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Maladaptive Schemas as a Mediator between Social Defeat and Positive Symptoms in Young People at Clinical High Risk for Psychosis

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Abstract

Aim—Social defeat may be the mechanism that links past social adversities with the development of psychosis. In depression research it is accepted that adverse early social experiences can lead to enduring cognitive vulnerabilities, characterized by negative schemas about the self and others. The aim of this study was to examine whether negative beliefs about the self and others link social defeat to early signs of psychosis.

Methods—Data from a sample of individuals at high risk for developing psychosis (N=38) were assessed using measures of social defeat and schemas.

Results—High levels of social defeat and negative evaluations of the self and others were displayed. Negative beliefs mediated the relationship between social defeat and early symptoms, offering some support for the notion that maladaptive self beliefs play a role in the onset of psychosis.

Conclusions—This has implications for prevention since these maladaptive schemas are malleable factors for which we have effective psychological interventions.

Keywords

clinical high risk; psychosis; schemas; social risk

INTRODUCTION

The presence of certain risk factors such as urban upbringing,⁽¹⁾ adverse childhood development⁽²⁾ and migration^(3;4) has been linked to the later development of psychosis.⁽⁵⁾ Selten & Cantor-Graae⁽⁶⁾ suggested that the experience of social defeat may be the unifying factor linking social risk factors to psychosis. Social defeat is used to describe the chronic feeling of having an outsider status, or being in a subordinate position. Selten suggests that social defeat does not inevitably lead to psychiatric illness but that the experience of social adversity influences its development. This is supported by depression research where it is accepted that adverse early social experiences can lead to enduring cognitive vulnerabilities that are characterized by negative schemas or beliefs about the self, others and the world. In psychosis research it has been suggested that belief and appraisal processes are crucially important in the onset and persistence of psychosis and cognitive models for positive symptoms have been proposed.^(7;8) Negative evaluations of self and others have been reported to be characteristic of people with chronic psychosis⁽⁹⁾ and there is evidence that

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negative beliefs about the self may play a role in the development of psychosis at a time of relapse. ⁽¹⁰⁾

This may be relevant for the increasing research focus on individuals considered to be at clinical high risk (CHR) of developing psychosis. However, little is known about the presence or development of maladaptive schemas in the putatively prodromal period of psychosis. One preliminary study ⁽¹¹⁾ demonstrated that young individuals at CHR for psychosis endorsed negative beliefs to a greater extent than healthy controls, and these negative beliefs were significantly associated with greater negative symptom severity.

The purpose of the current study was to first examine the presence of negative schemas and feelings of self-defeat in a sample of individuals at CHR for psychosis. Our hypothesis was that self-defeat, negative schemas and early signs of psychosis would be interrelated and that negative schemas could potentially mediate the relationship between social defeat and the presence of attenuated positive symptoms.

METHODS

Participants

All CHR participants were recruited from a longitudinal study determining predictors of conversion to psychosis conducted at the PRIME Clinic, the Centre for Addiction and Mental Health in Toronto, Canada. Recruitment and ascertainment methods have been described in detail elsewhere ⁽¹²⁾. A sample of twenty-three aged matched healthy controls were also included as a comparison for the BCSS measure. These participants were recruited as part of larger study examining individuals at clinical high risk for psychosis. All CHR participants were required to meet the Criteria of Prodromal States (COPS) using the Structured Interview for Prodromal Symptoms (SIPS) ⁽¹³⁾. Participants were excluded if they met criteria for any current or lifetime axis I psychotic disorder, prior history of treatment with an antipsychotic, IQ < than 70 or past or current history of a clinically significant central nervous system disorder. At the time of recruitment for this study a maximum of 60 participants were available from the larger study. Twenty-two refused because they did not want to do the extra assessments or because of lack of availability.

Measures

The Structured Interview for Prodromal Symptoms (SIPS) and the Scale for Assessment of Prodromal Symptoms (SOPS) ⁽¹⁴⁾ were used to determine criteria for a prodromal syndrome and to determine severity of attenuated positive symptoms. *The Calgary Depression Scale* ⁽¹⁵⁾ was used to determine level of depression. *The Brief Core Schema Scale (BCSS)*, (9)2006), a self-report scale, was used to assess negative schemas. The BCSS have 24 items concerning beliefs about the self and others that are assessed on a 5-point rating scale. Four scores are obtained: negative-self, positive-self, negative-others and positive-others. This scale has been demonstrated to be valid in a clinical high risk population. ⁽¹⁶⁾ *The Social Defeat Scale*, ⁽¹⁷⁾ a self-report scale, was used to measure subjective experiences of defeat and internal and external entrapment. External entrapment focuses on the individual's perception of things in the outside world that induce a feeling of wanting to escape, while internal entrapment refers to internal feelings and thoughts which trigger this desire. Defeat captures feelings of a failed struggle and losing rank. Participants rate their responses based on a 5 point likert scale ranging from 1 (not at all like me) to 5 (extremely like me).

