



Adverse childhood experiences and social and occupational functioning in first-episode psychosis — A one year follow - up

Childhood traumas and adverse childhood experiences (ACE) are risk factors for psychiatric illnesses, increasing the risk of psychotic illnesses with a dose-response relationship (Trauelsen et al., 2015). ACE are also connected to more severe and persistent symptoms in psychotic disorders (Trotta et al., 2015) and poorer response to antipsychotic medication (Misiak et al. 2016). Persistence of symptoms and long-term disability prevent people with psychotic illness from returning to work and increase their need for health care. Previous research has focused on serious trauma whereas this study focuses on the less well-known effects of milder ACE which are more common and associated with significant psychosocial burden. The aim of this study is to investigate the effects of accumulating ACE on social and occupational functioning in the early phases of psychosis.

The data was collected in the Helsinki Early Psychosis Study implemented by the Finnish Institute for Health and Welfare. The 75 patients participating in the study were aged 18–40 years with first psychiatric treatment contact for psychosis and treated in the Helsinki and Uusimaa Hospital District or the City of Helsinki in 2010–2016. The inclusion criteria were a score of ≥ 4 for unusual thoughts content or hallucinations on the Brief Psychiatric Rating Scale – Expanded (BPRS-E). Patients with psychosis induced by substance use or general medical condition were excluded. 51 population controls matched by age, gender and region of residence were identified from the Finnish Population Register centre. The follow-up data was collected at 12 months and the study sample then consisted of 61 patients and 44 controls.

Psychotic symptoms were assessed with BPRS-E, negative symptoms with three domains from the Scale for the Assessment of Negative Symptoms (SANS) and functioning with the Social and Occupational Functioning Scale (SOFAS). Diagnoses were set by a senior psychiatrist based on all available information including medical records.

The study population was tested with a neuropsychological test battery and a g-factor was formed with factor analysis to control for general neurocognitive performance (Lindgren et al., 2018).

Participants were asked about 11 ACE before the age of 16 in a questionnaire concerning the family's financial difficulties, parental health, mental health and alcohol use problems, subject's own health, conflicts in the family, parental divorce, and bullying. Answer options were "yes", "no" and "cannot say" (which were coded as missing information).

A single factor of ACE was formed with item factor analysis using Mplus to reflect the accumulation of ACE. Bullying was weakly related to the overall factor that the other items loaded on. The final factor therefore included all the other 10 items, and bullying was analysed separately (Lindgren et al., 2017).

The associations of baseline and one-year SOFAS score and employment status (working or studying at one year) with having

experienced any single specific ACE were analysed with the Mann-Whitney *U* test and chi-square test, and with the adversity factor with Spearman correlations and Mann-Whitney *U* test. In order to examine the effect of the accumulation of ACE on functioning, linear regression analysis was performed separately for patients and controls, first with baseline and then with one-year SOFAS score as dependent variable. We used gender, age, positive and negative symptom scores, g-factor, ACE factor and bullying as independent variables. The analysis with one-year SOFAS was first performed with the same baseline predictors, and then controlling the current symptoms. In the analyses performed for controls, symptom scores were not included. The association of ACE with bullying on employment status at one-year was examined with binary logistic regression controlling for the same independent variables.

As we have previously reported, patients had experienced more ACE than controls ($p = 0.003$) (Lindgren et al., 2017). With patients, maternal mental health problems had a negative effect on the SOFAS score at one year ($p = 0.026$), while other single adversities did not associate with SOFAS. With controls, having experienced bullying negatively associated with social and occupational functioning at baseline ($p = 0.005$). The childhood adversity factor score did not correlate with SOFAS score at baseline or at one-year follow-up in either group. Employment status was not associated with the single adversities or cumulation of adversities.

In the linear regression model in the FEP group, the significant predictors of baseline social and occupational functioning were positive ($p = 0.046$) and negative symptoms ($p = 0.001$).

In the regression model predicting SOFAS at one year including baseline symptom scores as independent variables the significant predictors were negative symptoms ($p = 0.005$) and cognitive capacity ($p = 0.002$). Controlling for one-year symptoms did not change the results significantly, negative symptoms appearing as a significant predictor ($p < 0.001$) of one-year SOFAS.

With controls, the significant predictors of baseline SOFAS were g-factor score ($p = 0.002$) and bullying ($p = 0.001$). The result was similar analysing SOFAS score at one year.

In the regression model predicting employment status, only cognitive capacity at the baseline seemed to be a significant predictor, so that patients with more severe cognitive impairments were more likely to be on sick leave or disability pension a year later ($p = 0.039$).

In our study, accumulation of ACE or bullying did not seem to explain recovery from the FEP and the only single adversity that associated with social and occupational functioning was maternal mental health problems. Among controls, bullying experienced as a child and weaker neurocognitive level were seen to lower social and occupational functioning.

The strength of this study is comparable groups of FEP and controls,

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although sample size, ethnic homogeneity and short follow-up time can limit drawing broader conclusions. Extensive clinical assessment was conducted on both groups and the participants' ability to function was evaluated with structured assessment. Further limitations to consider are memory bias and that some of the questions concerning ACE also reflect potential heritability of psychotic illnesses.

To conclude, the accumulation of ACE did not predict functional one-year outcomes. Our results can therefore increase hope, as people with FEP seem to recover similarly regardless of childhood psychosocial burden. The results emphasize the importance of good treatment of negative symptoms and consideration and rehabilitation of cognitive capacity.

Declaration of Competing Interest

There are no conflicts of interest.

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