Schizophrenia Research 118 (2010) 69–75

Contents lists available at ScienceDirect

Schizophrenia Research

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

Predicting the longitudinal effects of the family environment on prodromal symptoms and functioning in patients at-risk for psychosis

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ARTICLE INFO

Article history:
Received 23 September 2009
Received in revised form 21 January 2010
Accepted 25 January 2010
Available online 19 February 2010

Keywords:
Expressed emotion
Family environment
Prodrome
Psychosis
Schizophrenia
Ultra high risk

ABSTRACT

The current study examined the relationship between the family environment and symptoms and functioning over time in a group of adolescents and young adults at clinical high risk for psychosis ($N=63$). The current study compared the ability of interview-based versus self-report ratings of the family environment to predict the severity of prodromal symptoms and functioning over time. The family environmental factors were measured by interviewer ratings of the Camberwell Family Interview (CFI), self-report questionnaires surveying the patient's perceptions of criticism and warmth, and parent reported perceptions of their own level of criticism and warmth. Patients living in a critical family environment, as measured by the CFI at baseline, exhibited significantly worse positive symptoms at a 6-month follow-up, relative to patients living in a low-key family environment. In terms of protective effects, warmth and an optimal level of family involvement interacted such that the two jointly predicted improved functioning at the 6-month follow-up. Overall, both interview-based and self-report ratings of the family environment were predictive of symptoms and functioning at follow-up; however patient's self-report ratings of criticism had stronger predictive power. These results suggest that the family environment should be a specific target of treatment for individuals at risk for psychosis.

1. Introduction

Schizophrenia and other forms of psychosis are chronic and seriously disabling disorders. Available drug treatments are palliative rather than curative and only address positive symptoms, with little or no effect on negative symptoms and functional impairment. In step with other chronic somatic illnesses, such as diabetes and heart disease, researchers have shifted focus to early intervention and prevention. In the field of schizophrenia, this focus has generated an emergent body of research aimed at delaying or preventing fully psychotic symptoms from developing through the identification of the prodromal phase of illness. The prodrome to psychosis is characterized by attenuated psychotic symptoms and/or a family history of psychosis with functional deterioration (Yung and McGorry, 1996). Such "ultra high risk" (UHR) individuals have high rates of conversion to psychosis, ranging from 30–60% over approximately two years (Cannon et al., 2008; Miller et al., 2002). As the identification of UHR individuals improves, it is critical that studies focus on intervention-sensitive factors that mitigate the risk of conversion to psychosis.

Despite the strong contribution of genetics to the development of psychosis, adoption studies have highlighted that the family environment can also have a substantial impact on

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doi:10.1016/j.schres.2010.01.017

outcomes (Tienari et al., 2003, 2006). Furthermore, Expressed Emotion (EE), a measure of the family environment, is the strongest psychosocial predictor of clinical and functional outcome for individuals with schizophrenia (Butzlaff and Hooley, 1998) and a critical domain of intervention in treatment studies (Miklowitz, 2004). The Camberwell Family Interview (CFI; Leff and Vaughn, 1985), the gold standard measure of EE, is a 1–2 h semi-structured interview that is conducted with the patient's primary caregiver. The CFI is designed to elicit family attitudes about the patient's behavior and symptoms and is thought to reflect the family emotional environment and the interactions between family members (Hooley, 2007). When rating the interview, family member comments are rated to determine whether they represent attitudes that reflect five different indices: hostility, emotional overinvolvement (EOI), criticism, warmth, and positive remarks. A rating of high-EE is made based on six or more critical comments, or the presence of hostility, or a rating of 4 or more comments on an index of emotionally overinvolved attitudes.

