

associated severity factors, using electronic records of a large cohort of clozapine-medicated schizophrenic patients. Patients were routinely screened for OCD using standardised scales as well as relevant clinical, psychometric and demographic data.

**Methods:** The electronic records of a large cohort of clozapine-medicated schizophrenia patients routinely screened for OCD using standard measures were used. The Obsessive Compulsive Inventory Revised version (OCI-R) was available from 118 cases and a 21 points cut-off threshold for OCD was defined.

**Results:** OCD prevalence was 47% and significantly higher in patients on several medications including clozapine than on clozapine monotherapy (64% vs 31%;  $p=.001$ ). Two OCI-R factors had significantly higher scores in these patients and were associated with distinct risk factors: checking behaviour (mean=5.1; SD=3.6), which correlated with length on clozapine treatment ( $r=.21$ ;  $p=.026$ ), and obsessing factor (mean=4.8; SD=3.6), which correlated with psychosis severity ( $r=.59$ ;  $p=.001$ ). However, these factors along with total OCI-R, did not correlate with either clozapine dose or plasma levels, after correcting for psychosis severity.

**Discussion:** We propose an imbalance between impaired goal-directed behaviour and habit formation in favour of the latter in clozapine-OCD as a potential theoretical framework for our results. Compulsion in clozapine-medicated schizophrenia patients could be understood as a long-term by-product of the psychosis (even after remission) perpetuated by clozapine's potent antiserotonergic properties. Screening for OCD in clozapine patients, and probably in those treated with structurally similar drugs like olanzapine, should be widely adopted by clinicians.

### S93. DIETARY PATTERNS AND PHYSICAL ACTIVITY IN PEOPLE WITH SCHIZOPHRENIA

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**Background:** People with severe mental disorders die 10–25 years earlier than people in the Western background population, mainly due to lifestyle related diseases, with cardiovascular disease (CVD) being the most frequent cause of death. Major contributors to this excess morbidity and mortality are unhealthy lifestyle factors including tobacco smoking, unhealthy eating habits and lower levels of physical activity. The aim of this study was to investigate the dietary habits and levels of physical activity in people with schizophrenia spectrum disorders and overweight and to compare the results with the current recommendations and with results from the general Danish population.

**Methods:** We interviewed a sample of 428 people with schizophrenia spectrum disorders and increased waist circumference enrolled in the CHANGE trial using a Food Frequency Questionnaire (FFQ) and a 24 hours recall interview, a Physical Activity Scale (PAS), scale for assessment of positive and negative symptoms (SAPS and SANS, respectively), Brief Assessment of Cognition in Schizophrenia (BACS) and Global Assessment of Functioning (GAF). We compared with information on dietary intake and physical activity in the general Danish population from the Danish National Survey of Dietary Habits and Physical Activity in 2011–2013 (DANSDA).

**Results:** The CHANGE participants reported a very low energy intake and their distribution of nutrients (i.e. fat, protein and carbohydrates) harmonized with the recommendations from the Danish Health Authorities, and were similar to the latest report on the dietary habits in the Danish general population. However, the intake of saturated fat, sugar and alcohol exceed the recommended amounts and the corresponding intake in the general population. The intake of fiber, vegetables and fruit and fish were insufficient and also less than in the general population. The overall estimated quality of the dietary habits was poor, only 10.7% of the participants had healthy dietary patterns, and the quality was poorer than in the general population. Even with a very liberal definition of the term “homecooked”, only 62% of the participants had taken any part in the preparation of their

food. The level of physical activity was low and only one fifth of the participants complied with the recommendations of min. 30 minutes daily moderate-to-vigorous activity. Half of the CHANGE participants were smokers, compared to 17% in the general population. Negative symptoms were significantly associated with poorer dietary quality and less physical activity, whereas no such significant associations were found for cognition, positive symptoms or antipsychotic medication.

**Discussion:** Even when accounting for some error from recall - and social desirability bias, the findings point in the direction that the average energy intake in obese people with schizophrenia spectrum disorders is not exceeding that of the general population, and that overweight may to some degree be a result of physical inactivity and metabolic adverse effects of antipsychotic medication. The physical activity level is low and the rate of tobacco smoking is high, and our results suggest that negative symptoms play a significant role. Future research should focus on bringing about lifestyle changes in this fragile population in order to reduce the excess risk of CVD and mortality.

