Prevalence of attention deficit hyperactivity disorder symptoms and impairments of executive function in a cohort of patients suffering from schizophrenia

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Background

Recent work has revealed a genetic correlation between schizophrenia (SCZ) and attention deficit hyperactivity disorder (ADHD)[1]. The genetic risk score for SCZ was reported to account for 45% of the genetic variance between ADHD cases and controls ($p < 0.001$).

Our systematic review utilising the PRISMA statement criteria revealed that only 2 studies have measured the prevalence of adult ADHD in patients with SCZ, reporting 10%[2] and 47%[3] respectively.

A better understanding of the prevalence of ADHD in patients with SCZ, and quantifying the possible effects of an ADHD and SCZ comorbidity on executive functions (EF), are key steps towards ensuring that patients receive the best possible treatment for their individual symptomatology.

ADHD is present in in 5.3% of children (cADHD) and 2.5% of adults (aADHD)[4] in the population. SCZ prevalence is 1% in the population[5].

Aims and objectives

1) To estimate the prevalence of childhood and adult attention deficit hyperactivity disorder symptoms in a cohort of patients diagnosed with schizophrenia.
2) To estimate the prevalence of executive function impairment in the same cohort of patients.

Methods

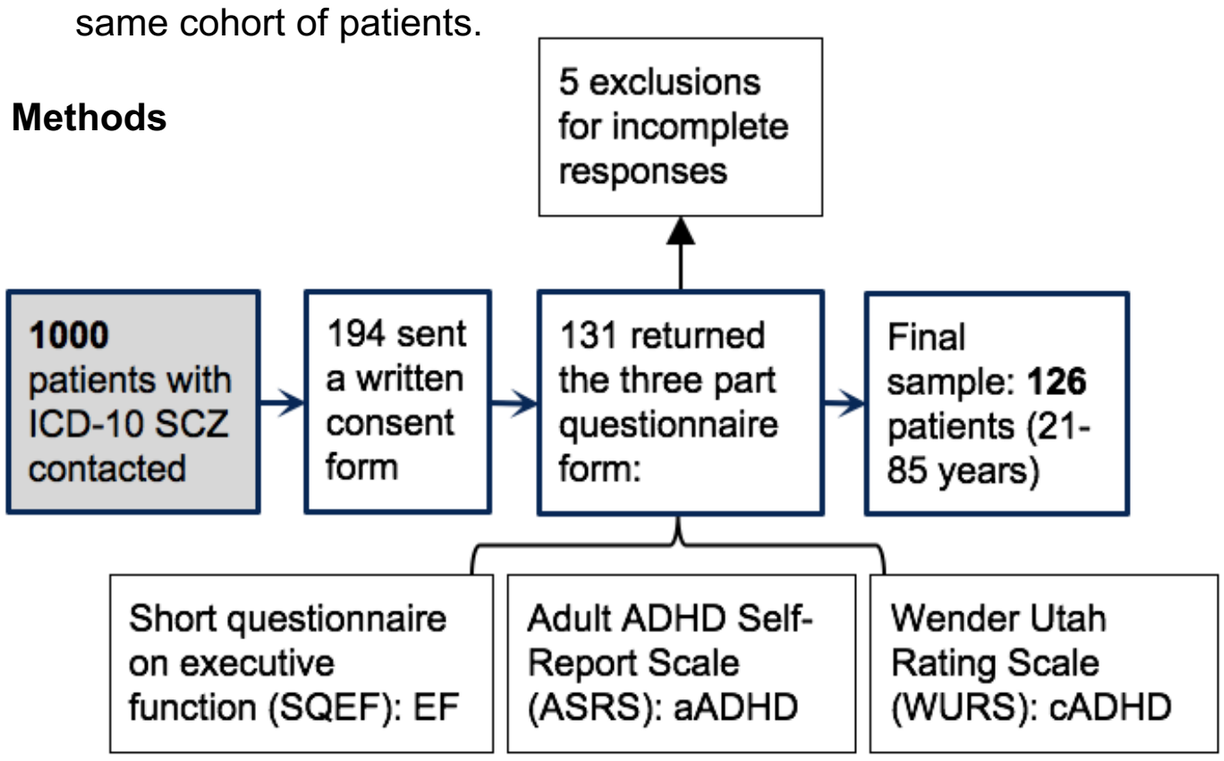

Figure 1. Data collection process.
(ICD-10: International Classification of Disease version 10)

Results

Lifetime ADHD symptoms were reported by 47% of patients with clinically diagnosed SCZ (table 1). Of these, 23% reached the cut off values in both the childhood and adult ADHD questionnaires, 11% in only the childhood and 13% in the adult.