Criticism and hostility, both components of high-EE, have consistently been linked to poor outcomes among patients with schizophrenia (Butzlaff and Hooley, 1998). Research findings have demonstrated that 65% of patients with schizophrenia relapse within one year while living in a high-EE environment, compared to about 35% in low-EE environments (Butzlaff and Hooley, 1998; Kavanagh, 1992). Despite the consistent findings of high-EE having high predictive validity, the results of studies examining how EOI, one of the components of a high-EE environment, relates to outcomes have been mixed. For instance, EOI predicted negative clinical outcomes among patients with chronic schizophrenia (Miklowitz et al., 1983) and positive clinical outcomes with patients at imminent risk for psychosis (O'Brien et al., 2006). In the early stages of developing the criteria for EE, warmth in conjunction with EOI was observed to have a positive effect on patients, but this finding has not been empirically tested (Leff and Vaughn, 1985). Due to the inconsistency of how EOI relates to outcomes, EOI was not included in the rating of "high-EE" status for the purposes of this study. Instead, EOI was analyzed independently and in relation to warmth to highlight how EOI operates in a UHR population.

In addition to testing the effect of EE on outcomes, the current study examined patient and parent self-reported perceptions of criticism and warmth in the family environment. Self-report ratings of perceived criticism and warmth were assessed in order to determine whether there was a significant difference between interview-based versus self-report ratings of the family environment and their comparative impact on outcomes. This is the first study to date to examine the effects of interview-based (e.g. CFI measured EE ratings) versus self-report (e.g. patient perceptions of criticism) ratings of the family environment and their relative effects on outcomes in a population at high risk for psychosis.

The current study hypothesized that:

1) High-EE families will significantly differ from low-EE families, such that:

(a) high-EE family members will report higher mean levels of how critical they are and lower mean levels of their own expressions of warmth.In addition, (b) patients living in high-EE environments will report higher mean levels of perceived criticism from their primary caregiver, and lower mean levels of perceived warmth.

2) A matched sample based on EE status, symptoms, and functioning, as measured at baseline, will report significantly different levels of symptoms and functioning at follow-up, such that patients living in high-EE family environments will report more severe symptoms and worse functioning at the 6-month follow-up, relative to the low-EE sample.
3) Interview-based ratings of the family environment (e.g. CFI) and self-report ratings (patient and family perceptions of criticism and warmth) of the family environment at baseline will BOTH be predictive of a change in symptoms and functioning at follow-up, such that higher levels of criticism and lower levels of warmth will be predictive of worse symptoms and functioning at follow-up.
4) Emotional overinvolvement and warmth will interact, such that moderate levels of EOI in the presence of warmth will be predictive of better functioning at follow-up.

2. Method

2.1. Participants

Sixty-three outpatient participants, age 12 to 35, were recruited to participate in the study from individuals already enrolled in one of two prodromal research clinics: the Staglin Music Festival Center for the Assessment and Prevention of Prodromal States (CAPPS) at the University of California, Los Angeles and the Prodromal Assessment, Research and Treatment (PART) study at the University of California, San Francisco. An inclusion criterion for the CAPPS and PART studies was met by research diagnostic criteria for a "prodromal syndrome," as defined by the Structured Interview for Prodromal Syndromes (SIPS; Miller et al., 2002). A "prodromal syndrome" is defined by: 1) attenuated positive symptoms, 2) brief, intermittent psychotic symptoms OR 3) decline in role functioning AND either a diagnosis of schizotypal personality disorder or a first-degree relative with a psychotic disorder. The current study also included subjects with recent-onset (e.g. within the past 3 months) symptoms that reached a psychotic intensity but did not reach criteria for a DSM-IV diagnosis of a psychotic disorder such as schizophrenia, schizophreniform or schizoaffective disorder. See Table 1 for the distribution of subjects in each prodromal syndrome.

The sample consisted of more males than females and was ethnically diverse (Table 1). Fifty-six participants were recruited to participate from CAPPS and seven participants were recruited from PART. CAPPS and PART use the same stringent inclusion criteria and both sites are held to high reliability standards (ICC>.80). Twenty-four of the 63 subjects were included in a previously published study regarding family factors in a UHR population (O'Brien et al., 2006). Due to the current study's focus on family factors, participants were recruited if they had family members who had consented to participate. Sixty-one participants had a family member complete the CFI and rated perceptions of the family