### S94. INTEGRATED DIABETES MANAGEMENT FOR INDIVIDUALS WITH SERIOUS MENTAL ILLNESS

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**Background:** Premature mortality due to cardiovascular disease in those with schizophrenia is the largest lifespan disparity in the US and is growing; adults in the US with schizophrenia die on average 28 years earlier than those in the general population. An estimated one in five people with severe mental illness (SMI) has diabetes; lifetime rates of diabetes among those with SMI are two to three times higher than for those in the general population. Contributing factors to this astonishingly high rate of diabetes include effects of antipsychotic medication, unhealthy lifestyle, and likely factors related to schizophrenia itself. High rates of tobacco dependence and poor understanding of diabetes management combine to cause the extraordinarily high morbidity and mortality associated with diabetes in those with SMI. There exists a significant gap in the literature for theory and evidence-based interventions to improve the ability of those with SMI to manage their diabetes.

**Methods:** We have developed a 16-week tailored behavioral and educational group intervention for individuals with schizophrenia and diabetes, utilizing the concept of ‘reverse integrated care,’ bringing medical intervention into the community mental health setting. Core features of this intervention include motivational interviewing, basic education, and problem-solving. The primary outcome of this study is glycemic control, as measured by hemoglobin A1C (HbA1C). Secondary outcomes include lipid panel, measures of diabetes knowledge and self-management, blood pressure, weight, BMI, and step count.

**Results:** Thirty individuals were consented and randomized to a two-period crossover design consisting of a 16-week group intervention and a 16-week observation period. Average HbA1c at baseline=7.5, range=5.9–13.4. Seventeen individuals successfully completed the intervention. An average 0.59-point reduction in HbA1c was observed from baseline to the end of the 16-week active intervention ( $t=1.99$ ,  $DF=17$ ,  $p=0.063$ ). A marginally significant weight reduction was observed from baseline to week 16 in the active condition of 5.3 pounds ( $t=2.07$ ,  $DF=17$ ,  $p=0.054$ ). Ten participants lost greater than five pounds. Significant changes were observed in increased average step count of 3189 steps/day ( $t=2.25$ ,  $DF=17$ ,  $p=0.038$ ), and improved scores on diet ( $t=2.84$ ,  $DF=17$ ,  $p=0.01$ ), exercise ( $t=2.24$ ,  $DF=17$ ,  $p=0.039$ ), and foot care ( $t=2.99$ ,  $DF=17$ ,  $p=0.01$ ) diabetes self-care measures. Promising decreases were seen in systolic blood pressure – those with baseline >130 systolic blood pressure reducing from an average of 138 to 125; diastolic blood

pressure – those with baseline >90 reduced from an average of 93 to 80; a 10-point average reduction in total cholesterol ( $t=-1.13$ ,  $DF=17$ ,  $p=0.27$ ), and 50-point average reduction in triglycerides ( $t=-1.29$ ,  $DF=17$ ,  $p=0.21$ ). A continued decrease was observed for A1C, weight, and triglycerides in the first active intervention group 16-weeks post-completion, suggesting sustainability of gains made during the intervention.

**Discussion:** There is a pressing need to address the morbidity and premature mortality related to modifiable health behaviors in this underserved population, yet individuals with SMI and diabetes are much less likely to be identified or to receive recommended diabetes care and monitoring. We hope to further establish and refine a standard of care diabetes education curriculum, tailored for individuals with SMI, a population with high prevalence of diabetes but low rates of diabetes diagnosis, education, and treatment. Results from year one demonstrate this program to be easily implementable, well-accepted, socially relevant and effective.

### S95. PREVALENCE AND CLINICAL CORRELATES OF COMORBID OBSESSIVE-COMPULSIVE DISORDER IN PATIENTS WITH SCHIZOPHRENIA

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**Background:** Obsessive compulsive symptoms (OCS) commonly occur in the course of schizophrenia. However, reported rates of comorbid obsessive compulsive disorder (OCD) in schizophrenia were highly variable among studies. In addition, influences of OCS on the symptomatology and functioning of schizophrenia have not been fully explored. The aim of this study was to investigate the clinic-based prevalence rate of OCD in schizophrenia patients, and to evaluate clinical correlates of the comorbidity.

**Methods:** Patients with schizophrenia ( $n=320$ ) were recruited and lifetime clinical characteristics were evaluated comprehensively. Patients having comorbid OCD (OCD group,  $n=66$ ) and those without OCD (the non-OCD group,  $n=254$ ) were compared in terms of clinical characteristics and cognitive functioning.