Impairments in EF were reported by 54% of patients, and the linear regression of EF impairment scores was significant ($p < 0.001$) with both childhood ADHD and adult ADHD scores (figure 2). Impairments in EF were reported by nearly all patients with c+aADHD (93.1%), compared to 26.9% of those with no ADHD symptoms.

Lifetime ADHD symptomatology	Freq: (N=126)	Percent (%)	Age range	Gender N (%) male
c+aADHD	29	23.0	23-77	19 (65.5)
aADHD only	16	12.7	35-70	10 (62.5)
cADHD only	14	11.1	29-65	9 (64.3)
No ADHD	67	53.2	21-85	45 (67.2)

Table 1. The prevalence of cADHD and/or aADHD symptomatology reported by patients with SCZ.

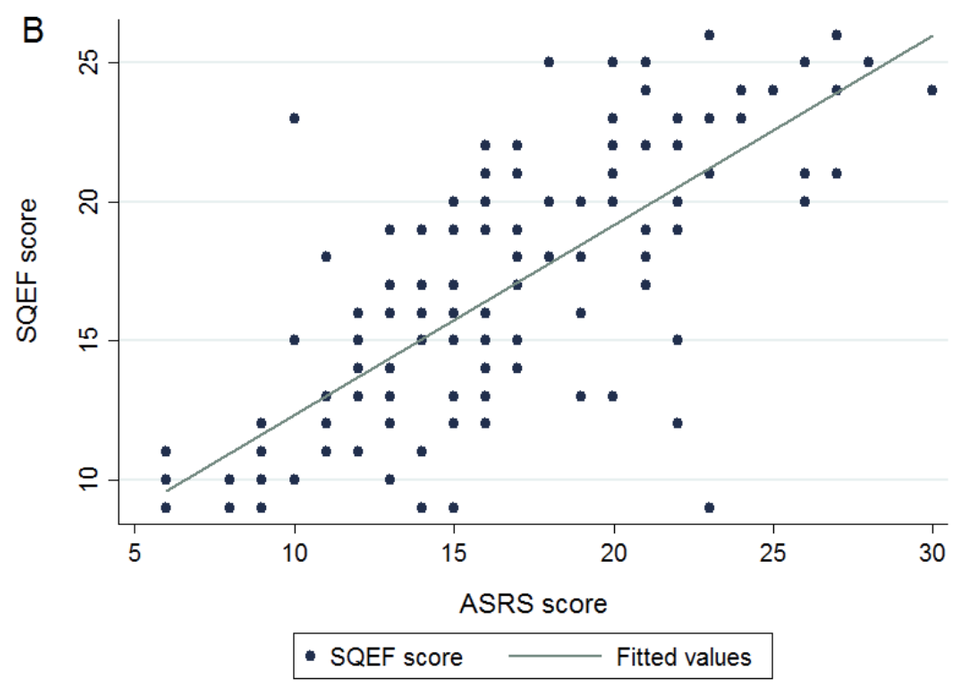

Figure 2.
(A) SQEF scores on WURS scores with a regression line.
(B) SQEF scores on ASRS scores with a regression line.

Discussion

The study suggests that there is a higher presence of ADHD symptomatology in SCZ compared to that reported for ADHD in the general population. A greater severity of ADHD symptoms was predictive of poorer EF, highlighting the necessity of correct and early diagnosis.

Some limitations of the study are that 1) the questionnaires are not diagnostic and there is methodological overlap between the items of those used to assess ADHD and EF, 2) patients in the sample were not screened for cognitive impairment or mania and 3) the lack of a control group from the general population for comparison.

References: [1] Hamshere ML, Stergiakouli E, et al. Shared polygenic contribution between childhood attention-deficit hyperactivity disorder and adult schizophrenia. Br J Psychiatry. 2013;107–11, [2] Hallerbäck MU, Lugnegard T, et al. ADHD and Nicotine Use in Schizophrenia or Asperger Syndrome: A Controlled Study. J Atten Disord. 2014 Jul 1;18(5):425–33, [3] Dalteg A, Zandelin A, et al. Psychosis in adulthood is associated with high rates of ADHD and CD problems during childhood. Nord J Psychiatry. 2014;68(8):560–6, [4] Agnew-Blais, J. C., Polanczyk, G. V., et al. (2016) 'Evaluation of the Persistence, Remission, and Emergence of Attention-Deficit/Hyperactivity Disorder in Young Adulthood', *JAMA Psychiatry*. American Medical Association, 73(7), p. 713, [5] Carpenter, W. T. and Buchanan, R. W. (1994) 'Schizophrenia', *New England Journal of Medicine*. Massachusetts Medical Society , pp. 681–690.