,012, the 3-year follow-up (T1). PE were assessed at the two time-points with The Community Assessment of Psychic Experience (CAPE). A confirmatory factor analysis (CFA) was used to generate a latent score for PE and baseline and follow-up, yielding good model fits. A subset of the sample (n=809) was scanned in a 1.5T scanner on either baseline or follow-up resulting in 1183 MRI scans. Structural images were processed using FreeSurfer. Subcortical volumes for the amygdala, hippocampus, caudate, putamen and pallidum were entered as a dependent variable in a linear mixed effects model (lme) with age, sex, CAPE and CAPE by age interaction as fixed effects and site and subject as random effects. The same model was applied in a mass-univariate analysis for cortical thickness measure (CT). A smoothing kernel (FWHM = 10 mm) was applied to CT before statistical testing. False Discovery Rate was used to control for multiple comparisons in the mass-univariate analysis with a p<0.05 threshold.

Results: CAPE was significantly related to the right putamen (Beta: -0.30 p<0.03), right caudate (Beta: -0.32 p: 0.03) and left caudate (Beta: -0.32 p<0.02). The age by CAPE interaction was significant for the three regions (right putamen Beta: 0.001 p<0.04, right caudate Beta:0.002 p: 0.03 and left caudate Beta: 0.001 p<0.03).

CAPE and CAPE by age interaction terms showed no effect on cortical thickness after correction for multiple comparisons.

Discussion: PE report was associated with lower subcortical volumes of the caudate and putamen, regions of the striatum. The striatum receives important dopaminergic neurotransmission and have been previously implicated in the pathogenesis of schizophrenia. In line with the hypothesis in schizophrenia, the PE experienced by children and adolescents may relate to a dopaminergic imbalance, possibly due to developmental structure alterations of the striatum and its connections. Interestingly, neither the hippocampus nor the amygdala were related to PE. Taken together with the lack of findings related to cortical thickness, the results presented here suggests a probable dopaminergic role on PE in young people with no current psychotic disorder.

F169. BRAIN CONNECTIVITY DURING PSYCHOLOGICAL STRESS IN PATIENTS WITH SCHIZOPHRENIA

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Background: It is commonly accepted that in most patients with schizophrenia external factors act on genetic predisposition to produce active psychotic symptoms. In fact, we showed that patients with schizophrenia have an abnormal brain activation and peripheral autonomic response to psychophysical stress. We sought to characterize the brain connectivity networks of such response in schizophrenia.

Methods: We studied the pattern of brain connectivity in relation to mental arithmetic stress paradigm in 21 patients and 21 healthy subjects aged 18 to 50 years, using 3T-fMRI. A period of 6 minutes of resting state acquisition (PRE) were followed by a block design with three 1-minute CONTROL task (one digit sum), 1 minute STRESS task (two digit subtraction) and 1 minute rest after task (POST). Pairwise Pearson correlations were calculated between 90 regions of interest. Data were analyzed with MATLAB and SPSS software.

Results: Patients with schizophrenia showed a lower connectivity network between fronto-temporal limbic areas compared with control subjects during control and stress task.