Procedures

The study was approved by the Human Subjects Review Committee of the University of Toronto at CAMH. Informed consent was obtained from those who met criteria and were

judged fully competent to give consent. Parental consent was obtained from parents/guardians of participants who were under age 16. Raters were experienced research clinicians who demonstrated adequate reliability at routine reliability checks. Gold standard post-training agreement on the determining the prodromal diagnoses was excellent ($\kappa=0.90$).

Statistical analysis

To determine whether schemas mediate the relationship between social defeat and positive symptoms, a series of regression analysis were performed according to the method recommended by Baron and Kenny.⁽¹⁸⁾ These analyses require estimating the following three regression models (i) regressing schemas on the independent variable (social defeat); (ii) regressing the dependent variable (positive symptoms) on the independent variable (social defeat); and (iii) regressing the dependent variable (positive symptoms) on both the independent variable (social defeat) and the mediator variable (schemas). To establish mediation the following conditions must hold: 1) the independent variable (IV) must correlate significantly with the mediator variable; 2) the mediator variable (MV) must correlate significantly with the dependent variable (DV); and 3) when the effects of the mediator are controlled for, a previously significant correlation between the independent and dependent variables is greatly attenuated.⁽¹⁸⁾ Perfect mediation is demonstrated if the independent variable has no effect on the dependent variable when the effect of the mediator is controlled for.

RESULTS

The sample consisted of 28 male and 10 female CHR individuals with a mean age of 19.7 years ($SD=3.4$). On average the sample were single (92%), white (57%) and were students (67%). A total social defeat score was created ($M=42.8$, $SD=29.02$) as internal entrapment, external entrapment, and social defeat were highly correlated (r ranged from 0.75–0.85, $p<0.0001$). Participants overall social defeat scores were significantly higher than the scores of healthy participants ($M=31.9$, $SD=14.72$, $p<0.01$) as reported in previous research⁽¹⁷⁾. Negative schemas about the self and others were also highly correlated ($r=0.65$, $p<0.0001$), thus a total negative schema score was created ($M=10.29$, $SD=9.53$). Compared to healthy controls, CHR participants evidenced significantly higher levels of total negative beliefs ($M=1.83$, $SD=2.97$, $p<0.0001$). SOPS positive symptoms, total negative schemas, and total defeat were all significantly correlated (r ranged from 0.45–0.76, $p<0.01$). After controlling for depression these relationships remained significant (r ranged from 0.34 to 0.70, $p<0.05$ –0.0001).

Results of the regression analyses to test mediation are presented in Table 1. There were significant associations among schemas, social defeat and symptoms. After schemas were controlled for, social defeat was not significantly associated with attenuated positive symptoms and the standard Beta value was no longer significant and approached zero. This suggests that negative schemas potentially mediate between social defeat and attenuated positive symptoms.

DISCUSSION

As predicted, these young people at CHR of psychosis endorsed feelings of social defeat as well as negative schematic beliefs, both of which were significantly associated with the presence of attenuated positive symptoms. Thus, those at CHR of developing psychosis may be characterized by feelings of social defeat and negative schemas. Furthermore, results supported that social defeat may impact the presence of attenuated psychotic symptoms by means of negative schemas. These preliminary results support suggestions in the literature

that early social adversities can lead to the development of negative schemas that may then relate to early signs of psychosis.

There are limitations to this study. First, the sample is small; nonetheless significant results were observed. Secondly, the study is cross-sectional and the outcome of the sample is unknown. Thirdly, although all of the participants were considered to be at high risk for developing psychosis, the majority will not go on to develop the illness. Fourthly, the correlational nature of the study limits drawing any conclusions about causal relationships. Fifth, the assumption was made that social defeat ratings reflect early social adversities. This needs validation. Finally, although we could draw on past research for norms, the lack of a healthy comparison group was another limitation.

Despite these limitations, we believe that the current findings that negative schematic beliefs act as a mediator between social defeat and early attenuated positive psychotic symptoms warrant further investigation. Our findings are supported by other research in the literature, as well as existing cognitive models. Understanding this process early in the development of psychosis can direct interventions to target appropriate mechanisms contributing to this relationship since these maladaptive schemas are malleable factors for which we have effective psychological interventions.

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Table 1

Testing for Mediation

Condition 1: Regress the mediator (schemas) on the IV (social defeat)			$r = 0.76^{***}$	
Condition 2: Regress the DV (positive symptoms) on the mediator (schemas)			$r = 0.64^{***}$	
Condition 3a: Regress the DV (positive symptoms) on the IV (social defeat)			$r = 0.45^{**}$	
	r^2 change before controlling for schemas	r^2 change after controlling for schemas	Standard β before controlling for schemas	Standard β after controlling for schemas
Condition 3b: Change in relationship between positive symptoms (DV) and social defeat (IV) after controlling for schemas (mediator)	0.20 [*]	0.004	0.45 [*]	0.09

*
p<0.01;

**
p<0.001,

p<0.0001