Schizophrenia Research 166 (2015) 24–30

Contents lists available at ScienceDirect

Schizophrenia Research

journal homepage: www.elsevier.com/locate/schres

Longitudinal investigation of the relationship between family history of psychosis and affective disorders and Child Behavior Checklist ratings in clinical high-risk adolescents

Diana I. Simeonova [a,*], Frances J. Lee [a], Elaine F. Walker [b]

[a] Department of Psychiatry and Behavioral Sciences, Emory University School of Medicine, Atlanta, GA, United States
[b] Department of Psychology, Emory University, Atlanta, GA, United States

ARTICLE INFO

Article history:
Received 5 January 2015
Received in revised form 20 April 2015
Accepted 23 April 2015
Available online 14 May 2015

Keywords:
Family history
Psychosis risk
Affective disorders
Clinical high-risk
Prodrome
Adolescents
CBCL
Early intervention
Prevention

ABSTRACT

This is the first study to investigate whether positive family history (FH) of psychosis and affective disorders moderates the relationship between child diagnostic status and parent-reported social and behavioral problems on the Child Behavior Checklist (CBCL) in clinical high-risk adolescents. This longitudinal investigation assessed 122 participants (mean age = 14.25 ± 1.8 years) from three groups (at-risk, other personality disorders, non-psychiatric controls) at baseline and one year follow-up. As predicted, there was a main effect of FH for a number of CBCL scales indicating higher scores for adolescents with positive FH. The findings also demonstrate a significant Diagnostic Status × Family History interaction for several behavioral scales providing support for FH as a concurrent and longitudinal moderator of the relationship between diagnostic status and CBCL scales. The moderating effect is present for areas of functioning associated with depression, anxiety, social adjustment, thought problems, attention problems, and aggressive behavior. The findings also indicate that both positive and negative symptoms are related to the genetic vulnerability for developing psychosis in clinical high-risk individuals, particularly those symptoms reflective of emotional, attentional, and interpersonal functioning. The present findings are novel and have significant clinical and research implications. This investigation provides a platform for future studies to clarify further the role of FH in clinical high-risk individuals and contributes to integration of this knowledge in the development of early intervention and prevention approaches in at-risk populations for the emergence of severe mental illness.

1. Introduction

The present study addresses important, albeit largely unexplored research questions regarding the relationship between positive family history (FH) of psychosis and affective disorders and social and behavioral precursors of vulnerability to psychosis in clinical high-risk individuals, a population also variably referred to in the literature as 'psychosis risk syndrome,' 'ultra high-risk,' or 'prodromal' individuals. This work is an extension of our previous research investigating the clinical and diagnostic utility of the Child Behavior Checklist (CBCL; Achenbach, 1991) as an adjunctive risk screening measure in the early detection of at-risk adolescents likely to develop psychosis (Simeonova et al., 2011, 2014). This is an important area of investigation, because positive FH may be an indicator for one or more etiologic subtypes varying on clinical presentation or course (Esterberg et al., 2010). Also, a better understanding of this relationship could result in novel prevention and early intervention approaches in at-risk populations for the emergence of severe mental illness.

Family and twin studies of schizophrenia and affective psychoses indicate that psychosis aggregates in families (Ivleva et al., 2008). For instance, the lifetime risk for schizophrenia development increases 8- to 12-folds in first-degree biological relatives of schizophrenia probands. While a number of large epidemiological studies show that the familial risks for schizophrenia and bipolar disorders are mainly independent from one another (Kendler and Gardner, 1997; Laursen et al., 2005), there are also studies indicating co-aggregation of these disorders in families with bipolar disorder and schizophrenia patients (Henn et al., 1995; Arajarvi et al., 2006; Lichtenstein et al., 2009) and suggesting clear genetic links between these psychiatric conditions (Cosgrove and Suppes, 2013). Some family studies also indicate that there could be a familial relationship between the predispositions to schizophrenia and unipolar depression (Maier et al., 1993; Blackwood et al., 2001). Overall, at the present time the empirical data are not yet compelling enough to resolve the debate about the existing nosological boundaries of psychotic and affective illnesses and to progress to more continuous model of psychosis (Cosgrove and Suppes, 2013). Substantial evidence exists, however, that psychosis and affective disorders might be distributed

* Corresponding author at: Department of Psychiatry and Behavioral Sciences, Emory University School of Medicine, 12 Executive Park Drive NE, Atlanta, GA 30329, United States. Tel.: +1 404 727 5835; fax: +1 404 778 2535.
E-mail address: dsimeon@emory.edu (D.I. Simeonova).

http://dx.doi.org/10.1016/j.schres.2015.04.027
0920-9964/

across a dimensional spectrum (Häfner et al., 2005; Craddock et al., 2006). Therefore, the focus of the present study is on the relationship between FH of psychosis and affective disorders and social and behavioral precursors of vulnerability to psychosis in clinical high-risk individuals.