**Results:** OCD was found in 20.6% of the subjects. Earlier age at onset, male gender, and higher level of education were associated with comorbid OCD. In terms of individual symptoms and symptom dimensions, 'anxiety ( $p=0.009$ ) and 'depression ( $p=0.001$ )' were more frequently observed in the OCD group than in the non-OCD group. The prodromal impairment was higher in the non-OCD group ( $p=0.016$ ). The OCD group showed better performance in working memory domain ( $p=0.003$ ), and other cognitive domains did not show any significant group difference.

**Discussion:** The prevalence rate of OCD in the current subjects was within the range of previously reported comorbidity rates in schizophrenia patients from other populations. Association of OCS with anxiety and depressive symptoms seems to be a common finding which was also reported in previous studies of schizophrenia and bipolar disorders. Regarding cognitive functions, inconsistent results including the current report have been generated suggesting heterogeneous developmental mechanisms of OCS in schizophrenia.

### S96. CARDIOVASCULAR DISEASE RISK IN PATIENTS WITH SCHIZOPHRENIA AND BIPOLAR DISORDER

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**Background:** Patients with schizophrenia and bipolar disorder have markedly reduced life expectancy compared to the general population (15–20 years). A major contributor of excess death is cardiovascular disease (CVD) [1]. During the last decade, there have been several public health campaigns for health promotion and disease prevention, and tobacco legislation has become stricter. These strategies appear to have been effective in improving the health of the general Norwegian population [2]. It is unknown whether the elevated CVD risk in patients with schizophrenia and bipolar disorder has sustained in spite of these health promotion approaches. Here we investigate the development of CVD risk factors in a large representative sample of Norwegian patients with schizophrenia and bipolar disorder between 2002 and 2017. More specifically, we explored whether the CVD risk level was similar in a cohort from 2006 and a second cohort from 2017.

**Methods:** Cross sectional analysis was performed among DSM-IV diagnosed patients included from 2002–2005 (cohort 1) and from 2006–2017 (cohort 2), respectively. Cohort 1 consisted of 161 patients with schizophrenia and 109 patients with bipolar disorder, and cohort 2 consisted of 623 patients with schizophrenia and 387 patients with bipolar disorder. Comparisons were made between cohorts regarding demographic variables, psychiatric symptoms, tobacco use, body mass index, waist circumference, total cholesterol, high-density lipoprotein (HDL) cholesterol, low-density lipoprotein (LDL) cholesterol, triglycerides, fasting glucose, systolic blood pressure, and diastolic blood pressure. ANCOVA was used for these analyses, with adjustments for age, duration of the disorder, and duration of psychopharmacological treatment.

**Results:** Mean age was significantly higher for cohort 1 (35.1 years vs. 31.2 years,  $p < .001$ ). There was no statistically significant difference in any of the other demographic variables or symptoms. Among patients with schizophrenia, there was no significant difference in the prevalence of CVD risk factors except from glucose being slightly increased in patients included in cohort 2 ( $p = .047$ ). Among patients with bipolar disorder, there was a significant reduction in the level of total cholesterol, LDL, systolic, and diastolic blood pressure in cohort 2 (all  $p$  values  $< .01$ ). These differences remained statistically significant after adjusting for age, duration of the disorder, and duration of psychopharmacological treatment.

**Discussion:** Despite major advances in health promotion and disease prevention during the past decade, the level of CVD risk factors has remained high in patients with schizophrenia. While the level of some CVD risk factors improved in patients with bipolar disorder, they are still at increased risk of CVD. Thus, patients with severe mental disorders, especially schizophrenia, do not appear to have benefited from recent health promotion measures. Our findings also highlight the need for more effective interventions to reduce the risk of CVD in individuals with severe mental disorders, which may reduce the gap in life expectancy compared to the general population.

#### References:

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### S97. SOCIAL ANXIETY IN SCHIZOPHRENIA: THE IMPACT OF HALLUCINATIONS AND SELF-ESTEEM SUPPORT

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**Background:** Social anxiety is an underreported concern in schizophrenia (SCZ). Prevalence rates in the general population range from 0.5–7% (APA, 2013), but are higher in SCZ, and estimated to be 11–36% (Mazeh et al., 2009; Pallanti et al., 2004). Yet, research is limited with