In the context of the present study, it is important to emphasize evidence for significant differences between psychiatric patients with positive FH and those without FH of psychosis and affective disorders. With respect to premorbid functioning, one study found FH of schizophrenia to be associated with poor overall premorbid adjustment during ages 5 to 11 in patients with schizophrenia (Foerster et al., 1991). Another family study comparing patients with and without FH of schizophrenia found FH to be associated with worse premorbid adjustment related to attention problems and social problems (St-Hilaire et al., 2005). A third study with similar design examined differences in the premorbid adjustment, symptoms, and intellectual functioning between 28 first-episode schizophrenia spectrum patients (with diagnoses of schizophrenia, schizoaffective, and schizopreniform disorders) with positive FH and 28 matched patients without FH (Norman et al., 2007). The patients with positive FH showed poorer intellectual functioning, less reduction in clinical symptoms at 24 and 36 month follow-up, and more severe form of the illness. Similarly, a study examining the contribution of familial liability for schizophrenia found that patients from multiple affected families (i.e., with two or more first- and/or second-degree relatives with a psychotic disorder) had poorer premorbid social and academic functioning compared to patients from non-affected families and controls (Walshe et al., 2007). A significant decline of social functioning between childhood and adolescence was found only for the group of patients with familial schizophrenia. In addition, unaffected siblings of patients with familial schizophrenia demonstrated significantly worse academic functioning than controls during adolescence, and a significant decline in academic functioning between childhood and adolescence. Notably, the unaffected siblings of patients with familial schizophrenia had significantly greater deterioration in academic functioning compared to siblings from non-affected families, which the researchers interpreted as possibly related to a genetic risk for schizophrenia (Walshe et al., 2007). Furthermore, recent meta-analyses concluded that patients with a positive FH of psychosis are likely to have poorer long-term occupational and global outcome (Käkelä et al., 2014) and that CHR individuals with positive FH are at an increased risk for suicide and self-harm (Taylor et al., 2014).

Overall, the relationship between positive FH of psychosis and affective disorders and social and behavioral indicators of risk for psychosis (as indexed by parent-reported CBCL ratings) in clinical high-risk individuals has not received research attention. This is an important area of investigation, because a better understanding of this relationship has significant clinical and research implications for treatment and for the development of novel prevention and early intervention approaches in at-risk populations for the emergence of severe mental illness. Therefore, the purpose of the present study is to shed light on the following main research question: Does family history moderate the relationship between diagnostic status and CBCL ratings in an at-risk clinical population? The diathesis–stress model (Walker and Diforio, 1997) postulates that hereditary factors serve to trigger constitutional vulnerability for psychosis, which is expressed in multiple domains of behavior before the onset of psychosis. Thus, it is predicted that the at-risk adolescents in this study will be more sensitive to the potential moderating effect of genetic predisposition and FH of psychosis or affective disorders. The adolescent period is the focus of this study because it is characterized by a rapid increase in risk for psychosis onset, and it is likely to be a critical period for early intervention and prevention (Walker, 2002).

2. Methods

The study sample of 122 participants, ranging in age from 12 to 18 years, was enrolled in a prospective study at Emory University focused on neurobiological and behavioral aspects of clinical risk for psychosis in adolescents. The three diagnostic groups included 53 adolescents designated as at-risk (AR), 37 adolescents with other personality disorders (OPD), and 32 non-psychiatric controls (NC) (mean age = 14.2; SD = 1.8), who underwent assessments at baseline and at one year follow-up and for whom a CBCL had been completed. Participants were designated to the AR group if they met the DSM-IV diagnostic criteria for schizotypal personality disorder (SPD) (n = 1), the Scale of Prodromal Symptoms (SOPS) criteria for attenuated positive symptoms (APS) (n = 13), or both risk criteria (n = 39). Demographic characteristics by diagnostic group are presented in Table 1.

The following instruments were administered to all study participants: Structured Interview for DSM-IV Personality Disorders (SIDP-IV) (Pfohl et al., 2001), Structured Clinical Interview for Axis I DSM-IV Disorders (SCID-I) (First et al., 1995), Structured Interview for Prodromal Symptoms (SIPS) (Miller et al., 2002, 2003), and CBCL parent-report scale (Achenbach, 1991). Participants were recruited through announcements directed at parents and clinicians. The exclusion criteria at study entry were neurological disorder, mental retardation, substance abuse/dependence, and current Axis I disorder as described by DSM-IV. Assent and written consent were obtained from all participants and a parent in accordance with the guidelines of the Emory University Human Subjects Review Committee. Previous reports provide a detailed description of the methodology approach (Simeonova et al., 2011, 2014).

To index the occurrence of mental illness and the rate of mental illness in first- and second-degree relatives of study participants, data on FH of mental disorders was collected. Although relatives were not directly interviewed, general information on mental disorders in first- and second-degree relatives was obtained from parents of participants. Specifically, the occurrence of psychosis, depression, and bipolar disorder was of critical interest. A broad definition of positive FH was employed in the present study, defined as having at least one first- or second-degree relative with diagnosis of psychosis spectrum disorder or affective disorder.

To test the hypothesis that participants with positive FH of psychosis or affective disorders in first- or second-degree relatives have more social and behavioral problems (as indexed by CBCL ratings) than participants without FH and to test whether FH moderates the relationship between diagnostic status and CBCL ratings a series of multivariate-analyses of variance (MANOVA) and repeated-measures analyses of variance (ANOVA) were conducted. MANOVAs were conducted with diagnostic status and FH as independent variables and CBCL individual and composite scores as dependent variables. In the repeated measures ANOVAs, CBCL scores of each time of assessment (baseline vs. one year follow-up) were the within-subject factor and diagnostic status and FH were the between-subject factors. Assumptions for parametric tests were met, with normal sample distribution and appropriate homogeneity of variances.

The cross-temporal stability of the CBCL scales was examined with correlational analyses for the entire sample and for each diagnostic group. The analyses revealed significant positive inter-correlations across assessment periods (baseline and one year follow-up) within

Table 1
Demographic characteristics of samples.

	AR	OPD	NC	Total
Total (*n*)	53	37	32	122
Males	35	17	16	68
Females	18	20	16	54
Age				
M (SD)	14.17 (1.70)	14.59 (1.83)	14.00 (1.93)	14.25 (1.80)
Positive family history (%)				
Psychotic disorders	11	8	3	8
Affective disorders	57	54	47	53

AR = at-risk, OPD = other personality disorders, NC = normal controls.